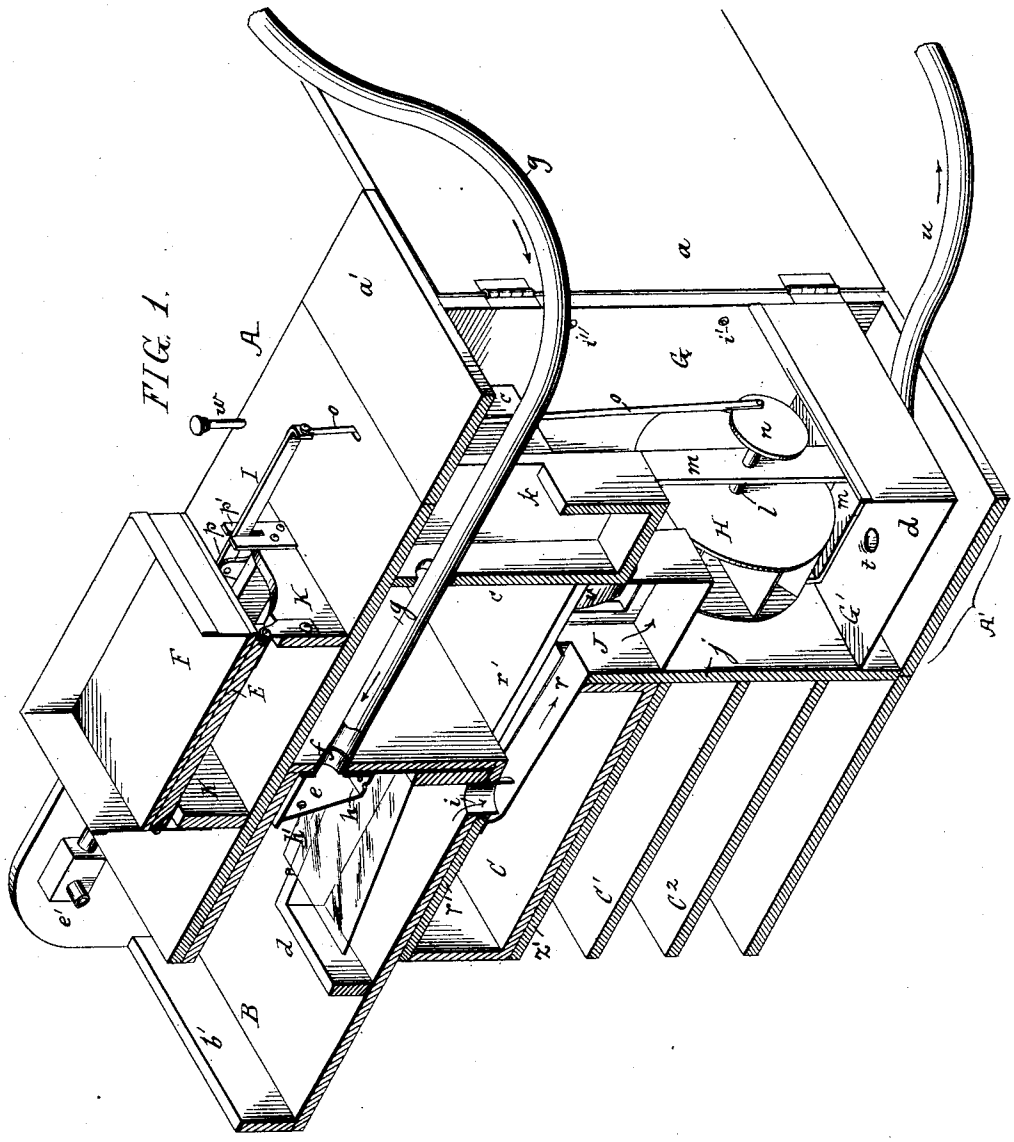
(No Model.) 3 Sheets—Sheet 1.

H. F. WITMER.

APPARATUS FOR DEVELOPING AND WASHING PHOTOGRAPHS.

No. 331,668. Patented Dec. 1, 1885.

FIG. 1.



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FIG. 2.

