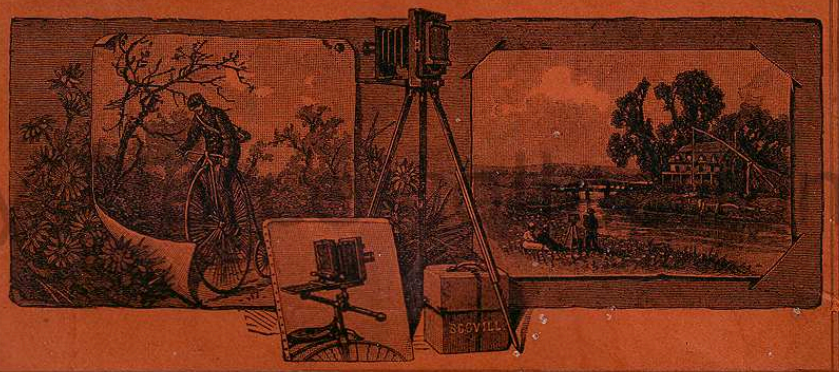
How to Make Photographs

AND

Descriptive Price List.



C. H. Codman & Co.,

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HOW TO MAKE PHOTOGRAPHS.

INTRODUCTORY REMARKS.

Amateur Photography has for years been held in high estimation throughout Great Britain as a means of recreation by persons of rank, title, men eminent in the legal profession, in literature and in science. Although but recently introduced in this country in a popular form, so that outfits are sold at prices ranging down to $10, it is destined to maintain a high place among art studies and diversions. Recent improvements in photography have made possible the production of the highest class pictures through the medium of an equipment which any one should be able to manipulate, and yet so light in weight as not to be burdensome. The apparatus is graceful in appearance and many of the fair sex have become expert in its use. Recreation that carries with it stimulating exercise is what is needed in this country, and Herbert Spencer's mild rebuke should not be passed unheeded by thoughtful men. Amateur Photography may venture a claim for consideration, as the practice of it is educating, refining, and health giving. It is a sure cure for mental weariness, and no one who has an artistic appreciation of the beautiful can fail to be interested in the art.

Wide-awake correspondents and authors now enclose with their manuscript and send to the publisher photographic prints or negatives from which engravings or lithographs are made for the illustration of their articles or stories. The artist, with a camera looking like a hand-satchel, photographs, without exciting the suspicion of the unconscious subject, the beautiful, quaint, or repulsive features which, in due time, will be copied on canvas.

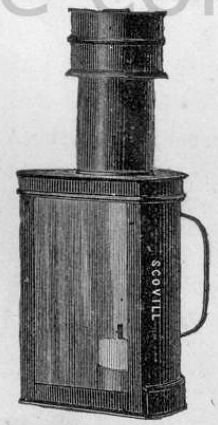
Similarly equipped, the detective is more than ever to be feared by the criminal. Architects, manufacturers, real estate or insurance agents, and men engaged in other branches of business, for a variety of purposes compel the camera to serve them well.

The gems of scenery to be found in our own or foreign lands make an adornment for the home prized for the reminiscences which are associated with each one. These pictures can be handsomely framed or gathered in portfolios and albums. From the same negatives, transparencies may be made or magic lantern slides. As the latter are prepared with so little trouble, a form of parlor entertainment has been introduced which consists of the employment of a magic lantern or stereopticon, and the exhibition to a circle of friends of the pictures taken, developed and finished by the amateur himself. The requirements for securing stereoscopic pictures or photographs of microscopic objects are simple and quite inexpensive. For instantaneous photography one needs but to substitute a quick working lens with a drop or shutter for the one in ordinary use, and to provide himself with extra sensitive plates, and the impressions of rapidly moving objects are fixed on the sensitive film of the plates as though the fleeting panorama had been instantly held in check. There are easy methods for copying manuscript, engravings, and for enlarging small pictures. This sketch of the scope of Amateur Photography is but in outline. The lessons that follow are more detailed and complete.

HOW TO MAKE PHOTOGRAPHS.

PICTURE making is quite simple, and the details are therefore briefly given. Any person of average intelligence may feel certain that he can succeed in making good photographs if he purchases an equipment made by reliable manufacturers.

Filling the Plate Holder.—If this is done in the daytime, a closet or room is selected and all white light excluded from it It is a difficult task to make this exclusion absolute. One ray of white light will spoil a sensitive plate, and therefore the evening is generally chosen to develope negatives, and for illumination



W. I. A. Improved Lantern.

the light from a ruby lantern is employed. Open a package of gelatine plates (these plates are glass, with a coating of gelatine on one side) and place one of them in a Dry Plate Holder, with the sensitive (not the glossy) side facing outward. Handle the plates as shown in the outline cut. After putting into the holders as many plates as are needed for a day's work, pack the outfit so that it can be conveniently carried about.

Taking the Picture.—For field service, a camera, a number of plate holders filled with sensitive plates, a lens, tripod, carrying case, and focusing cloth are needed. When these have been taken to a place where the view looks inviting, fasten the camera on the tripod, throw the focusing cloth over your head, gather it under your chin, draw out the back of the camera, thus extending the bellows, and continue the movement until the image on the ground glass appears most distinct, then fasten the back of the camera. This is called "focusing." At the first glance an inexperienced person sees no reflection on the ground glass, but the eye soon becomes practiced to perceiving the inverted image there. Substitute a plate holder for the ground glass, see that the cap is on the lens, pull the slide out of the holder, and place it on the top of the camera, or in a convenient place. If everything is now in readiness, and the time for exposing the sensitive plate

Amateur with Kit Packed.

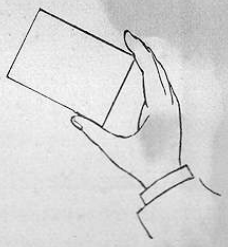
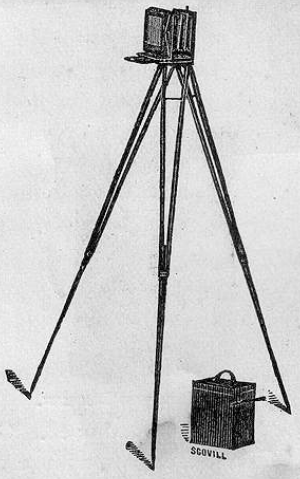


Plate in hand.

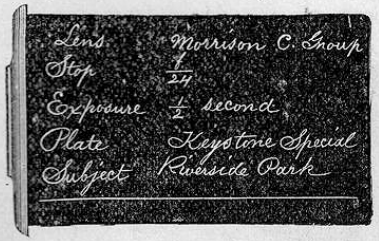


Apparatus set up.

determined, uncap the lens, recapping it at the end of the allotted time and replacing the slide in the holder.

Make an entry on the Registering Slide of a similar import to this:

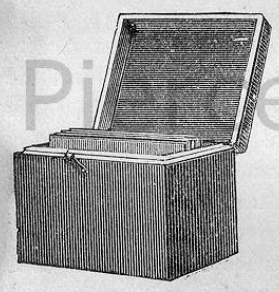
After you have picture impressions on each sensitive film, rearrange your outfit in compact shape and return home.



Registering Slide. (Patented.)

Making Negatives.—Amateurs may content themselves with making the exposures and sending their plates in a light-tight negative box to some photographer, who, for a small price, will produce the finished pictures and mount them on card-board or in albums.

It is not essential where one attends to these details himself, that they should be done at once. Months may elapse, and these Dry Plates be carried hundred of miles without deterioration.



Negative Box.

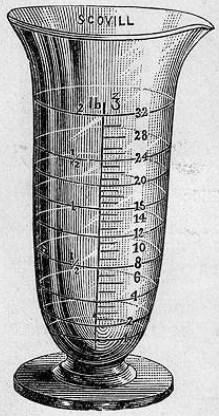
The Chemical Outfit for making negatives comprises the following articles: Two glossy rubber trays, a 4 ounce glass graduate, a minim graduate, a ruby lantern, a bottle of S.P.C. negative varnish, 1 dozen dry plates, an ounce of bromide of ammonium, a pound of hyposulphite of soda, 1 pound of alum, and a package of S.P.C. carbonate soda developer.

These chemicals are not dangerous nor do they emit offensive odors. Silver stains and the disagreeable smell of collodion belong to the old "wet" process.

The exposed plates must be removed from the holder in a dark room illuminated by a feeble red or orange light. Take them out of the holder, carefully handling them by the edges and place one of them, film side up, in a tray of pure water*. While it soaks there prepare the developer in the following manner; Dissolve the contents of the paper package marked No. 2, of the

*The Russell Negative Clasp and Drying Support for holding dry plates during development and drying is certainly to be recommended for convenience, and because it keeps the fingers out of the developing solutions. It also enables one to hold the plate up and note the progress of development without touching the sensitive surface of the plate. (See illustration on page 7).

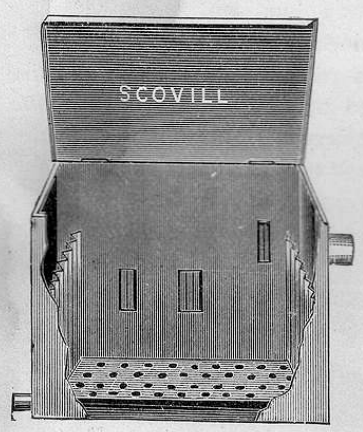
carbonate soda developer in 64 ounces of water, and label this "Solution No. 2;" and with the minum glass add to 2 ounces of this solution 2 drams of the No. 1 solution. Now pour off the water from the tray, and flow over the plate the combined developing solution. If air-bubbles form on the plate they must be removed by a touch of the finger or by a soft camel's hair brush. If the plate be correctly exposed traces of the image will appear on the sensitive film in a short time, but in case they do not, pour the developing solution back into the graduate and add a little more of No. 2 solution (from a quarter to half an ounce) and reflow the plate with the strengthened developer. In a short time the details of the image will appear, but wait patiently until all the details are out and clearly seen in the deep shadows, and until the milky-white appearance of the plate is changed to a dark gray color. The negative is then fully developed and must be washed in two changes of water, when it is ready for the "fixing" bath. Should the image on the plate flash out suddenly on flowing it with the developing solution, and continue to grow very rapidly, the plate has been over-exposed and must be quickly removed from the developing tray and placed in pure water while a restraining solution of bromide is made as follows: Dissolve 1 ounce of bromide of ammonium in 8 ounces of water, and label "Bromide solution." Now add a few drops of the bromide solution to the developing tray and replace in it the partly developed plate. The development will now proceed more slowly, but if too much bromide has been added, so that the development is entirely stopped, it can be started again by adding carefully a little more of the No. 2 solution.



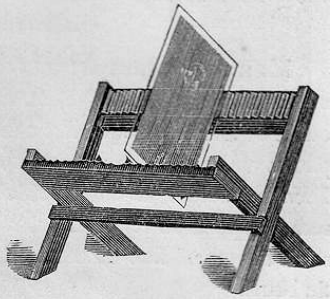
Graduated Glass.

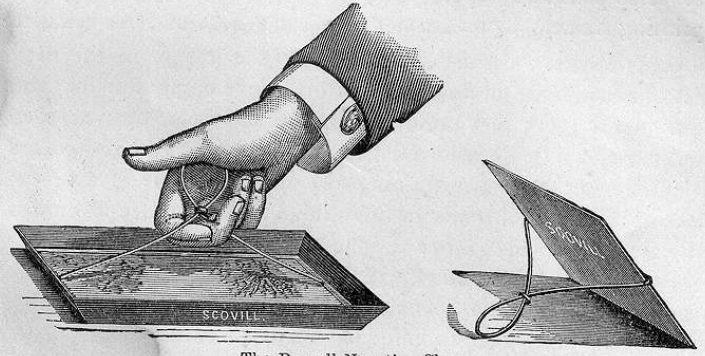
In the unused tray mix a solution of 4 ounces of hyposulphite of soda and 20 ounces of water. Label this tray "Hypo." *and do not use it for any other purpose.* After washing the negative place it in the hypo. bath and allow it to remain there until every vestige of the milky-white appearance has vanished. The negative can now be safely examined by white light. It must be thoroughly washed, as the hyposulphite of soda, if allowed to

remain in the film, will crystalize and destroy the negative. A negative washing box will be found to be of great assistance. Meanwhile rinse out the first tray and partially fill it with a solution of 20 ounces of water and all the alum the water will hold in solution. Allow the plate to remain in the alum bath about five minutes and then thoroughly wash it again and set it on edge to dry in a negative rack or the drying support.



Negative Washing Box.


Negative Rack.



The Russell Negative Clasp.

All the preceding instructions can be briefly summarized as follows:

1. Put some sensitive plates into dry plate holders.
2. Make the exposures.
3. After taking a plate out of the holder, place it in a tray filled with water.

4. Drain off the water and pour over the plate the mixed developing solution.

5. Wash the plate and place it in the hypo. solution.

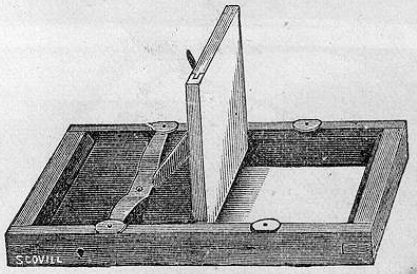
6. Wash the plate and give it an alum bath.

7. Wash the plate and set it in the rack to dry.

8. When perfectly dry, coat the film over with negative varnish, and allow that coating to dry. After this the surface of the plate may be touched by the fingers.

Making Prints from Negatives.—At this point the work ceases to be one of faith, as the results are now to appear. An outfit of printing requisites comprises a printing frame, a porcelain pan, a vulcanite tray, some ready sensitized paper, a bottle of French azotate, a bottle of chloride of gold, a glass graduate, some hyposulphite of soda, a glass form, a Robinson trimmer, some sheets of fine card-board, a jar of parlor paste, and a bristle brush.

Blue Prints.—If you wish to make a blue picture on a white ground, commonly called a "blue print," procure a package of ferro-prussiate paper, place the negative, film side up, in a printing frame. Upon the negative lay a piece of ferro-prussiate



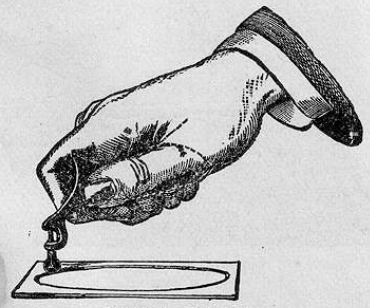
Printing Frame.

paper (this should be handled in a dim light) with the colored side down. Close the back of the printing frame and fasten it by setting the springs. Carry the printing frame to some place where the sunlight will fall upon it, and from time to time examine the print. As soon as the picture is clearly seen, take out the print and throw it into a pan containing clean water. After about twenty minutes remove the print and dry it in the sunlight. The result is a permanent blue and white picture,

which will at least answer for a proof and show the merit of your negative.

Sensitized Paper Prints.—In the morning prepare a toning bath sufficient for the prints to be toned that day. Put 7½ grains of chloride of gold into 7½ ounces of water. Label the bottle, "Chloride of Gold Solution." Take 1 ounce of French azotate, 1½ ounces of the chloride of gold solution, and add 6 ounces of water, and you have a toning bath which keeps well. Where the prints do not give the required tone, the bath must be strengthened by adding to it some new solution. Place the glossy side of a sheet of sensitized paper upon the film side of the negative in the printing frame. *Do this in a very dim light.*

The printing has gone far enough when the print looks a little darker than you wish the finished picture to appear. Make as many prints from the negative as you desire. Wash the prints in several changes of water. Take seven ounces of the toning solution and change the prints to the pan containing it, where the prints should be turned over and over to make the toning even. The toning process should go on until the dark part of the pictures have a very faint purplish tint and the white portion is clear. Wash the picture, but preserve the toning solution. The pictures should now be left for twenty minutes in a solution composed of 4



Robinson Trimmer.

ounces of hyposulphite of soda, 1 ounce of common salt, ½ ounce of washing soda, and 32 ounces of water. This solution should also be prepared a day or two in advance. Give the pictures a final and effectual washing. After they are dried, lay them out one by one and, using the Robinson trimmer, cut them to the desired size. Now spread over the back of each

in turn some parlor paste, and lay them down with the center on the sheets of card-board. This operation is called "Mounting Pictures." Press with a paper cutter upon the pictures and toward their edges until you are satisfied that they will lay flat.

Further more explicit and complete instructions in the making of photographs, how they can be preserved in neat shape, instructions for making stereoscopic and instantaneous pictures, transparencies, magic lantern slides, and photographs of microscopic objects, are to be found in "How to Make Pictures," by Henry Clay Price.

HOW TO MAKE
PAPER NEGATIVES.

It is needless to dwell upon the many advantages paper negatives possess over glass, for they will be apparent to any one accustomed to the old process. In consequence of the extreme lightness of the paper, the pleasure of taking pictures is increased ten fold, and the inducements offered to the amateur to take larger photographs enhanced.

The danger of breakage is avoided, thereby making rough transportation perfectly safe.

The compact way in which the negatives can be packed should not be overlooked; they can be kept in books, thereby affording as easy a means of reference as if it were in a photographic album—a point of much value in any large concern. They can be used in photographic ink printing processes without the need of transfer, so common with glass plates.

The advantage of the lightness of the paper over the weight of glass is especially noticeable in the larger sizes, as, for instance, an entire outfit taking twenty-four 8x10 pictures, which includes a camera, lens, tripod, carrying case and roll holder, weighs less than twenty pounds; whereas twenty-four 8x10 glass plates weigh of themselves over sixteen pounds, while the wood plate holders weigh fully as much again; hence, as the roll holder loaded for this size weighs only about three and a half pounds, there is a saving in weight on the outfit of about twenty-eight and a half pounds. A spool of paper for taking twenty-four 8x10 negatives weighs only twelve ounces; hence each additional twenty-four picture paper roll adds to outfit less than one pound, against over sixteen pounds of glass.

In other words, the amateur can carry an 8x10 outfit with less effort than was formerly expended on a 5x8 glass equipped apparatus, and for each additional twenty-four negatives required the difference is greatly increased.

The retouching of paper negatives is more easily done than on glass, for the back of the negative is worked upon by a pencil; any mistake can be readily erased. With crayon stubs very pretty cloud effects can be worked into the sky of landscape negatives.

The full size of the paper negative is available for printing, and therefore a somewhat smaller film than the glass negative yields the same equivalent in size of the finished photograph.

It is obvious that the most compact and convenient way of using this paper is by means of the roll holder and the spools, for on account of their lightness they can be readily sent in the mails, at a small cost, to various parts of the country.

The Apparatus.—For the purpose of making a large quantity of the sensitive paper available, in a small space,

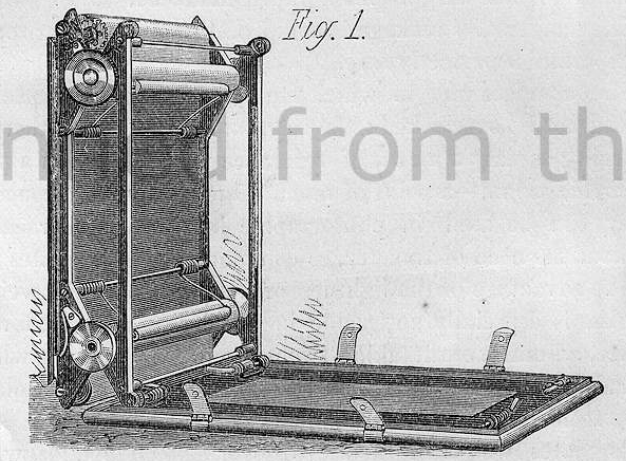


Fig. 1.

when used in the camera, a holder, termed a "roll holder," has been devised. Fig. 1 illustrates the inside mechanism of the holder when it is thrown up or back, and when ready for use the whole is enclosed in a handsomely finished mahogany outside case, provided on its front side with a suitable slide, as plainly seen in Fig. 6.

Referring to Fig. 1, it will be noticed that the essential working parts of the holder consist of a supply spool holding the sensitive paper, a winding-up reel, a wood exposing platform of peculiar construction, two guide rolls, and two spring pressure tension rolls, which bear upon the supply spool and

winding reel; all being confined and held between two light metal side frames braced and connected together at their ends by suitable tie rods. The back of the mahogany case is detachable, and is held in place by flat spring metal clamps, fitting over corresponding pins on the side of the case. (See Figs. 1 and 6.) The edge of the case fits in an angular groove cut in the inside surface of the back near its edge, for the purpose of making a light-tight joint, when the case is pressed home.

The light metal frame supporting the working parts is held to the removable back by four spring bolts, one pair at each end, which may be plainly seen on the right end in Fig. 2. By compressing the two bolts simultaneously inward with the thumb and index finger, one end of the frame is released and easily

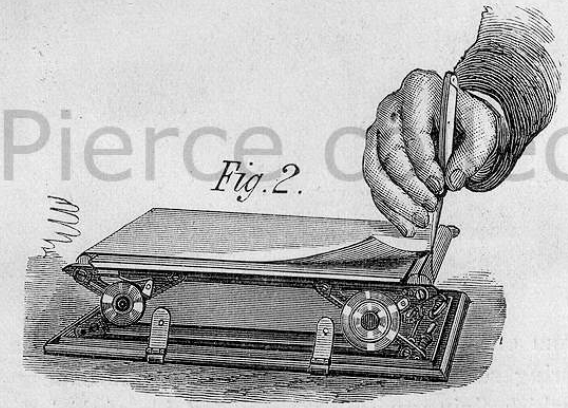


Fig. 2.

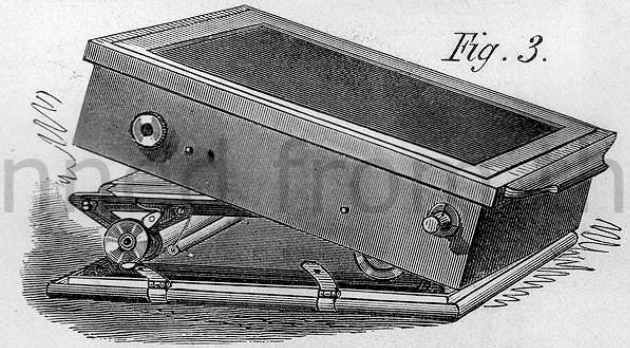
elevated or thrown back, the opposite set of bolts forming a pivot or hinge. In this position the back forms a base to support the frame when placed upright. When the frame is dropped down, the spring bolts are again drawn inward, and in shooting back lock the frame to the back. Thus either end of the frame may be readily elevated, or it may be entirely removed from the back, permitting the operator to obtain easy access to the rollers in the dark room, when attaching and detaching the sensitive paper.

Figs. 2 and 3 show the metal frame down on the back in its normal position. At the extreme end of the metal frame, adjacent to the exposing platform, and having their peripheries

parallel with the surface of the platform, are two guide rolls, of such a diameter that their circumference measures one-quarter of the length of the exposing platform or of the length of the picture, whatever size the holder is intended to make; one guide roll, termed also a measuring roll, will be seen at the extreme upper end in Figs. 1 and 4; and at the right hand end also in Fig. 2.

Projecting at each end, slightly above the surface of this guide roll, are two metal points, which puncture the margin of the paper at each revolution, as it passes from the supply spool over the guide rolls and the exposing platform to the reel at the opposite end; a pin projecting

Fig. 3.



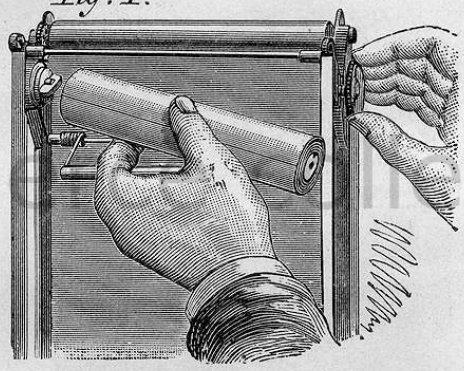
out from one end of the guide roll pushes down a small flat spring secured to the under side of the exposing platform, which, flying up against the under side of the latter, as it is suddenly released, produces a loud click or alarm. In addition to the sound device, a spur wheel is arranged on the shaft of the guide roll at one end, which can be seen in Figs. 1 and 2, so geared that four revolutions of the guide roll will cause a second spur wheel to make one revolution of an indicator seen upon the outside of the case, at its right hand end, Fig. 3, and upper end Fig. 6.

