No. 608,871. Patented Aug. 9, 1898.

J. KIRKWOOD.

PHOTOGRAPHIC PLATE WASHER.

(Application filed Jan. 28, 1898.)

(No Model.)

Fig. 1.

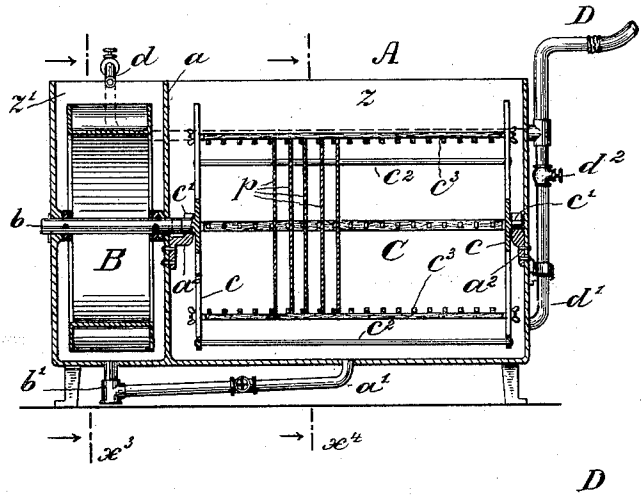


Fig. 2.

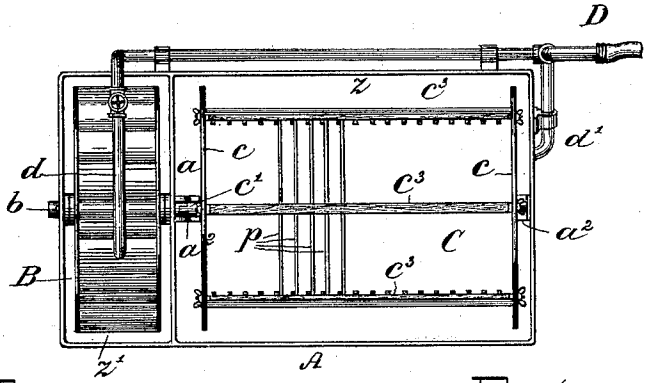


Fig. 3.

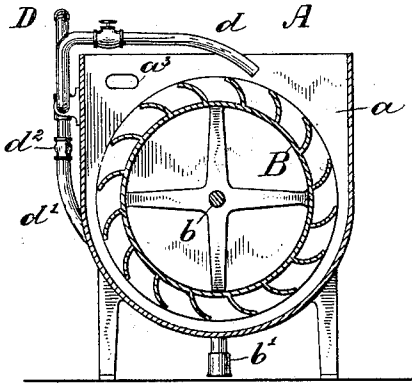
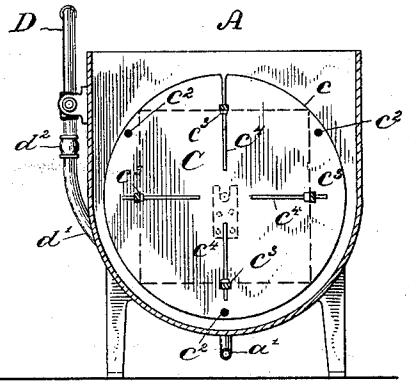
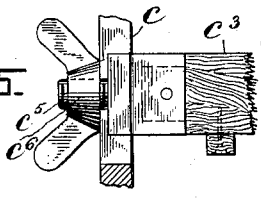


Fig. 4.



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Fig. 5.



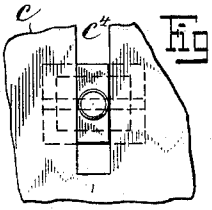


Fig. 6.

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JOHN KIRKWOOD, OF LENOX, MASSACHUSETTS.

PHOTOGRAPHIC-PLATE WASHER.

SPECIFICATION forming part of Letters Patent No. 608,871, dated August 9, 1898.

Application filed January 28, 1898. Serial No. 668,281. (No model.)

To all whom it may concern:

Be it known that I, JOHN KIRKWOOD, a citizen of the United States, residing at Lenox, Berkshire county, Massachusetts, have invented certain new and useful Improvements in Apparatuses for Washing Photographers' Plates, of which the following is a specification.

This invention relates to the class of apparatuses employed for washing or cleaning plates used in photography, the object being to produce a simple and effective device to be run by a water-wheel and capable of being embodied in a portable form for use by amateur photographers, as well as professionals.

The accompanying drawings illustrate an embodiment of the invention.

Figure 1 is a longitudinal vertical mid-section of the washing apparatus. Fig. 2 is a plan of the same. Fig. 3 is a vertical transverse section at x^3 in Fig. 1. Fig. 4 is a vertical transverse section at x^4 in Fig. 1. Figs. 5 and 6 are detail views, on a larger scale, of the means for securing the adjustable rack-bars of the rotary plate rack or holder.

A represents a bath-tank, which may be of any suitable material and of any desired form and size. This tank is divided by an upright transverse partition a into two chambers z and z', one for a water-wheel B and the other for a rotatable plate rack or holder C. The wheel B is an overshot-wheel, and it is fixed on a shaft b, which has bearings, respectively, in the end of the tank A and in the partition a. The wheel is driven from a nozzle d, supplied with water under pressure or head from a service-pipe D. Another branch d' from the service-pipe supplies water to the main compartment z of the tank, near its bottom. An outlet b' at the bottom of the compartment z' carries off the waste water from said compartment, and an outlet a' from the main compartment z of the tank carries off the waste water and sediment when this compartment is cleaned.

