

No. 733,244.

PATENTED JULY 7, 1903.

W. G. METTE.
PHOTOGRAPHIC PLATE WASHER.

APPLICATION FILED MAR. 4, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 2.

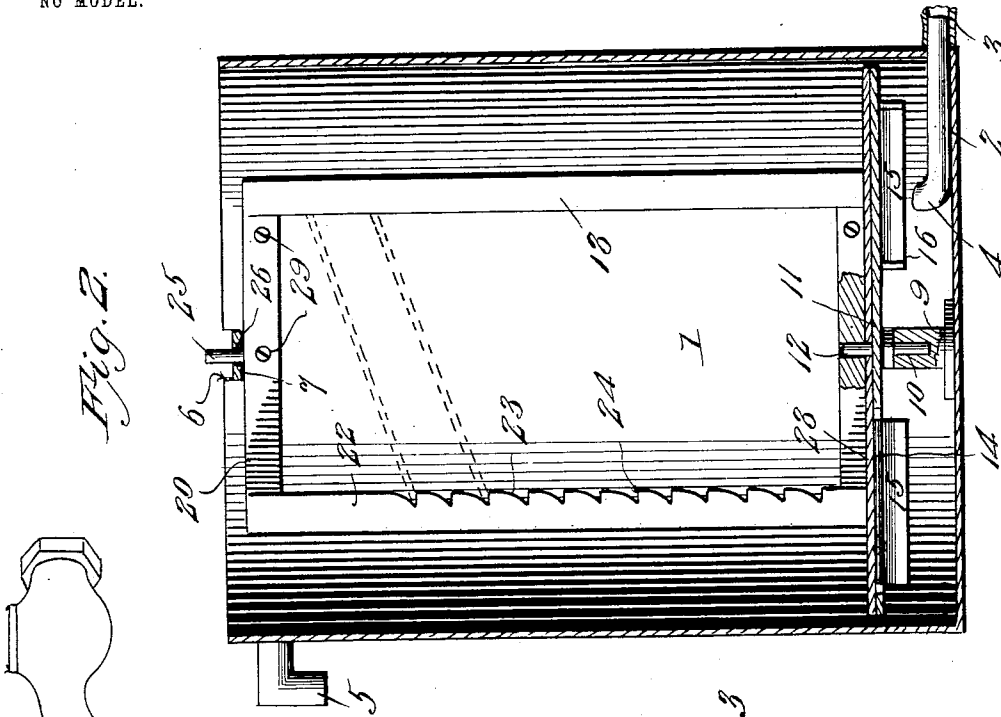
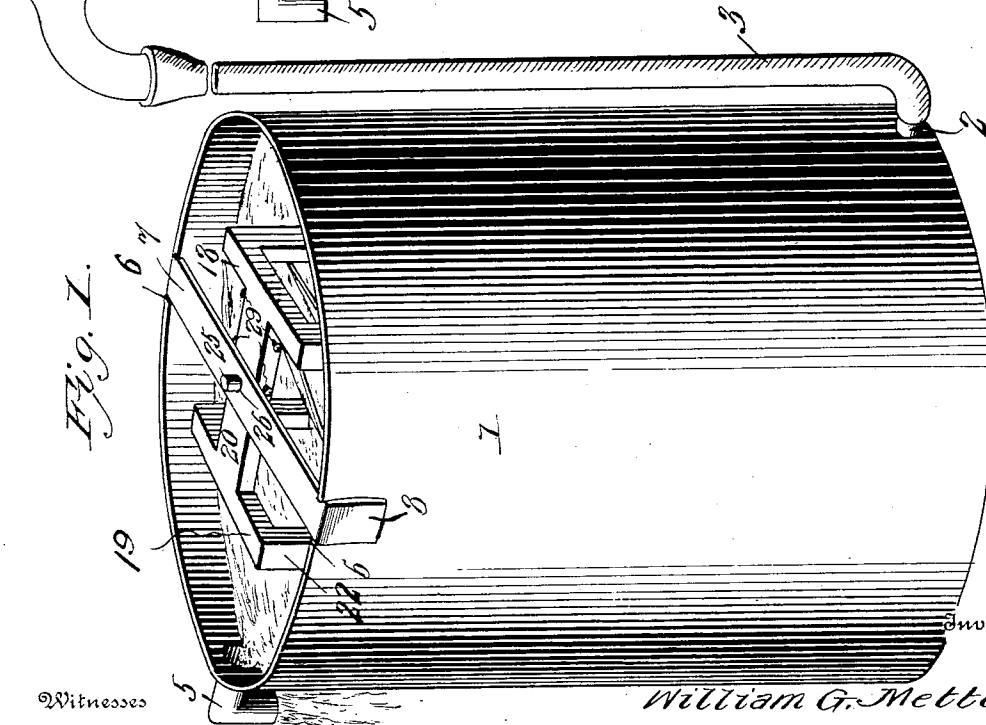


