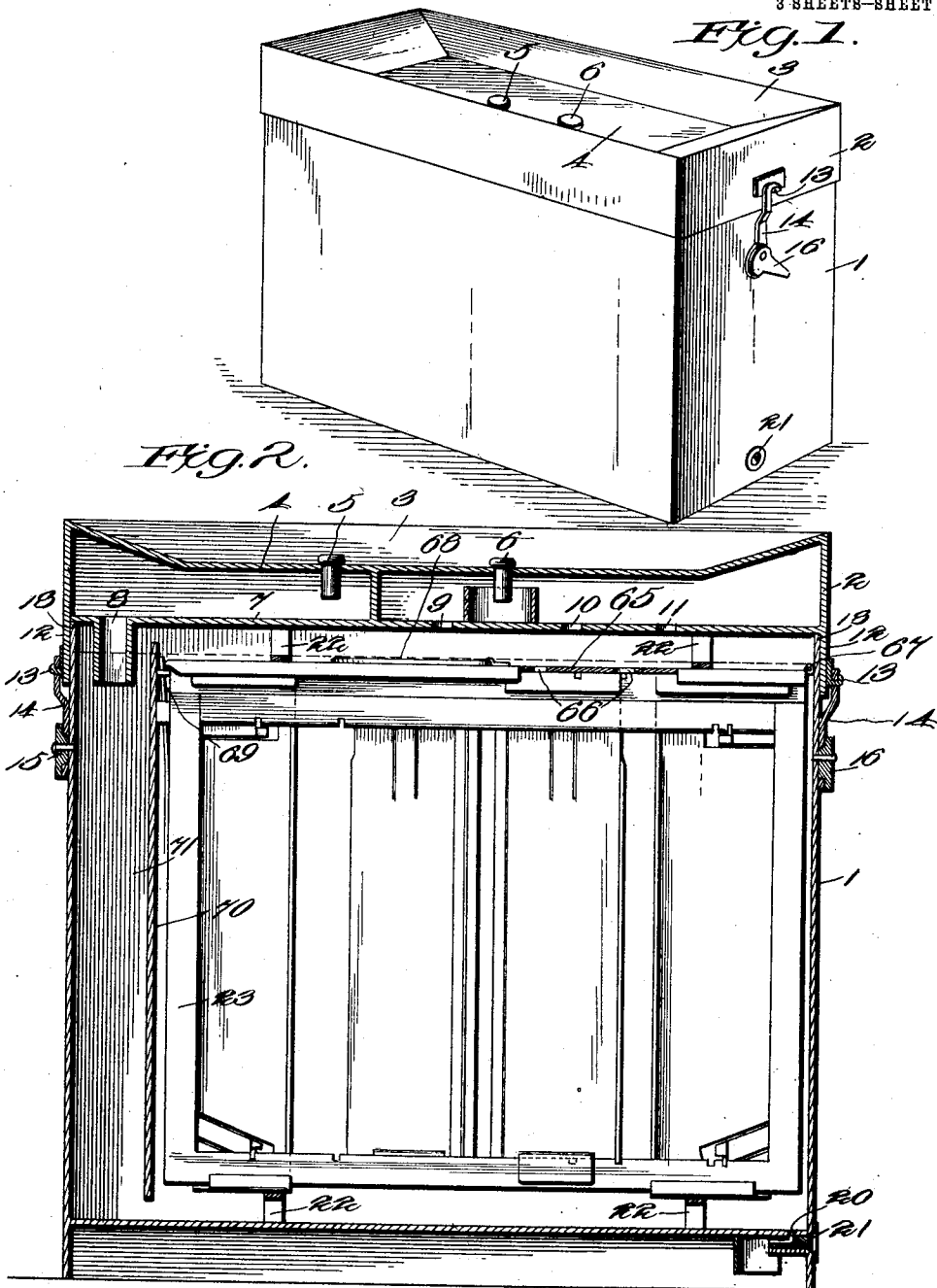


D. C. McCANDLESS.
 DEVELOPING TANK FOR PHOTOGRAPHIC PURPOSES.
 APPLICATION FILED OCT. 11, 1909. RENEWED FEB. 24, 1911.

1,001,422.

Patented Aug. 22, 1911.

3 SHEETS-SHEET 1.



Witnesses
 Geo. A. Beryl.
 W. M. Small.

