(No Model.) 2 Sheets—Sheet 1.

H. FORD.

MECHANICAL PHOTOGRAPHIC BATH.

No. 385,607. Patented July 3, 1888.

Fig. 1.

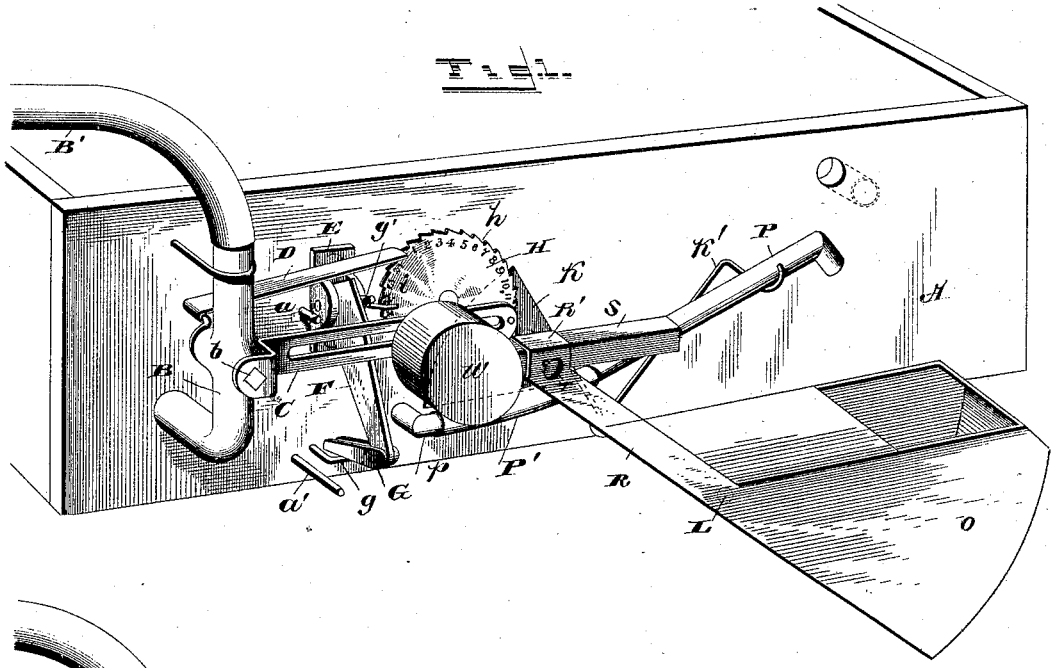


Fig. 2.

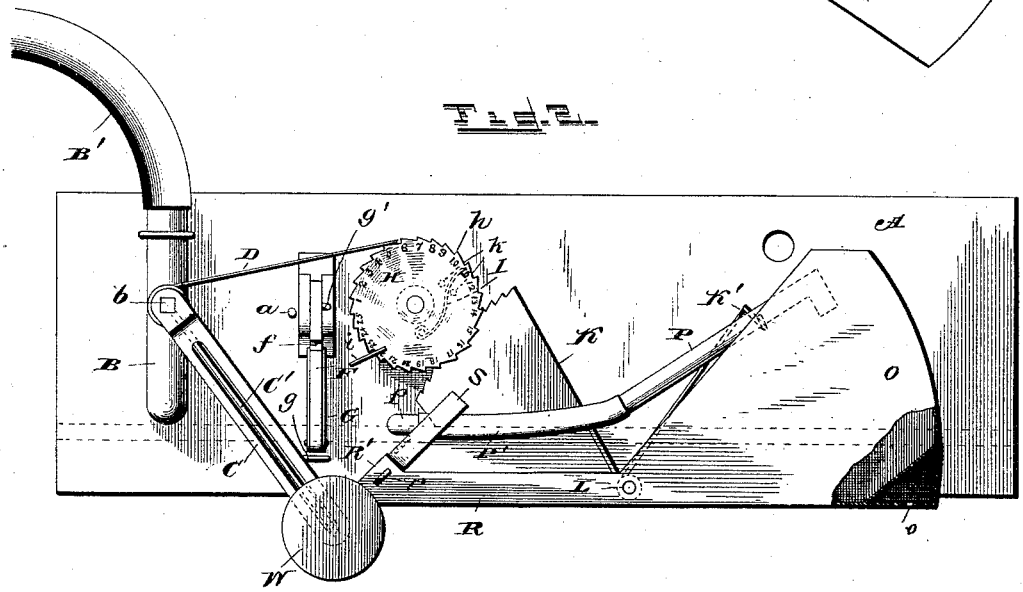
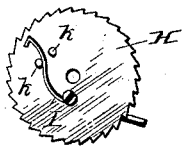


Fig. 3.



