

FILM PHOTOGRAPHY.

The desire of amateur and professional photographers to employ a substitute for glass in photography, on account of its excessive weight and liability to break, has led to the introduction of paper as support for the sensitive film and to the manufacture of improved and new apparatus especially designed for operating the paper.

A negative on paper answers all the requirements of one on glass, except that it requires a trifle longer time

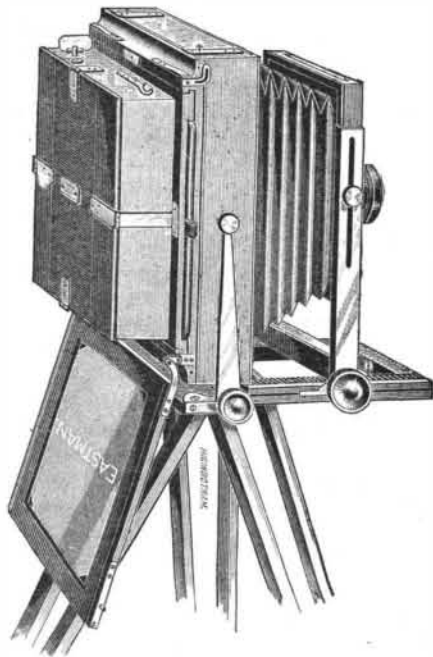


Fig. 1.—EASTMAN CAMERA WITH ROLL HOLDER ATTACHED.

to print from; but quite recently this objection has been overcome by the production of a specially prepared film, which may be readily separated from its paper support after exposure and development, and afterward transferred to a transparent, flexible gelatine support, thereby making a negative equal in every respect to glass, and also superior to it from the fact that it is non-breakable, more compact, more durable, and can be printed from on both sides, adapting it readily for photogravure purposes, for which reversed negatives are required.

For the civil engineer, geologist, mining engineer, and tourist the film is especially useful, since the weight of glass is avoided, and supplies may easily be obtained through the mails.

We illustrate a new form of camera, adapted for use with a special roll holder or with the ordinary plate holder, as the operator may wish.

Fig. 1 represents a perspective view of the improved Eastman interchangeable camera, in which are to be seen the valuable points desirable in a camera: a front focus, an excellent double rising front, a novel yet simple means of obtaining a horizontal swing, a device for making a side swing, a peculiar but practical plan of attaching the ground glass to the back, by means of which it is instantly adaptable for focusing when either a roll holder or a plate holder is employed, a reversible back, enabling the operator to take pictures upright or horizontally, and a special construction of the bed, which permits the entire back and bellows to be removed and replaced with another back and bellows of larger or smaller dimensions. In addition to all these merits, the camera is made of the very best mahogany, is highly finished, extremely strong, very compact, light, and rigid.

In Fig. 2 is seen the back removed from the bed of

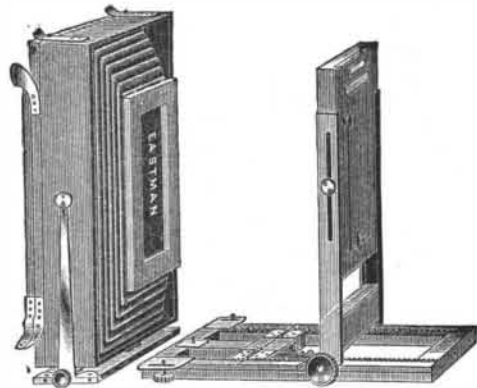


Fig. 2.—CAMERA WITH BACK REMOVED.

the camera, and how different sized backs may be adapted to one bed.

The bottom piece of the back is clamped to the bed by means of two thumb screws. Slots are made in the two side plates on the bed to permit the vertical side swing of the bottom plate.

Fig. 3 illustrates the advantages the camera possesses in having a double rising front and a swing backward of the front frame. It also shows the way in which the back of the camera swings on the pivot at the end of the upright arm. The entire front of the camera is

raised upward through the slotted side uprights and clamped, then the lens board on the front may also be pushed upward as shown. This feature is of great usefulness in photographing objects of great altitude, such

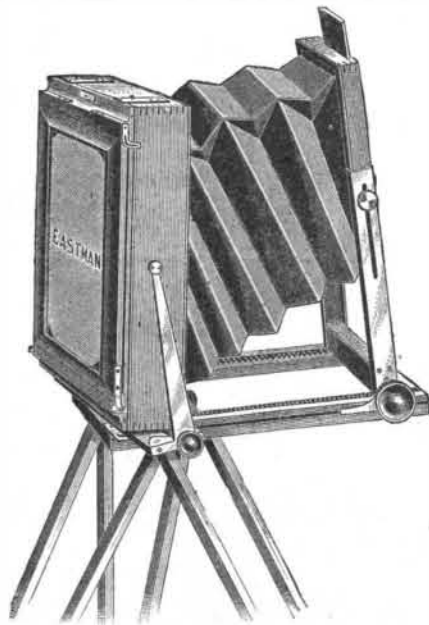


Fig. 3.—THE DOUBLE RISING FRONT.

as high buildings, church steeples, etc., enabling the operator to get pictures without distortion of lines.

In Fig. 4 is seen the new construction of the ground glass frame, and the peculiar mode of fastening it to the reversible back frame of the camera.

The curved metal end pieces at the bottom are attached by a short link. When used for focusing, this link is pushed inward, which allows the ground glass to shut up tightly against the frame, as shown in Fig. 5.

The curved slotted spring catches at the top, when pushed outward: slip over a pin on the end of the ground glass frame, and lock it as in Fig. 5.