The necessity of providing some accurate yet simple means of measuring the paper as it passes from the supply spool to the reel was apparent to the inventors, and the simple devices, just described, which have been adopted, deserve a word of praise. If the measuring device had been attached to either

the supply spool or reel, to be guided by their respective revolutions, it would have been inaccurate; for as the paper is taken off the supply spool it revolves more rapidly, while with the reel the diameter is rapidly increased in proportion as the paper is wound upon it, and the amount thus taken up must constantly vary. Hence it is the constant diameter of the guide rolls, and the revolving of the same by the passing paper, which furnish an accurate means of measurement.

Passing now from the guide rolls, we come to the supply spool and reel, and the mechanism for rotating and holding them. Both are supported by centres arranged in the metal frame, just under and behind the extreme edge of the expos-

Fig. 4.



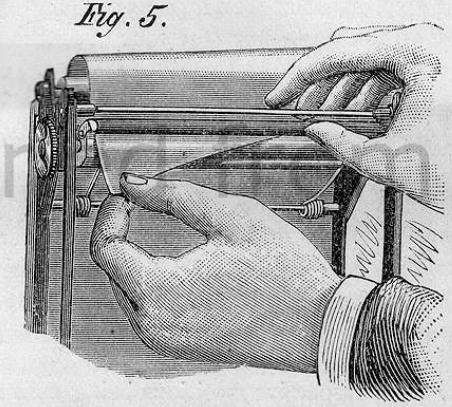
ing platform, their respective positions being seen in Figs. 1, 4, and 5.

In Fig. 1, the supply spool will be noticed at the upper end. Fig. 4 shows a more detailed view of its particular construction, and the manner of its insertion into the roll holder. One end of the spool has a rectangular recess or saw cut, which corresponds to the rectangular-shaped chuck projection on the metal center. The other end has a hole in which the adjustable screw center, seen upon the right of Fig. 4, is inserted. The chuck center has a large milled head on its outer end, outside of the frame, as shown on the upper left hand end in Fig. 1, and a gravity pawl presses upon the periphery of the head, creating a small friction to its movement, acting also as a tension on the paper.

The sensitive paper is sent out already rolled upon the spools in packages, as shown in Fig. 11, and it is only necessary to insert the prepared spool in the holder to obtain a fresh supply; usually enough paper is wound upon a spool for twenty-four exposures; in small sizes forty-eight exposures are furnished.

Fig. 5 illustrates the mode of securing the free end of the paper to the reel. One portion of the circumference of the reel is flattened in the direction of its length, over which lies a metal clamp pivoted upon the ends of the reel. The clamp is easily raised or lowered by a lateral movement, from the flattened surface of the reel. In Fig. 5 the clamp has been raised

Fig. 5.



by the right hand, while the free end of the paper is drawn through with the left, and afterward straightened with both, when the clamp is pressed down, thus securely fastening the paper to the reel; rotating the latter at once winds up the paper. The reel is held between a chuck center and a screw center similar to those holding the supply spool, with the exception that the chuck center has a recess instead of a projection, which peculiar construction prevents any mistake of the spool and reel being attached in the wrong place in the dark room. A small spring pawl rests on the periphery of the milled head of the reel chuck, giving quite sufficient friction thereto to prevent the reel from unwinding. In the center of the

milled head of the reel chuck center is a threaded hole for receiving the screw threaded operating key. The key when screwed into the milled head operates very similarly to the permanent keys attached to small clocks. Rotating it to the right revolves the reel; rotating it to the left unscrews it from the reel. Around the threaded hole is an annular groove, in which the inner edge of the loose tubular key guide drops when the case covers the frame. The threaded hole and annular groove may be seen in the lower milled head, Fig. 1, and the loose tubular guide at the left-hand end of the case in Fig. 3, and lower end, Fig. 6; the latter also shows the key inserted. The object of this construction is to make a light-tight joint around the key aperture. Fig. 12 shows a cross section of the case at the slide side; two brass flat springs running lengthwise along the inner edge of the slide aperture bear upon the margin of the paper as it travels over the exposing platform, preventing it from buckling or curling up.

How to Use it.—Having now described the various parts of the apparatus, I will first explain the operation of inserting and attaching a fresh spool of sensitive paper. By throwing back the spring clamps and drawing out the indicator knob and loose key tube, the outside case with its slide is easily raised from the back, exposing to view the frame and rolls, as shown in Fig. 2. Fig. 3 shows the case partly raised.

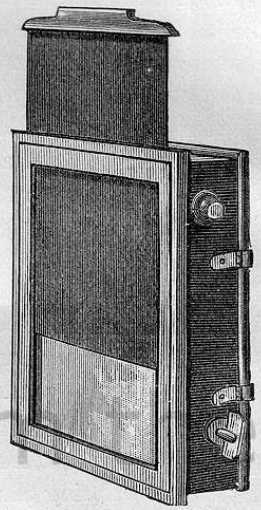
Firmly holding the exposing platform with the left hand, and with the thumb and middle finger of the right compressing inward the two spring bolts on the right-hand end of the back, the frame is elevated, as shown in Fig. 1.

Now, lifting the spring pressure roll or brake, and holding it between the index and second finger of the left hand, while the supply spool is also held between the index finger and thumb, as shown in Fig. 4, the depression or saw cut in the end of the spool is pushed upon the rectangular projection on the center chuck. With the right hand the threaded thumb screw is passed into the hole at the opposite end of the spool, holding the latter firmly in place. The inclosing band, which binds the paper on the spool, is next torn off, the pressure roll released, so that it presses firmly against the spool, and the free end of the paper drawn under and over the guide measuring

roll across the exposing platform, over the second guide roll, down to the reel, as shown in Fig. 5—the frame in the mean time having been reversed on the back, that is, the reel end elevated instead of the spool end.

The paper is fastened to the reel by the flat pivoted clamp, as previously explained; and after seeing that it occupies a perfectly central position across the guide rolls, the slack is taken up by means of the tension screw milled head on one end of the reel. The spring pawl is then turned down or replaced, also the gravity pawl on the spool holder milled head, and the frame secured in position on the back by the four spring bolts. The whole is then covered by and fastened to the outside case. The paper should now lie perfectly smooth and flat on the face of the exposing platform.

Fig. 6.



The slide on the front of the case is next withdrawn (see it partly withdrawn in Fig. 6), and with a lead pencil a line is drawn across the paper at each end of the slide opening, for the purpose of determining where the first exposure commences. On replacing the slide, the holder is removed from the dark room and attached to the camera, to which it has been previously fitted, and so arranged that the plane of the exposing platform shall occupy exactly that of the ground glass.

I will now suppose that the object has been properly focused, the ground glass removed, and the holder attached to the back of the camera, the same as an ordinary plate holder, by means of suitable pins and catches. The slide is withdrawn, and the exposure made by uncapping and capping the lens in the usual manner, and the slide replaced. The operating key is screwed home and the indicator tube pressed into place, on to the square head of the shaft of the indicator spur wheel, and fastened by the bayonet catch.

It is now desired to bring a fresh surface upon the exposing table for a new exposure; with the right hand the operator rotates the key similar to the winding of a clock (see Fig. 7), which rotates the reel and carries the paper over the face of the exposing platform; soon a click is heard, and the indicator has made one-quarter of a revolution; then a second, third, and fourth click, when it will be found that the indicator has

Fig. 7.

made one complete revolution, informing the operator both by sound and sight that a fresh sensitive surface has been brought into place. With each click the metal points on the surface of the measuring guide roll puncture upward the paper at each margin, making four raised dots on each edge for each exposure.

Twelve exposures out of the twenty-four having been made, it is desired that they be separated and removed from the supply spool for the purpose of development; taking the holder to the dark room and removing the outer case, we sever the exposed portion of paper on the reel and on the exposing platform by simply drawing the point of a knife across the length of the measuring guide roll (see Fig. 2). By counting four dots from the end, we come to the end of one exposure. The paper is next drawn by the hand to the right until the fourth pair of dots are brought over the measuring roll, when the sheet is separated as before. Instead of cutting off the exposed sheets in this manner, they may be severed by shears. The reel containing the exposed paper may be bodily removed from the frame in the same manner as the supply spool, and another inserted, and the unexposed paper attached to it, as in Fig. 5, when new exposures may be wound upon it as before.

The spring pressure rollers bearing upon the back of the paper when on the spool or reel prevents the uncoiling of the paper on the same, and thus obviates the danger of abrasion by the loosening and tightening of the paper on itself.

In holders of small size, three clicks and punctures are made instead of four for one exposure; in large sizes as many as five or six. All the parts of the holder are made interchangeable, on the plan of the sewing machine and all American Optical Co. apparatus, thereby making the repair of any damages a very simple matter.

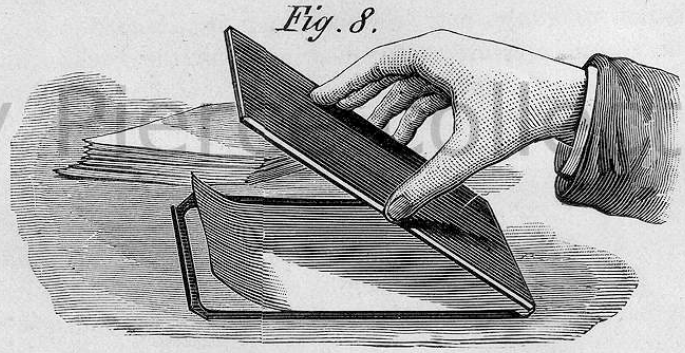
Film Carriers for Use with Scovill Dry Plate Holders.—In cases where it is inconvenient to use a "roll holder," a special carrier has been devised (see Fig. 8) for supporting single sheets of the paper in the ordinary double holder used for glass plates. The carrier consists simply of a thin wood support or plate built up of narrow strips of wood to prevent warping, constructed like the exposing platform in the "roll holder," and has a thin metal mat or frame, which is bent up around the edges, and clasps the plate when it is pressed into it. In Fig. 8 the wood carrier is held in the hand, while the metal mat lies flat; above it may be seen the sheet of paper, one end being partly curled up.

In order to secure the paper to the carrier, the frame is laid

down upon a clean sheet of paper and the sheet of negative paper laid, face down, into it; the wood plate is then pressed down on top of it, and the ends of the frame, springing over the rounded edges of the wood carrier, hold the paper firmly and smoothly against the carrier. As the thickness of the carrier and mat combined does not exceed that of the average glass plate, it can be put into the ordinary plate holder for exposure in the camera.

Simplicity of the Development.—After the paper has been exposed in the camera, the sheets are cut off and developed by a red light in a dark room, similar to dry plates; but they possess a marked advantage over the plates, from the fact that several sheets can be developed at one time, one above

Fig. 8.



the other, in one developing bath, somewhat in the same way as silver prints are toned. The sheets are first wetted by immersion in a tray of water, and then placed face down one after the other in the developing solution, and moved about in the same until development is finished. They are then washed in water, and fixed in a combined solution of hyposulphite soda and alum, again washed and dried.

Fig. 9 shows the tray upon the table in which is the developer; the bottle and graduates may also be seen. The developed negative is held up by its upper corners, with the fingers for examination of its density before the red light, which is supposed to be on a shelf in front of the operator. The S. P. C. pyro and soda developer, already mixed, is

furnished, thereby insuring the novice perfect success at the outset.

Although silver prints can readily be struck off in the ordinary way in the printing frame from the paper negative, after it is dry, which will show no grain in the shadows, still it is advised, when a large number of prints are to be made, that the negative be made transparent by means of TRANSLUCINE. To apply the Translucine, lay the negative face down upon a pad composed of six thicknesses of folded manilla paper. Pour a little of the Translucine on the back of the negative, and spread with the finger evenly over the surface.

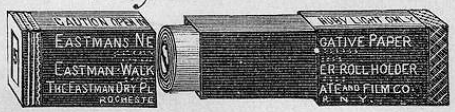
Fig. 10.

In four or five hours the Translucine will have soaked into the paper, rendering it nearly transparent, and free from grain. Heat is not necessary, but may be used to accelerate its action. When the paper is of an even, dark color, wipe off the excess of Translucine with a clean rag, and the negative is ready to print. If the negative is in constant use, an occasional application of the Translucine will keep it in good condition. In this way the paper is very easily made transparent, and the negative is as useful as if it were on glass.

Preparation of the Sensitive Film.—The process consists in giving the paper a preliminary coating of gelatine sufficiently thick to give a plane surface to the paper, filling up all the depressions, and then in calendering the

paper thus coated, so that it presents an absolutely polished surface to the sensitive emulsion, which is, as with the ordinary plates, based on gelatine. The paper is thus prepared in the roll thirty inches in width, and is then, still in the roll, coated with gelatine bromide emulsion in a double application, the second beginning with the end at which the first finished, securing a general equality of the film which no film

Fig. 11.



on glass attains as a rule, and at the same time obviating in the one application any defects which the other may have had.

I am informed that the machinery employed is large enough to prepare and coat a strip of paper thirty inches wide by 3,800 feet long, and to produce a superior negative paper, possessing the characteristics so desirable in any sensitive film,

Fig. 12.

such as extreme uniformity of coating, great sensitiveness, freedom from halation, and other accidental defects often found in glass plates, at a cost much below that of ordinary dry plates, and of equal excellence. The paper possesses a wonderfully fine close texture, and its surface is coated with an extremely sensitive gelatine argentic emulsion.

Old Style Equipment.

THE SCOVILL Portable DRY PLATE OUTFITS FOR AMATEURS.

New Style Equipment.

THE introduction of Dry Plates and the impetus given by them to the cause of Amateur Photography, created a demand for light and compact apparatus that could be easily carried about. That demand the Scovill Manufacturing Company of New York *anticipated and first met* by the introduction of apparatus especially designed for the use of amateurs.

When they announced an Outfit comprising a Camera, Holder, Tripod, Carrying Case, and a good Lens, for $10, a new era in Amateur Photography began, and it was destined to be henceforth a popular and cultivating recreation.

The Cameras they make for amateurs are not mere toys—they have been used and approved by eminent photographers. Certainly no apparatus can compare with that made by their American Optical Co.'s Factory, in durability, accuracy and elegance of finish. It is in use in all parts of the globe, and has by merit won this wide-spread reputation. Be not deceived by what is copied after it. See that your apparatus bears the brand of their factory.

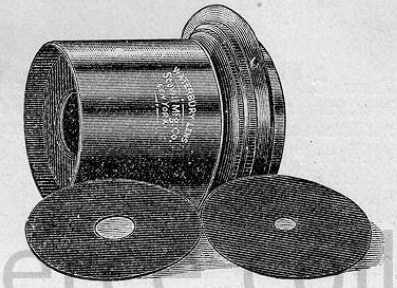
Every article enumerated in this Catalogue has the guarantee of the Scovill Manufacturing Co., established in 1802, and well known throughout the world for fair and honorable dealing as well as for the marked superiority of their photographic apparatus and specialties.

New Catalogues, circulars, etc., will be mailed to any one whose address is sent with the request for such copies.

SCOVILL'S FAVORITE APPARATUS OUTFITS.

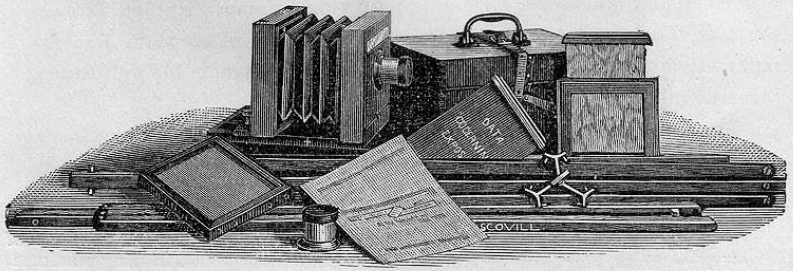
All Articles of which are Warranted Accurate in Every Respect.

These Outfits are lighter, more compact, far handsomer and more accurate than any which are offered at the same price. Many professional photographers have bought them and use them constantly.



In each outfit the Waterbury Lens is worth more than the price of the whole outfit.

FAVORITE OUTFIT A, price $10.00, comprises

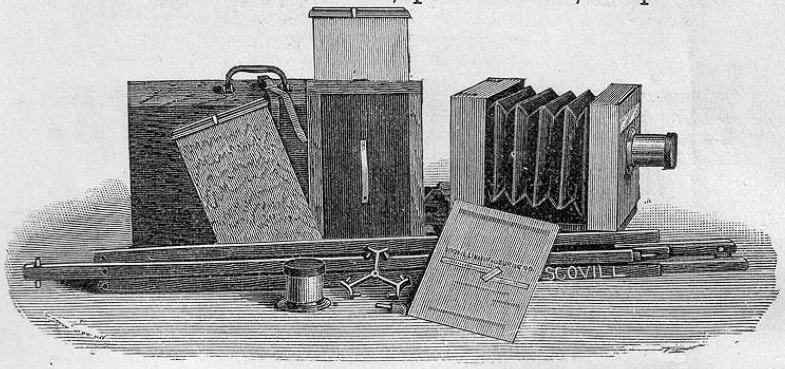


A FAVORITE VIEW CAMERA to produce 4x5 inch pictures, with *vertical shifting front, single swing movement*, rubber bellows and folding platform, with *patent latch* for making bed rigid instantaneously,

1 Scovill Double Dry Plate Holder (Reversible), with *patent Registering Slides.*
1 Taylor Improved Folding Tripod.
1 No. A "Waterbury" Achromatic Lens *with a set of Stops.*
1 Carrying Case.

5x7 Favorite Outfit, - - - - Price, $12.00

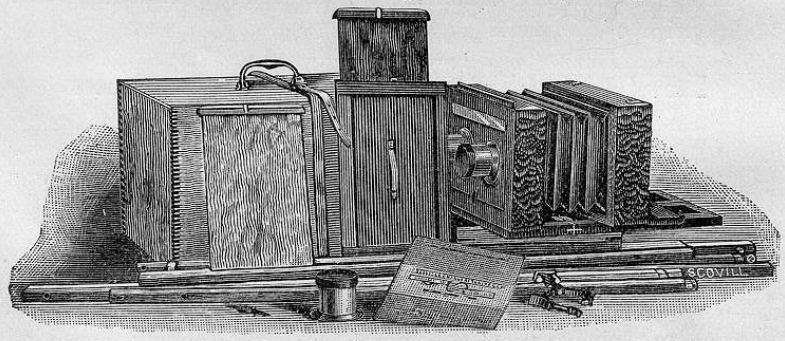
FAVORITE OUTFIT B, price $12.00, comprises



A FAVORITE VIEW CAMERA, to produce pictures 5x8 inches, with *vertical shifting front, single swing movement*, rubber bellows and folding platform, with *patent latch* for making bed rigid instantaneously ; also

1 Scovill Double Dry Plate Holder (Reversible), with *patent Registering Slides, and with Kits.*
1 Taylor Improved Folding Tripod.
1 No. B "Waterbury" Achromatic Lens *with a set of Stops.*
1 Carrying Case.

FAVORITE OUTFIT C, price $18.50, comprises



A FAVORITE VIEW CAMERA, to produce 5x8 inch pictures, with *vertical shifting front, single swing movement*, rubber bellows and folding platform, with *patent latch* for making bed rigid instantaneously.

This Camera is constructed so as to make either a *Picture* on the full size of the plate (5 x 8 inches), or by substituting the extra front (supplied with the outfit) and using the pair of lenses of shorter focus, it is admirably adapted for taking *stereoscopic* negatives. Included in this outfit are also

1 Scovill Double Dry Plate Holder (Reversible), with *patent Registering Slides, and with Kits.*
1 B "Waterbury" Achromatic Lens, *with Stops.*
1 Pair "Waterbury" Achromatic Matched Stereoscopic Lenses, *each with Stops.*
1 Taylor Improved Folding Tripod.
1 Carrying Case.

FAVORITE OUTFIT D, price $14.00, comprises

A FAVORITE VIEW CAMERA to produce pictures 6½x8½ inches, with *vertical shifting front, single swing movement*, rubber bellows and folding platform, with *patent latch* for making bed rigid instantaneously ; also

1 Scovill Double Dry Plate Holder (Reversible), *with patent Registering Slides, and with Kits.*
1 Taylor Improved Folding Tripod.
1 No. B "Waterbury" Achromatic Lens *with a set of Stops.*
1 Carrying Case.

FAVORITE OUTFIT E, price $26.00, comprises

A FAVORITE VIEW CAMERA to produce pictures 8x10 inches, with *vertical shifting front, single swing movement*, rubber bellows and folding platform, with *patent latch* for making bed rigid instantaneously; also

1 Scovill Double Dry Plate Holder (Reversible), *with patent Registering Slides, and with Kits.*
1 Taylor Improved Folding Tripod.
1 No. C "Waterbury" Achromatic Lens *with a set of Stops.*
1 Carrying Case.

SCOVILL'S
NE PLUS ULTRA OUTFITS.

4x5 Ne Plus Ultra Outfit, price $9.00, comprises

A 4 x 5 Ne Plus Ultra Camera, which has single swing, rubber bellows, removable front and folding platform.

1 Patent Double Dry Plate Holder.
1 Taylor Folding Tripod.
1 Waterbury Achromatic Lens with Stops.
1 Wooden Carrying Case.

5 x 8 Ne Plus Ultra Outfit, price $10.00, comprises

A 5 x 8 Ne Plus Ultra Camera, which has single swing, rubber bellows, removable front and folding platform.

1 Patent Double Dry Plate Holder.
1 Taylor Folding Tripod.
1 Waterbury Achromatic Lens with Stops.
1 Wooden Carrying Case.

EQUIPMENT A-A.

Consists of FAVORITE APPARATUS OUTFIT A, with

1 Scovill Focusing Cloth.
1 Dozen 4 x 5 Dry Plates.
1 W. I. A. Petite Lantern.

Complete for field service, Price, $12.00.

EQUIPMENT B-B.

Consisting of FAVORITE APPARATUS OUTFIT B, with the additional articles enumerated in A-A. (Dry Plates 5 x 8 size.)

Complete for field service, Price, $14.50.

EQUIPMENT C-C.

Consisting of FAVORITE APPARATUS OUTFIT C, with the additional articles mentioned in Equipment A-A. (Dry Plates 5 x 8 size.)
Complete for field service, Price, $21.00.

EQUIPMENT D-D.

Consisting of FAVORITE APPARATUS OUTFIT D, with the additional articles enumerated in A-A. (Dry Plates 6½ x 8½ inches.) Price, $17.00.

Where sensitive Plates are taken to a photographer's and there developed, printed from, and mounted on card-board, any of the above Equipments lack nothing that is essential. We recommend the amateur to finish his own pictures, and hence to procure one of the equipments on page 30.

EQUIPMENT A-A-A.—Price $20.00.

Complete in every Requisite for making the Highest Class Pictures.

LACKING NOTHING FOR VIEW TAKING, DEVELOPMENT AND THE PRINTING AND MOUNTING OF PHOTOGRAPHS.

Consisting of *Favorite Apparatus* Outfit A.....$10 00
Also 1 *Developing* Outfit 4 x 5 (see page 29.)..... 5 25
" 1 *Printing and Toning* Outfit, 4 x 5 (see page 30.)..... 4 87

EQUIPMENT B-B-B.—Price, $24.50.

Complete in every Requisite for making the Highest Class Pictures.

Consisting of *Favorite Apparatus* Outfit B.....$12 00
Also 1 *Developing* Outfit 5 x 8 (see page 29.)..... 6 50
" 1 *Printing and Toning* Outfit 5 x 8 (see page 30.)..... 6 38

EQUIPMENT C-C-C.—Price, $31.00.

Complete in every Requisite for making the Highest Class Pictures.

Consisting of *Favorite Apparatus* Outfit C.....$18 50
Also 1 *Developing* Outfit 5 x 8 (see page 29.)..... 6 50
" 1 *Printing and Toning* Outfit 5 x 8 (see page 30.)..... 6 38

EQUIPMENT D-D-D.—Price, $28.00.

Consisting of *Favorite Apparatus* Outfit D.....$14 00
Also 1 *Developing* Outfit 6½ x 8½ (see page 29.)..... 7 00
" 1 *Printing and Toning* Outfit 6½ x 8½ (see page 30.)..... 7 00

EQUIPMENT E-E-E.—Price, $42.00.

Consisting of *Favorite Apparatus* Outfit E.....$26 00
Also 1 *Developing* Outfit 8 x 10 (see page 29.)..... 8 50
" 1 *Printing and Toning* Outfit (see page 30.)..... 8 50

SCOVILL'S

Pure Chemicals & Accessories

FOR MAKING NEGATIVES.