Fig. 1.



Witnesses

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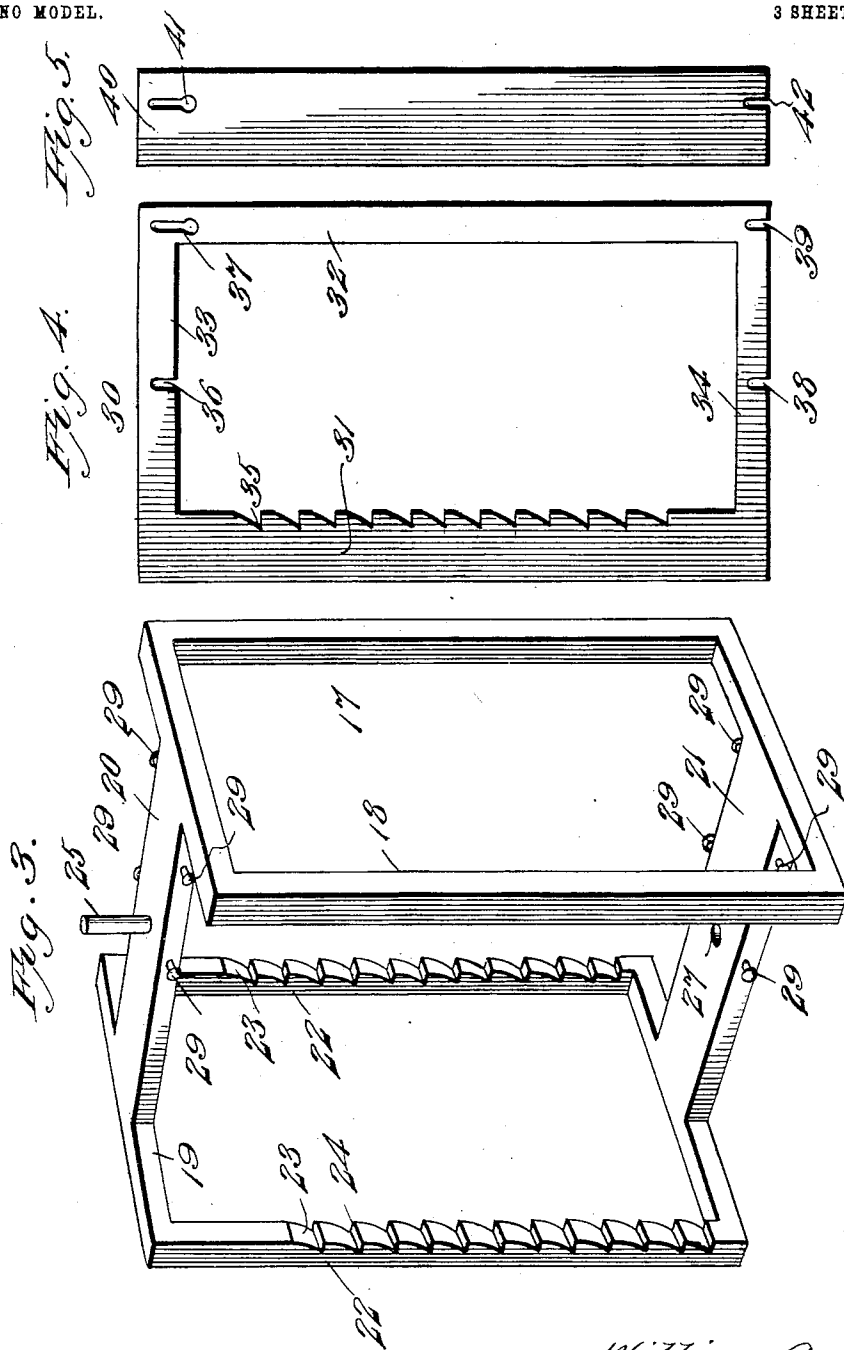
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PHOTOGRAPHIC PLATE WASHER.

