Jan. 19, 1943. K. LANE 2,308,519

PHOTOGRAPHIC FILM WASHING DEVICE

Filed May 17, 1940

FIG. 1

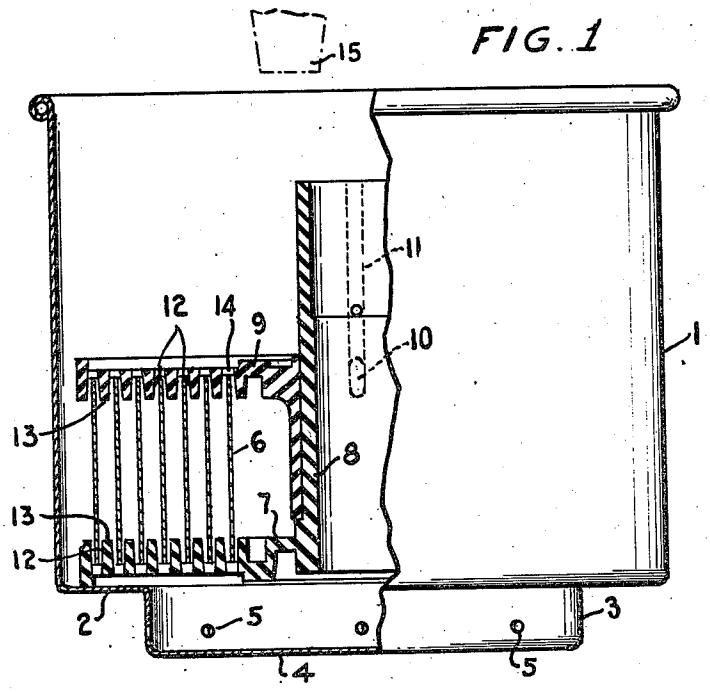
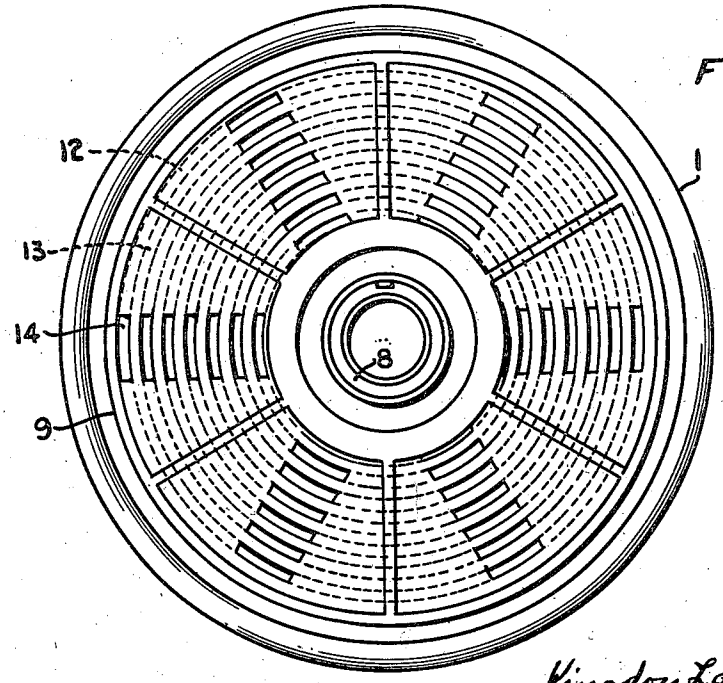


FIG. 2



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Patented Jan. 19, 1943 2,308,519

UNITED STATES PATENT OFFICE

2,308,519

PHOTOGRAPHIC FILM WASHING DEVICE

Kingdon Lane, New York, N. Y.

Application May 17, 1940, Serial No. 335,812

1 Claim. (Cl. 95—98)

This invention relates to a vessel or tank for washing photographic films.

In the process of treating photographic films, the photographic film is developed in any well-known or suitable manner and is fixed by treating it with a solution commonly known as "hypo." The film is then washed with water to remove the remaining "hypo" solution and other superfluous matters which may be on the film.

According to the present invention a vessel or tank for washing the film is provided which comprises a cylindrical part adapted to receive a reel, in which the film to be washed is placed, such vessel being provided with a shoulder upon which the reel rests. This shoulder is between the aforeaid cylindrical portion and a sedimentation chamber of less diameter having holes in its side wall through which the water may have its exit from the apparatus. The water being introduced at the top of the vessel passes down over the film, washing it clean and proceeding with its carried matter into the sedimentation chamber beneath the film so that the film is entirely cleared of it. The water then passes out through the holes in the wall of the sedimentation chamber. The film is thus thoroughly and completely washed in an efficient and simple manner.

Also the holes being in the side wall of the sedimentation chamber, the vessel may sit upon a plane surface, such as the bottom of a sink, which is usually an efficient place for effecting the washing, without interfering with the flow of water from the apparatus.

Also the container or vessel should be preferably seamless so that no lodging point will be provided for any foreign or deleterious matter as would be the case if a seam were present. This seamless vessel may be efficiently and reliably formed by spinning the metal into the vessel shape.

The main object of the invention may, therefore, be said to be the provision of a tank or vessel in which a photographic film mounted on a reel may be efficiently and effectively washed in a simple manner.