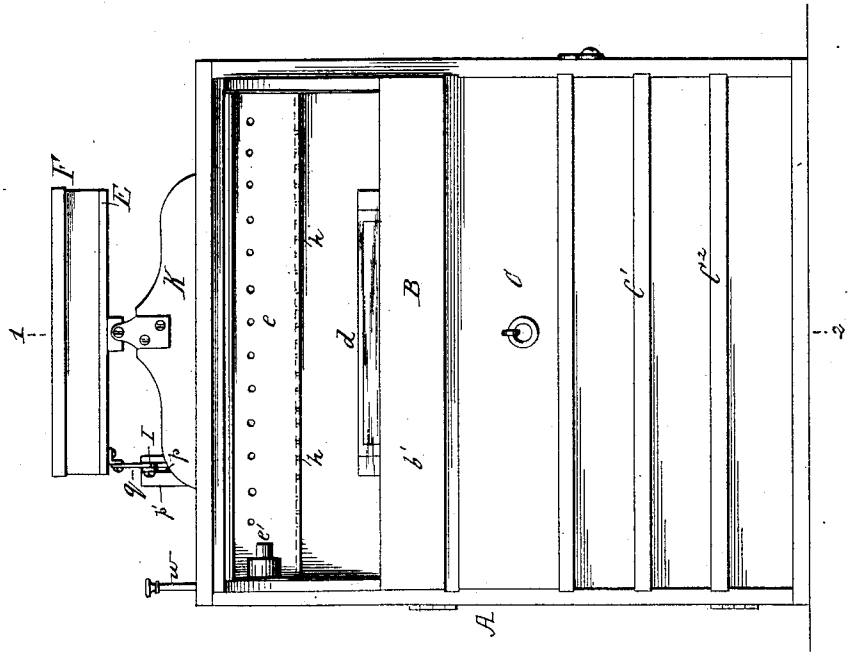
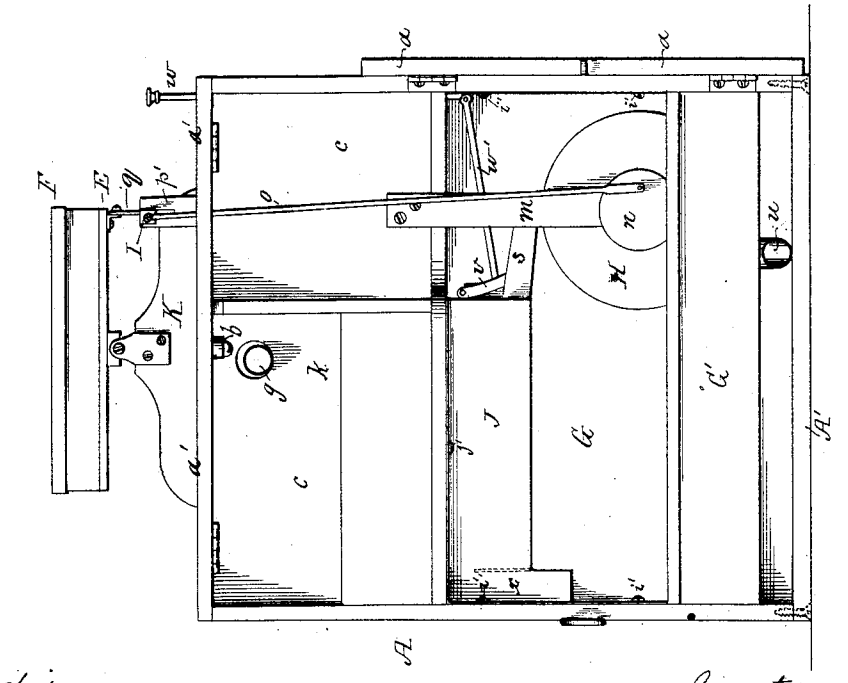


FIG. 3.



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(No Model.) 3 Sheets—Sheet 3.

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FIG. 4.