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NO MODEL.

3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

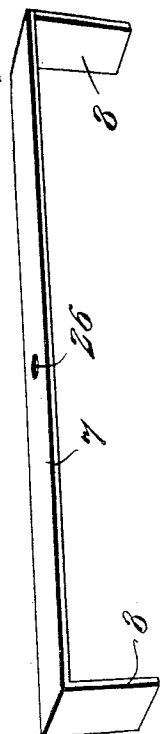


Fig. 8

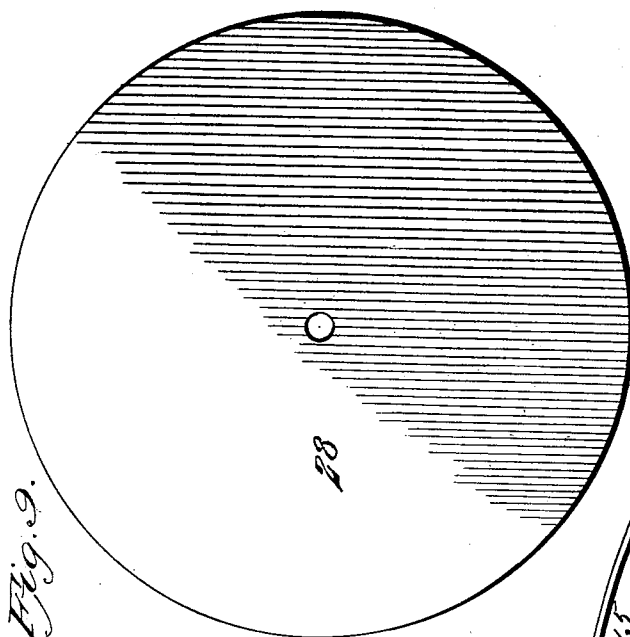


Fig. 9.

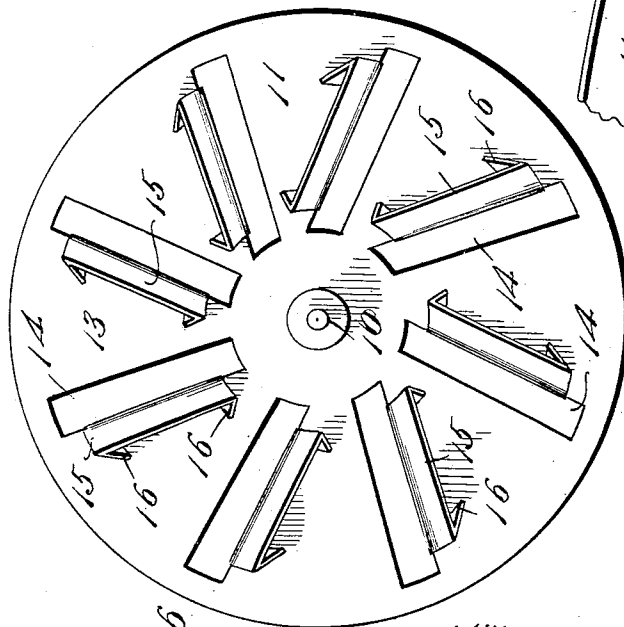


Fig. 6.

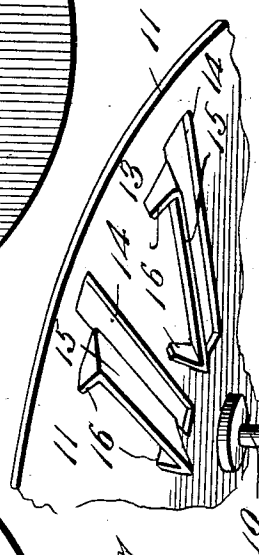


Fig. 7

Witnesses

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PHOTOGRAPHIC-PLATE WASHER.