We offer for use with any Outfit to make pictures 4 x 5 inches, the following goods packed securely in a wooden case:

1 pkg. S.P.C. Carbonate Soda Developer,
2 4 x 5 Glossy Rubber Pans,
1 4 oz. Graduate.
1 Minum Graduate,
1 oz. Bromide Ammonium,
1 lb. Hyposulphite Soda,
1 lb. Alum,
1 bot. S.P.C. Negative Varnish,
1 doz. 4 x 5 Dry Plates,
1 Scovill Focusing Cloth,
1 Knock-down Lantern,
1 Russell Negative Clasp.

PRICE, COMPLETE, $5.25.

For use with any 5 x 8 Outfit we supply the same goods, with the exception of the substitution of 5 x 8 Pans and Plates for the 4 x 5 size.

PRICE, 5 x 8 DEVELOPING OUTFIT, $6.50.
" 6½x8½ " " 7.00.
" 8x10 " " 8.50.

S. P. C.

Outfit for Printing, Toning, Fixing and Mounting 4 x 5 Pictures.

1 4 x 5 Printing Frame.
1 5 x 7 Porcelain Pan Deep.
1 4½ x 5½ S. P. C. Vulcanite Tray.
2 dozen 4 x 5 S. P. C. Sensitized Albumen Paper.
1 bottle French Azotate. } For
1 " Chlor. Gold, 7½ gr. } toning.
1 2 ounce graduate.

Price complete, $4.87.

1 lb. Hyposulphite of Soda.
2 dozen sheets 6½ x 8½ Card-board with Gilt Form.
1 ½ Pint Jar Parlor Paste.
1 1½ inch Bristle Brush.
1 Glass Form (for trimming prints).
1 Robinson's Straight Trimmer.

Securely packed in a box, which serves also for a fuming box.

S. P. C.

Outfit for Printing, Toning, Fixing and Mounting 5 x 8 Pictures.

This outfit is like the one on preceding page, but with Printing Frame, Vulcanite Tray, Sensitized Paper, and Card-board adapted for 5 x 8 Pictures.

Price complete, $6.38. Securely packed in a Paper Box.

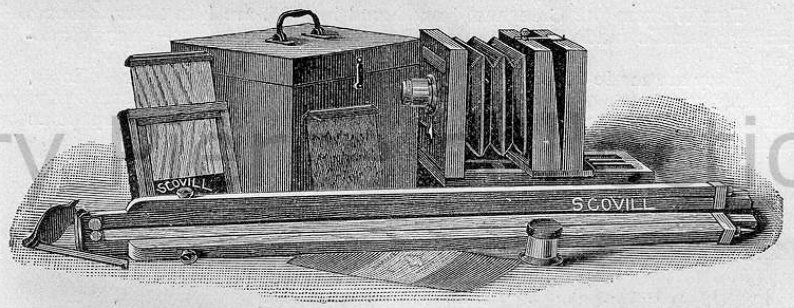
6½ x 8½ Printing and Toning Outfit. Price, $7.00.
8 x 10 " " " " 8.50.

NEW YORK

DRY PLATE OUTFITS

INTRODUCED IN 1884.

* *



These outfits are unsurpassed in neatness, lightness, and compactness, and there is no question about their durability. Each one is supplied with a patent reversing attachment, which has been styled "the lightning reverser."

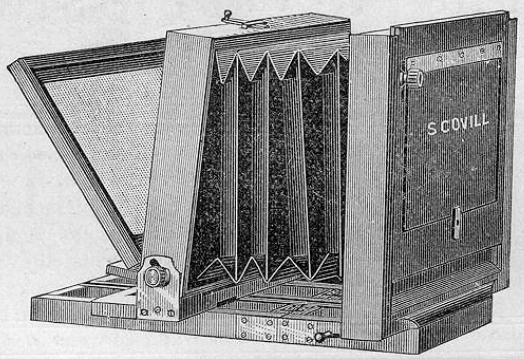
New York Outfit 601, size 4¼x5½, consisting of
1 Finely Finished Single Swing Camera, with Folding Bed and Improved Dry Plate Holder.
1 No. 1 Extension Tripod, with Patent Reversing Attachment.
1 No. A Waterbury Lens, *with a set of Stops,* and
1 Compact Carrying Case, with Handle. Price, $10.00.

New York Outfit 602, size 5x8, same as described above, except in respect to size. Price, $12.00.

New York Outfit 603, size 6½x8½, same as described above, except in respect to size. Price, $14.00.

NOTE REDUCTION IN PRICE.

WATERBURY OUTFITS.



THE WATERBURY CAMERAS, introduced in 1885, are like other cameras and apparatus made by the American Optical Company—unapproachable!

They are made of mahogany, are well polished, have rubber bellows, folding platform, *patent latch* for making bed rigid instantaneously, single swing, vertical shifting front, and are as light and compact as substantial cameras can be constructed.

Fitted with Eastman-Walker Roll-Holder. New Model, with Automatic Tally.

4x5 Waterbury Outfits, Complete.....$12 00 28 00

CONSISTING OF

1 Single Swing Camera, described above.
1 Scovill Double Dry Holder, with *Patent Registering Slides.*
1 Wooden Carrying Case.
1 Improved Taylor Tripod.
1 No. A Waterbury Lens *with a set of Stops.*

LATEST SIZES INTRODUCED

4¼x5½	Waterbury Outfit, complete	$14 00
4¼x6½	" " "	15 00
5x7	" " "	16 00

5x8 Waterbury Outfits, Complete.....$16 50 38 00

CONSISTING OF

1 Single Swing Camera, described above.
1 Scovill Double Dry Holder, with *Patent Registering Slides.*
1 Wooden Carrying Case.
1 Improved Taylor Tripod.
1 No. B Waterbury Lens *with a set of Stops.*

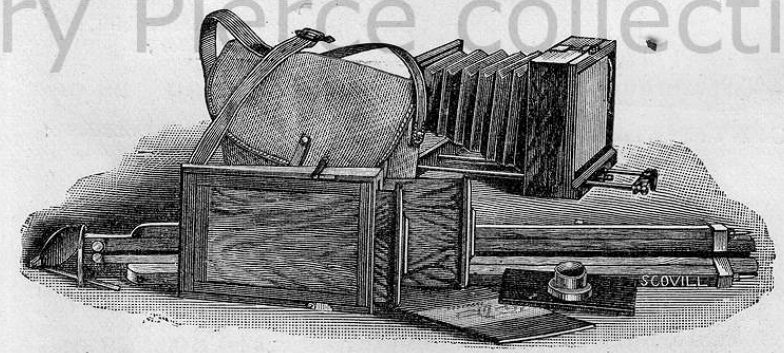
6½x8½ Waterbury Outfits, Complete....$20 00 44 00

CONSISTING OF

1 Single Swing Camera, described above.
1 Scovill Double Dry Holder, with *Patent Registering Slides.*
1 Wooden Carrying Case.
1 Improved Taylor Tripod.
1 No. B Waterbury Lens *with a set of Stops.*

Tourists' Pocket Outfits.

When folded up, a 4 x 5 Tourists' Camera measures but 5¾ x 6¼ x 2 inches, and it is without any projecting parts, pins or screws, so that it may be slipped into and not tear a gentleman's pocket. The rods which are used to move forward the front of the camera are easily detached from it and drawn out of the bed. The connector at the other end of the rods is just as readily unset. To replace these three parts when the camera is brought out for service, requires no more time or skill than to take them off. They are nicely adjusted, and are polished and nickel plated, so that they add to the handsome appearance of the camera, and contrast well with its polished mahogany surface and the purple hue of its bellows. The weight of this camera and its dry plate holder (but 1½ pounds for the 4 x 5 size) is on the center of the tripod. In focusing, the front of the camera and the lens are pushed forward, thus avoiding any disarrangement of the focusing cloth. When the focus is obtained, further movement of the lens is checked or stopped by means of a screw acting on a spring, which is pressed at the ends against the focusing rods."



Tourist's Pocket Outfit No. 0206.—4x5 Tourist's Pocket Camera, with
1 Daisy Double Dry Plate Holder, with *Patent Registering Slides.*
1 Scovill Extension Tripod No. 1, with patent reversing attachment.
1 Canvas Carrying Case with Shoulder Strap.

Price, complete, $21.00.

Tourist's Pocket Outfit No. 0207.—5x8 Tourist's Pocket Camera, with
1 Daisy Double Dry Plate Holder, with *Patent Registering Slides.*
1 Scovill Extension Tripod No. 2, with patent reversing attachment.
1 Canvas Carrying Case with Shoulder Strap.

Price, complete, $28.00.

We recommend the purchase and use with the above Outfits of a Lens or Lenses selected from the list on page 49.

For Developing and Sensitized Paper Outfits to be used with the above, refer to pages 29 and 30.

CENTENNIAL OUTFITS.

(Introduced in 1876.)

CENTENNIAL OUTFIT No. 202, price $22.00, Consists of

A MAHOGANY POLISHED CAMERA for taking pictures 4 x 5 inches, with *Folding Bellows Body*, single swing, hinged bed, and brass guides. It has a shifting front for adjusting the sky and foreground, with

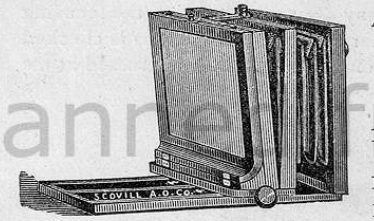
1 Daisy Double Dry Plate Holder, with *Patent Registering Slides;* also
1 Canvas Carrying Case.
1 No. 1 Scovill Adjustable Tripod.

CENTENNIAL OUTFIT No. 202 A, price $24.00,

The same as No. 202, but with Camera for taking pictures 4¼ x 5½ inches.

CENTENNIAL OUTFIT No. 202 B, price $26.00, for pictures 4¼x6½ inches.

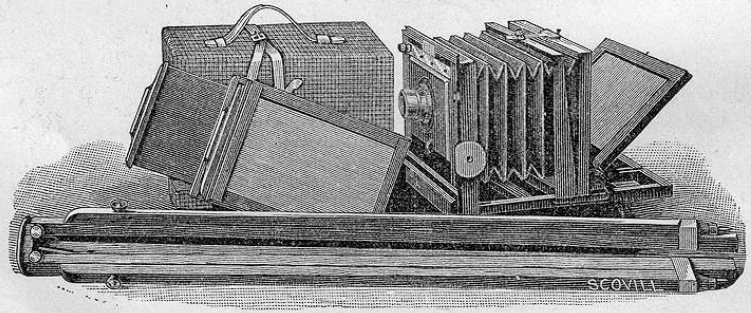
CENTENNIAL OUTFIT No. 203, price $30.00, Consists of



A FOLDING MAHOGANY CAMERA, well known as the '76 Camera (see illustration). It is adapted for taking 5 x 8 inch pictures, and also for stereoscopic views—together with

1 Daisy Double Dry Plate Holder, with *Patent Registering Slids;* also
1 Canvas Carrying Case.
1 No. 2 Scovill Adjustable Tripod.

CENTENNIAL OUTFIT No. 204, price $42.00, Consists of



A FOLDING MAHOGANY CAMERA of finest style and finish for taking 6½ x 8½ inch pictures, with

1 Daisy Dry Plate Holder, with *Patent Registering Slides;* also
1 Canvas Carrying Case.
1 Scovill Extension Tripod, No. 3.

For larger or special View Cameras, consult the American Optical Company's Catalogue.

We recommend the purchase and use with the above Outfits of a Lens or Lenses selected from the list on page 49.

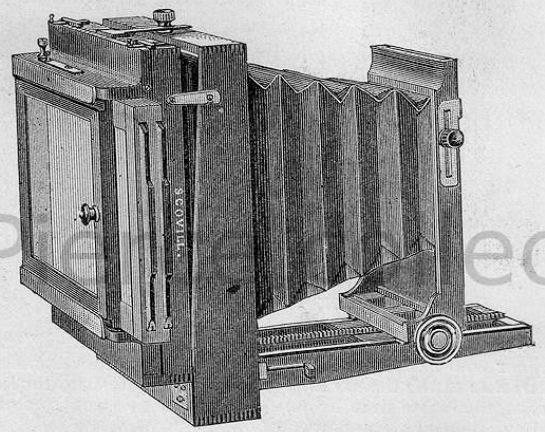
For Developing and Sensitized Paper Outfits to be used with the above, refer to pages 29 and 30.

ST. LOUIS
Reversible-Back Cameras.

(PATENTED.)

IN addition to the desirable features which the Back Focus Reversible Camera possesses (see description below) the St. Louis Reversible-Back Cameras have the rack and pinion movement, *patent latch* for making the bed rigid instantaneously, and the ground-glass so arranged that the holder may be slid in front of it, as shown in the illustration.

Each Camera is supplied with one Daisy Holder with *patent Registering Slides* and canvas case.



THE growing use of dry plates, and the desire for rapid exposures, led to the introduction of the American Optical Patented Reversible Back Cameras, and because they add to the grace and celerity of view-taking they have become vastly popular. A novel arrangement of a detachable carriage at the back combines such a multiplicity of adjustments in itself that a dry-plate holder *may be reversed or be set for either an* 8x10 *upright or horizontal picture*—all of these movements, without once changing the dry-plate holder in the carriage.

SAINT LOUIS REVERSIBLE-BACK CAMERAS.

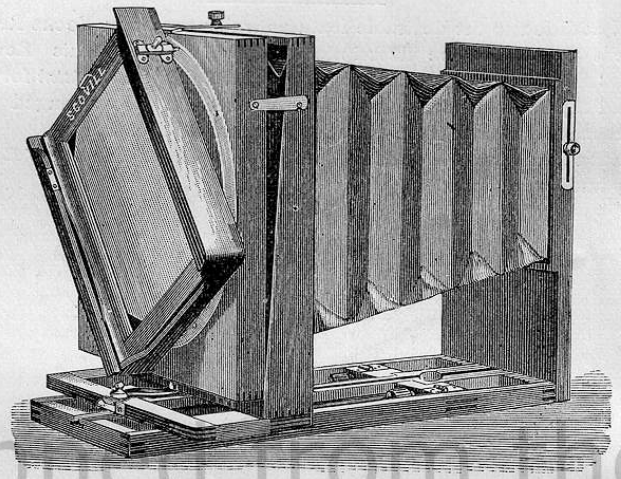
For View.	Single Swing-back.	Double Swing-back.	Fitted with Eastman-Walker Roll Holder. New Model with Automatic Tally. Single Swing-back.	Double Swing-back.
4 x5	$25 00	$29 00	.....	.....
4¼x5½.....	26 00	30 00	.....	.....
4¼x6½.....	30 00	34 00	.....	.....
5 x7	32 00	35 00	$52 00	$55 00
5 x8	34 00	38 00	54 00	58 00
6½x8½.....	36 00	40 00	60 00	64 00
8 x10	40 00	44 00	70 00	74 00
11 x14	60 00	64 00	102 00	106 00

Not made above 11x14 size.

Flammang's Patent Revolving-Back Cameras.

(PATENTED.)

Each Incased in a Canvas Bag, with Handle.



(BACK FOCUS PATTERN.)

'These are the finest View Cameras ever constructed," so says every photographer who has examined any of them, and this exclamation is not merely a tribute to the beauty and grace of their design, for invariably the desire has at the same time been expressed to possess one of these truly novel and substantial Cameras.

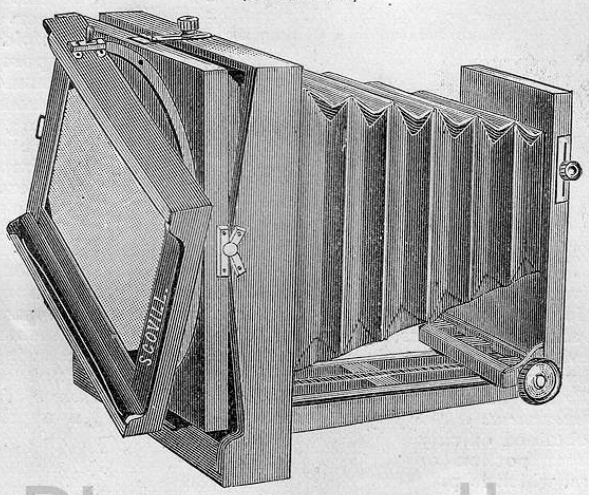
Wherein lies the merit and attractiveness of the Revolving-Back Camera, that photographers want to cast aside cameras now in use and procure one of this new pattern? Briefly stated, it enables the view taker to secure either an upright or a horizontal picture without changing the plate holder after it has been slid into the carriage. No other camera can with such wondrous ease and celerity be changed from the vertical to the upright or *vice versa*. The carriage is simply turned about in the circle and automatically fastened. By this latter provision the carriage may be secured at either quarter of the circle. Ordinarily, the slide will be drawn out of the holder to the right; but in certain confined situations, the ability to withdraw the slide to the left enables the photographer to obtain a view which he could not get with the usual provision in a camera. The photographer of experience is well aware of the difficulty, when taking an upright picture with a large camera without the revolving back feature, of reaching up to draw out the slide at the top, and, what is more essential, of getting out the slide without fogging the plate in the holder.

Grace and strength are combined in the Revolving-Back Camera, and its highly-desirable features are gained without the sacrifice of steadiness or any other essential principle in a good camera. Indeed, its merit is such that out-door photography has been advanced and made more attractive by ts introduction.

For a more detailed description consult Scovill's general catalogue.

Revolving-back Camera.

(PATENTED.)



(FRONT FOCUS PATTERN.)

PRICE LIST.

Revolving-back Cameras, each incased in a canvas bag, with handle, and above 17x20 size, with two handles.

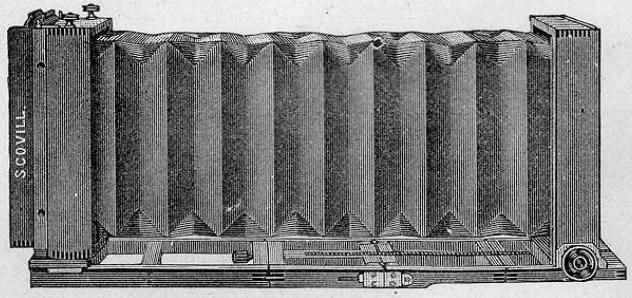
	REVERSIBLE.	Single Swing.	Double Swing.	Fitted with Eastman-Walker Roll Holder New Model, with Automatic Tally. Single Swing.	Double Swing-back.
550A.	For View 4 x 5 in.	$31 00	$36 00	$46 00	$51 00
551.	" 4¼x 5½ "	33 00	38 00	.....	.....
551AB.	" 4¼x 6½ "	34 00	39 00	.....	.....
551A.	" 5 x 7 "	35 00	40 00	55 00	60 00
551B.	" 5 x 8 "	35 00	40 00	55 00	60 00
552.	" 6½x 8½ "	45 00	50 00	69 00	74 00
553.	" 8 x 10 "	50 00	55 00	80 00	85 00
554.	" 10 x 12 "	65 00	70 00	101 00	106 00
555.	" 11 x 14 "	77 50	82 50	119 50	124 50
556	" 14 x 17 "	90 00	95 00	140 00	145 00
557.	" 17 x 20 "	105 00	110 00	170 00	175 00
557A.	" 18 x 22 "	110 00	115 00	185 00	190 00
558.	" 20 x 24 "	120 00	130 00	200 00	210 00
559.	" 25 x 30 "	165 00	175 00	.....	.....

These Cameras are fitted with Daisy Dry-plate Holders.

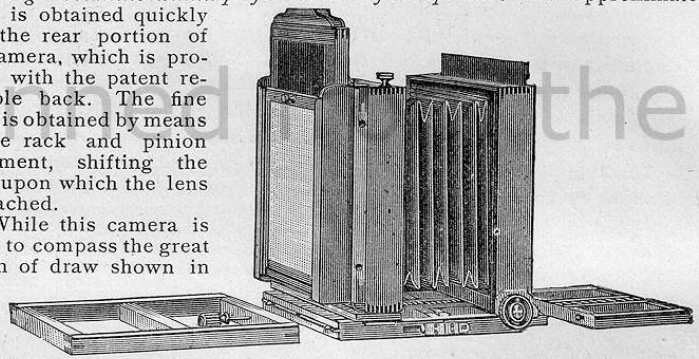
☞ Please state, when ordering any size below 10x12, whether front or back focus is desired.

Revolving-back Cameras with front focus not made above 8x10 size.

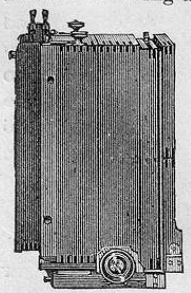
THE SCOVILL MANIFOLD CAMERA.



While this camera serves manifold purposes as its name indicates, nothing could be more simple or more easily manipulated. The Manifold Camera has special advantages peculiar to itself and possesses the greatest number of desirable features which can be combined in a camera without sacrificing lightness and compactness, or having complicated adjustments. The unique device which controls the horizontal and vertical swings was patented by Mr. W. J. Stillman, of the editorial staff of the PHOTOGRAPHIC TIMES. *To this has been added a central latch for the purpose of bringing the swing movements within perfect control of the operator.* An approximate focus is obtained quickly with the rear portion of the camera, which is provided with the patent reversible back. The fine focus is obtained by means of the rack and pinion movement, shifting the front upon which the lens is attached.



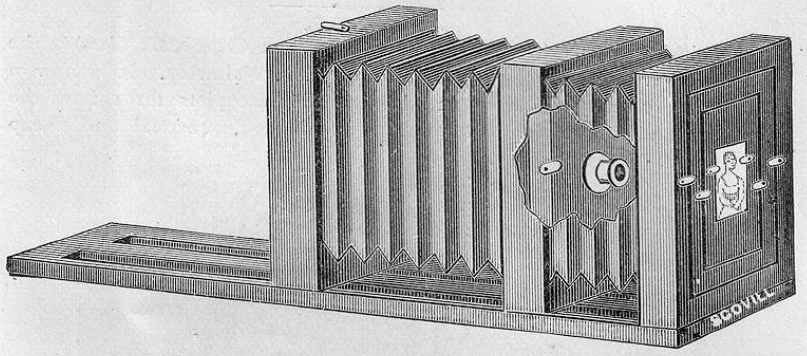
While this camera is made to compass the great length of draw shown in the first illustration, the rear portion of the bed may be wholly detached, and when desired, one-third of the remaining portion of the platform; a great advantage when photographing interiors, when an obtrusive tail board renders focusing almost an impossibility. With one-half of the bed taken off, this camera is still of the usual length of draw. The ground glass, when not in use, is displaced, *not detached*, by having the plate holder slid in front of it. This arrangement of ground glass and plate holder is shown in the second view. Still another noticeable feature is the absence of clamping screws from the front boards, to move which one needs but to press firmly against the lens. The bed folds in fron of and behind the camera, and has the patented latch recently devised at the American Optical Co.'s factory. PRICE LIST, including Canvas Case for Camera and one Holder, with *patent Reg. Slides.*



3¼x4¼ size...	$34 00	4¾x6½ size.....$41 00	6½x8½ size. ...$52 50
4x5 size.....	38 00	5x7 size 42 00	8x10 size. 58 00
4¼x5½ size....	40 00		

Fitted with Eastman-Walking Roll Holder, New Model:
4x5 size, $53 00; 4¼x6½, $58 50; 5x7, $62 00; 6½x8½, $76 50; 8x10 $88 00

The Scovill Enlarging, Reducing and Copying Cameras.



When ordering, please specify number and sizes of kits wanted.

Size, 6½x8½,	**Price, $30.00**	**Size, 11x14,**	**Price, $60.00**
" 8x10,	**" 35.00**	**" 14x17,**	**" 72.00**
" 10x12,	**" 48.00**		
Size, 17 x 20,	**- - $90.00.**		

Special sizes and styles made to order.

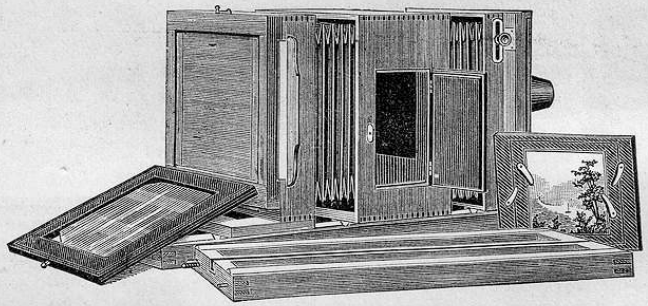
The form of construction of this new Camera is made apparent by the illustration here shown. The experienced copyist will not need any such simple directions for use as we append.