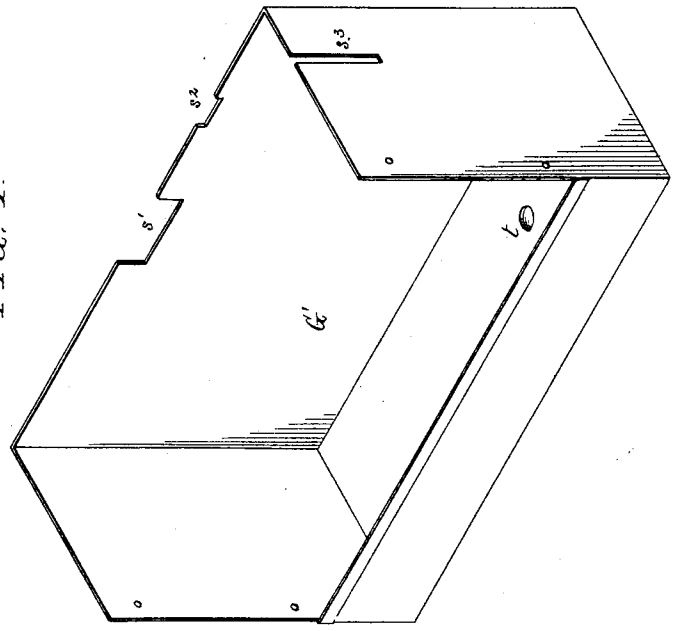


FIG. 5.

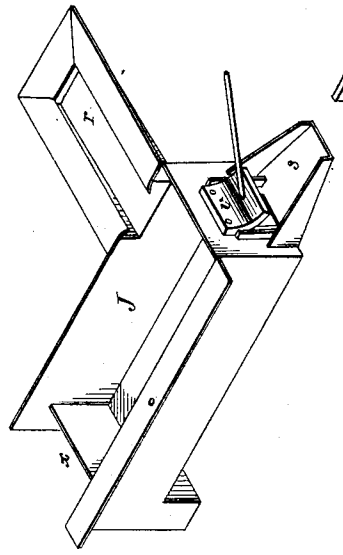
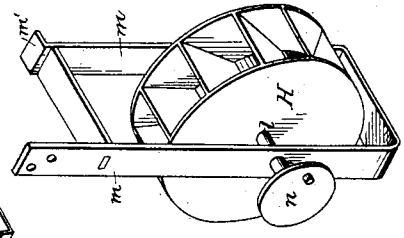


FIG. 6.



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UNITED STATES PATENT OFFICE.

HORACE F. WITMER, OF PHILADELPHIA, PENNSYLVANIA.

APPARATUS FOR DEVELOPING AND WASHING PHOTOGRAPHS.

SPECIFICATION forming part of Letters Patent No. 331,668, dated December 1, 1885.

Application filed May 18, 1885. Serial No. 165,830. (No model.)

To all whom it may concern:

Be it known that I, HORACE F. WITMER, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented an Apparatus for Developing and Washing Photographs, of which the following is a specification.

The object of my invention is to construct a simple, efficient, and compact apparatus for conducting the processes of developing, fixing, and washing photographic negatives, and to utilize for the purpose of automatically imparting the desired rocking motion to the "developing" or the "fixing" pan the waste water escaping from the "washing-bath;" and the invention consists in devices and combinations and arrangements thereof hereinafter particularly described.

In the accompanying drawings, Figure 1 is a sectional perspective view of the apparatus upon the line 1 2, Fig. 2. Fig. 2 is a face view; Fig. 3, a rear view of the apparatus, with the doors open; Figs. 4 and 5, detached perspective views of the tank and reservoir into which the waste water flows from the washing-bath, and Fig. 6 a detached perspective view of the water-wheel and bearings.

A is the box, open in front, and having at the rear a door, *a*, hinged at one side, and a falling door, *a'*, hinged at the top of the box, said door *a'* constituting, when raised and supported by means of a turn-buckle pivoted at *b* to the top of the box, an overhanging shelf or extension of said top. Doors *a a'* together, when closed, entirely cover and inclose the devices contained within the rear part of the box. Within the upper front portion of the box A fits and slides a tray, B, extending rearward from the front of the box to a partition, *c*, and which may be pulled out into the position shown in Fig. 1. This tray constitutes the compartment in which is conducted the process of washing photographic plates after they have been developed and fixed. Its front wall, *b'*, is made sufficiently high to avoid the splashing of water over it, but low enough to give the operator full observation of and allow him to pass his hands into the interior of the tray, whether the latter be pushed in, as shown in Fig. 2, or be pulled out into the position shown in Fig. 1. The inner sides of the walls of said tray are lined with sheet metal, and within the tray is placed a frame or rack, *d*, the inclined top of which supports the photographic plates to be washed at a proper angle to allow the water to readily flow over and from the surface of the plates.

