June 29, 1954 M. SHAPIRO 2,682,213

APPARATUS FOR WASHING PHOTOGRAPHIC PRINTS

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Fig. 1

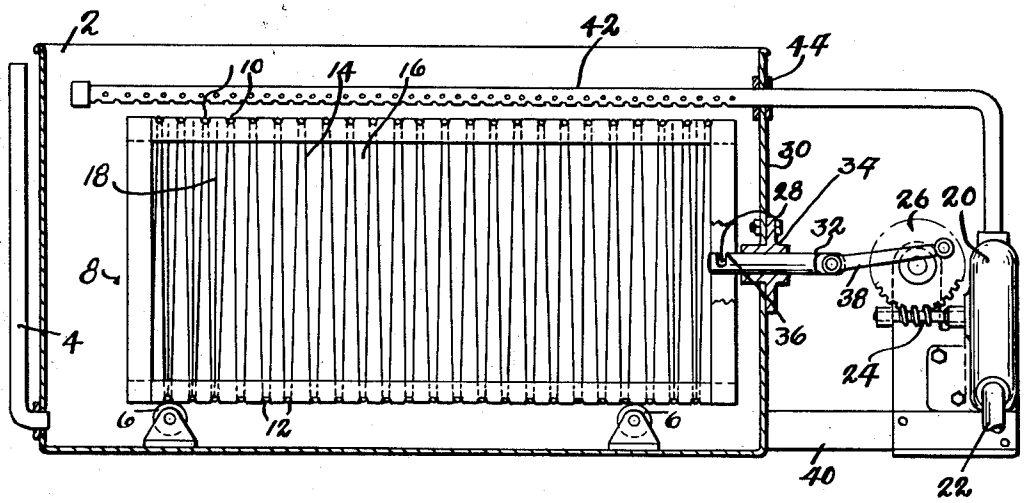
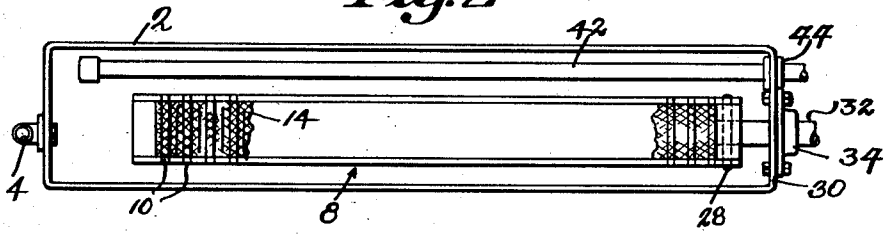


Fig. 2



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APPARATUS FOR WASHING PHOTOGRAPHIC PRINTS

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2 Claims. (Cl. 95—98)

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My invention relates to washers for photographic films and prints and has for one of its objects to provide a washer which is very efficient in operation.

A further object of the invention is to provide a washer which is simple in construction and operation, and in which danger of injury to the films or prints is reduced to a minimum.

Another object of my invention is to provide a washer, the construction of which is such as to facilitate cleaning the same, which is of merit in washing articles such as photographic films and prints.

For clarity of description, the term print or prints used hereinafter is intended to be interpreted as covering both films and prints.

In general, my improved washer comprises a tank, containing a rack which supports or carries the prints to be washed.

The rack is removably mounted in the tank, so that it may readily be lifted out for loading and cleaning, no tools being required for installing the rack or for removing it from the tank.

The tank, of course, contains the water for washing the prints, and in operation this water is being constantly added to the tank and discharged therefrom. In order that the prints may be gently agitated during the washing operation, I provide for a rather slow reciprocation of the rack in the tank.

This reciprocation is effected conveniently by employing a small water-driven turbine, which is operatively connected to the rack so as to convert the rotary motion of the turbine to a reciprocating motion, thereby slowly to reciprocate the rack in the tank.

The exhaust water from the turbine is sprayed into the tank, so that fresh, clean water is being added constantly to the tank.

The turbine may be connected to an ordinary water faucet.

A further novel feature of my invention is the separator I employ for separating the prints from each other as they stand upright in the print rack. This separator is in the form of a woven fabric or screen with a fairly large mesh, say ⅛", and long enough so that it may be suspended in loops from top to bottom of the rack and from end to end thereof. The loops of the fabric are, of course, slightly spaced from each other, so that a print may inserted in alternate loops and will be separated by the fabric from the prints at each side thereof.