WITNESSES.

L. S. Elliott,

E. W. Johnson.

Harry Ford.

INVENTOR.

E. W. Johnson Attorney.

(No Model.) 2 Sheets—Sheet 2.

H. FORD.

MECHANICAL PHOTOGRAPHIC BATH.

No. 385,607. Patented July 3, 1888.

FIG. 3.

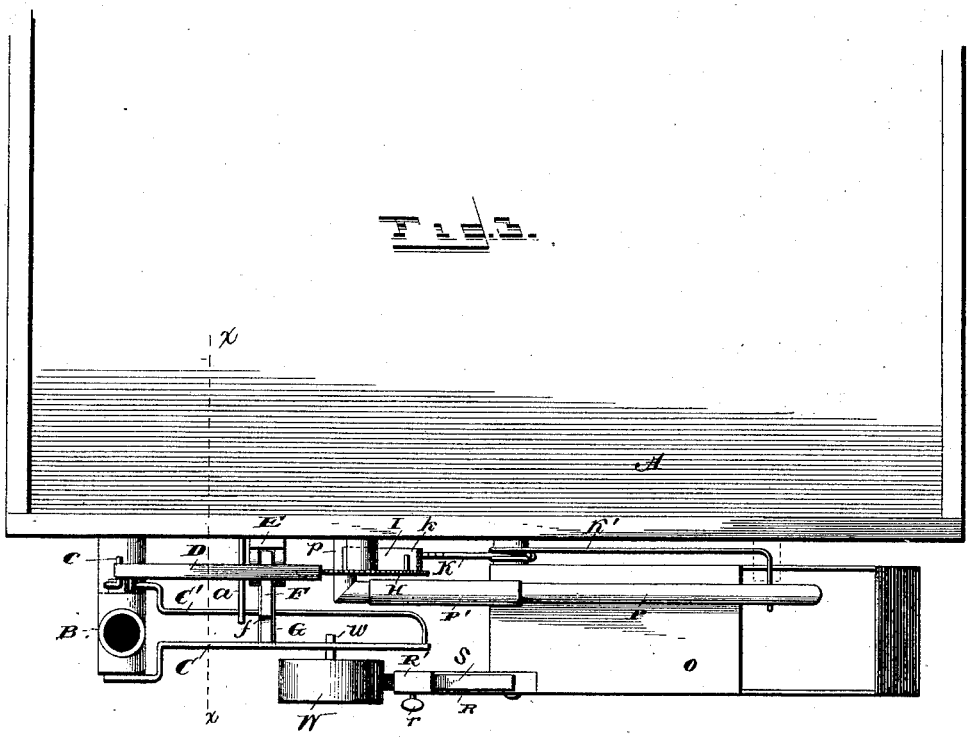
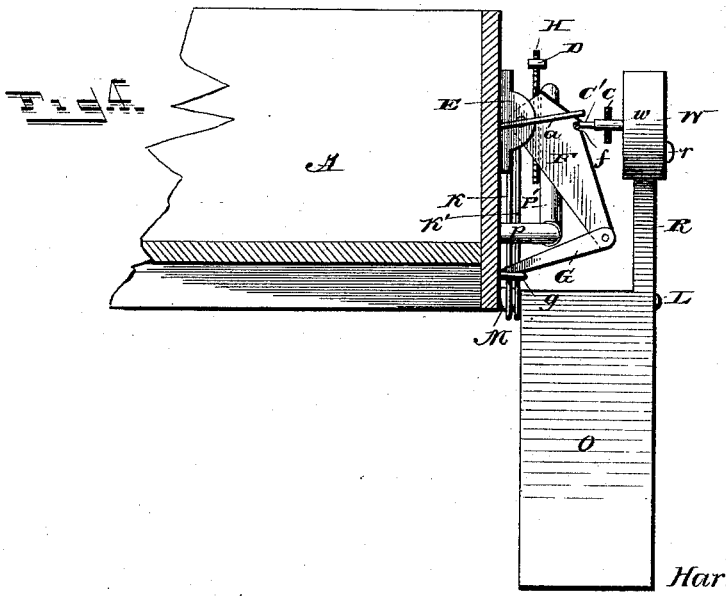


FIG. 4.



WITNESSES.

G. S. Elliott.

W. Johnson.

Harry Ford.

INVENTOR,

Attorney.

UNITED STATES PATENT OFFICE.

HARRY FORD, OF LYNDON, KANSAS.

MECHANICAL PHOTOGRAPHIC BATH.

SPECIFICATION forming part of Letters Patent No. 385,607, dated July 3, 1888.