Extending across the upper rear part and against the rear wall of tray B is a sheet-metal tank, *e*, detachably secured within the tray, so as to be readily removable therefrom for the purposes of cleaning or repairs. In an aperture in the back of tank *e* is secured a short metal pipe, *f*, and to the outer end of this pipe is attached one end of an india-rubber tube, *g*, communicating at its other end with any convenient source of water-supply. The tube *g* passes and may slide freely through an aperture in partition *c*, and its length and flexibility allow of the sliding out or in of tray B without destroying or interfering with the communication between tank *e* and the water-supply. The under side of tank *e* is perforated with a series of small holes, *h h*, through which the water escapes from said tank into tray B in a shower, which falls upon and washes the photographic plates exposed upon frame *d*, as shown in Fig. 1. A series of holes, *h'*, near the top of the tank allow for any overflow. A small pipe leads from tank *e* to spigot *e'*, secured to one of the side walls of tray B, near the front thereof, affording the operator an additional supply of water at that point when needed. Directly beneath tray B, and extending rearward to a partition, *j*, which extends across the box, are drawer C and shelves C' C^2, which may be utilized for the storage of developing and fixing pans when out of use, and of plates and other photographic paraphernalia. Drawer C is separated from tray B by a horizontal partition, *r'*, which extends rearwardly to partition *j*, and in which is a long slot or opening, for a purpose hereinafter set forth.

Upon the top of box A are brackets K K, and centrally on the top of these brackets a platform, E, is pivoted, so that a rocking motion may be imparted to it and to a developing or a fixing pan, F, placed thereon. Extending across box A to the rear of partition *j* is a compartment, G, into which doors *a a'* open, and which is occupied by a sheet-metal tank,

G′, (shown in Fig. 4,) detachably secured to the sides of the box by screws *i′*. The floor *d* of tank G′ is a short distance above the floor of the box, and its outer wall rises sufficiently high to prevent water from splashing over it. Within tank G′, near one side of the box, is mounted water-wheel H upon a shaft, *l*, which rotates in bearings in suitable standards, *m*, made in the form of a yoke, (see Fig. 6,) one side of which is detachably secured to partition *c*, while the other side has a lip, *m′*, which is inserted in a slot in partition *j*. The object of this construction is, that the water-wheel and its bearings may be independent of tank G′ and readily removed therefrom without dismounting the wheel. The shaft *l* of the water-wheel H extends beyond standard *m*, and carries at its outer end a disk, *n*, to a crank-pin upon which is connected the lower end of connecting-rod *o*, which extends upward through the top of box A.

Upon a standard, *p*, secured to the top of the box, is centrally pivoted a horizontal lever, I, one end of which is connected by a pin to the upper end of connecting-rod *o*, the other end of said lever being similarly connected to one end of a short vertical link, *q*, which connects at its upper end with a bracket secured beneath and at one corner of rocking platform E. A slotted guide, *p′*, prevents lateral play of lever I.

Secured at its upper end within an aperture in the floor of tray B is a short pipe, *i*, which projects downwardly through the slot in partition *r′*, and when the tray is in the position shown in Fig. 2 through that portion of said slot which is directly over a sheet-metal tank or reservoir, J, occupying a position in the upper part of compartment G against partition *j*. Into this tank J also opens the lower end of an inclined sheet-metal trough or gutter, *r*, open at the top and secured to or forming part of said tank, so as to be removable therewith from the box. This spout *r* projects through a slot in partition *j* into the space inclosed within drawer C, and immediately beneath the opening in horizontal partition *r′*, hereinabove referred to, and is closed at its forward end, as shown in Fig. 1. Within this spout and the slot in partition *r′* moves the lower end of pipe *i* when tray B is moved in or out, and the outward movement of said tray is limited by the contact of pipe *i* with the end of opening in partition *r′* and the closed end of spout *r*.

It will be seen that whatever the position of tray B it is in communication with reservoir J, either directly or (when the tray is pulled out) through the medium of trough or spout *r*, and that the water flowing into tray B from tank *e* will flow from said tray into the reservoir J. Said reservoir has at one end an opening, from which leads inclined spout *s*, the lower end of which spout is directly above the water-wheel H. Thus the water escaping into reservoir J, and thence by spout *s* onto water-wheel H, will rotate the latter, and with it the disk *n* at the outer end of its shaft *l*, whereby through the medium of connecting-rod *o*, lever I, and link *q* a rocking motion is automatically imparted to pivoted platform E and developing or fixing pan F, resting thereupon, for a purpose well understood by photographers.