DIRECTIONS FOR USE.

To copy a negative in the natural size, place it in the kit on the front of Camera and button it in. Attached to the center frame of the Camera is a division upon which, on the side toward the Camera front, a Lens is mounted. Suppose this to be a quarter-plate Portrait Lens, the focal length of which we will suppose to be 4 inches—draw back the center frame and the Lens twice the focal length of the Lens (8 inches); slide the back frame with ground glass the same distance from the center frame. To enlarge with the same Lens to eight times the size of the original, the center of the Lens must be 4½ inches from the negative, and the ground glass be 36 inches from the center of the Lens. To reduce in the same proportion, reverse and have 36 inches from the center of the Lens to the negative, and from the center of Lens to ground glass 4½ inches.

WALMSLEY'S PHOTO-MICROGRAPHIC CAMERA.

This instrument (made by the **American Optical Co.**) is the result of several years of practical study by Mr. Walmsley. It is now in use by very many Colleges and leading Microscopists throughout the country, and is confidently offered as an efficient, practical and cheap instrumeut for the purpose.



It is made in two forms: the cheaper (selling for $18.00) is adapted only to the making of negatives on plates 3¼x4¼, or 4¼x5½, as may be necessary. The complete form (costing $30) is also a minature enlarging, reducing and copying camera, admirably adapted to the production of lantern transparancies from any size negative up to 4¼x5½. The following description of the complete camera first published in the PHOTOGRAPHIC TIMES, is also applicable to the cheaper form, excepting that the latter cannot be used for enlarging, reducing or copying. In all other particulars the two boxes are identical.

The camera (of mahogany) is square, carrying a Flammang single plate holder for 4¼x5½ plates; usable vertically or horizontally, and with kits for 3¼x4¼ plates. The bellows are in two sections, with a central division of mahogany, which carries s removable. partition, to which a suitable rectilinear photographic lens can be attached, for enlarging, reducing, or copying. A light-tight door on one side of this wooden section gives ready access to the lens for inserting or removing diaphragms, or other necessary manipulations, whilst a milled head, accessible from the same opening, clamps the lens bearing section, firmly to the bed of the camera at any desired point.

The bellows have an extension of two feet in addition to the length of the box, sliding very smoothly upon V-shaped ways, which for greater convenience are made in two sections, firmly attached to each other by wooden dowels, and a solid brass screw, worked by a milled head.

The bellows are firmly held at any desired point of extention by a cam, operated by a lever conveniently placed at the rear of the focusing screen which latter is hinged at the bottom, and when not in use, lies out of the

way upon the extension bed. The screen itself is of the very finest ground glass, but is used only for arranging the portion of the object to be photographed properly in the center of the plate, as no surface can be ground finely enough to permit the sharp focusing of any delicately-lined object. For this purpose, a circle or disc of thin microscopic covering glass is attached with balsam to the center of the ground-glass screen, which clears away all the inequalities of the latter, and leaves an exquisitely fine surface to receive the image, which by using an ordinary focusing glass may be as sharply defined as in the eye-piece of the microscope.

The front of the camera (which is double-shifting, for the purpose of centering), carries a cone-shaped tube, which receives the tube of the microscope when the latter is inclined to a horizontal position, and conveys the image bearing rays of light therefrom into the body of the camera. This cone is removable, and in its place may be inserted kits, carrying negatives from quarter to half size for enlargement, or reduction to lantern slides as may be desired. Or a front board, bearing a lens, may be inserted in its place, converting the camera into a copying one. Indeed, a more complete instrument for all the purposes for which it was devised could scarcely be conceived or desired. Its design was the result of several years of work and experiment on the part of Mr. Walmsley; and the Scovill Mfg. Co. have carried out his plans in their usual masterly manner, leaving nothing to be desired.

In use, the camera is attached to a solid platform (which also carries the microscope and lamp) by a screw such as is used with an ordinary tripod. By this means any jar or tremor produced by a passing vehicle or other means, is communicated to microscope and camera alike, preventing any diminution of sharpess in the negative. By this arrangement also, the whole apparatus is so compact that, with the bellows closed, the operator can easily see the image upon the ground glass, and at the same time reach the milled heads upon the microscope controlling the stage and focusing movements, permittiug the arrangement of the subject with the greatest nicety. But when the bellows are extended to their full length, some appliance becomes necessary to operate the fine adjustment of focus, whilst the eye can discern the changes upon the screen. This is most simply effected by Mr. Walmsley, in the employment of a fine cord passing in a groove around the periphery of the milled head of the fine adjustment screw, and thence through a series of hook eyes to the rear of the camera bed, where it is held taut by a couple of leaden weights. The slightest pull upon either cord moves the fine adjustment screw with the utmost nicety.

PRICE.

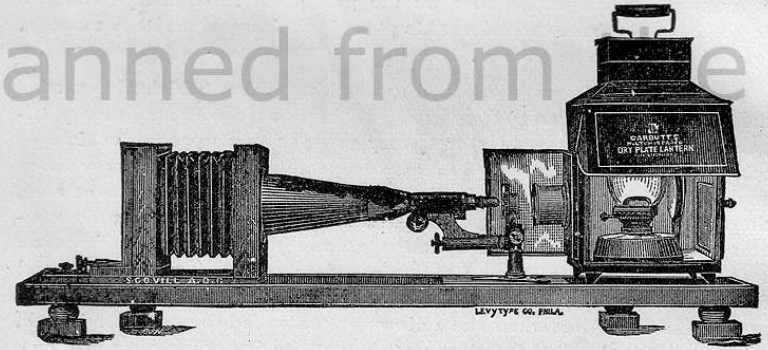
Walmsley Micro-Camera	$18 00
" " enlarging, reducing, and copying pattern	30 00

SCOVILL'S OUTFIT

For PHOTOGRAPHING with the MICROSCOPE.

Photographing with the microscope has hitherto been accomplished by the aid of elaborate and costly apparatus, and been applied chiefly to making illustrations for scientific magazines. The process used, that of wet collodion in connection with sunlight, involved the procurement of an expensive heliostat to produce a steady illumination, for with any less powerful light the exposure would necessarily be so prolonged that the coating of the plate would dry and become useless. Now all this is changed, for with the modern improvements in photography which are the result of the introduction of gelatine dry plates, the photographing of microscopic objects becomes as easy of accomplishment as the photographing of the beautiful and visible in nature is with the popular amateur outfits.

The scientist and microscopist, instead of spending hours in making imperfect drawings, aided by the camera lucida, may in a few minutes, with the assistance of photography, produce a more perfect representation of a minute object than it is possible for the hand of man to do, working conjointly with the eye. Not only can an enlarged image of a microscopic object be formed for illustration, but professors in colleges will find it a ready means to produce negatives of a suitable size from which may be made transparencies or magic lantern slides for exhibition to classes or the public.



If this is done in the daytime, a room from which all white light is excluded should be selected; but if used at night, as in most cases it would be, the operations may all be performed in the midst of a family group for their interest and amusement, and to impart to them knowledge of the minute life or organisms of the world which the microscope alone can reveal.

Scovill's Photomicroscopic Equipment,

— CONSISTING OF —

1 Scovill Special Half Plate Camera.
1 Multum in Parvo Lantern, with Double Condenser.
1 dozen 4½ x 5½ size B Keystone Plates to make Negatives; also
1 dozen 3½ x 4¼ size A Plates for Transparencies.

Price, Complete, $18.00.

The presumption is that you are provided with a microscope. If not, we recommend the purchase of one from a regular dealer in microscopical goods.

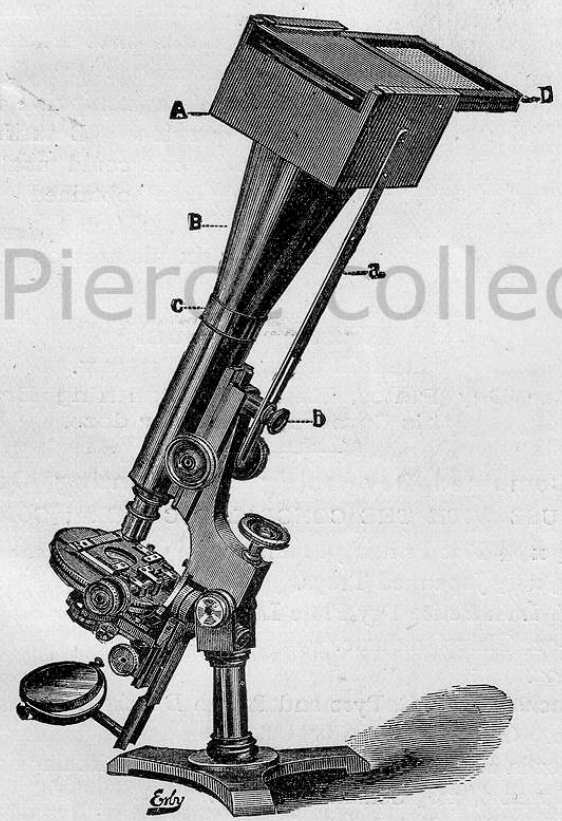
Circular containing directions for use sent with each outfit.

MERCER PHOTOMICROGRAPHIC

CAMERA.

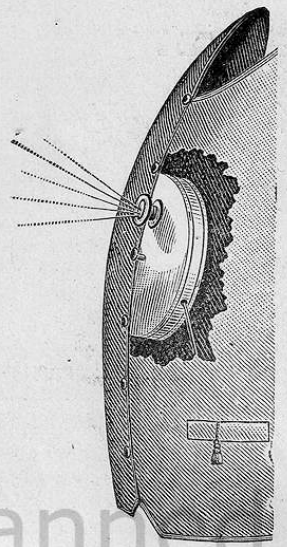
Size, 2¾x3¼.

Price, $7.50.



This Camera is provided with a Brass Cone and Plate Holder with Ground Glass attached, to slide back and forth in the carriage, as desired.

The Concealed Camera.



This novel Camera is worn concealed underneath the coat, the lens serving as a button, and is operated from the pocket.

It was designed for the use of those who wish to photograph figures, facial expression, groups in action, and all studies in actual life, where opportunity to sketch or to set up an ordinary camera, arrange the focus, draw slides, and such manipulation are out of the question. Beautiful street scenes, that one could not otherwise photograph, are obtained with this camera.

It makes six pictures on a revolving plate.

PRICE, $15.00.

Patented by Mr. R. D. GRAY.

Circular Dry Plates, Keystone Lightning Brand, for this Camera, $1.20 per doz.

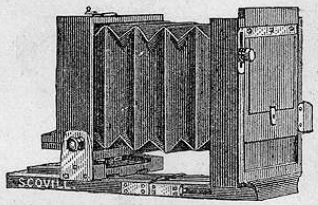
Combined Developing and Printing Outfit

FOR USE WITH THE CONCEALED CAMERA, COMPRISES

One 6½ x 8½ Flat Printing Frame.
Two 6½ x 8½ Japanned Trays.
One W. I. A. Petite Dry Plate Lantern.
One 4-oz. Glass Graduate.
One 1-oz. " "
One Package S. P. C. Pyro and Potash Developer.
One 7 x 9 Glass Pan.
One Dozen Keystone Lightning Dry Plates, Circular Form.
Two Dozen 6½ x 8½ Sensitized Paper.
One Bottle French Azotate.
One Bottle Chloride of Gold (small).
One lb. Alum.
One lb. Hyposulphite Soda.

Price of this outfit complete, packed ready for shipment, $8.00

THE PETITE CAMERA.



This camera was made to suit the refined taste of one of Vassar's fair students. The design on the part of the manufacturers was to reduce the impedimenta for an outing to the minimum, providing a 3¼x4¼ camera (to make negatives of suitable size for lantern slides), with single swing, folding bed with *patent latch*, vertical shifting front, and other desirable improvements. So well has the design been carried out that many ladies will follow the example of Vassar's pupils, and learn the fascination of picture-taking with one of these finely-polished mahogany cameras. Gentlemen in search of a pocket camera need not seek further. The Petite Camera and an enlarging camera will by many be considered a satisfactory and complete equipment for such photographing as they desire to do.

PRICE.

Petite Camera with one double Dry-Plate Holder, and *patent Registering Slides*.....$12 00
Same Camera with canvas bag, with shoulder strap and Scovill's Adjustable (feather weight) Tripod..... 17 00

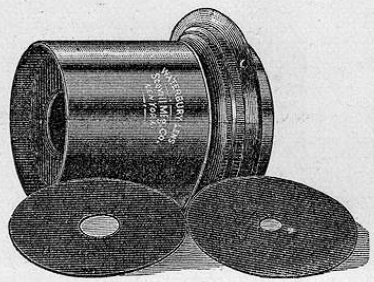
Scovill's Outfit for Making Lantern Slides consists of

1 doz. Thin Crystal Glass.
2 " Black Mats.
1 package Black Adhesive Paper.
1 doz. 3¼x4 Keystone Gelatino-Albumen Dry Plates.
1 package S. P. C. Pyro and Potash Developer.
2 4¼x5½ Solid Glass Pans.
1 lb. Hyposulphite Soda.

The above, packed in wooden case, price complete..... $3 50

For enlarging, reducing, or copying Negatives to make Lantern Slides, we recommend the use of one of the Scovill Enlarging, Reducing and Copying Cameras.

WATERBURY LENSES.



The unprecedented success which has everywhere resulted from the employment of the smaller Waterbury Lenses—those for 4 x 5 and 5 x 8 respectively (and which are achromatic combinations composed of a bi-convex Lens of crown glass cemented to a plano-convex Lens made of the best flint glass)—has induced the Scovill Manufacturing Company to extend the capabilities of this favorite objective, and to issue one of larger dimensions and onger focus than either of the others.

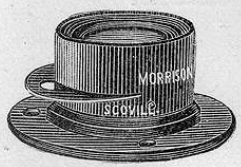
This new lens, which is designated "The 'C' Waterbury Lens," possesses all the excellent qualities of those of smaller size, while it takes a negative of greatly increased dimensions. It produces a negative on an 8 x 10 plate with great perfection, although some photographers do not hesitate to use it on a 10 x 12 plate. The lens is constructed of the finest optical glass, and has a diameter of $2\frac{1}{4}$ inches, its focus being 15 inches. When the largest stop is employed this lens is capable of producing fine portraits—especially busts—on a twelve-inch plate.

It has diaphragms of three different diameters, these being carefully calculated so as to suit the various exigencies under which a lens is employed.

PRICE.

A, Single, for 4 x 5 plate..... $3 50
A, Matched pair, stereoscopic..... 7 00
B, Single, for 5 x 8 plate..... 4 50
C, " " 8 x 10 plate..... 8 00

Morrison's Wide-Angle View Lenses.



Patented May 21, 1872.

These Lenses are absolutely rectilinear; they embrace an angle of fully 100 degrees, and are the most rapid *wide-angle* lenses made.

No.	Diameter of Lens.	Size of Plate.	Equivalent Focus.	Price.	
1	$\frac{3}{4}$ inch	$3\frac{1}{4}$ x $4\frac{1}{4}$ inch	3 inch, each,	$25 00	
2	1 "	4 x 5 "	$3\frac{1}{2}$ " "	25 00	
3	1 "	$4\frac{1}{2}$ x $7\frac{1}{2}$ "	$4\frac{1}{4}$ " "	25 00	These 5 sizes will fit into 1 flange.
4	1 "	5 x 8 "	$5\frac{1}{4}$ " "	25 00	
5	1 "	$6\frac{1}{2}$ x $8\frac{1}{2}$ "	$6\frac{1}{2}$ " "	25 00	
6	1 "	8 x 10 "	8 " "	30 00	
7	$1\frac{1}{4}$ "	11 x 14 "	$10\frac{1}{2}$ " "	40 00	These 2 sizes will fit into 1 flange.
8	$1\frac{1}{4}$ "	14 x 17 "	14 " "	50 00	
9	$1\frac{1}{2}$ "	17 x 20 "	17 " "	60 00	These 3 sizes will fit into 1 flange.
10	$1\frac{1}{2}$ "	20 x 24 "	22 " "	80 00	
11	$1\frac{1}{2}$ "	25 x 30 "	28 " "	100 00	

☞ Nos. 1 to 6 are all made in matched pairs for stereoscopic work. The shorter focused Lenses are especially adapted for street and other views in confined situations. For general purposes, a pair of No. 5 Lenses will be found most useful.

Morrison Combination Wide-Angle Lens.

Opening the velvet-lined morocco case presented to us for our inspection, we find partitioned-off space containing an ordinary 5-inch Morrison Wide-Angle Lens, on which the front and back combinations are distinctly marked with the figure 5.

Besides this, in cells, are four mountings with lenses of varying focal lengths, each marked in white with a number. By unscrewing the back combination marked 5, and putting in its place the mounting marked 6, a lens of 6-inch back focus is obtained.

Again, by removing both these cells and replacing them with the two marked 8, a lens of 8-inch back focus is the result.

By screwing in the front combination marked 5 and the back combination marked 4, a lens of 4-inch back focus is obtained.

Putting a front combination marked 8 and a back marked 6, a focus of 7 inches is produced.

Thus the operator has a choice of five focal lengths with the one lens.

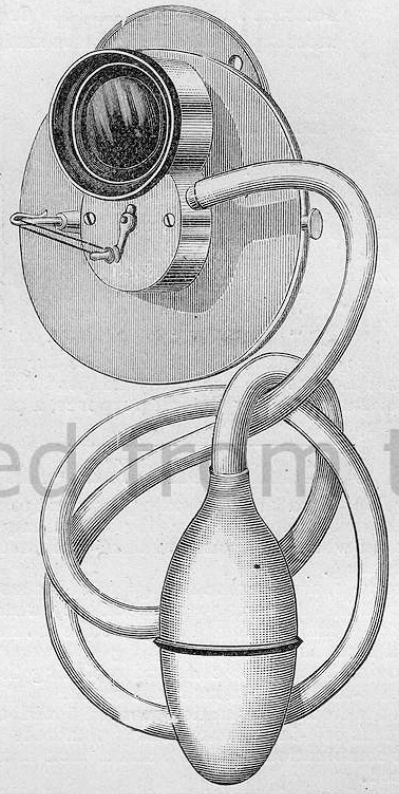
Price for Morrison Combination Wide-Angle Lens, $80.

Morrison's Instantaneous Wide-Angle View Lenses.

With full opening, these Lenses have all the extreme depth for which the Morrison Regular Wide-Angle Lenses are noted. They work with extreme rapidity, and will cover an angle of 90 degrees sharp. Furnished with a set of diaphragms.

Diameter of Lens.	Size of Plate, Full Opening.	Size of Plate when Stopped Down.	Focus.	Price.
$\frac{7}{8}$ inch.	4x 4 inches.	5x 7 inches.	6 inches.	$30 00
1 "	4x 5 "	8x10 "	8 "	35 00
$1\frac{1}{4}$ "	5x 8 "	10x12 "	10 "	40 00
$1\frac{3}{8}$ "	8x10 "	14x17 "	12 "	45 00

The Wale Universal Lenses.

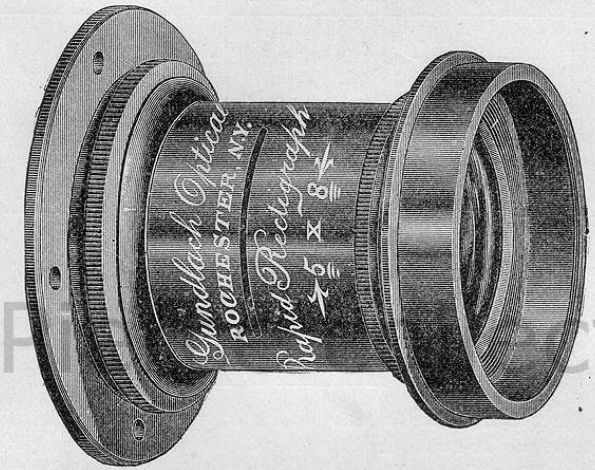


For Landscapes, Groups, Portraits, and Instantaneous Views.

6	in.	back focus, for 5	x 8	Plates and under	(without Shutter)..	$25 00
6	"	" " " 5	x 8	" "	(with Instantaneous and Time Shutter)	35 00
8	"	" " " 6½	x 8½	" "	(without Shutter)..	30 00
8	"	" " " 6½	x 8½	" "	(with Instantaneous and Time Shutter)	40 00
10	"	" " " 8	x 10	" "	(without Shutter)..	40 00
10	"	" " " 8	x 10	" "	(with Instantaneous and Time Shutter)	50 00

GUNDLACH

Rapid Rectigraphic Lenses.



The splendid qualities of the **Rectigraphic** (it being constructed on a principle superior to that employed in the construction of any other photographic lens in the market), have won for it, in the short time it has been before the photographic public, a well recognized place in the front rank of photographic objectives.

It possesses all the qualities required to make it equally valuable for either Landscape or Portrait Work. For the latter purpose we recommend especially the larger sizes, from No. 4 up. When used with the Modern Dry Plate they will equal the best Portrait Lenses in rapidity, while, with their full opening, they have wonderful depth and microscopic sharpness.

The RECTIGRAPHIC is superior to any lens in the market in flatness of field, and is the only one that can be focused sharp at the extreme edge of the field, being free from astigmatism.

Each lens is supplied with a set of Diaphragms in a Morocco Case.

GUNDLACH
Rapid Rectigraphic Lenses.

DESCRIPTION AND PRICE.

No.	Size of Plate.	Size of Portrait.	Diam. of Lenses.	Back of Focus.	Equivalent Focus.	Price.
1	4x5	3¼x4¼	1	5⅞	6¼	$20.00
2	5x8	4x6	1¼	7½	8	30.00
3	6½x8½	5x8	1½	9¼	10	38.00
4	8x10	6½x8½	1¾	11	12	50.00
5	10x12	8x10	2	13⅛	14¼	64.00
6	11x14	10x12	2¼	15¼	16½	76.00
7	14x17	12x15	2⅝	17½	19	125.00
8	17x20	16x18	3	20	22	150.00

GUNDLACH
Wide-Angle Rectigraphic Lenses.

In presenting this Objective to the consideration of the photographic public, we do so confident that it is the best and most rapid wide-angle Photographic objective in the market. It is absolutely rectilinear, and possesses, in so far as any wide-angle lens can, the qualities that have won so much favor for the RAPID RECTIGRAPHIC.

No.	Size of Plate.	Diameter of Lenses.	Back Focus.	Equivalent Focus.	Price.
1	5x7	⅞ in.	4⅛ in.	4½ in.	$24.00
2	6½x8½	1⅛ "	5½ "	6 "	30.00
3	10x12	1½ "	7⅜ "	8 "	40.00
4	14x17	2 "	9¾ "	10½ "	55.00
5	17x20	2⅝ "	13⅛ "	14 "	80.00

List of Caps, Diaphragms, Etc., for the Rapid Rectigraphic Lens.

	1	2	3	4	5	6	7	8
Flange.....	$0.45	$0.65	$0.75	$1.00	$1.30	$1.60	$2.50	$3.00
Diaphragms.....	.80	1.20	1.75	2.25	2.75	3.40	5.75	6.75
Case.....	.35	.40	.45	.50	.65	.75	1.25	1.50
Caps.....	.35	.40	.45	.50	.65	.75	1.25	1.50

Beck Autograph Rectilinear Lenses.

None genuine without this engraved on the tube.

R. & J. Beck.

Without exception the finest Lenses ever made, possessing qualities entirely their own.

5 x 4. ACTUAL SIZE.

These Lenses are perfectly Aplanatic, covering with full aperture to the extreme corners the size plate for which they are designated in the list, and much larger sizes when moderately stopped down They are very rapid in action, rendering them particularly valuable for instantaneous and short-time exposures; are rigidly rectilinear and symmetrical; possess wonderful penetration and definition, and are the lightest and most compact of any lenses in the market—a matter of no small moment to the landscape photographer. The No. 5 Lens will make life-size heads, sharp and free from distortion. They are in use in many of the leading galleries of the country.