Inventor
 D. C. McCandless by
 Wilkinson Fish &
 Wilkinson
 Attorneys

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3 SHEETS—SHEET 2.

Fig. 3.

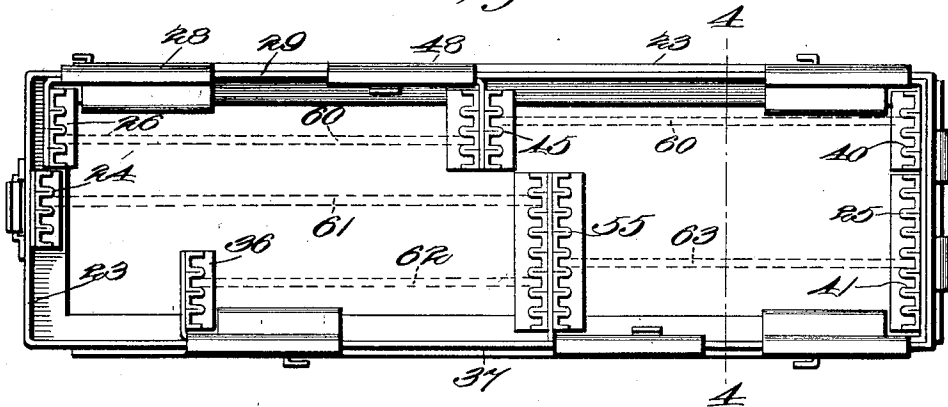


Fig. 4.

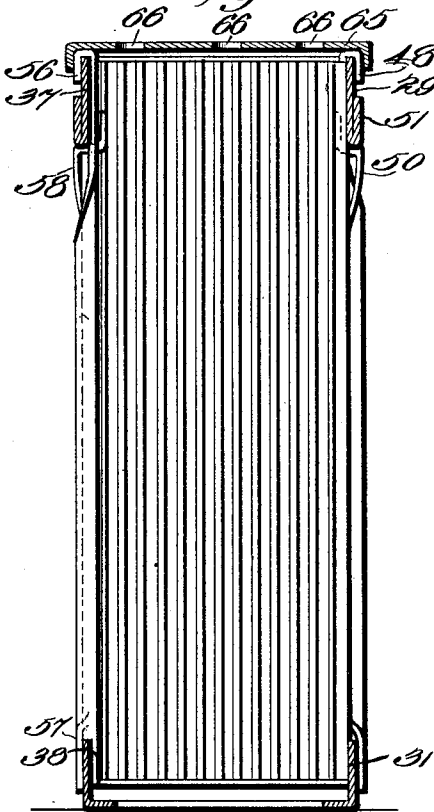
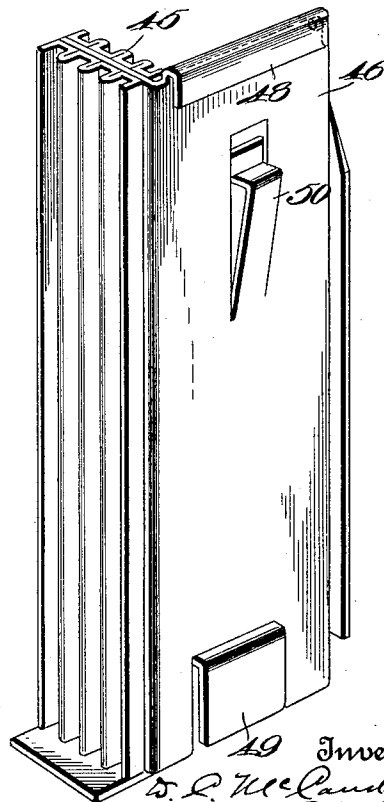


Fig. 5.



Witnesses
 Geo. A. Byrne.
 W. Map. D. Swall.

Inventor
 D. C. McCandless by
 Wilkinson, Fisher &
 Wilkinson
 Attorneys

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3 SHEETS-SHEET 3.

Fig. 6.