Application filed March 22, 1888. Serial No. 268,146. (No model.)

To all whom it may concern:

Be it known that I, HARRY FORD, a citizen of the United States of America, residing at Lyndon, in the county of Osage and State of Kansas, have invented certain new and useful Improvements in Mechanical Photographic Baths; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to an apparatus for washing photographic prints to render them free from chemicals prior to mounting, the object being to provide a receptacle within which the photographic prints are placed for washing, so that they can be automatically washed by changing the water in the receptacle as frequently as desired, and after the last washing the water will be automatically cut off to hold the tray or receptacle filled.

My invention consists, broadly, in the construction and combination of the parts to attain the above ends, as will be hereinafter fully set forth.

In the accompanying drawings, which illustrate my invention, Figure 1 is a perspective view. Fig. 2 is a side view; Fig. 3, a plan view, and Fig. 4 a sectional view on line *x x* of Fig. 3. Fig. 5 is a detail view in rear elevation of the ratchet-disk, showing the pawl and limiting-pins thereof mounted on said disk.

A refers to a receptacle or tray in which the photographic prints are placed when it is desired to wash them subsequent to fixing, to remove the chemicals therefrom prior to mounting. This tray may be of any ordinary construction. To one side or end thereof is secured a pipe, B, which leads into the receptacle near the bottom thereof. This pipe is provided at a suitable point with a valve or stop-cock, *b*, and the upper end thereof has a flexible pipe which connects with a water-supply. The upper end of this pipe B is shown secured to the side of the receptacle by an ordinary staple.

The turning-valve of the stop-cock *b* has rigidly secured at its outer end a slotted arm, C, and rear of said slotted arm is secured a bar, C′, which is bent to engage with the inner end of the valve, to which it is rigidly secured; and this arm C′, adjacent to the valve-stem, has a projection, *c*, to which a pivoted pawl, D, is secured. The slotted arm C and bar C′ are rigidly connected to each other, and when swung operate the valve to open or close the same, the swing movement being limited by pins *a* and *a′* projecting from the tray.

To the side of the tray A, below the upper edge and at a suitable distance from the pipe B, is rigidly secured an outwardly-projecting bracket, E, which has perforated side lugs for the reception of a pivoted pin for securing thereto a latch-bar, F, the outer edge of which is notched at *f* for engagement with the bar C′ when it is raised on a line therewith. The bar F tapers toward its lower end, as shown, to which is pivoted a pawl, G, adapted to fold against the inner straight edge of the latch-bar and swing downwardly to engage with the side of the tray when the latch-bar is thrown out, as shown in Figs. 1 and 4. The downward movement of the pawl G is limited by a staple, *g*, which is secured on a vertical line therewith near the lower edge of the tray.

The pawl G is struck up of a piece of sheet metal, the sides thereof being turned to lie over the latch-bar. The upper edge of the latch-bar above the notch *f* and about on a line with the pivot-pin is provided with a projecting catch, *g′*, with which a pin attached to a ratchet-wheel engages.

H refers to a ratchet-disk suitably journaled to the side of the tray A, the ratchet teeth *h* thereof being numbered, as shown, and with these ratchet-teeth the pawl D engages to advance the disk one tooth every time the valve is operated. To the face of this disk is secured a pin, *i*, which engages with the catch *g′* when the disk has been moved sufficiently to bring them in contact with each other, this contact taking place when the pawl D engages with the ratchet-tooth adjacent to the one indicated by the numeral 1.

To the rear side of the disk H is pivoted a pawl, I, which has a bent end to engage with the ratchet-teeth on the sector K. The movement of this pivoted pawl is limited by pins *k k*, so that it will not swing excessively on its pivot when the ratchet-disk H is turned. The

ratchet-disk is held at a suitable distance from the tray by a collar, between which and the disk is placed a spring-washer.

To the lower edge of the tray is secured a bearing for an outwardly-projecting pin, L, which carries adjacent to the tray a collar, M, to which is rigidly secured the sector K, provided on one edge with ratchet-teeth *m*, with which the pawl I, carried by the ratchet-disk, engages.

At a suitable angle with the sector K projects an arm, K′, which is also rigidly secured to the collar M, its outer end being formed into a hook for receiving the outer end of the discharge-spout.

The discharge-pipe P is connected by a flexible section, P′, with an elbow, *p*, which enters the bottom of the tray, said elbow being so located that the lower edge of the sector K will engage therewith when it is fully depressed. The sector K and arm K′, being both rigidly secured to the same pivoted collar M, will of course move in unison. The outwardly-projecting pin L also secures pivotally in place the water-tank O, which is sector-shaped and has an opening in its upper side, into which the water from the pipe P will be discharged. The bottom of this tank is provided with an outlet, *o*, above which a screen is placed. This discharge-opening is quite small when compared with the capacity of the pipe P.