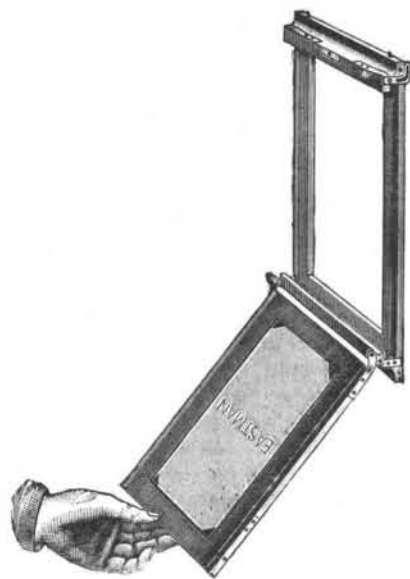


Fig. 4.—THE ADJUSTABLE GROUND GLASS.

After focusing, if an ordinary plate holder is to be used, the ground glass frame is pulled outward, as in Fig. 6, and the holder pushed in between it and the back and clamped thereto. When the thicker roll holder is employed, the ground glass hangs down, as in Figs. 1 and 4.

Fig. 7 shows an exterior perspective view of the improved Eastman-Walker roll holder, adapted for holding a spool of sensitive paper behind the camera.

In Fig. 8 may be seen the special improvements recently perfected. Formerly the working mechanism for transferring the paper from one spool to the other



Fig. 5.



Fig. 6.

was supported on a metal frame attached to the removable back board. Now this frame is dispensed with and the spools instead are secured directly to and between the two wood sides of the box, while the front is covered by a removable frame holding the dark slide, plainly seen in the lower view in Fig. 8. Besides these improvements, special mechanism has been introduced

for indicating the number of exposures that are made. The changes have made the holder much lighter, more accessible, and more complete.

It has been the study of the manufacturers to invent methods and apparatus which will prevent failures and insure the successful working of the improved film.

We have described but a few of the devices that have been devised. The simplicity of the film, its certainty, and easy handling make it a most useful article for the photographer.

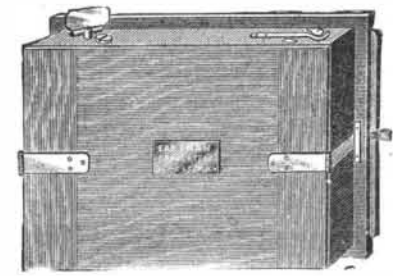


Fig. 7.—IMPROVED ROLL HOLDER.

We understand the Eastman Dry Plate and Film Co., of Rochester, N. Y., the manufacturers of the above mentioned apparatus, are prepared to furnish complete outfits and all accessories to any wishing in-

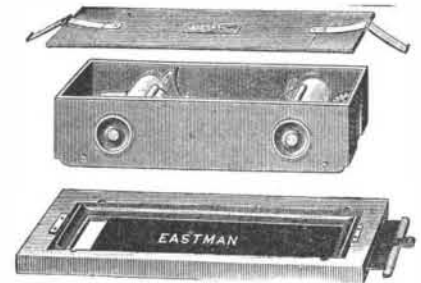


Fig. 8.—INTERIOR AND SLIDE FRONT OF THE ROLL HOLDER.

formation, and will send, on application, a descriptive catalogue, and for two 2 cent stamps a sample film negative made by their process.

Engraving with Mercury and its Salts.

It is known that when mercury is deposited on a metal, fatty lithographic ink will not "take" upon it when an inking roller is passed over it, and that the black adheres to the untouched parts of the metal. If a well polished and clean plate of zinc is taken, and a design is traced thereon with mercury, the design will appear in brilliant white upon the gray background of the zinc. After tracing the design an intaglio plate can be obtained by plunging the plate, without being coated with varnish, into a bath containing 100 parts of water and two parts at least of nitric acid. The action of the acid is very rapid, and for a long time only attacks the parts touched by the mercury. When deep enough, it can be used for lithographic work. If, instead of nitric, hydrochloric acid is used, the contrary effect takes place. The unaffected zinc is strongly attacked, and the traces of the mercury give a relief plate which can be used for ordinary typographical work.

If the operator does not wish to draw upon zinc, the design can be traced upon paper with a salt of mercury. The sheet of paper being then applied for two hours to a plate of zinc, the drawing is sharply reproduced in white lines of amalgam on the gray surface of the metal, just as if it had been traced directly.

The same result is obtained if the design is traced upon paper with a sticky substance (ink containing gum or sugar), and if it is dusted over with a mercury salt in fine powder. On dusting off the surplus and applying the sheet containing the design to a plate of metal, the same result is obtained. The same result is obtained if a newly printed proof is used, and is dusted with mercury salt while the ink is still wet and sticky. All the lines thus reproduced are chemically engraved, as has been described above. The same results are obtained by dusting with mercury salts a photographic print containing a gummy substance, and the effect of half tints is even secured.

Binioidide of mercury is the salt to use.—*Memorial Industrielle.*

Mutually Benefited.

Some employers are in the habit of presenting their employes with books treating upon such subjects as pertain to the class of business in which they are engaged. It is a good idea, as both the giver and recipient are thus mutually benefited. Other employers furnish a library of well selected books and a reading room, to which all their help have access, which is a still better scheme. A catalogue comprising more than one hundred pages, containing a list of several hundred books, useful and practical, in every department of science, engineering, mechanics, architecture, optics, etc., has been prepared with great care by the editors of this paper, and will be mailed free to all applicants. The catalogue states the price by mail for each book or series of works.