A further object of the invention is to provide a photographic film washing vessel in which a film mounted upon a reel may be washed, which vessel comprises an upper cylindrical portion adapted to receive the reel, a lower sedimentation chamber of smaller diameter than the upper cylindrical portion and a shoulder for supporting the reel, said shoulder being between the said upper portion and said chamber, there being exit holes for the washing water in the side wall of the sedimentation chamber.

A further object of the invention is to provide a seamless photographic film washing vessel of the character as described.

A further object of the invention is to provide a spun metal film washing tank of the character as described.

Other and ancillary objects of the invention will appear hereinafter.

In the accompanying drawing which illustrates the invention—

Fig. 1 is a side elevation, partially broken away to show an axial section, of apparatus embodying the invention; and

Fig. 2 is a top plan view of the apparatus of Fig. 1.

Referring to the drawing, the apparatus comprises a container having the large upper cylindrical portion 1 joined at its lower edge by a shoulder 2 with the upper edge of the sedimentation chamber having the cylindrical side wall 3 and the closed bottom 4.

In the side wall 3 is a series of holes 5.

The cylinder 1, open at its top, is of such proportions as to readily receive a reel upon which the film to be washed is arranged and to have such reel rest upon the annular shoulder 2.

The container formed by the cylinder 1 and the sedimentation chamber is formed of thin metal and is seamless so as to prevent the lodgment of foreign or deleterious material such as would be the case with a seam. This containing vessel may desirably be formed of spun aluminum, the aluminum providing a light and strong vessel and the spinning producing the seamless structure which is of great importance in chemical operations, such as the treatment of photographic films.

The sedimentation chamber of the vessel provides a space wherein the material washed from the film, or otherwise finds itself in the vessel, may settle so as not to have a deleterious action during the washing of the film and from which the sediment may be readily washed out through the holes 5 by the current of film washing water, or may be removed in other feasible ways.

By having the holes 5 in the side wall of the sedimentation chamber it is possible to create the washing current of water through the device when the vessel sits on its bottom in the bottom of a sink wherein the washing operation is effected, the holes being clear to permit the passage of water even when the bottom of the washing vessel stands upon the bottom of the sink.

The film 6 to be washed having been developed in any well known and suitable manner and "fixed" by the use of a well known fixing solution, such as sodium thiosulphate, commonly referred to as "hypo", the film is placed in a reel which is then placed in the washing vessel and the film thoroughly washed to remove any remaining "hypo" or other undesired material.

The reel for the film may be made of "Bakelite" and comprises a bottom end head 7 secured to a core 8 upon which slides the other end head 9 to adjust the reel to accommodate films of different widths, the head 9 having a projection 10 sliding in a slot 11 in the core 8 to prevent relative rotation of the end heads. Each of the end heads 7 and 9 has a spirally arranged channel 12 separated by spiral ribs 13, the ribs and channel in one head being directly opposite the channel and ribs on the other head. The film is mounted on the reel by inserting one end in the outer ends of the channels 12 of the end heads and pushed thereinto endwise. The film then, following the channels, will be curled spirally into a roll in which the convolutions are held separated by the ribs 13 so that the water introduced at the top of the reel may, in its passage downwardly, have free access to all surfaces of the film and the film is thoroughly washed clean.

In both the end heads 7 and 9, holes 14 are provided at the bottoms of the channels 12 and the film is loose in those channels, so that the water entering from above can pass downwardly through these openings and across all of the film surfaces thereby thoroughly washing the same. This reel containing the film, as described, it will be observed, rests upon the annular shoulder 2 whereby it is held above the sedimentation chamber so that the downwardly flowing water washes the superfluous fluid from the film into the sedimentation chamber, the flow of water continuing to the outside of the washing apparatus through the holes 5.

It will now be apparent that the photographic film, having been developed and fixed as described, it may be placed in the reel which then may be placed in the washing vessel. Water then may be supplied at any desired point and these points may be varied during the washing operation by means of a water supply hose nozzle 15 which may be moved about to direct the water against different parts of the apparatus during the washing operation.

While the invention has been illustrated in what is considered its best application it may have other embodiments without departing from its spirit and is not, therefore, limited to the structure shown in the drawing.

What I claim is:

The combination with a vessel for washing photographic film carried on a reel, which comprises an upper cylindrical portion for receiving the reel, a lower cylindrical sedimentation chamber of smaller diameter than the upper cylindrical portion and of insufficient diameter to receive the reel adapted to be received by said upper cylindrical portion, a shoulder for supporting said reel, said shoulder being between the lower end of said upper portion and the top edge of said chamber, and a bottom for said chamber, said chamber having holes in its said cylindrical wall, of a film supporting reel comprising a core and end heads secured thereto, each of the said end heads having a spirally-arranged channel, the channels in the said end heads being directly opposite each other and adapted to receive opposite edges of the film, there being ribs on each of said end heads between the convolutions of said spiral channel therein whereby the convolutions of the film are separated to permit the cleansing fluid to freely flow downwardly between the film convolutions, said end heads having holes to permit access of the cleaning fluid to the interior of the film roll and exit therefrom, the lower of said end heads resting upon said shoulder and over-lying said sedimentation chamber.

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