To one side of the tank O is rigidly secured an arm, R, at the outer end of which is formed a socket, R′, which may be provided with a set-screw, *r*; or the arm may be formed with notches to engage with a projection on the socket. Within the socket slides a bar, S, carrying at one end a weight, W, having a pin with an anti-friction roller thereon, which engages with a slot in the arm C.

The capacity of the water-pipe B may be greater than the capacity of the discharge-pipe, and the opening *o* in the tank is less than the diameter of the pipe P.

If desired, the tray may be provided with an overflow-opening near its upper edge.

In practice it is intended that the edge of the receptacle A be placed over a sink and the pipe B connected by a flexible tube to the water-supply.

One mode of operating my invention is as follows: The disk-wheel H is turned by hand until the pawl D engages with the desired ratchet-tooth on the periphery of the wheel. For example, if it is desired to give a print six baths, the pawl will be placed in the ratchet-tooth indicated by the numeral 6. The tank O and slotted arm C are then placed in the position shown in Fig. 2 of the drawings, which will bring the other parts in proper position, the cock *b* being turned to admit water to the tray. When the water fills the tray to the level of the end of the discharge-pipe P, it will flow through the same into the tank O, and as the water will run out of said tank very slowly the weight thereof will soon overbalance the weight W, and the tank drop, this movement raising the weight W, which will carry with it the slotted arm C, and at the same time retract the pawl D to engage with the next ratchet-tooth on the disk H. When the arm C is raised to a horizontal position, the water will be cut off and the water in the tray A will gradually run out till empty, after which the water in the tank O will run out of the opening therein slowly, and the next movement will be when said tank is emptied and counterbalanced by the weight W, which will open the valve *b* and advance the ratchet-disk one tooth. This operation is carried on successively until the prints are given the desired number of baths.

It will be observed that the pawl I, carried by the disk H, is continuously moved toward the sector K, and when the final washing has been given, this pawl will engage with one of the teeth on the sector and hold the same down and the arm K′ elevated. The weight of the water in the tank O will then elevate the arm C and bar C′, which, in their upward movement, will engage with the notch *f* in the latch-bar to throw the lower end thereof outwardly, and cause the pawl *g* to fall and hold it in an outward position, as shown in Fig. 4, thereby holding the parts in the position shown in Fig. 1 of the drawings, so that the receptacle A will be full of water. The pin *i* upon the ratchet-disk engages with the outwardly-projecting stud or catch *g′* on the latch-bar to move said latch-bar slightly outward simultaneously with the engagement of the pawl J with the sector K.

When it is desired to arrange the parts of the hereinbefore-described device so that the discharge-pipe P will be at different heights to regulate the depth of water in the receptacle A, the weight W, carried by the bar S, is moved out of the socket R′ and secured by the set-screw. By adjusting the weight in the socket the movement of the tank and the parts attached thereto and the sector are varied.

The arm K′ rests upon the tank and is moved thereby until it is held in a raised position by the engagement of the pawl carried by the disk H with the sector.

I do not wish to limit myself to the precise construction or form of the parts illustrated, and I reserve the right to modify my invention within the spirit and scope of the claims.

The device may be used not only for washing photographic prints, but for other purposes where it is desired that successive baths of clean water may be given for any purposes.

I claim—

1. In a mechanical photographic bath, the combination, substantially as set forth, of a water-receptacle having a valved supply-pipe attached thereto, a tank pivoted to the water-receptacle having a weighted arm, and a slotted arm in connection with the valve of the supply-pipe and operated by the weighted arm of the pivoted tank to alternately open and close the supply-valve, substantially as described.

2. In combination with a receptacle or tank having inlet and discharge openings, the inlet-opening provided with a valve, a slotted arm attached to said valve, a counterpoise-tank having a weighted arm with a projection which engages with a slotted valve operating arm, the discharge-pipe having a movable section, and means for automatically and successively supplying the receptacle and discharging the contents thereof.

3. In combination with a receptacle, an inlet-pipe provided with a turning-valve, the slotted arm for operating the same, the counterpoise-tank having a projection which engages with a valve-operating arm, the discharge-pipe connecting the receptacle to the tank, and means for holding the discharge-pipe elevated when the tank is depressed and the supply-pipe closed, substantially as described.