No.	Size of Plate.	Diameter of Lenses.	Back Focus.	Equiv'lent Focus.	Angle.	Price.
1	3¼x4¼	⅞ in.	4½ in.	5 in.	75°	$25 00
2	4¼x5½	1 in.	6 in.	6¾ in.	70°	30 00
3	5 x8	1¼ in.	8 in.	8¾ in.	64°	35 00
4	6½x8½	1½ in.	10¼ in.	11 in.	67°	45 00
5	8 x10	1¾ in.	12¼ in.	13 in.	66°	60 00
6	10 x12	2 in.	14½ in.	16 in.	66°	75 00
7	11 x14	2¼ in.	16¾ in.	18 in.	66°	100 00
8	14 x17	3 in.	22 in.	24 in.	66°	160 00
9	20 x22	3¾ in.	27½ in.	30 in.	66°	200 00

STEINHEIL LENSES.

QUALITY not quantity governs in determining the price of lenses. By an examination of the following price list, which supercedes all previous ones, it will be seen that Steinheil lenses are sold lower than any first-class lenses with which alone they may be compared. The introduction of Steinheil lenses marked an important advance in photographic optics.

HOW TO SELECT A STEINHEIL LENS.

In order to meet the various requirements, and to insure in each special case as perfect work as possible, we make lenses of different constructions.

Our lenses are divided into six *series*, presented in the order of their respective rapidities. Each series begins with No. 1 for the smallest size, and continues upwards. To avoid errors, it is therefore necessary in ordering to quote both the number of the series and the number of the lens in the present catalogue.

All our lenses are rectilinear and are strictly corrected for spherical errors and chemical focus.

They are free from disturbing reflections, and strongly illuminated objects can be taken with them without producing flare or light spots. They are, moreover, constructed so as to give the greatest possible equality of definition over the whole picture.

In focusing with these lenses, it is advisable to use the largest stop, even when it is intended to work with the smallest.

The scientific basis of our establishment and the precise methods employed both in the manufacture of our astronomical and photographic apparatus, enable us to produce lenses of such uniform acccuracy, that the means of most vigorous testing at our command fail to reveal any differences in the instruments we send out.

We make it a special point never to supply a lens which is capable of mprovement at our hands.

According to the principle involved in their construction, our lenses consist chiefly of two classes, viz.: *Antiplanatic* and *Aplanatic*.

Antiplanatic Lenses.

(U. S. Patent Nos. 241,437–'8.)

Briefly stated, these lenses which are the result of a series of calculations extending through several years, are composed of two non-symmetrical combinations each of as great but opposite faults as possible, which correct each other. One combination has a shorter focus than the objective as a whole, and the other has a negative focus. The combinations are placed very closely together.

By the peculiar construction, as described above, differing widely from the usual forms, it has been possible to correct to a considerable extent the hitherto greatest defect in photographic objectives, viz., "Astigmatism," and the consequent rapid decrease of definition from the center to the margin of the picture.

The result is greater sharpness and depth distributed more equally over a larger and strictly even picture, before any decrease in definition is perceptible.

Illumination, too, is more evenly distributed in consequence of lenses being proportionately nearer together.

These properties allow the lenses to be worked with full aperture or large stops, and gives them great rapidity of action.

The perfectly correct delineation produced by the antiplanets render them particularly suitable for enlargements as well as for dissolving view apparatus.

If small and sharp originals are taken, and subsequently enlarged, depths are obtained which would be unattainable in larger pictures taken *direct* with same amount of light. For this purpose, which will probably play an important part in photography, the antiplanets are specially suitable.

In making enlargements the front lens of the antiplanets should always be turned towards the enlarged picture, and the back lens towards the object to be enlarged.

This construction is designed for strictly even and correctly delineated pictures, and all tilting of the camera should be decidedly avoided and a movable lens board used instead.

The antiplanets are made in two series: The portrait antiplanets (Series I.) and the group antiplanets (Series II.), the latter being, however, also excellent dry plate portrait lenses.

Aplanatic Lenses.

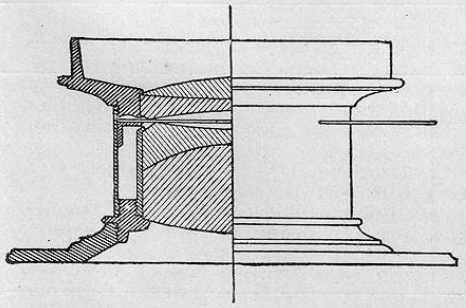
These lenses consist of the original and now well-known symmetrical and rectilinear combinations. They are made in four series, each of which is especially designed for a certain class of work. Their capabilities and object are fully explained below.

The lenses of Series V., also Series III., No. 1; Series IV., Nos. 1 and 2 have rotary diaphragms.

All the other lenses are furnished with Waterhouse diaphragms in morocco case.

STEINHEIL LENSES.

Series II.—Patent Antiplanatic Group Lens.



New in principle and construction, consisting of two non-symmetrical cemented pairs, placed so closely together, that there is only just room for the diaphragm. It is rectilinear, and is remarkable for its powerful and even illumination and depth of focus. In rapidity, it is only excelled by the regular and expensive portrait combinations. Designed for *Portraits, Groups, Architecture, Landscape, Instantaneous Work and Enlargements.*

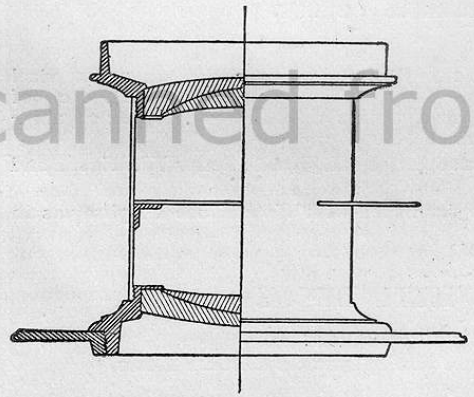
Series II.—Patent Antiplanatic Group Lenses.

No.	Aperture, Inches.	Focal Length, Inches.	Size of Portraits or Groups, Inches.	Size of View or Landscape, Inches.	Price.
1.....	11–16	3¾	3¼ x 3¼	4¼ x 3¼	$21 00
2.....	1	5⅝	4¼ x 3¼	5 x 4	28 00
3.....	1 5-16	7¼	5 x 4	7 x 5	37 00
4.....	1 11–16	9½	7 x 5	8½ x 6½	48 00
5.....	1⅞	10⅞	8½ x 6½	10 x 8	60 00
6.....	2½	14⅛	10 x 8	12 x10	95 00
7.....	3 1–16	17¾	12 x10	15 x12	140 00

Price for two identical combinations for Stereo Work, No. 1, $44; No. 2, $60; No. 3, $77.

Detective camera lens of this series, focus about 4¾ inches, now in preparation.

Series III.—Aplanatic Lens.

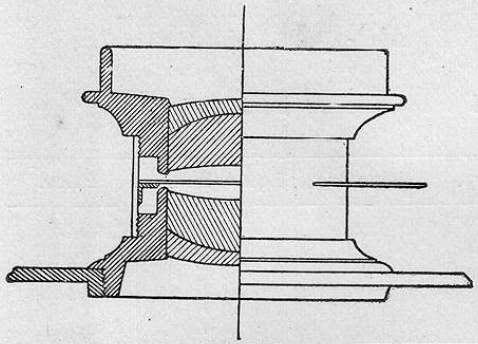


The prototype of all rapid symmetrical and rectilinear lenses. Is now made with increased illumination and rapidity. Next to the Antiplanatic Group Lens, Series II., it is the best lens for general work. Designed for *Portraits*, *Groups*, *Architecture*, *Landscape* and *Instantaneous Work*.

No.	Aperture. Inches.	Focal Length, Inches.	Size of Portraits or Groups, Inches.	Size of View or Landscape, Inches.	Price.
1.....	¼	1⅝	For enlarging,		$ 18 00
2.....	⅝	3¾	3¼ x 3¼	4¼ x 3¼	18 00
3.	1	5⅝	4¼ x 3¼	5½ x 4¼	25 00
4.....	1¼	7½	5½ x 4¼	7 x 5	32 00
5.....	1 11–16	11	8½ x 6½	10 x 8	44 00
6.....	2 1–16	14⅛	10 x 8	12 x10	57 00
7.....	2⅜	17⅜	12 x10	14 x11	86 00
8.....	2 15–16	21 3–16	17 x14	20 x17	125 00
9.....	3 7–16	25	20 x17	22 x18	166 00
10.....	4 9–16	33	22 x18	24 x20	245 00

Price for two identical combinations for Stereo Work, No. 2, $38; No. 3, $52; No. 4, $67.

Series IV.—Landscape Aplanats.



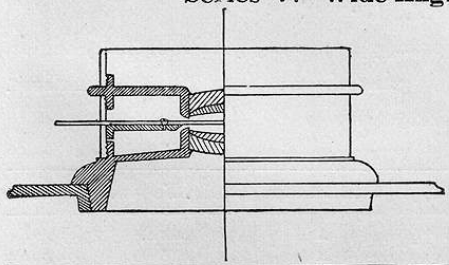
Angle about 75 deg., and covering a larger field than the lenses of Series III. Specially designed for *Landscape Work* and *Architecture*, but can also be advantageously used for *Copying*.

No.	Aperture. Inches.	Focal Length. Inches.	Size of Full Aperture. Inches.	Picture, Smallest Stop. Inches.	Price.
1.....	3–16	2⅜	2 x1½	3x2½	$18 00
2.....	3–8	3	2½x2	4x3	21 00
3.....	½	4¾	3¾x3	6x5	26 00
4.....	¾	6⅜	5 x4	8x6	32 00
5	1	9½	7 x5½	11x8	44 00
6.....	1½	15⅜	10 x8	14x11	86 00
7.....	2⅛	23⅝	14 x11	20x16	160 00

It is frequently desirable to get a landscape from a given point and to get it just of the size to cover your plate, or of any other given size without changing your position. This can only be accomplished by using objectives of different foci, by which you can reduce or enlarge the image at will. For this work we have arranged a *Set of Four Landscape Aplanats*, fitting in the same flange, aperture 1 in., and foci respectively 9½, 12⅝, 15¾ and 19 ins., covering 7x5½ ins. with full aperture, and 11x8 ins. with smallest stop. Price, in neat lock-up case, $168.

☞ Sets of any number and class of aplanats made to order at proportionate prices.

Series V.—Wide-Angle Aplanat.



The proportionately short focus and large angle (about 100 deg.) of these lenses make them particularly adapted for *Interiors*, *Architecture*, and for very high, broad objects taken from short distances.

No.	Aperture. Inches.	Focal Length. Inches.	Size of Sharp Pictures. Inches.	Price.
1.....	3–16	3¾	5 x5	$26 00
2.....	5–16	4¾	7 x7	30 00
3.....	7–16	7¼	10¼x10¼	42 00
4.....	9–16	10⅜	12¼x12¼	61 00
5.....	14–16	16	18½x18½	93 00

Special quotations for larger sizes.

Ross Rapid Symmetrical Lenses,

FITTED WITH WATERHOUSE DIAPHRAGMS.

Size of View.	Size of Group.	Diameter.	Equiv. Focus.	Price.
4 x 5	3¼x 4¼	1 inch.	6 inch.	$34 00
4½x 7½	4 x 5	1¼ "	7½ "	42 00
5 x 8	4½x 7½	1⅜ "	8½ "	46 00
6½x 8½	5 x 8	1½ "	11 "	52 00
8 x10	6½x 8½	1¾ "	13 "	68 00
10 x12	8 x10	2 "	16 "	84 00
11 x13	9 x11	2¼ "	18 "	92 00
12 x15	11 x14	2½ "	20 "	116 00
16 x18	12 x15	3 "	24 "	148 00
18 x22	16 x18	3½ "	30 "	200 00
22 x25	18 x22	4 "	34 "	240 00

These lenses are free from "flare" and distortion, and give absolutely straight marginal lines, rendering them invaluable for all kinds of architectural subjects, dimly-lighted interiors, copying, and instantaneous work.

Ross Portable Symmetrical Lenses.

For landscapes, architecture or copying; giving wide or ordinary angles, according to the stop used. A great favorite with English amateurs. Unequaled for photographic work.

No.	Large Stop.	Med. Stop.	Small Stop.	Equiv. Focus.	Price.
a 3	4 x 5	4½x 7½	5 x 8	5 inch.	$28 00
a 4	4½x 7½	5 x 8	6½x 8½	6 "	32 00
5	5 x 8	6½x 8½	7 x 9	7 "	40 00
6	6½x 8½	7 x 9	8 x10	8 "	48 00
7	7 x 9	8 x10	10 x12	9 "	56 00
8	8 x10	10 x12	11 x14	10 "	64 00
9	10 x12	11 x14	12 x15	12 "	72 00
10	11 x14	12 x15	16 x18	15 "	80 00
11	12 x15	16 x18	18 x22	18 "	96 00
12	16 x18	20 x22	21 x25	21 "	120 00

Darlot Hemispherical Wide-Angle Rectilinear View Lenses.

These Lenses embrace an angle of 90 degrees, and are valuable for taking views of buildings, interiors, etc., in confined situations, where those of longer focus cannot be used.

	Back Focus.	Size View.	Price.
No. 1,	2½ inches	For Stereoscopic Work, each	$12 50
" 2,	3 "	" " "	15 00
" 3,	5 "	8 x 10	20 00
" 4,	8 "	10 x 12	25 00

Darlot Rapid Hemispherical View Lenses.

These Lenses embrace an angle of from 60 to 75 degrees; are quick-acting, perfectly rectilinear, and provided with central stops. Will be found very fine lenses for landscape and outdoor groups; also for copying engravings, maps, architectural subjects, etc.

	Back Focus.	Size View.	Price.
No. 1,	5½ inches	5 x 6	$15 00
" 2,	9 "	5 x 8	25 00
" 3,	10½ "	8 x 10	35 00

No. 1 can be had in matched pairs for Stereoscopic work.

Scovill's "Peerless" Quick Acting Stereoscopic Lenses,

FOR PORTRAITURE OR VIEWS.

The Lenses are especially designed for Stereoscopic Photography, and are so constructed that they will work well for interiors or exteriors.

They are particularly adapted for instantaneous work.

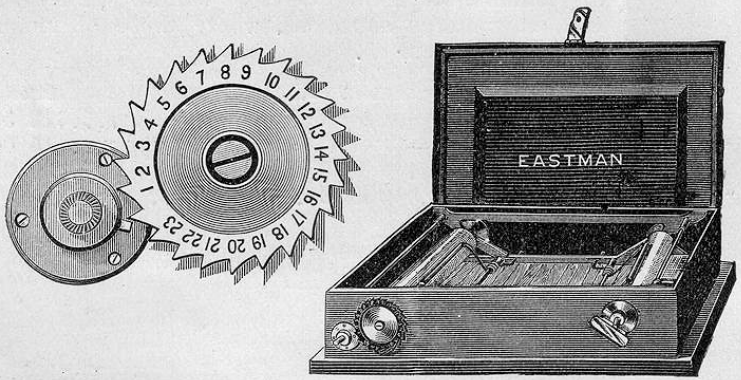
Diameter of Lenses, 1½ inch; focal length, 3½ inches.

By removing the back lens and substituting the front combination, a focal length of 5½ inches is obtained.

They are supplied with six Waterhouse diaphragms in morocco case.

Price, per pair..... $25 00
Imitation Dallmeyer Lens.....per pair, 9 50
" " Lenses, matched for Stereoscopic Work, " 17 00

Eastman-Walker Roll Holders.



Patented May 5, 1885. Label Registered, 1885.

Fitting Roll Holders.

We can fit Roll Holders to the standard Cameras. *An extra charge* is made for this in all cases except when the holder is sold with the camera. In ordering roll holders for old cameras it is advisable to send the camera or one of the double holders to the factory to serve as a pattern. Where this is impracticable on account of distance or otherwise, give full particulars as to make and name of camera and outside dimensions.

Each Roll-Holder has the non-detachable key and Scovill patent automatic tally.

No Roll-Holder is complete without this tally.

‡3¼ x 4¼....$12 00	5 x 8. ..$20 00	16 x 20 ....$60 00
‡4 x 5 ... 15 00	6½ x 8½ 24 00	17 x 20 .... 65 00
†4¾ x 6½.... 17 50	8 x 10... 30 00	18 x 22 .... 75 00
*4½ x 7½.... 20 00	10 x 12... 36 00	20 x 24 .... 80 00
5 x 7 .... 20 00	11 x 14... 42 00	25 x 30 .... 85 00
†5 x 7½.... 20 00	14 x 17... 50 00	

* This size is made for 5 x 8 Cameras that are too small for our regular 5 x 8 holder, viz.: Scovill's '76, and Waterbury. † English sizes. ‡ Visible indicator only.

All sizes of Roll Holders up to and including 11 x 14 carried in stock. Larger sizes to order.

☞ We send out with every Roll Holder a spool of plain paper, to enable the operator to learn to manipulate it in the white light.

Roll Holders.—Extra Parts.

All parts of Roll Holders are made interchangeable, and any part can be furnished on application.

Extra Keys, old model.....25 cts. each.

EXTRA REELS.

3¼ inches.....50 cts.	11 inches.....$1 00
4 " .....50 "	14 " 1 00
4½ " .....50 "	16 " 1 25
4¾ " .....50 "	17 " 1 25
5 " .....50 "	18 " 1 25
6½ " .....75 "	20 " 1 50
8 " .....75 "	25 " 2 00
10 " .....75 "	

Extra Reels enable the operator to remove the exposed paper from the roll holder without separating the exposures or rewinding the paper film, an operation that should always be avoided. Enough extra reels should be provided to carry all exposures that are intended to be made before developing. For instance, if 100 exposures are to be made on a trip, 3 extra reels are required. Each reel, as soon as full, is removed from the holder and replaced by another to take the paper from a fresh spool. The boxes in which the spools are sold serve to store the reels of exposed paper. Empty spools are thrown away.

Film Carriers.

Patented May 5, 1885.

	$\frac{3}{32}$ in. thick.	$\frac{1}{8}$ in. thick.	$\frac{3}{16}$ in. thick.		$\frac{3}{32}$ in. thick.	$\frac{1}{8}$ in. thick.	$\frac{3}{16}$ in. thick.	$\frac{1}{4}$ in thick.
3¼ x 4¼	$0 25	$0 25	—	8 x 10.	$0 50	$0 50	$0 50	—
4 x 5	30	30	—	10 x 12.	—	—	60	—
4¾ x 6½	30	—	—	11 x 14.	—	—	75	—
5 x 7	35	—	35	14 x 17.	—	—	1 00	—
5 x 7½	35	—	—	16 x 20.	—	—	—	$1 25
5 x 8	35	35	35	18 x 22.	—	—	—	1 50
6½ x 8½	40	40	40	20 x 24.	—	—	—	1 75

Sizes not mentioned are not made and cannot be furnished.

In ordering carriers specify which thickness is wanted. The thicker the carrier the more rigid.

Double Holders that have the plate slide in from the end require the thinest carrier, ($\frac{3}{32}$).

The Daisy Holder will take the $\frac{1}{8}$ inch carriers when the septum is removed. As the carriers are opaque, the septum is not required.

Wet Plate Holders require the $\frac{3}{16}$ carriers.

ACCESSORIES

—FOR—

Scovill's  Amateur

Photo. Outfits.

PRICE LIST

—OF—

Photograph Cards

FOR MOUNTING VIEWS.

Plain Cards, White or Gray.

Per Package of 25.

No. 2.	9 x 11	$0 45
" 2.	6½ x 8½	30

Plain Cards, with Square Gilt Line.

Per Package of 25.

No. 2.	10 x 12, White or Gray, 6 x 8 Opening	$1 00
" 2.	9 x 11, " " 5 x 8 "	80
" 2.	6½ x 8½, " " 4 x 5 "	60

Thin Gold Beveled Edge Cards.

WITH CLEAN CUT EDGES—PURE NON-TARNISHABLE GOLD LEAF.

No. 26, Black, Chocolate, Olive, Dark Olive or Brown, Enameled both sides.

No. 67, Maroon Face, Gray Backs.

Per Package of 25.

Cabinet size, Round Corners,	4¼ x 6½	$0 52
Boudoir " "	5¼ x 8½	85
4¼ x 5¼ " "		50
5 x 8 " "		85
3½ x 4½ " "		40

No. 26, White, Primrose, Pearl, Gray or Rose.

Per Package of 25.

Cabinet size, Round Corners,	4¼ x 6½	$0 52
Boudoir " "	5¼ x 8½	85
4¼ x 5¼ " "		50
5 x 8 " "		85

Boudoir and Thin Panel Cards.

No. 9, White, Primrose, Pearl, Gray, Rose, Plain Cards Round Corners.

Per Package of 25.

Boudoir (or 5 x 8),	5¼ x 8½	$0 55
Cabinet Panel,	4 x 8¼	33
4 x 5 or 4¼ x 5¼		30

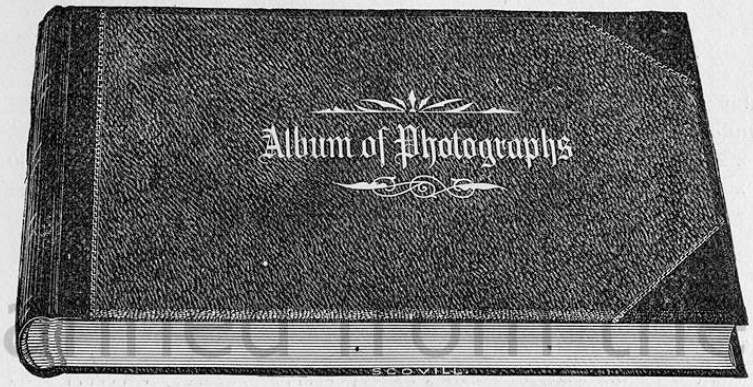
No. 9, Black, Chocolate or Maroon Face, Gray Backs, Plain Cards, Round Corners.

Per Package of 25.

Boudoir (or 5 x 8),	5¼ x 8½	$0 55
Cabinet Panel,	4 x 8¼	45
4 x 5 or 4¼ x 5¼		30

Scovill's Albums FOR Photographs.

(NEW STYLE.)



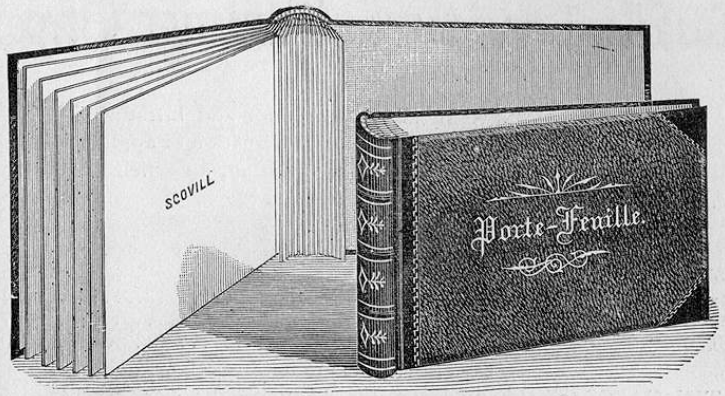
How often the Amateur Photographer is heard to remark, that as fast as he makes prints from a negative his friends get away with them, and none are left to be treasured up as evidences of his advancement in the art. In order to keep at least one picture from each negative, and to arrange the collection in the best manner for display and preservation, tasteful albums have been introduced by the Scovill Manufacturing Co.

Each Album has 48 pages, 24 leaves. In them the finest card-board only is used, chemically free from anything that could injure a print.

PRICES:

For Photo. (size).....	4x5	5x8	6½x8½	8x10
Size of Card	6x7	7x10	10x12	11x14
Plain	$1.15	1.40	2.00	2.25
With Prepared Surface.....	1.35	1.75	2.75	3.00
With Gilt Lines.....	1.65	1.90	2.50	2.75

The Scovill Porte-Feuille



Is a device for the preservation, in convenient form, of cards upon which photographic prints have been mounted.

A series of muslin holders, bound between covers with patent flexible backs, constitute a book having great strength of binding combined with a flexibility that allows the book to be opened flat without strain. Prints can thus be put into book form, readily and securely, *after* they have been mounted and also (when desired) burnished. The insertion of the cards is very simple, as will be seen by the directions which follow: To the inner faces of one of the holders apply enough paste to attach the card securely; not so much as will smear the exposed face of the card; then insert the card and rub down on both sides; allow the paste to dry before putting in another card.

Do not put the Paste on the Card.

PRICE LIST OF PORTE-FEUILLE,

Including Twenty-five Sheets of Collins' Best Quality White Cards.