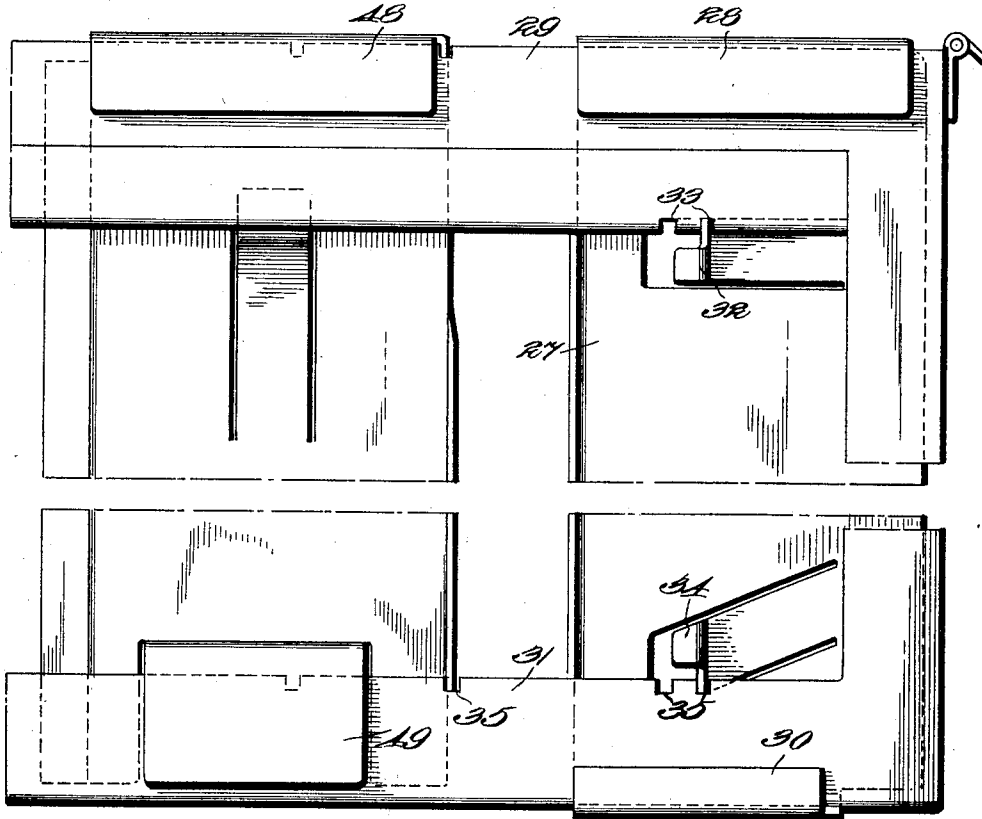


Fig. 7.

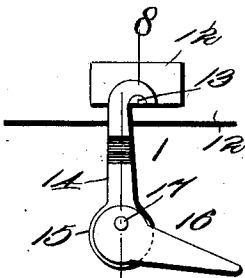


Fig. 8.

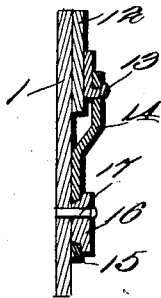
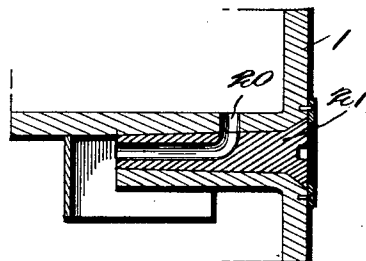


Fig. 9.



Witnesses
Geo. A. Ryer.
W. Max. D. Small.

Inventor
D. C. McCandless
Wilkinson Fisher
Wilkinson
Attorney

UNITED STATES PATENT OFFICE.

DAVID CHARLES McCANDLESS, OF BOISE, IDAHO.

DEVELOPING-TANK FOR PHOTOGRAPHIC PURPOSES.

1,001,422.

Specification of Letters Patent.

Patented Aug. 22, 1911.

Application filed October 11, 1909, Serial No. 522,069. Renewed February 24, 1911. Serial No. 610,601.

To all whom it may concern:

Be it known that I, DAVID CHARLES McCANDLESS, a citizen of the United States, residing at Boise, in the county of Ada and State of Idaho, have invented certain new and useful Improvements in Developing-Tanks for Photographic Purposes; 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.

This invention relates to developing tanks for photographic purposes, and has for its object to produce an apparatus of this nature which will readily accommodate at one time a large number of photographic plates of different sizes and enable a photographer to readily develop the same without removing them from the tank.