SPECIFICATION forming part of Letters Patent No. 733,244, dated July 7, 1903.

Application filed March 4, 1903. Serial No. 146,135. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. METTE, a citizen of the United States, residing at Oakpark, in the county of Cook and State of Illinois, have invented new and useful Improvements in Photographic-Plate Washers, of which the following is a specification.

This invention relates to a photographic-plate washer; and the objects are to provide a simple and inexpensive automatic machine for washing photographic negatives and capable of use at any place where there is running water, operating to wash negatives in a comparatively short time without the slightest danger of injuring the negative and by the use of which also an operator will be relieved from the necessity of watching the machine while the plates are being washed; to provide a machine for washing photographic negatives having a removable plate-holder to which a rotary motion is imparted and adapted to be used also as means for drying the plates after they have been thoroughly washed; to provide a machine of the class set forth having a plate-holder of maximum dimensions having means for receiving adapters whereby one holder will be adjusted to receive plates differing in size without requiring a number of machines to effectively wash plates varying in dimensions, and to provide a washing-machine for photographic negatives of a strong and durable nature.

Broadly stated, the invention consists of a holding-tank with a rotatable plate-holder therein constructed to dispose the plates at angles of inclination relatively to a horizontal plane and means controlled by the pressure of water for rotating the said holder.

The invention further consists of a tank having a rotatable plate-holder mounted therein and coöperating with a lower water-wheel with openings therethrough whereby water may freely flow upwardly through the holder and over the plates.

The invention further consists in a tank having a rotary holder therein, a water-wheel with openings therethrough to operate the said holder, and a shield or baffle-disk adapted to be interposed between the lower end of the holder and the water-wheel to regulate the flow of water upwardly through the holder to prevent injury to the films of the plates.

The invention further consists in the details of construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of a machine for washing photographic negatives embodying the features of the invention. Fig. 2 is a transverse vertical section therethrough. Fig. 3 is a detail perspective view of the plate-holder. Figs. 4 and 5 are detail elevations of adapters for application to the holder to adjust the latter to receive plates having different dimensions. Fig. 6 is a bottom plan view of the water-wheel or motive means to actuate the holder. Fig. 7 is a detail perspective view of a portion of the water-wheel looking toward the under side thereof. Fig. 8 is a detail perspective view of a cross-bar to engage the tank and receive a part of the upper end of the holder to center the same within the tank. Fig. 9 is a top plan view of a shield or baffle-plate adapted to be interposed between the water-wheel and the lower end of the holder.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a tank, which is preferably formed of sheet metal—such as galvanized iron, zinc, or other suitable non-corrosive metal—which will have its outer surface blackened. Secured against the bottom and within the tank 1 is an inflow-pipe 2, having its outer end projected through the casing for the attachment of a feed-pipe 3, which will be preferably flexible and connected to a source of supply, such as a faucet. The inner end of the supply-pipe 2 is turned upwardly at an angle, as at 4, to give the water flowing therethrough an outlet at an angle of inclination for a purpose which will be presently set forth. The upper part of the tank has an overflow-pipe 5 secured thereto for the obvious purpose of permitting the water to rise within the tank only to a certain level and outflow regularly therefrom to establish a circulation. The upper edge of the tank at diametrically opposite points is formed with slots 6 to receive a cross-bar 7, having downwardly-bent ends 8 of a yielding structure and sufficiently resilient to set up a slight clamping action against the tank to

prevent too loose application of the cross-bar. Rising from the center of the bottom of the tank 1 is a bearing 9 to rotatably receive a depending stub-shaft 10 of a water-wheel or motor 11, said shaft having an upper extension 12.