No. 1.	Outside dimensions,	7 x 10 for 5 x 8	Photographs..	$1 45
" 2.	" "	10 x 12 for 6½ x 8½	"	2 00
" 3.	" "	11 x 14 for 8 x10	"	2 40

Price List of Porte-Feuille, including 25 Sheets of Collins' White Muslin Back Cards.

No. 4,	Outside dimensions,	7 x 10 for 5 x 8	Photographs.....	$1 30
" 5,	" "	10 x 12 for 6½ x 8½	"	1 90
" 6,	" "	11 x 14 for 8 x 10	"	2 30

Price List of Cards per package of 25, not including Porte-Feuille.

COLLINS' BEST WHITE CARDS.

7 x 10... ..... $0 45 | 10 x 12..... .... $0 70
11 x 14..... $0 88.

COLLINS' WHITE MUSLIN-BACK CARDS.

7 x 10..... $0 30 | 10 x 12 ..... $0 60
11 x 14..... $0 80.

Collins' White Muslin-Back Cards, in Rolls, 22 inches wide, 14 cts. per yard.

SCOVILL'S

Ready Sensitized Albumen Paper.

This Paper was expressly manufactured for and introduced by us to give to those who have not the skill, time, inclination or appliances to sensitize photographic paper preparatory to printing, an article of the finest quality and of uniform sensitiveness.

PRICE LIST.

Size.					Per Package.
4x 5	inches, in light-tight packages,	2	dozen	.....	...$0 40
5x 8	" "	2	"	.....	75
18x22	" "	1	"	..... per doz.	3 00

To save loss, rolls are not broken.

TIN CASES to hold one dozen, 18x22 Sensitized Paper, 30 cents each.
" " three " " " " 50 "

S. P. C.

FERRO-PRUSSIATE PAPER,

For Making Blue and White Pictures.

Our brand **S. P. C.** is a sure index of superiority in texture, the paper is better wrapped than any other, and is noticeably free from spots. streaks or flaws.

This paper is extremely simple in its manipulation, and therefore very convenient for making proofs from negatives. It is also adapted for the reproduction of *Mottoes*, *Plans*, *Drawings*, *Manuscript*, *Circulars*, and to show representations of Scenery, Boats, Machinery, &c., for an engraver to copy from. The rapidity with which a print can be made with this paper is for numerous purposes, and to men in some occupations, a very great recommendation in its favor.

PRICE LIST.

Size.					Per Package.
4 x 5	inches, in	2	dozen light-tight	parcels.....	....$0 28
5 x 8	"	2	"	"	50
6½x 8½	"	2	"	"	67
8 x10	"	2	"	"	83

To save loss, parcels are not broken.

In full rolls of 11 yards each, 29 inches wide, $3.50 per roll.

EASTMAN'S NEGATIVE PAPER.

This Negative Paper is adapted for landscape and interior work and for large portraits. For these purposes it is equal to glass in all respects, and has the important advantages of portability, freedom from halation, and economy. Full directions with every package.

CUT SHEETS.

3¼ x 4¼	two doz. in box,	$0	65	11 x 14	one doz. in box,	$3	50
4 x 5	" "		90	14 x 17	" "	5	50
4¾ x 6½	" "	1	40	16 x 20	" "	7	25
5 x 7	" "	1	55	17 x 20	" "	7	75
5 x 7½	" "	1	65	18 x 22	" "	9	00
5 x 8	" "	1	75	20 x 24	" "	12	00
6½ x 8½	" "	2	45	24 x 36	" "	20	00
8 x 10	" "	3	50	30 x 40	" "	27	50
10 x 12	one doz. in box,	2	60				

ON SPOOLS, TO FIT ROLL HOLDERS.

3¼	in. for two dozen	3¼ x	4¼	exposures.....	$0	75
4	in. " "	4 x	5	"	1	00
4½	in. " "	4½ x	7½	"	1	80
4¾	in. " "	4¾ x	6½	"	1	55
5	in. " "	5 x	8	"	2	00
6½	in. " "	6½ x	8½	"	2	70
8	in. " "	8 x	10	"	4	00
10	in. " "	10 x	12	"	6	00
11	in. " "	11 x	14	"	8	00
14	in. for one doz.	14 x	17	"	6	00
16	in. " "	16 x	20	"	8	00
17	in. " "	17 x	20	"	8	50
18	in. " "	18 x	22	"	10	00
20	in. " "	20 x	24	"	13	25
25	in. " "	25 x	30	"	20	00

Spools wound with 3 or 4 dozen, if required.

EASTMAN'S AMERICAN FILMS.

Patented May 5, 1885.

The American Film consists of a film of *insoluble* sensitive gelatine emulsion attached to a paper support by means of a layer of *soluble* plain gelatine. The paper serves as a temporary support during the operations of exposure, developing, fixing and washing. After which the film is laid down on a prepared sheet of glass, the paper is removed by warm water which dissolves the soluble gelatine layer and leaves the film on the glass; the paper is then replaced by a varnish of thick gelatine and glycerine, dried, and the whole stripped from the glass ready for printing. Full details of the operations outlined are given in the printed directions enclosed in every package. We recommend these Films for use where a perfectly transparent negative is required, as in enlarging.

PRICES OF EASTMAN'S AMERICAN FILMS.

CUT SHEETS.

Size.	Per Package.
3¼ x 4¼, two dozen in package	$0 70
4 x 5 " "	1 00
4¾ x 6½ " "	1 50
5 x 7 " "	1 75
5 x 7½ " "	1 90
5 x 8 " "	2 00
6½ x 8½ " "	2 80
8 x 10 " "	4 00
10 x 12, one dozen "	3 00
11 x 14 " "	4 00

FILMS ON SPOOLS TO FIT THE EASTMAN-WALKER ROLL HOLDERS.

Size.	Price.
3¼ inch, for 24 exposures 3¼ x 4¼	$0 85
4 " " " 4 x 5	1 10
4½ " " " 4½ x 7½	2 00
4¾ " " " 4¾ x 6½	1 75
5 " " " 5 x 8	2 20
6½ " " " 6½ x 8½	3 00
8 " " " 8 x 10	4 50
10 " " " 10 x 12	6 75
11 " " " 11 x 14	9 00

Other sizes in proportion.

Pure Para Gum.

SOLUBLE—FOR TRANSFERRING EASTMAN'S FILMS.

Per package.....25 cts.

EASTMAN'S PERMANENT BROMIDE PAPER

MADE IN THREE VARIETIES.

A—Smooth surface, thin, for positive printing, copying drawings, etc., by contact.

B—Smooth surface, heavy, for enlargements and working in ink, oil and water colors.

C—Rough surface, heavy, for enlargements, plain, and for working in crayon, ink, water colors and oil.

All one price.

Our paper is uniformly and heavily coated by machinery with silver bromide, mixed with the least possible quantity of gelatine, to avoid curling, and to preserve the tooth of the paper for working with crayons.

We recommend the rough paper for plain enlargements and contact prints of all kinds on account of the fine artistic effects to be obtained.

Every batch of Bromide Paper is critically tested in our Enlarging Department. Absolute uniformity guaranteed.

Parties who have tried other makes of Bromide Paper and failed to obtain satisfactory results, are solicited to give this paper a trial.

A, B or C.—Cut Sheets.

Size.	Per Doz.	Size.	Per Doz.
3¼ x 4¼	$0 25	11 x 14	$3 00
4 x 5	40	12 x 15	3 35
4¼ x 5½	50	14 x 17	4 50
4¼ x 6½	55	16 x 20	6 00
4¾ x 6½	60	17 x 20	6 40
5 x 7	65	18 x 22	7 50
5 x 7½	70	20 x 24	9 00
5 x 8	75	22 x 27	11 25
6½ x 8½	1 10	24 x 30	13 50
8 x 10	1 50	25 x 30	14 00
10 x 12	2 25	24 x 36	16 00
10 x 14	2 65	30 x 40	22 50

Other sizes in proportion.

ON SPOOLS.

Patented May 5, 1885.

	Per Yard.		Per Yard.
10 inches wide	$0 56	20 inches wide	$1 12
11 "	62	22 "	1 24
12 "	68	24 "	1 35
14 "	79	25 "	1 40
16 "	90	30 "	1 68
18 "	1 00	31 "	1 74

Not less than 10 yards on a spool.

EASTMAN'S ENLARGING EASELS.

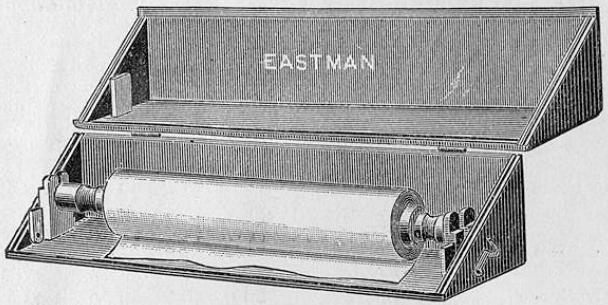
WITH SPOOL HOLDER.

Patented May 5, 1885. Other Patents applied for.

	Price Complete.
No. 1—For Spools up to and including 11 inches.....	$7 50
" 2 " " " 16 "	10 00
" 3 " " " 22 "	12 50
" 4 " " " 25 "	15 00

The above apparatus is for use with either natural or artificial light enlarging cameras or with the magic lantern and consists of an easel made to stand upon the floor and a Spool Holder fixture, which holds the roll of Permanent Bromide Paper. For use the paper is drawn down like a curtain and fastened on the face of the easel by a hinged frame, which, when in place, serves as a guide for registering the image correctly. After exposure, each length is cut off and a fresh piece pulled down. When not in use the Spool of paper is enclosed light-tight in the holder. Each easel is accompanied by one spool holder. If it is desired to use several widths of paper on the easel, extra spool holders (which are interchangeable) are employed.

Extra Spool Holders.



One Spool Holder accompanies each easel; where it is desired to make several sizes of enlargements, extra holders may be employed for each width of paper, or for several widths, as desired. These holders are all made interchangeable. Small sizes will fit on the large easels. Each holder is provided with a brake that bears on the back of the paper and prevents unwinding.

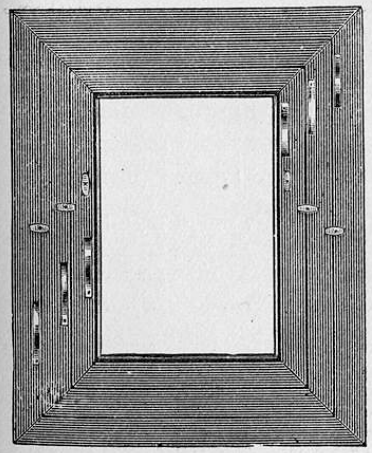
The spools of Permanent Bromide Paper for these holders are put up for the market in light-tight straw-board boxes.

Extra Spool Holders are a great convenience, as they obviate the necessity of unwrapping and re-wrapping paper.

PRICES OF EXTRA SPOOL HOLDERS.

	Price
No. 1 will take spools for paper up to 11 inches wide.....	$2 00
" 2 " " " 16 " "	2 50
" 3 " " " 22 " "	3 00
" 4 " " " 25 " "	4 00

Kits for Enlarging Easels.



Outside.	Inside.	Price.
25x30.....	22x27.....	$1 50
22x27.....	20x24.....	1 40
20x24.....	18x22.....	1 30
18x22.....	16x20.....	1 20
16x20.....	14x17.....	1 00
14x17.....	11x14.....	80
11x14.....	10x12.....	66
10x12.....	8x10.....	60

These Kits are made to nest one into the other, and they are provided with buttons for fastening in place; also spring clips for holding Eastman's Film Carriers for cut sheets.

OUTFIT FOR COPYING DRAWINGS.

WITH EASTMAN'S "A" BROMIDE PAPER.

	5¼ x 4¼	4 x 5	5 x 8	6½ x 8½	8 x 10	10 x 12	11 x 14	10 x 15	14 x 17	20 x 24
1 Printing Frame	.55	55	70	70	85	1 15	2.60	3.30	3.60	6.40
1 Glass for Frame	.10	10	15	20	20	25	25	25	50	1.00
6 Sheets yellow paper	.15	15	15	15	15	15	15	15	15	15
2 Japanned Trays	.40	40	50	70	80	1.00	1.20	1.20	2.00	5.00
1 Grass Graduate	.50	50	50	50	50	50	50	50	50	50
1 Minim Glass	.25	25	25	25	25	25	25	25	25	25
1 lb. Oxalate Potash	.40	40	40	40	40	40	40	40	40	40
1 lb. Proto Sulp. Iron, chem., pure	.50	50	50	50	50	50	50	50	50	50
1 lb. Hypo Sulph. Soda	.10	10	10	10	10	10	10	10	10	10
¼ lb. Citric Acid	.25	25	25	25	25	25	25	25	25	25
1 oz. Bromide Potass	.25	25	25	25	25	25	25	25	25	25
1 dox. Per. Bro. Paper, "A" or "B,"	.25	40	75	1.10	1.50	2.25	3.00	2.85	4.50	9.00
Price Boxed	$3.70	3.85	4.50	5.00	5.75	7.05	9.45	10.00	13 00	23.80

The above list comprises everything necessary to make copies of drawings with our Permanent Bromide Paper.

An ordinary Patent Office drawing on thick Bristol board, may be copied in five seconds in ordinary light. No previous knowledge of Photography required. Full instructions with each outfit.

HARD RUBBER PLATES.

FOR DRYING PAPER NEGATIVES.

		1/16 in. thick.			1/16 in. thick.
4	x 5	.10 cents each.	8	x 10	.40 cents each.
5	x 7	.18 "	10	x 12	.60 "
5	x 8	.20 "	11	x 14	.75 "
6½	x 8½	.30 "			

One Negative can be squeegeed upon each side of the rubber plate, which can then be placed in an ordinary plate rack to dry.

OUTFIT FOR DEVELOPING EASTMAN'S NEGATIVE PAPER

AND EASTMAN'S FILMS, AND MAKING POSITIVES ON EASTMAN'S PERMANENT BROMIDE PAPER.

Including all apparatus and material necessary to make finished photographs, except the Camera, Roll Holder, Lens, Tripod, Focusing Cloth and supply of Negative and Bromide Paper.

	4 x 5	5 x 8	6½ x 8½	8 x 10
1 Ruby Lamp	$2 00	$2 00	$2 00	$2 00
2 Glossy Rubber trays	54	1 20	1 60	2 60
1 Agate Pan	1 00	1 25	1 25	1 60
1 Graduate	35	35	35	50
1 Minim Glass	25	25	25	25
1 Bottle Developer	50	50	50	50
1 Oz. Bromide Potassium	25	25	25	25
1 Lb. Hyposulphite Soda	10	10	10	10
1 " Alum	10	10	10	10
1 " Proto Sulph. Iron	10	10	10	10
1 " Oxalate Potash	40	40	40	40
1 Package French Chalk	10	10	10	10
2 Oz. Sulphuric Acid	25	25	25	25
1 Bottle Rubber for Films	25	25	25	25
1 " Gel. Varnish "	25	25	25	25
1 Sheet Hard Rubber	10	20	30	40
1 Squeegee	40	40	50	50
1 Bottle Translucine	35	35	35	35
1 Flat Printing Frame	55	70	70	85
1 Paste Brush	5	5	5	5
1 Pot Paste	25	25	25	25
1 Dozen Mounts	25	30	40	50
	$8 29	$9 50	$10 30	$12 05
Price complete, boxed	$7 50	$8 70	$9 30	$11 00

SQUEEGEES.

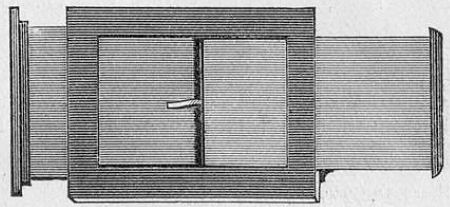
VELVET RUBBER.

6 inch.....40 cents. | 8 inch.....50 cents.
12 inch.....75 cents.

Squeegees are used to scrape off the water from the paper negative when laid on the rubber plates to dry.

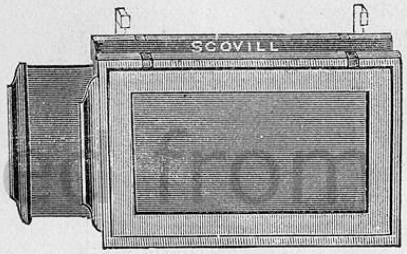
THE SCOVILL DRY PLATE HOLDER.

(PATENTED.)



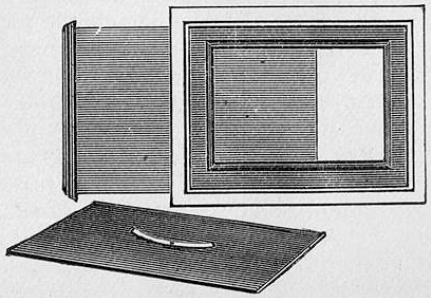
Scovill's Patent Double Dry Plate Holders are reversible, and made to receive kits.

THE DAISY DRY PLATE HOLDER.



"This holder is a Daisy." The frequent repetition of this exclamation fixed the name by which our new holder is designated. It has the great merit of being lighter and of occupying less space than any other substantial holder that has ever been devised. The Daisy Holder opens like a book when the dry plates are being put into or taken out of it, and is so arranged that light cannot penetrate through from one side to the other. There are no projecting screws on this holder. What supplies their place is simple and more effective. The slides have no catches, as they are unnecessary.

THE FLAMMANG SINGLE DRY PLATE HOLDER.



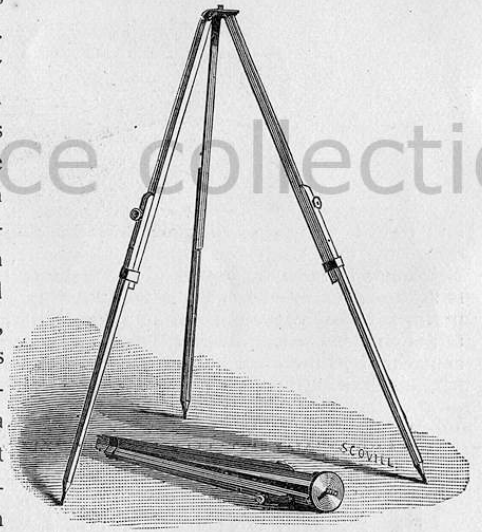
(Patented.)

ARRANGED TO TAKE KITS OF LESSER SIZE.

The Holders described on the previous page, for use in very hot or cold, or very moist climates, should be made of cherry with zinc slides. In fact, the hardwood Holders are very desirable anywhere.

Size.	Scovill's Patent Double Dry Plate Holder. Kits extra.	Daisy Double Dry Plate Holder. Kits extra.	Flammang's Single Dry Plate Holder. With Kits.
3¼x4¼	$1 50	$1 75	$1 50
4x5	1 75	2 00	1 75
4¼x5½	1 85	2 10	1 85
4¼x6½	1 90	2 25	1 90
5x7	2 10	2 35	2 10
5x8	2 20	2 50	2 20
6½x8½	3 80	4 20	3 80
8x10	5 00	6 00	5 00

THE SCOVILL EXTENSION TRIPODS.

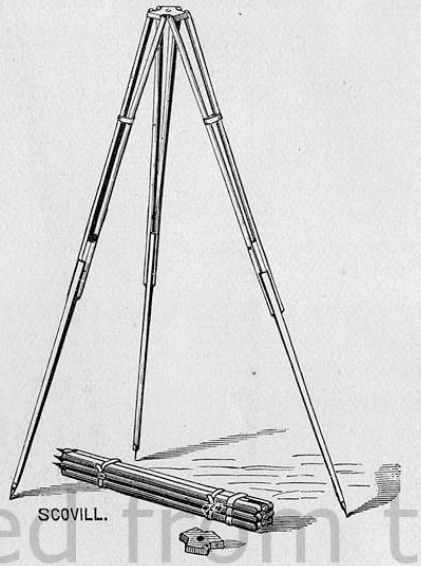


THIS Tripod possesses special advantages. It can be set up, ready for use, quicker than any other, and with less trouble. By turning the brass buttons shown in the accompanying illustration, the legs may "in a twinkling" be extended to the desired length, and fastened. When this Tripod is placed on uneven ground, the camera it supports may be brought to the proper level by simply adjusting the length of the Tripod legs. Another commendable feature of the Scovill Extension Tripod is, that it has no detachable parts to be misplaced or lost. Combining as it does firmness, strength and lightness, this Tripod must at once find favor with the professional view taker, who very often wastes valuable time, or loses opportune moments in placing the Tripod legs and changing their position to include just what is wanted in a picture, and to level the camera. The artist for a sketching trip finds the top of this Tripod a very convenient place to fasten his Easel, as well as his camera.

No. 1,	for 1-4 and 4x5 Cameras	each,	$3 00
" 2,	" 5x8 Cameras	"	3 25
" 2½,	" " "	"	3 50
" 3,	" 6½x8½ Cameras	"	5 00

The Scovill Adjustable Tripod.

(FEATHER WEIGHT.)

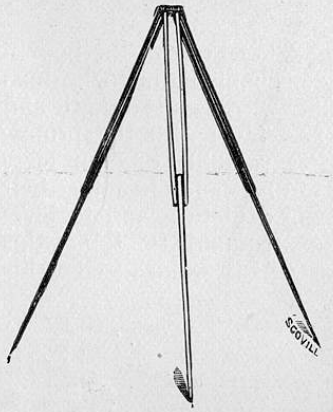


Nothing more compact, certainly nothing as graceful in appearance and light in weight as the new Tripod for out-door Photography, just produced by the American Optical Company, has yet made its appearance. Because so readily adjusted to the utmost irregularity of the earth's surface, it was decided to call it the "Adjustable Tripod." Lady amateurs prefer it to any other pattern on account of its lightness and beauty. The top is covered with billiard-cloth to prevent marring the fine polish on our cameras, and the clamping screws are not detachable.

SCOVILL ADJUSTABLE TRIPOD.

No. 1..... Price, each, $3.50
" 2..... " " 5.00

Scovill Adjustable Jointed Tripod, to fold and pack in a 22-inch Valise..... $4.00
Do. with Canvas Bag and Handle.. 4.75



THE IMPROVED TAYLOR TRIPOD.

The illustration here presented makes an extended description unnecessary. Suffice it to say that this tripod is very firm when set up, and folds up compactly by simply pressing together the two upper joints of each leg, thus unsetting them from the pins on the brass top and then doubling them over on to the third joint. This movement is naturally reversed when placing the tripod in position to support the camera.

Price, with metal disc and non-detachable screw..... $2.25 each.

Adapted for cameras from 1-4 to 8x10 size.

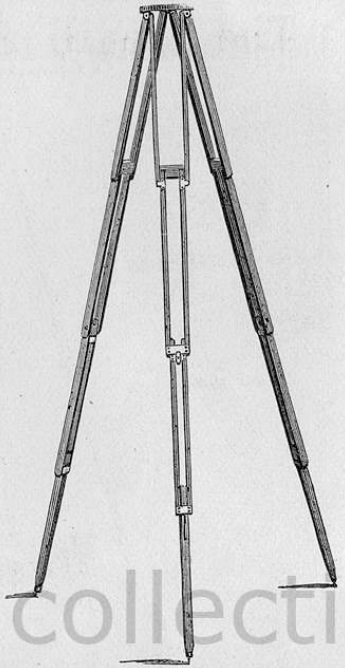
The Daisy Tripod.

An inspection of one of these Tripods will convince the most skeptical that it has no superior for ease of adjustment, lightness and compactness.

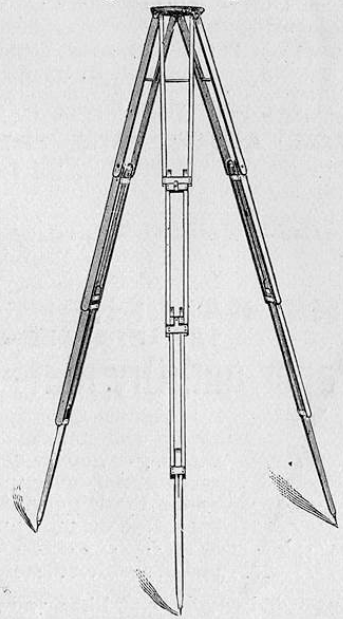
Length, when folded, 16½ inches.

Weight, 2 lbs.

Price, $5.00.

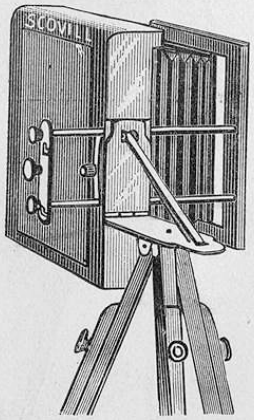


Mignon Tripod.