4. In a mechanical photographic bath, a receptacle for the prints provided with a valved inlet-pipe and a movable discharge-pipe, the tank pivotally attached to the receptacle and provided with a weighted arm which engages with the valve-operating mechanism, the parts being so organized that the valve is successively opened and closed and the water in the receptacle changed, for the purpose set forth.

5. The combination of a receptacle, A, having a tank with a discharge-opening, a discharge-pipe communicating with the receptacle and tank, and a weight with a projecting pin secured to said tank to engage with a slotted arm secured to the valve-stem, substantially as described.

6. The combination of the receptacle A, having the valved supply-pipe, an arm carried by the valve, a discharge-pipe having a flexible section, and a pivoted tank with a small discharge-opening having a projecting arm which carries an adjustable weighted arm, whereby the water is automatically let in and out of the receptacle and different levels maintained within the receptacle, substantially as described.

7. In combination with the receptacle A, a supply-pipe having a valve with a slotted operating-arm, a movable discharge-pipe, a pivoted tank having a weighted arm with a projecting pin which engages with the valve-operating bar, and a latch-bar, F, with a pawl, the parts being so organized that the latch-bar and pawl will hold the valve closed after the tank has been filled, substantially as described.

8. In combination with a receptacle, A, and valved inlet-pipe B, the valve thereof having a slotted arm, C, and a projecting pin upon which a pawl, D, is pivoted, a ratchet-disk, H, carrying a pawl, I, a sector, K, with ratchet-teeth with which the pawl I is adapted to engage, said sector having an arm, K′, rigidly attached thereto, a discharge-pipe carried by said arm, and a pivoted tank, O, having a weight-carrying arm, said weight engaging with a slot in the arm C, whereby the valve is operated and the ratchet-disk advanced automatically by the counter-balance of the tank O, substantially as described.

9. In an apparatus for washing photographic prints, the combination of a valved supply-pipe having a slotted operating-arm and a pawl which is alternately advanced and retracted, the rotary disk carrying a gravity-pawl and an operating-pin, *i*, a sector with ratchet-teeth having a pipe-supporting bar, K′, a weighted tank which automatically operates the valve, and a latch-bar with a pivoted pawl for holding the valve closed, with which said pin *i* engages, substantially as described.

10. The combination of the valved inlet-pipe B, the valve of which is provided with a slotted arm, a bar in rear of said slotted arm, rigidly attached thereto and to the opposite end of the valve-stem, a pivoted pawl, D, carried by the inwardly-projecting end of the bar C′, a ratchet-disk, H, carrying a bolt, J, and projecting pin *i*, a sector having ratchet-teeth with which the pawl J engages, and the arm K′, with an outwardly-projecting end forming a support for the discharge-pipe, a pivoted latch-bar having a pawl, G, notch *f*, and projecting catch *g′*, the pivoted tank having a discharge-opening, and an arm with a socket for adjustably securing thereto a weighted bar, said weighted bar having a projecting pin for engagement with the slot of the arm C, the parts being organized substantially as described.

11. In combination with the pipe B, having a valve, *b*, with a slotted arm for operating said valve, pins *a* and *a′* for limiting the movement of said arm, a pivoted latch, F, having a swinging pawl, G, the downward movement of which is limited by a staple, *g*, and a notch or catch, *f*, with which the member C′ of the slotted arm engages to swing said latch-bar outwardly, substantially as and for the purpose set forth.

12. In a mechanical photographic bath, the combination, with a ratchet-disk, H, having a pawl, I, with limiting stop-pins *k*, of a pivoted sector having ratchet-teeth adapted to be engaged by said pawl, and having rigidly attached thereto a pipe-carrying arm which also engages with the upper edge of the pivoted water-tank, substantially as described.

13. In a mechanical photographic bath, the combination, substantially as set forth, of a water-receptacle having a valved supply-pipe, a tank pivoted thereto having an adjustable counterpoise-weight, a slotted arm connected to the supply-valve and operated by the counterpoise-weight, the serrated sector operated by the pivoted tank, the ratchet-wheel having the pawl on its inner side, and the arm and stops for controlling the movement of said ratchet-wheel.

14. In a mechanical photographic bath, the combination, with a water-receptacle having a valved supply-pipe and a pivoted counterpoise-tank in connection with the supply-valve, of a serrated sector and a ratchet-wheel

carrying a pawl and having suitable stops for limiting the movement thereof, substantially as described.

15. In a mechanical photographic bath, the combination, with a water-receptacle having a valved supply-pipe and a pivoted counterpoise-tank in connection with the supply-valve, of a ratchet-wheel operated by the movement of said counterpoise-tank and having a controlling-arm and stops, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HARRY FORD.

Witnesses:
J. W. SEEVER,
D. M. COOPER.