The water-wheel comprises a zinc or other metallic disk-like body 13, with a series of slots 14 cut therethrough at regular intervals and at an inclination to the radial lines of the body 13. Close to one side edge of each slot is a bucket or blade 15, inclined upwardly toward the slot and fixed securely on the bottom of the body, so as to leave the lower portion fully open, as clearly shown by Figs. 6 and 7. The ends 16 of the buckets or blades are turned inwardly at angles and firmly secured against the under side of the body 13 to render the water striking and entering the said buckets in succession more effective as a motive means to regularly rotate the wheel.

Within the tank and disposed on the water-wheel 11 is a plate-holder 17, consisting of opposite rectangular upright frames 18 and 19, connected by upper and lower cross-ties 20 and 21 in the form of strips materially broader than the portions of the frames which they connect to increase the strength thereof. The side rails 22 of the frame 19 are formed with a series of notches 23, which in the present instance are twelve in number and have horizontal shoulders 24. As indicated by dotted lines in Fig. 2, the plates bearing the negatives to be washed each has one edge in a pair of transversely-aligned notches 23, bearing on the shoulders 24 of said notches, the plates being arranged at upward angles of inclination and their opposite ends held against the inner sides of the rails of the frame 18. The holder 17, as shown by Fig. 3, is constructed to receive a maximum size of plates, and by means which will be presently set forth the same holder may be arranged to receive smaller plates. Rising from the center of the upper cross-tie 20 is a stub-shaft or center pin 25, which is loosely projected through an opening 26 in the center of the bar 7, and in the center of the bottom cross-tie 20 is an opening 27 to receive the upper extension 12 of the stub-shaft 10.

The device as thus far described is complete as a washing-machine for photographic negatives and adapted to carry plates of one size, and in assembling the several structures thus far explained the water-wheel or motor 11 has its stub-shaft 10 first fitted in the bearing 9, and the holder 17 is disposed over the water-wheel or motor and held in central position within the tank by the cross-bar 7. A connection having been made between the pipe 2 and a source of water-supply through the medium of the feed-pipe 3, the water is turned on and flows into the tank. The water exits from the pipe 2 at an upward angle of inclination and squarely strikes the buckets or blades 15, thereby causing the wheel or motor to rotate and similarly rotate the

holder carrying the plates to be washed, the weight of the said holder setting up sufficient friction to cause it to rotate with the wheel or motor. The water, in addition to actuating the motor and rotating the holder, flows upwardly through the slots 14 if the force is not too strong and thoroughly circulates in and over the plates and fully washes the latter, care being taken in disposing the plates in the holder to have the film side thereof downwardly, so as to receive the safe impact of the water. When the water flows up within the tank 1 to the height of the outflow-pipe 5, a thorough circulation of water is set up and a continuous clean supply of the same is caused to pass through the tank and operate on the plates. The plates by the operation of the improved washing-machine will be thoroughly treated or washed within a comparatively short time without requiring attention on the part of an operator or causing the latter to wet or soil his hands.

At times the ordinary water-pressure will be too strong, and if permitted to enter the tank in a maximum forceful manner the films on the plates would be injured. To obviate this disadvantage, a zinc shield or baffle-plate 28 is provided, which is first applied over the water-wheel or motor 11, as shown by Fig. 2, to close the slots 14, and on the said shield or baffle-plate the lower end of the holder bears or is disposed. The water will then flow around the outer edges of the water-wheel or motor and the shield or baffle-plate and the dashing force of the same will be reduced without detracting from the effectiveness of the operation or the motive power of the water. The plates being disposed at an angle in the holder 17 and continually rotated against the rising volume of water will bring every part thereof in contact with the water, and thereby reduce the time required to wash negatives to a minimum.

To render a single machine effective in washing different sizes of plates, means are provided for adjusting the holder for receiving and practically retaining plates of varying dimensions therein. Projecting from opposite edges of the upper and lower cross-ties 20 and 21 are headed studs 29, which are preferably disposed in pairs to one side of the centers of the ties and in vertical alinement. The adapters are shown by Figs. 4 and 5, and the first consists of a rectangular frame 30, having side rails 31 and 32 and upper and lower connecting-rails 33 and 34. The inner edge of the side rail 21 is formed with a series of notches 35, similar to the notches 23, heretofore explained, and between the said notches and the inner edge of the opposite side rail 32 plates of smaller dimensions than can be mounted between the frames 18 and 19 are adapted to be disposed at an angle of inclination similar to the disposition of said plates between the frames 18 and 19. The adapter-frame 30 is removably attached to the cross-ties 20 and 21 of the holder 17, and for this