This Tripod weighs only 2 lbs. 2 ozs., and measures but 17 inches when folded.....Price, $5 00

Patent Camera Reversing Attachments.



ADAPTED ONLY TO SCOVILL EXTENSION TRIPODS.

No. 1, with No. 1 Extension Tripod, and Camera Bed Plate..... $4 50

No. 2, with No. 2 Extension Tripod, $5 00

"When the means for the reversal of a camera are brought into notice, it is a fair test to ascertain how quickly the movement can be consummated; is the mechanism intricate or the reverse; and, finally, does it aid in picture-taking, or, per contra, impair the worth of the production.

"When the new reversing attachment devised at the American Optical Co.'s factory is seen, no manual of instruction need be consulted to ascertain how it is applied or worked. This is obvious. A cut does not convey an idea of its merit thus readily.

"Two brass plates, hinged at the end, are opened to form a right angle, and held rigidly in that position, or are brought together and tightly clamped by a rod with a hooked end, which plays through an opening in the brass plate secured fast to the tripod top. Upon the upper plate the camera is set or unset at pleasure. Whether in the vertical or horizontal position, the camera is held so firmly as to be secured against vibration. The reversal can be effected in an instant."

THE HALLENBECK

Sensitized Paper and Dry Plate Safety Box.

Size.	Price, Ordinary.	Price, Cedar lined.
4 x 5	$1 00	$1 50
5 x 8	1 15	1 65
6½ x 8½	1 25	1 75
8 x 10	1 50	2 00
20 x 24	4 50	5 50

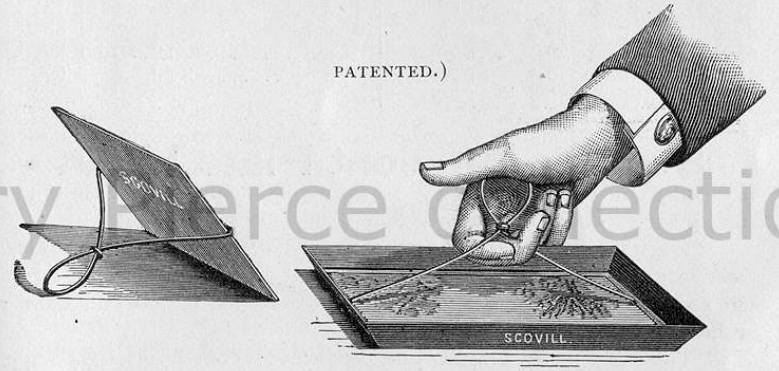
These boxes are provided with lock and key, and with weighted inside lid to keep paper flat.

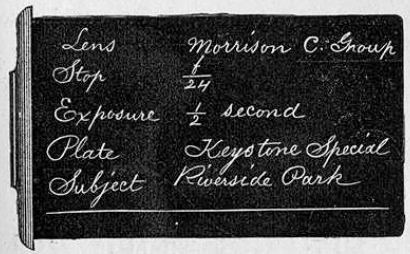
RUSSELL

Negative Clasp and Rack for Drying.

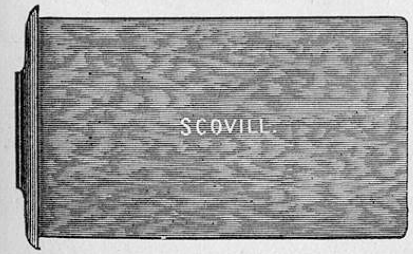
By using the **Russell Negative Clasp and Rack for Drying,** there is no need of wetting or staining the fingers in the developer, or of touching a plate until after it has been developed, varnished and dried. Adaptable for all sizes, from 3¼x4¼ to8x10 inclusive. Price, 15c. each.

PATENTED.)





Record surface of slide.



Other side of slide.

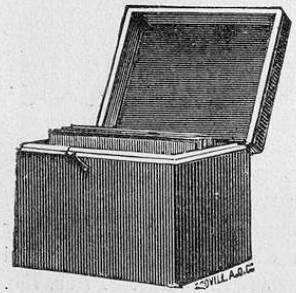
Cameras of 8x10 and smaller sizes, with Dry-Plate Holders, now made by the American Optical Company, are supplied with the **patent** Registering, or as they are sometimes called, Record Slides, on which may be written the data concerning exposures. These slides are indispensable to the view taker.

PRICE REGISTERING SLIDES.

Size for	3¼x4¼ ..... each,	$0 18
"	4 x5 ..... "	20
"	4¼x5½ ..... "	24
"	4½x6½ ..... "	28
"	5 x7 ..... "	35
"	5 x8 ..... "	40
"	6½x8½ ..... "	55
"	8 x10 ..... "	75

Registering Slides not made above 8x10 size.

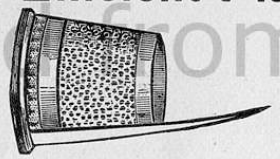
NEGATIVE BOXES.



FOR HOLDING TWENTY-FOUR PLATES EACH.

	Regular, with Hook.	Light Tight, with Lock and Key.
3¼ x 4¼	$0 62	$1 62
4 x 5	65	1 65
4¼ x 5½	70	1 70
4¼ x 6½	75	1 75
4 x 7	75	1 85
4 x 8	$0 75	$1 75
5 x 7	85	1 85
5 x 8	90	1 90
6½ x 8½	1 00	2 00

Scovill's Efficient Plate Lifter.



Described in the "British Journal Almanac for 1883."

This Plate Lifter is very nearly like an ordinary open end **Thimble** with a **Pointed Piece of Metal** soldered securely to it, as shown in the illustration.

Where a number of plates are developed in one dish, this Plate Lifter is not only a convenience, but quite a necessity.

Being the largest makers of thimbles in the country, we are enabled to offer these Plate Lifters for the nominal price of 15 cents each.

Scovill Developing Bottle

For Holding

EITHER

Ferrous Oxalate Developer

Stock Solutions.

Or Carbonate of Soda used

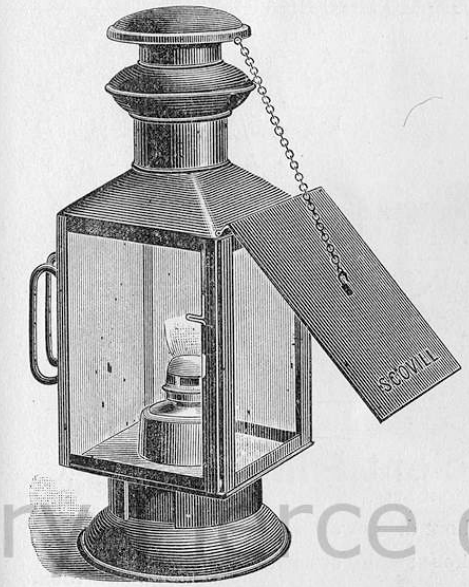
with Pyro. Developer.

SUPPLIED WITH PURE CLOTH RUBBER TUBING (GUARANTEED).

Bottle to hold one pint of solution		each,	$0 60
" "	one quart	"	75
" "	two quarts	"	1 00
" "	one gallon	"	1 25

LABEL WITH DIRECTIONS FOR USE ON EACH BOTTLE.

SCOVILL'S PEERLESS DARK-ROOM LANTERN.



"This is without question the best Lantern for the photographers' use yet introduced." Such is the report of experts who have had them in use for months.

Why they were agreed in their conclusions:

Because the ventilation is perfect, and danger of overheating overcome.

Because it is constructed so that white light does not escape.

Because it gives ample light for the dark-room.

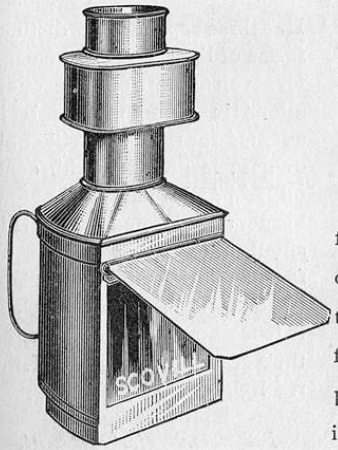
Because the abundant light does not fog, but does show any spot or blemish in the plate.

Because so much of the light may be thrown into the developing dish and be shaded from the eyes.

Because it may be used either with coal oil or candle.

Because the flame may be so quickly controlled by unlatching the door or uncatching the bottom of the Lantern.

Price, $2.50.

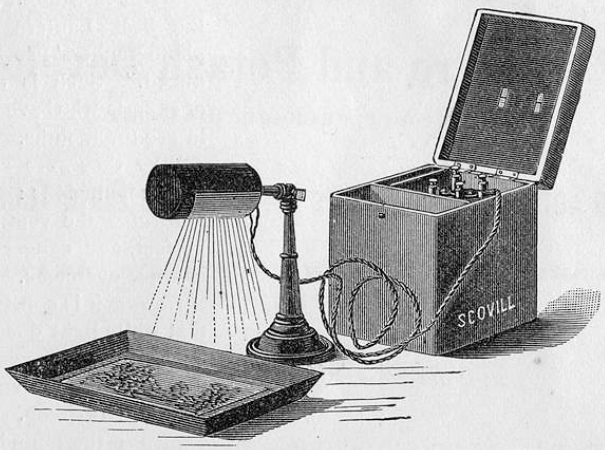


W. I. A. Petite Drv Plate Lantern.

This new Lantern is much to be preferred above an oil-consumer, on account of safety and cleanliness. The light emitted is abundant, and the ventilation perfect. When not in use the chimney of this petite lantern may be taken off and placed inside, over the candle. Price, $1.25.

The Scovill Electric Dark Room Lamp.

WITH NON-ACTINIC SHADE.



Good features never before combined for the dark room.

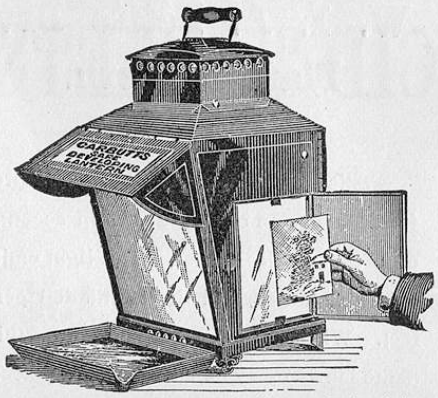
- Light without heat.
- Light without danger of fire.
- Light without smoke or smell.

Pure air and ventilation for the dark room.

Three candle-power Lamp.....$7.00
Six " " " 8.50
With Switch, add $1.00 to price of either Lamp.

CARBUTT'S

Multum in Parvo Dry Plate Lantern.



Lantern arranged for developing, and after fixing examining negatives by opal light.

Has three separate and distinct forms of light, and can be used for seven or more different operations in photography. It is adapted for the use of either oil or gas; is provided with coal-oil lamp, with improved patent burner and silvered reflector; is about nine inches square by fourteen inches high, with eight by ten light of deep ruby glass in front, and good for protecting the eyes from the glare of the red light.

Price, $6.00.

Boxed ready for shipment.

S. P. C. CARBONATE SODA DEVELOPER,

Price per Package, 50 Cents.

S. P. C. Pyro and Potash Developer,

Price per Package, 60 Cents.

Do not Stain the Fingers or Leave the Plate Yellow.

WORK EQUALLY WELL WITH ALL BRANDS OF PLATES.

Giving perfect detail, density and brilliancy in the negative.
Full directions enclosed in each package.

S. P. C. Bromide Developer, for Eastman Bromide Paper,

Price, 75 Cents.

A Great Convenience in Developing Dry Plates.

PELLETONE

PYROGALLIC

ACID TABLETS

Put up in bottles, each containing 100 two-grain (*exactly* 2 grains) tablets of

SCHERING'S

Unrivaled Pyrogallic Acid.

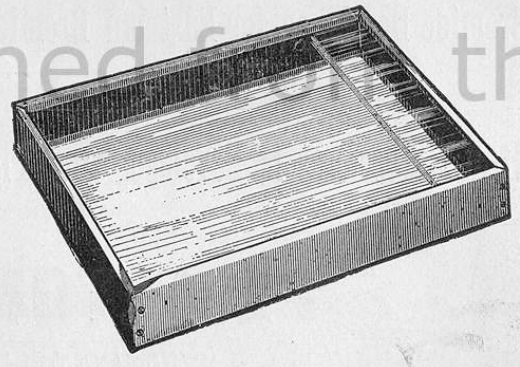
Price per Bottle .....40 Cents.

The Latest S. P. C. Solutions, Ready Prepared for the use of Photographers.

Flandreau's S. P. C. Hypo Eliminator, with book of Test Paper.....Price, $0 50
Flandreau's S. P. C. Retouching Fluid, for Varnished and Unvarnished Negatives.....Price per bottle, 25
Flandreau's S. P. C. Orthochromatic Solutions :
Erythrosine Solution and Xanthine Collodion. Price per package, including full directions..... 1 50

The Acme Glass Bottom Developing Trays

FOR DRY PLATES.



These Trays enable the operator to develop a plate without removing it from the solution until fully developed.

The Trays are made of Walnut, with Glass Bottoms, and Receptacle at one end to hold the solution while looking at the plate. They also have buttons adhering to the glass to prevent suction.

The Acme Trays are superior to all others in respect to cheapness, durability and cleanliness. They are lined with acid proof cement, and warranted not to leak.

Prices for Scovill Acme Tray to Develop a

4¼ x 6½	Plate		$1 00
5 x 7	"		1 00
5 x 8	"		1 20
6½ x 8½	"		1 25
8 x 10	"		1 30
10 x 12	"		2 00
11 x 14	"		2 25

Trays for silvering whole sheets, 19 x 24, made of walnut, with double thick glass bottom..... 5 50

DEVELOPERS AND CHEMICALS IN SOLUTION

TRANSPORTED SAFELY IN

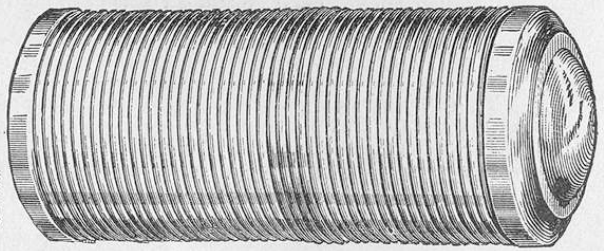
CORRUGATED PROTECTING CASES,

Supplied with Cut Glass Bottles, and Graduated Tumbler to Measure Liquids.

CORRUGATED PROTECTING CASES are a great convenience to the landscape Photographer and amateur picture-taker when away from home. Though made of thin metal, the corrugation makes them so strong as to resist crushing. Being nickled and finely finished, the external appearance of these Cases is

DECIDEDLY TASTEFUL,

indeed, one would be more inclined to place them in a satchel than in a packing case. Whether carried about in a horizontal or vertical position, the locking ring affords perfect protection for the liquids contained in the bottle.

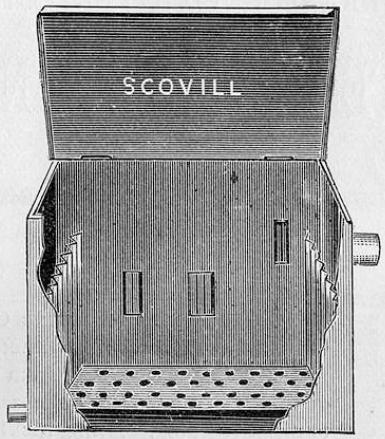


PRICE LIST.

		Each.
No. 1.	Diameter, 1⅝ in. Length, 3½ in. Weight, 4½ oz. Furnished with 1 ounce bottle.....	$ .50
No. 3 A	Diameter, 2 in. Length, 5½ in. Weight, 7⅞ oz. Furnished with 4 oz. bottle, with tumbler, making ½ pint flask.....	.85
No. 4 A	Diameter, 2½ in. Length, 7 in. Weight, 14 oz. Furnished with 8 oz. bottle, with tumbler, making ½ pint flask.....	1.10
No. 13 A	Diameter, 2¾ in. Length, 6 in. Weight, 17 oz. Furnished	

SCOVILL'S ADAPTABLE WASHING BOX.

(PATENTED.)



Besides enlarging the upper spout, which is the outlet of our Negative Washing Boxes, we have introduced a new pattern with features which must commend themselves as being very desirable. A false bottom with perforations in every square inch has been put in this Box. The receiving pipe conducts the water underneath the false bottom. The result accomplished by this form of construction is to prevent the water passing through the Box with too great force. Not only is it checked, but it is also equally distributed so that every plate and each portion of a plate is washed equally. *We have also arranged the Box so that the plates may be taken out without putting the hands into the water.*

The 8 x 10 Adaptable Box has the desirable feature of being arranged so that plates of 6½ x 8½, 5 x 8 and 4 x 5 size can be washed in it in addition to the 8 x 10 size.

SCOVILL ADAPTABLE NEGATIVE WASHING BOXES.

		Price each.
5 x 8,	Adapted for 4 x 5 and 3¼ x 4¼ sizes	$2 75
6½x 8½,	Adapted for 5 x 8, 5 x 7, 4 x 5 and 3¼x4¼ sizes	3 00
8 x10,	Adapted as above stated	3 50
10 x12,	Adapted for 8x10, 6½x8½, 5x8, 5x7, 4x5 and 3¼x4¼ sizes,	4 00
11 x14,	Adapted for 8x10, 6½x8½, 5x8, 5x7, 4x5 and 3¼x4¼ sizes,	4 50

SCOVILL'S WASHING BOXES.

PRICE LIST.

No. 1, for 3¼ x 4¼	Plates		$1 60
" 2, " 4 x 5	"		1 75
" 3, " 4¼ x 5½	"		1 90
" 4, " 4¼ x 6½	"		2 00
" 5, " 5 x 7	"		2 10
" 6 " 5 x 8	"		2 15
" 7, " 6½ x 8½	"		2 25
" 8, " 8 x 10	"		2 50
" 9, "11 x 14	"		3 75

Larger sizes made to order.

TRANSPARENCIES.

DRAWING-ROOM TRANSPARENCY FRAMES.

These Frames can be described, or characterized by one phrase, "THE REFINEMENT OF TASTE."

SIZE.	EACH.	SIZE.	EACH.
4 x5 inch	$0 28	6½x 8½inch	$0 38
4¼x6½ "	30	6¾x 9 "	48
5 x7 "	30	8 x10 "	48
5 x8 "	34	10 x12 "	75
6½x7½ "	38	11 x14 "	90

SCOVILL'S ETCHED GROUND GLASS

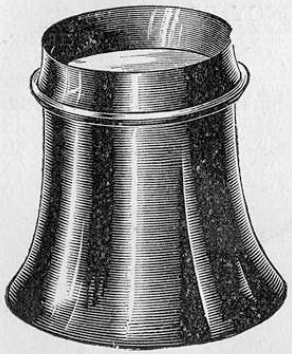
(WITH HANDSOME DESIGNS ON BORDER), FOR TRANSPARENCIES.

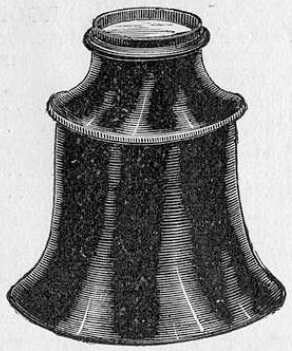
6½x 7½ for 4 x 5 Picture	Per light,	27½ cts.
6¾x 9 " 4¼x 6½, 5x7, and 5x8 Picture	"	42½ "
8 x10 " 6½x 8½ Picture	"	50 "
10 x12 " 8 x10 "	"	62½ "

Plain Ground Glass for Transparencies.

	Per Light.		Per Light.		Per Light.
4 x5	$0.12	5 x8	$0.18	8x10	$0.35
4¼x5½	15	6½x8½	28	10x12	50
4¼x6½	16				

WATERBURY FOCUSING GLASSES.





No. 1, Waterbury Focusing Glass,	Horn	each, $0 25
" 2, " " "	Rubber	" 40
" 3, " " "	Cork	" 40
Darlot Focusing Glass		" 3 00

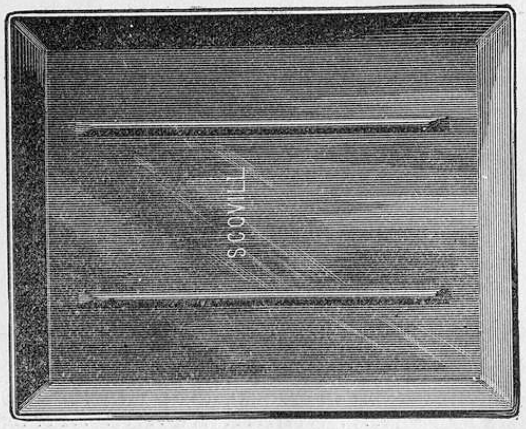
C. C. H. FOCUSING GLASS.

This is a desirable little instrument for aiding the operator in getting a sharp focus.

C. C. H. FOCUSING GLASS.....$4 00
Scovill's 3-legged Focusing Glass, each..... 75

Save your eyes by using one of these instruments.

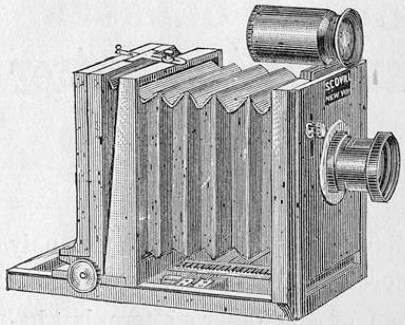
SCOVILL'S GLOSSY RUBBER TRAYS.



After a protracted and costly series of experiments, we are now able to offer to the trade, a superior article in texture, durability and polish. The utility of the parallel ridgelets must at once be apparent to the photographic practitioner.

PRICE LIST.

	Size.	Price, each.
No. 200,	$4\frac{3}{8}$ x $5\frac{5}{8}$ for 1-4, 4-5, and $4\frac{1}{4}$ x $5\frac{1}{2}$ plates	$0 27
" 300,	$5\frac{1}{2}$ x $8\frac{1}{2}$ for 5 x 7 and 5 x 8 "	60
" 400,	7 x 9 for $6\frac{1}{2}$ x $8\frac{1}{2}$ "	80
" 500,	$8\frac{1}{2}$ x $10\frac{1}{2}$ for 7 x 9 and 8 x 10 "	1 30



THE
"WATERBURY FINDER"
Each $3.00.
To Attach to Camera
FOR
Instantaneous Work.

PEERLESS FINDER,
Each, $1.50.

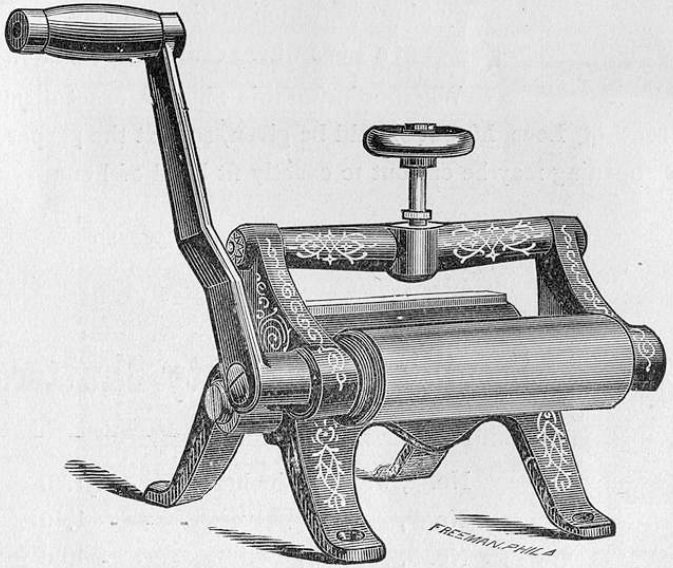
—S. P. C.—

JAPANNED DEVELOPING TRAYS

(Made of Selected Metal)
—FOR—
DRY PLATE PHOTOGRAPHY.

Size $4\frac{1}{2}$ x $5\frac{1}{2}$	inches	price each, 20 cents.
" $5\frac{1}{2}$ x $8\frac{1}{2}$	"	" 25 "
" 7 x 9	"	" 30 "
" $8\frac{1}{2}$ x $10\frac{1}{2}$	"	" 40 "

BURNISHERS.