Because of the fact that the separator or screen is a mesh fabric separating the prints from each

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other, the wash water will pass completely around each print, thereby facilitating complete and rapid washing of the prints.

While I may employ various materials for the separator, I find that a thermoplastic resin, available in the open market under the name "Saran," is suitable for my purpose in that it appears to be highly resistant to deterioration under the conditions encountered in washing photographic prints.

In the accompanying drawings,

Fig. 1 is a sectional side elevational view of my improved print washer, and

Fig. 2 is a plan view.

Referring to the drawings in detail, 2 designates the washer tank. This is an open tank. 4 designates the water level control and outlet therefor. When desired, the tank can be equipped with a petcock drain in the bottom thereof.

In the bottom of the tank 2 I provide rack-supporting rollers 6, extending transversely of the tank.

The print rack as a whole has been designated 8. It is simply a rectangular frame of wood or other suitable material. Across the top of the frame of the rack are a plurality of cross pieces 10. At the bottom of the rack frame I provide similar cross pieces 12. Looped about the upper and lower cross pieces 10 and 12 is a continuous length of woven fabric 14. Because of the fact that the fabric 14 extends in an undulating fashion the length of the rack, spaces 16 are provided for receiving the prints 18 for the washing operation. It will be obvious that the prints stand on edge and each print is separated from its neighbors by the fabric.

As above pointed out, I have provided means for a slow reciprocation of the print rack in the tank. The mechanism for effecting this reciprocation may take various forms. However, inasmuch as I wish to provide a washer which requires no special skill for installation and operation, I have shown a water turbine 20 of conventional construction, the inlet of which may be connected by a hose 22 to an ordinary water faucet.

The impeller of the turbine is provided with a worm shaft 24, the worm of which meshes with worm gear 26.

The print rack 8 across one end is provided with a rod 28. Extending through the end wall 30 of the tank 2 is rod 32. A stuffing box 34 is provided for this rod. Near its inner end the rod 32 is provided with a transverse groove 36,

the cross rod 28 of the print rack lying therein when the parts are in assembled condition.

Attached to the outer end of the rod 32 and to the worm gear 26 is connecting rod 38.

The turbine assembly, including turbine 20, worm shaft 24, and gear 26, is mounted on a frame 40, secured to the end of the tank 2, so that the whole equipment is portable.

The exhaust line 42 of the water turbine extends through a stuffing box 44 in the end of the tank 2 and along the interior of the tank adjacent the top thereof.

The line 42 is perforated, so that, with the washer in operation, water will be sprayed constantly into the tank.

As shown in Fig. 2, the exhaust line is to one side of the print rack, so as not to interfere with the removal of the rack. The rack, it will be seen, can be lifted out of the tank 2 without disturbing the water turbine and its associated mechanism by reason of the simple driving connection between the rod 32 and the end of the rack.

While I have illustrated and described one embodiment of my invention, it is to be understood that changes may be made therein within the purview of the appended claims.

What I claim is:

1. A washer for photographic prints comprising, in combination, a washer tank for containing washing fluid; rollers within the tank at the bottom thereof; a print-supporting rack within the tank superimposed upon and supported by said rollers; a drain for the tank having its outlet above the top of said rack, whereby the rack will always be submerged in washing fluid; a continuous strip of flexible mesh material carried by the rack and looped about the same in vertically

extending loops disposed side by side lengthwise of said rack, to provide for supporting a plurality of prints on edge in erect position in side-by-side relation, with the prints extending transversely of the tank and with each print separated from the others by the mesh material; and means for reciprocating the rack along said rollers lengthwise of the tank during the washing operation, to impart a corresponding motion to the woven material and prints while the latter remain in their initial erect position.

2. A washer for photographic prints comprising, in combination, a washer tank for containing washing fluid; a print-supporting rack within said tank; a drain for the tank having its outlet above the top of said rack, whereby the rack will always be submerged in the washing fluid; means for supplying washing fluid constantly to the washing tank during operation of the washer; a strip of mesh material looped about said rack in vertical loops which extend transversely of the tank for loosely supporting prints on edge and submerged in the washing fluid; and means for reciprocating the rack lengthwise of the tank to effect similar reciprocation, in the washing fluid, of the prints carried by the loops of the mesh material.

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