The rotatable rack or plate-holder C consists of two heads or disk-like end pieces c c, from each of which projects a journal c' to carry the holder, the said heads being distanced and connected rigidly together by rods c^2. In the heads c are mounted rack-bars c^3. By preference the holder C is made removable, so that it may be lifted out of its compartment for the insertion and removal of the plates p, and to effect this conveniently the journals c' have open or U-shaped bearings a^2 a^2 in the compartment z, said journals being alined with the shaft b of the water-wheel. The latter shaft projects into the compartment z and interlocks rather loosely with one of the journals c', so that the wheel B will drive or rotate the holder C when the latter is in place. The interlocking construction may be effected by merely slitting the end of the shaft b for a short distance and providing the end of the journal c' with a flat tongue to engage with said slit. This is the construction illustrated herein, Fig. 2, and it permits the rotatable holder to be lifted out and replaced conveniently.

To adjust the rack-bars c^3 radially in the heads c, so as to adapt the holder to plates of different dimensions, the said heads are herein shown as provided with radially-arranged guide-slots c^4, in which are loosely guided the ends of the rack-bars, Figs. 5 and 6, each bar having on its end a screw c^5 to receive a nut c^6 for clamping the bar fast when set. In order to render one of the rack-bars wholly removable, so that the plates p can be inserted conveniently into the holder, the slots of one pair are open—that is, they extend out to the peripheries of the heads or disks. Of course all of the slots may be open in this manner, if desired.

The operation of the device is as follows: The plates having been set in the holder C and the latter mounted in its bearings and coupled, as explained, to the shaft of the water-wheel, the water is turned on and gradually fills the compartment z up to the overflow a^3 in the partition a, Fig. 3, where it passes over into the compartment z' and flows off at the waste-outlet b'. The water is also turned on at the nozzle d, which sets the water-wheel in motion, it in turn rotating the plate-holder in the constantly-changing water in the compartment z. Thus the plates in the holder are rapidly and thoroughly washed.

The bearings of the shaft b of the water-wheel need not be absolutely water-tight. The water should not accumulate in the compartment z', being carried off at the waste-outlet b' as fast as it flows in. Consequently there

will be no leakage at the outer bearing, and at the inner bearing it is not important if a little water should leak from the compartment z to that containing the water-wheel.

The rotary velocity of the water-wheel will of course be regulated by the force and volume of water coming from the nozzle d, and the rapidity with which the water will be changed in the washing-compartment will depend on the extent of opening the cock or valve d^2 in the branch d'.

The details of construction of the rotary plate-holder C may be varied to any extent without departing from the spirit of my invention. The rack-bars, for example, may be placed in any convenient manner for holding one or more sets of plates. This feature will be dependent in a good degree upon the size of the apparatus and the size of the plates to be washed. All that is essential to my invention is that the holder shall rotate in the washing-water and shall have suitable racks for holding the plates, so that they may be carried around with the holder and through the water.

The particular form or arrangement of the overflow from the compartment z is not important, and it is not essential that the same service-pipe shall supply both the water-wheel and the compartment z.

The important advantages of the construction described are these: The washing compartment may be kept full to the overflow without flooding the water-wheel compartment, which would of course prevent or impede the rotation of the wheel. There is also an upward flow in the washing-compartment from the inlet to the overflow. The open rack or holder permits of the free access of water to the plates and allows the plates to be inserted readily.

Having thus described my invention, I claim—

1. A washing apparatus for photographers' plates, consisting essentially of a tank having in it two separate compartments, z and z', a water-wheel mounted rotatively in the compartment z', a pipe for supplying water to the water-wheel, a pipe for supplying water to the lower part of the compartment z, and a plate-holder C, rotatively mounted in the compartment z', said plate-holder being axially alined with the water-wheel and coupled to the shaft thereof for driving and having adjustable rack-bars for holding the plates, the said compartments having outlets for the waste water, substantially as set forth.

2. A washing apparatus for photographers' plates, consisting of a tank having in it two compartments, z and z', arranged side by side, an open plate-holder C, provided with rack-bars and rotatively mounted in and readily removable from the compartment z, a water-wheel rotatively mounted in the compartment z' and axially alined with the plate-holder, the journals of said water-wheel and plate-holder being separably coupled together for driving, a pipe which supplies water to the water-wheel, and a pipe which supplies water to the compartment z at its lower part, said compartment z having an overflow for the waste water and said compartment z', an outlet at its lower part for the waste water, substantially as set forth.

3. A washing apparatus for photographers' plates, consisting essentially of a tank having in it two separate compartments, a water-wheel mounted rotatively in one of said compartments and its shaft projecting into the other compartment, an open removable, plate-holder, provided with rack-bars for the plates, mounted rotatively in the other compartment and having its axis alined with that of the water-wheel, a separable coupling connecting the shafts of the water-wheel and plate-holder, whereby the latter may be readily removed independently of the water-wheel, a pipe to admit water to the water-wheel, and a pipe to admit water to the compartment containing the plate-holder, said compartments having outlets for the waste water, substantially as set forth.

4. In an apparatus for washing photographers' plates the combination, with the tank and the water-wheel for driving the plate-holder, of the said holder mounted rotatively in the tank and consisting of the two heads or end pieces c, c, the tie-rods or bars c^2, which connect the heads, the rack-bars c^3, mounted adjustably in radially-arranged guides in the heads, and means for securing said bars in place when they have been adjusted, substantially as set forth.

In witness whereof I have hereunto signed my name this 26th day of January, 1898, in the presence of two subscribing witnesses.

JOHN KIRKWOOD.

Witnesses:
JAMES A. CAMPBELL,
HARRY E. KENDALL.