The water, after rotating water-wheel H, falls into the tank G′ of the compartment G, and thence through aperture *t* and outlet-pipe *u*. The flow of water from tank J to and down spout *s* is established, cut off, or regulated by means of a suitable leather flap-valve, *v*, hinged above the opening in the tank, and conveniently operated by means of rod *w*, the lower end of which is attached to the valve by connecting-rod *w′*, while its upper end projects through and to a suitable distance above the top of box A.

To allow of the free escape of water from tray B at all times, and to prevent the water so escaping from rising above a certain level in tank J, the latter is provided with an overflow-passage, *x*, through which all water beyond a certain quantity entering into said tank may, when valve *v* is closed, fall directly to the floor of tank G′, and thence through aperture *t* and escape-pipe *u*.

When the apparatus is not in use and inlet-tube *g* is disconnected from the source of water-supply, a box or compartment, *k*, in the upper part of box A to the rear of partition *c*, forms a convenient receptacle in which said tube may be folded away without disconnecting it from tray B, while the flexible outlet-pipe *u* may without disconnecting it from the aperture in the floor of tank G′ be conveniently folded away in the space between said floor and that of box A, the doors *a a′* of which may then be closed.

I prefer to make the reservoir J and tank G′ complete in themselves, and so that they can be easily detached from the box for repair or for cleaning.

In Fig. 4 I have shown the tank G′, which is cut away at *s′* for the reception of the trough *r*, and at s^2 for the lip *m′* of the standard *m*, and at s^3 to allow for the movement of the valve-rod *w*. This tank can be easily withdrawn from the box by unscrewing the screws *i′* and removing the bottom board, A′, Fig. 1, which is secured to the box by screws.

The reservoir J, Fig. 5, is secured to the partition *r′* by a screw or screws, *j′*, and by removing these screws the reservoir, with the trough *r*, spout *s*, and valve *v*, can be easily removed without disturbing the other parts of the apparatus, while the water-wheel H, with its bearings, can be easily removed by detaching the standard *m* from the partition *c*.

In some instances the water from the tank G′ may pass into another tank, *e*, and washing-tray B, situated below shelves C′ C^2, and thus the same water be used for operating a series of washing-trays and developing or fixing pans.

Instead of the water-wheel H, other known and suitable water-motors may be employed.

I claim as my invention—

1. The combination, substantially as herein described, of a bath for washing photograph-plates, and having an inlet and an outlet for water, a motor operated by water escaping from said bath, developing or fixing pan, and mechanism, substantially as herein described, whereby said motor is caused to give a rocking motion to said pan.

2. The combination, in photographic apparatus, of the washing-tray B, having an inlet and an outlet for water, water-motor H, and a valve for opening and closing communication between said tray and said water-motor, all substantially as described.

3. The combination, in photographic apparatus, of the tray B, having an inlet and an outlet for water, water-motor H, a valve for opening and closing communication between said tray and said water-wheel, and an overflow-outlet for the free escape of water from said tray when said valve is closed, all substantially as set forth.

4. The combination, substantially as and for the purpose described, of tray B, having an inlet and an outlet for water, a water-wheel, H, and a tank or reservoir, J, communicating with said tray and said water-wheel, and having a valved outlet and an overflow-outlet.

5. The combination, with box A, of a tray, B, arranged to slide therein, having a perforated inlet-tank, *e*, and an outlet for water, and furnished with a flexible or extensible inlet-pipe, *g*, attached to the tank *e* and free to follow the motions of said tray within the box, substantially as and for the purposes herein set forth.

6. The combination, substantially as set forth, with box A, of tray B, arranged to slide therein, outlet-pipe *i*, and stationary trough or spout *r*.

7. The combination, in box A, of sliding tray B, having an inlet and an outlet for water, trough or spout *r*, tank or reservoir J, spout *s*, and water-wheel H, all arranged substantially as and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HORACE F. WITMER.

Witnesses:
HENRY BOSSERT,
HARRY SMITH.