purpose an upper rail 33 has a downwardly-opening slot 36, and in the upper extremity of the rail 32 is a keyhole-slot 37, with its enlarged extremity at the bottom. Opening
 5 downwardly through the lower edge of the lower rail 34 of the frame 30 is a slot 38, and in the lower extremity of the rail 32 is a similar slot 39. The slots 36 and 37 and 38 and 39 are caused to engage the headed studs 29 on
 10 either side of the cross-ties 20 and 21, and said slots being of less width than the diameter of the heads of the studs are prevented from slipping off or becoming displaced after the frame is fully applied. The adapter-strip 40
 15 (shown by Fig. 5) has an upper keyhole-slot 41, with the enlarged extremity thereof at the bottom, and a downwardly-opening slot 42 in the lower end thereof. This sizing-strip is applied to either side of the cross-ties 20 and
 20 21 and connected, through the medium of the slots 41 and 42, with the headed studs 29 to support plates of still smaller dimensions than those adapted to be arranged between the frames 18 and 19 or of larger dimensions than
 25 can be carried by the frame 30, the notches 23 in the side rails of the frame 19 being employed as end supports for the plates when the adapter-strip is used, and in this instance also the plates will be arranged at an angle of
 30 inclination.

From the foregoing it will be seen that a very effective as well as simple washing-machine for photographic negatives is provided, and the force of the water being upward and
 35 moving through the plates, as well as in a circular direction, causes the water to be continually fresh and expedites the operation of washing the films, as well as uniformly treating all parts of each plate. When the wash-
 40 ing operation is completed, the cross-bar 7 is removed, and the holder can be easily withdrawn and used as a drying-rack without disturbing the assemblage of plates therein.

As before indicated, the washer is capable
 45 of use in treating plates of varying dimensions within certain maximum and minimum sizes, and for larger plates it will be understood that the dimensions of the improved machine will be increased proportionately.
 50 All parts of the device will be constructed to render them durable, as well as efficient in carrying out the washing operation.

Having thus fully described the invention, what is claimed as new is—

55 1. A machine for washing photographic negatives having a rotary holder provided

with means for holding the negatives at an angle of inclination to a horizontal plane, and adapters for removable application to the holder to arrange the latter to receive nega- 60
 tives of different dimensions.

2. A machine for washing photographic negatives, comprising a tank to receive a washing fluid, a rotary holder removably dis- 65
 posed in said tank and having means for supporting the negatives at an angle of inclination to a horizontal plane, and adapters adapted to be removably applied to the holder.

3. A machine for washing photographic negatives, comprising a tank with a fluid- 70
 feeding means, a motor device rotatably mounted over the said feeding means and having openings therein, a holder for negatives disposed upon and rotatable with the said motor device, and an adapter adapted 75
 to be removably applied to the holder.

4. A machine for washing photographic negatives, comprising a tank having a fluid-feeding means, a holder rotatably mounted 80
 in said tank and comprising opposite frames, the inner portion of one frame having a plurality of notches therein whereby the negatives may be held at an angle of inclination to a horizontal plane, and an adapter having 85
 notches therein and an adapting-strip removably applicable to the said holder.

5. A washing-machine for photographic negatives, comprising a tank having fluid-feeding means, a motor device rotatably 90
 mounted in the bottom of the tank and having openings therethrough, a baffle-plate removably applied on the motor device, and a negative-holder resting upon and rotatable with the motor device.

6. A machine for washing photographic 95
 negatives comprising a tank having fluid-feeding means, a motor device mounted in the bottom of the tank and provided with openings therethrough and downwardly-in- 100
 clined lower buckets adjacent to said openings, a negative-holder disposed upon and rotatable with the motor device, and means for engaging the upper end of the holder to retain the same in central position within the 105
 tank.

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

WILLIAM G. METTE.

Witnesses:

HERMAN SCHULTZ,
 GEORGE SCHRADER.