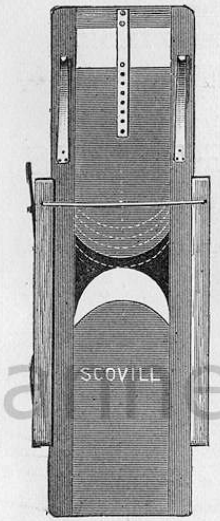
—PRICES—

6 inch roll.....$13 00 | 10 inch roll.....$20 00

If by accident, or otherwise, the burnishing tool becomes defaced, it can be replaced with a new tool at a mere nominal cost, and the machine is as good as new.

Scovill's Universal Safety Shutter

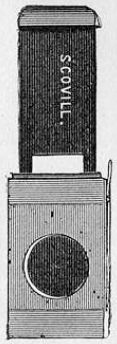
PRICE, $3.00.



THIS Shutter is styled Universal, not only because more of the Scovill Safety Shutters are in use than of any other pattern, but because it can be arranged with a variety of openings, as shown by the dotted lines of the accompanying illustration. Uniform distribution of light over the plate is insured by the form of opening.

The brakes on this Shutter make it safe to use, by preventing a recoil with the resulting double exposure, and the jarring common to many Shutters, which in time breaks apart the glasses of a Lens where cemented together.

When ordering this Shutter, exact diameter of front of Lens Mount should be given, so that the proper cir cular opening may be cut out to exactly fit hood of Lens.



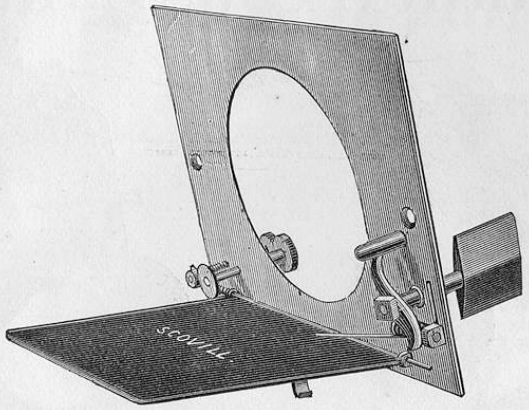
Scovill's Plain Safety Shutters.

No. 1, width $2\frac{3}{4}$ inches, - - $1.20
No. 2, " $3\frac{1}{8}$ " - - - 1.40
No. 3, " $3\frac{1}{2}$ " - - - - 1.60

All of the above Shutters sent without circular opening unless that is called for and *exact* diameter given.

THE KELLOGG INSTANTANEOUS SHUTTER.

Price, $5.00.



DESIGNED ESPECIALLY FOR INSTANTANEOUS WORK UPON BOTH LAND AND WATER.

Is always in position ready for a "shot." Cannot receive any accidental injury, as it is situated inside the Camera and worked from the outside.

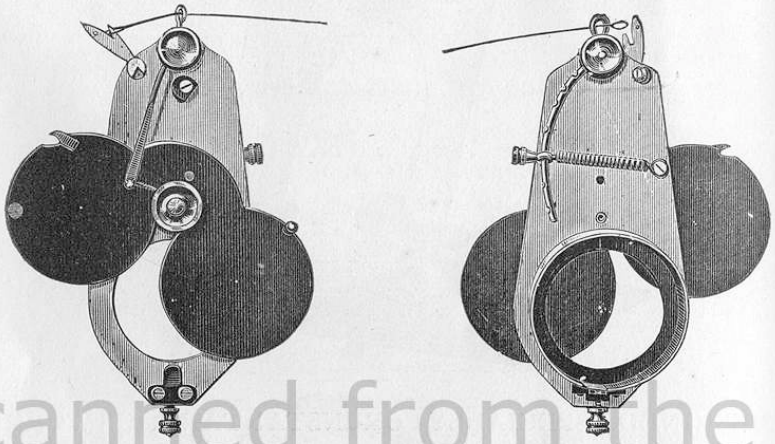
The effect of hinging the door at its lower side is to have the ground receive a longer exposure than the sky, which is a great advantage.

With the thumb-screw which controls the tension of the closing mechanism, the time of exposure can be varied at will.

To focus, push in button under adjusting screw, which opens the shutter and holds it open.

To adjust the shutter it is simply necessary to remove the nuts from the inside ends of the spindles; remove the spindles and fasten the plate to the inside of the camera front by two small screws, so that the circular hole in the plate coincides with the hole in the front board for the lens; three holes having previously been made in the front board so that the three spindles can be replaced, and can turn easily in their bearings.

THE "ECLIPSE"
Instantaneous Shutter.



FRONT. BACK.

SIZES AND PRICES.

No. 0,	for hoods up to	1⅛	inches	diameter.....	$7 00
" 1,	"	" 1⅞	"	.....	7 00
" 2,	"	" 2⅝	"	.....	7 50
" 3,	"	" 2⅞	"	.....	8 00
" 4,	"	" 3⅜	"	.....	8 75

Pneumatic Release, $1.00 extra.

Please send with order a strip of paper, whose ends will just meet around hood of lens.

These Shutters are virtually made to order, as each purchaser gets one accurately fitted to his lens, and of a size (neither too large nor too small) suited to work to the best advantage.

A pretty clear idea of the construction and operation of the "ECLIPSE" Shutter can be had by a study of the two cuts (back and front views), herewith shown.

Its simplicity and compactness are evident. Its weight is less than eight ounces for a No. 2 Shutter. It is perfectly light-tight, and is free from jar. Its speed, from one second's exposure to any rapidity, is *regulated with precision* by simply moving the spring on the back of the Shutter, from one notch to another on the curved arm.

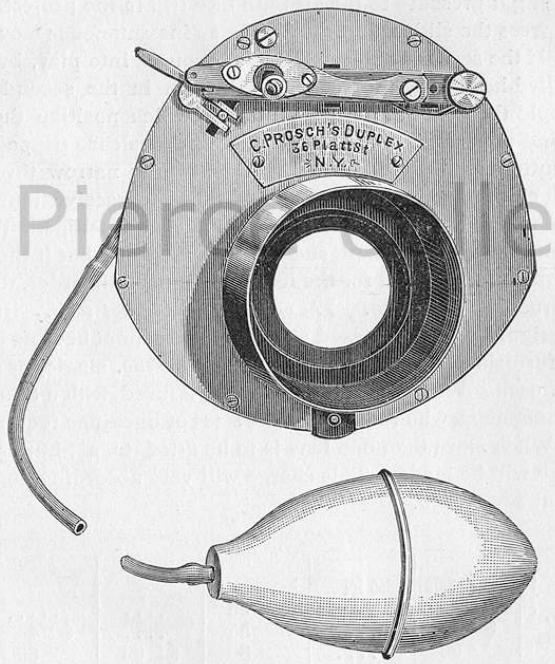
One of its most excellent features, and which is *unequaled* for simplicity and efficiency, is the *hair-trigger release*. This release can be operated by hand or by a cord, which can be led to any point, and even if jerked violently, it will not jar the instrument in the slightest degree. The revolving fly attains motion before it is entirely freed from the release, and so does not start with a jerk as with *all other* releases.

The popularity of the "PROSCH" Shutter of last season is well-known. The "ECLIPSE" Shutter is the latest production of the inventor of that Shutter.

"DUPLEX"
Photographic Shutter.

For Timed or Instantaneous Work.

PERFECT IN BOTH.



WITH THIS SHUTTER exposures can be made of any desired duration. It is equal to any requirement for the most rapid work, and as a time Shutter, exposures can be made as quick as two pulsations can be given to air bulb, (about one-tenth of a second) or of minutes duration.

"Duplex" Shutters work perfectly with even the very largest lenses up to their full capacity; and several lenses can be used with the same Shutter. The Shutter gives a full opening; but yet by the peculiar opening in the exposure slides, any part of the picture can be favored, with more or less illumination, by turning the Shutter, sometimes even inverting it.

The illustration gives a front view of the Shutter, one-half size of No. 2, which is suitable for an 8 x 10 lens, or even larger, as it has an opening at the diaphragm of 1⅛ inches.

Enclosed in metal casing, are two pivoted slides which moves in unison, in opposite directions, and makes the exposure in one continuous movement, without the slightest jar, even when worked at its greatest rapidity. The motive spring is on the back of Shutter, and is of coiled wire; a perfectly reliable spring. Its tension is regulated by moving it along a series of notches. The exposure slides are moved by a stud on the lever shown on front, which passes through the Shutter, and a slot in each slide, and engages with the spring on the back. On the end of the lever are two notches hidden by the secondary lever. When the lever is fully depressed, the release catches in the upper notch and locks the slides closed. A slight pressure to the air bulb or a trip to the projecting end of the release, frees the slides, and they make an instantaneous movement, or exposure. If the secondary lever has been brought into play, by a turn or two to a milled-head nut, the release will catch in the second or lower notch and hold the slides at a full opening, in which position they remain until a second pressure is given to the bulb, or the release tripped by hand.

The Shutters are made in standard sizes, having narrow threaded collars on each side, to which can be adapted tubes to receive lenses, which are to be transferred from regular lens tube. Any intelligent instrument maker or machinist can adapt such tubes to lenses; but if the complete lens, or a tube already fitted for the lenses, is sent with order, the Shutter will be returned all complete. *The original tube is not used.* Diaphragms of a new design, having a recessed surface which cannot become brightened in use, are furnished in sets of six at a cost of 75c. single, or additional ones at 15c. each. When more than one lens is used with a Shutter, additional diaphragms may be required. The sizes of openings required should be given. When more than one lens is to be fitted to a Shutter, an additional charge will be made. This charge will vary according to sizes, but will be about $2.00 each.

	Thin Crystal Lantern	Glass for Slides.				
3¼ x 4	$0 45	....	$0 65	....	....	....
3¼ x 4½		....	55	....	$0 45	$0 55
4 x 5	65	....	80	$1 00	65	80
4¼ x 5½	75	....	90	1 12	75	90
4¼ x 6½	90	....	1 08	1 35	90	1 12
4¾ x 6½	95	....	1 20	....	....	....
5 x 7	1 10	$1 45	1 40	1 75	1 10	1 35

GENERAL PRICE LIST

Chemicals subject to Fluctuation in Prices.

Glass Forms, Stereo	each,	$0 40	
Card Glass Forms	"	25	
Cabinet " "	"	50	
Glass Forms, 4 x 5	each,	$0 50	
" 5 x 8	"	1 00	
" 6½ x 8½	"	1 25	
Robinson's Straight Trimmers	"	50	
" Revolving " with guide	"	1 00	
Scovill Focusing Cloths	"	50	
Printing Frames, flat, 3¼ x 4¼	"	31	
" " 4 x 5	"	38	
" " 4¼ x 5½	"	40	
" " 4¼ x 6½	"	42	
" " 5 x 7	"	50	
" " 5 x 8	"	52	
" " 6½ x 8½	"	60	
Neutral Oxalate Potash	per lb.,	40	
Protosulphate Iron	"	10	
Sulphate Iron and Ammonia	"	18	
Oxalic Acid	per oz.,	10	
Citric Acid	"	15	
Bromide Ammonium	"	12	
" Potassium	"	10	
Iodide "	"	30	
Nitrate Uranium	"	70	
Red Prussiate Potash	"	10	
Litmus Paper	per sheet or book,	5	
" "	per box,	50	
Carbonate Soda (Sal Soda)	per lb.,	10	
Pyrogallic Acid	per oz.,	35	
Sulphuric Acid, in bottle and tin can	"	20	
Bichloride Mercury	"	15	
Chloride Ammonium	"	10	
Liquid Ammonia, conc	per lb.,	32	
Hyposulphite Soda	"	10	
Alum, Powdered	"	20	
Chrome Alum (commercial) in box	"	20	
India Ink (for stopping out)	per stick,	25	
Gihon's Opaque	per cake,	50	
French Azotate (for toning)	per bottle,	25	
Chloride Gold and Sodium	per bottle of 15 grains,	35	
" " " "	" 30 "	55	
S. P. C. Negative Varnish	per bottle,	35	
Parlor Paste (for mounting pictures)	½ pint jar,	20	
" " "	pint bottle,	30	
" " "	quart jars,	65	
Acetate Soda	¼ lb. bottles,	15	
Ground Glass Substitute	per bottle,	50	
Dropping Tubes	each,	10	
Canvas Case for Tripods, Nos. 1 and 2	"	1 50	
" " " Nos. 3 and 4	"	2 00	
W. I. A. Dry Plate Lanterns	"	1 25	
Peerless Lanterns	"	2 50	

REVISED AND REDUCED PRICE LIST

—OF—

CARBUTT'S KEYSTONE DRY PLATES.

DECEMBER 1st, 1886.

Size of Plates.	The Renowned Keystone Dry Plates are coated on personally imported fine English glass—flat and accurately cut.	Special Instantaneous (blue label) for Portraits and Drop Shutter Views. And "B" white label, for Landscape and General Photography.	Stripping Plates, For Engravers and Photo-Mechanical Reproductive processes.	Orthochromatic and Gelatino-Albumen Transparency Plates.	Gelatino-Albumen, on fine Ground Glass, for Window and Door Transparencies.	Gelatino-Albumen on bright surface Opal, for Contact and Enlarging.	Gelatino-Albumen on fine Matt surface Opal, for water or oil color painting.
		Sp'l Inst's and "B."	Stripping Plates.	Ortho'c and Transpar'cy.	Gr'd Glass Transpar'cy.	A Plain Opal	A Gr'd Opal
		Dozen.		Dozen.	Dozen.	½ Dozen.	½ Dozen.
3¼ x 4	Thin Crystal Lantern	Glass for Slides.		$0 65	....	....	....
3¼ x 4¼		$0 45	....	55	....	$0 45	$0 55
4 x 5		65	....	80	$1 00	65	80
4¼ x 5½		75	....	90	1 12	75	90
4¼ x 6½		90	....	1 08	1 35	90	1 12
4¾ x 6½		95	....	1 20	....	....	....
5 x 7		1 10	$1 45	1 40	1 75	1 10	1 35
5½ x 7		1 25	1 65	1 50	....	....	....
5 x 8		1 25	1 65	1 50	1 90	1 25	1 55
6½ x 8½		1 65	2 20	2 00	Doz. 2 60 ½ Doz. 1 35	1 65	2 05
8 x 10		2 40	3 20	3 00	Doz. 3 75 ½ Doz. 1 90	2 40	3 00
10 x 12		3 80	5 05	4 50	½ Doz. 2 80	3 80	4 75
11 x 14		5 00	6 65	5 85	½ Doz. 3 60	5 00	6 25
14 x 17		9 00	12 00	10 80	½ Doz. 6 75	9 00	12 00
16 x 20		12 50	16 65	....	....	....	....
17 x 20		13 00	17 30	....	....	....	....
18 x 22		15 50	20 00	....	....	....	....
20 x 24		18 50	24 50	....	....	....	....

Sizes 10 x 12 and Larger are put up Half Dozen in a Box.

PYRO AND POTASH DEVELOPER,

For Carbutt's Keystone Dry Plates.

No. 1.

Water.....10 oz.
Citric acid.....60 grs.
Crystalized sulphite soda..... 2 oz.
Pyrogallic acid..... 1 oz.
Water to make up to 16 oz.

No. 2.

Water.....10 oz.
Crystalized sulphite soda..... 2 oz.
Carbonate of potash, C, P..... 4 oz.
Water to make up to 16 oz.

N. B.—During Summer 1 dram bromide potash or ammonia may be added to No. 1.

DEVELOPER.—For Portraits on "Specials," add to 2½ ounces of water, distilled, melted ice, or well water, but *not rain* water, two drams each No. 1 and 2; less of No. 2 is required during warm weather. If more density is desired add more of No. 1, if more detail and softness add more of No. 2, bromide to be added to restrain and give density if required. Keep solutions cool, 60 to 70 degs. is a good temperature.

For Landscapes and Interiors on "Specials," where the exposure may be uncertain, lay the exposed plate in the Pyro Solution for a minute or two, then into the developing glass put half the quantity of No. 2 as has been taken of No. 1, and pour the Pyro Solution into it, and back onto the plate, by proceeding in this manner, adding more of No. 2 to bring out the image, or a few drops of a 10 per cent. solution of bromide to restrain as may be required, much better results may be looked for than if a full quantity of No. 1 and No. 2 were mixed at once. For instantaneous views or very dark interiors, we recommend the following procedure: To 4 ounces water add 1 dram No. 2, soak plate in this while preparing the following: water, 3 ounces, of Nos. 1 and 2 each 3 drams, 5 drops Bromide Solution, pour off the dilute alkali, and flow this strong developer over the plate; be careful to expose the plate as little as possible to the light used to develop by, no matter how safe it may be considered for ordinary development. Do not hurry by adding more No. 2; cover up the pan and give the developer time to act, when more of No. 1 or No. 2 may be added as may be required. For instantaneous views on water, it will be best to treat the plate same as for Landscapes, by soaking plate in Pyro Solution first.

For Landscape, Machinery, Architecture, &c., on B plates, use ½ dram each Nos. 1 and 2 to each ounce water, adding more of each as may be required, No. 1 giving density, No. 2 giving detail and hastening development.

After rinsing off developer, immerse in 10 per cent. solution common alum, 3 to 5 minutes, then wash and fix in Hypo Solution, hyposulphite of soda 4 ounces water, 20 ounces, after which wash most thoroughly and dry spontaneously, and varnish with Keystone Negative Varnish. Should the film have a yellow tinge after fixing and washing, immerse for a few minutes, or until color is removed, in the following Bleaching Solution:

Water.....20 ounces
Alum..... 1½ "
Sulphuric acid..... ½ "

Wash afterwards and dry spontaneously.

Per package.....60 cents.

DEVELOPING FORMULA

—FOR—

CARBUTT'S GELATINO-ALBUMEN

OPALS AND TRANSPARENCIES.

When to be made by contact, use artificial light, either gas or coal oil lamp, but the most efficient is the light from CARBUTT'S MULTUM IN PARVO LANTERN.

Use a deep printing frame with a piece of plate or flat glass to lay Negative on, place over the Negative a Gelatino-Albumen Plate, then expose from 10 to 20 seconds or what may be considered sufficient according to the intensity of Negative being used; the time of exposure and strength of developer are the two principal factors in determining the TONE and DENSITY of the resultant transparency; a short exposure with strong developer yields vigorous transparencies with rich velvet black tone, long exposure and dilute developer gives warm brown tones, fine gradation with transparency of detail in the shadows, suitable for Optical Lantern Slides

For transparencies for the window, a mask with a suitable centra opening should be placed *between* the Negative and Gelatine Dry Plate; a suitable paper is a thin enameled surface paper of a turkey red color, this will be found to protect the margin of the plate and give a sharp clean outline to the picture. For Lantern Slides, the dry plate is placed in contact with the Negative without a mask.

No. 1.		No. 2.	
Neutral oxalate potash	8 ounces.	Sulphate of iron	3 ounces.
Warm distilled or water from ice	32 ounces.	Distilled or ice water	32 ounces.
Citric acid	60 grains.	Sulphuric acid	8 drops.
Bromide of potassium	180 grains.		

For use, mix equal parts No. 1 and No. 2, *pouring number two into number one.*

No. 3.—FIXING SOLUTION.

Hyposulphite of soda	4 ounces.	Water	20 ounces.

No. 4.—CLEARING SOLUTION.

Water	20 ounces.	Alum	1½ ounces
Sulphuric acid	½ ounce.		

DEVELOPER FOR TRANSPARENCIES.

No. 1.—Oxalate solution	2 ounces.	No. 2.—Iron Solution	2 ounces.

Place solution in developing dish and lower plate into it, letting the developer flow over in one even wave; develop until detail in high lights is plainly visible, wash off developer and fix in No. 3 Solution; when quite cleared of all unreduced bromide, wash well, immerse one or two minutes in No. 4, again thoroughly wash and finish by going over the surface with a swab of absorbent cotton, while water runs over the plate; dry spontaneously.

DEVELOPMENT OF OPALS.

Proceed as for transparencies, developing until detail in face of a portrait is just well out, remove from developer and flow over a 5-grain solution bromide of potassium to *instantly* arrest development and preserve brilliancy; wash, fix, etc., as recommended for transparencies.

NOTE.—Opals to be viewed as positives by reflected light, development should be stopped as soon as the fine half tones in the face of a portrait are visible; when to be viewed by transmitted light either for the window or lamp shades, development should continue until detail in face of a portrait, or high lights in a landscape, is well out, increasing the exposure to 25 or 30 seconds to lamp or gas-light, and diluting developer with one-third water gives warmer tones. Opal plates with matt surface for artist work are made to order on a slight advance in cost above bright surface opal.

DEVELOPING FORMULA

—FOR—

CARBUTT'S GELATINO-CHLORIDE

OPALS AND TRANSPARENCIES.

No. 1.		No. 2.	
Neutral oxalate of potash	3 ounces.	Protosulphate of iron	240 grains.
Chloride of ammonium	40 grains.	Water	20 ounces.
Bromide of ammonium	20 grains.	Citric acid	120 grains.
Distilled, or water from Ice	20 ounces.		

No. 3.—ALUM SOLUTION.

Water	20 ounces.	Hyposulphite of soda	4 ounces.
Pulverized alum	1½ ounce.	Water	20 ounces.

No. 4.—FIXING BATH.

Expose plate in contact with Negative in a deep printing frame, to diffused light for from 4 to 8 seconds; lamp or gas light, 5 to 8 minutes, or to the light of 1 to 2 inches of burning magnesium ribbon, at a distance of 10 or 12 inches from negative. To develop, mix equal parts Nos. 1 and 2, pouring No. 2 into No. 1. The image should show gradually; for very warm tones, dilute developer with equal parts water and add 1 or 2 drops bromide solution to each ounce developer, but be sure and give at least double the exposure, do not carry the development of the opals too far as they lose very little in fixing. For a positive picture on opal, the development should be arrested the moment the detail shows in the high lights, and this is most effectually done by quickly removing the plate from the developer, and flushing over the surface a 5-grain solution bromide potassium; this instantly arrests development and preserves the brilliancy of the image.

Wash and immerse in No. 3 for 3 to 5 minutes, again wash and fix in Solution No. 4 for at least 10 minutes—wash thoroughly and before placing to dry, go over the surface with a swab of absorbent cotton while water is flowing over it, then dry spontaneously. Opal plates with matt surface for artist work are made to order on a slight advance in cost above bright surfaced opal.

N. B.—If the tone by simple development should not be considered satisfactory and a more decided purple tone desired, this can be secured by toning the chloride print before fixing, using the ordinary toning bath, in this case the exposure must be increased and developer diluted as recommended for warm tones, so as to produce by development a decided red image. See PHOTOGRAPHIC TIMES, March 20th, 1885, pages 140 and 145.

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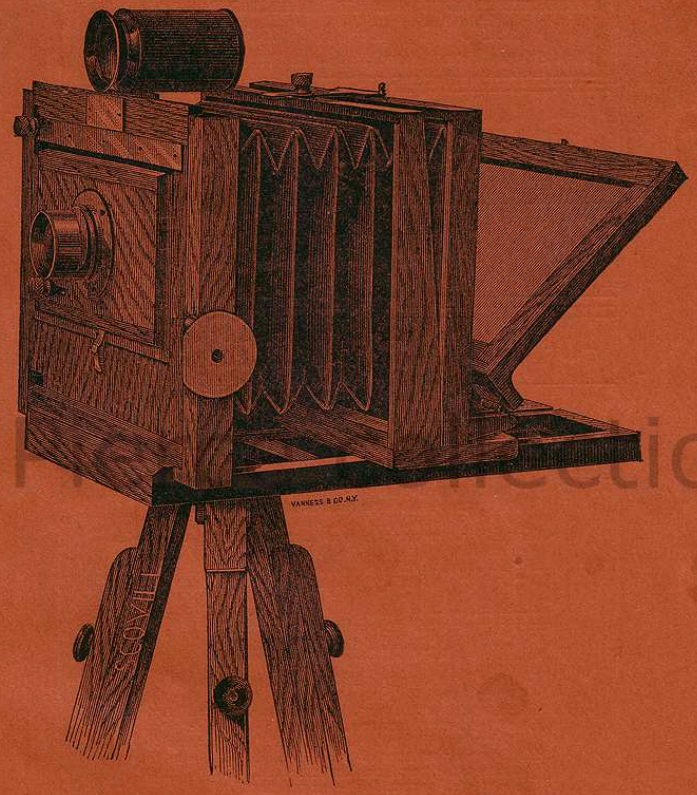

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