To these ends, the invention consists in the novel details of construction and combinations of parts more fully hereinafter disclosed and particularly pointed out in the claims.

Referring to the accompanying drawings, forming a part of this specification, in which like numerals refer to like parts in all the views:—Figure 1 is a perspective view of the exterior of the tank; Fig. 2, is a longitudinal sectional view thereof showing the plate rack in elevation; Fig. 3, is a plan view of the plate rack detached from the tank; Fig. 4, is a sectional elevational view of said rack, taken on the line 4—4 of Fig. 3; Fig. 5, is a perspective view of one of the adjustable plate holding members detached from the rack; Fig. 6, is an enlarged detail side elevational view of the rack, showing two of the plate holding members in place; and, Figs. 7, 8 and 9, are views of detached details of various parts.

1 represents the developing tank, provided with the cover 2, having the dished cavity 3, through the bottom 4 of which passes the inlet 5 for developing fluid and the inlet 6 for water. Below the bottom 4 is a plate diaphragm 7, extending over the top proper of the tank, and provided with inlets 8, 9, 10 and 11, as shown. The cover 2 is also provided with depending flanges 12 fitting liquid tight all around the body portion of

the tank 1, and having the lugs 13 engaged by the members 14 of the locks 15, as best illustrated in Fig. 7. These locks may be of any suitable form, but I prefer to provide the same with the cam lever 16, in order that when the same is turned on its pivot 17 a drawing action may be exerted upon the lugs 13, thereby producing a tight joint between the extreme upper edge 18 of the tank 1 and the plate 7, as will be readily understood.

20 represents any suitable outlet at or near the bottom of the tank, controlled by any suitable cock 21; but I prefer a cock of the rotary plug type as shown, in order that a simple turning of the same will serve to regulate the outflow of the water.

So far as now described, the developing fluid may be admitted into the inlet 5, and when the cock 21 is closed, the tank being liquid tight, the whole apparatus may be turned bottom side up or rested upon one of its sides in order that the developing fluid may readily reach all portions of the plates that may be contained in the tank. In the same way, water may be kept flowing steadily through the tank by admitting the same through the inlet 6 and permitting it to run out at any desired speed through the outlet 20.

Inside the tank rests between the feet or brackets 22 placed at the top and bottom thereof, the rack or plate holder 23, see Figs. 3, 4 and 5, provided with the plurality of plate holding members that will now be described:—This rack 23 is of the general shape of the tank in cross section, and is provided on its interior at each end with the plate holding members 24 and 25, as illustrated. Near the member 24 and forming an extension thereof is the adjustable plate holding member 26, having the right angular extension 27 and the turned over lip 28 at the upper end of said extension, as best seen in Fig. 6. This turned over lip slips over and slides along the upper rail 29 of the rack proper, while a similar turned over lip 30 embraces and slides along the lower rail 31 of the rack proper. The extension 27 of the member 26 is also provided with a spring catch 32 engaging notches 33 in the upper rail 29, and said extension 27 is also

provided with a similar spring catch 34 adapted to engage similar notches 35 in the lower rail 31. It is evident that if the member 26 be adjusted along the rails 29 and 31 that the catches 32 and 34 will hold it in any position to which it may be moved. On the opposite side of the plate holding member 24 is a similar adjustable plate holding member 36 provided with similar turned over flanges adapted to slide along the top and bottom rails 37 and 38 of the rack proper, as will be readily understood. And in like manner the plate holding member 25 at the other end of the rack is provided with adjustable plate holding members 40 and 41 forming a continuation thereof and adapted to slide along the top and bottom rails of said rack in the same manner as the racks 26 and 36. It is evident from an inspection of Fig. 3 that the racks 26 and 36 may be readily adjusted to the positions shown in said figure, or that they may be moved back to the extreme end of the rack proper to occupy positions similar to the racks 40 and 41; and that on the other hand, the racks 40 and 41 may be readily adjusted so as to occupy positions similar to those illustrated in connection with the racks 26 and 36.

In between the plate holding members 26 and 40 I provide the adjustable and readily detachable plate holding member 45 having a double series of corrugations as plainly illustrated in Figs. 3 and 5. This member 45 is provided with the right angular extension 46 having the turned over lip 48 adapted to slide along the top rail 29 of the rack proper, and also provided with the outwardly and downwardly turned lip 29 adapted to slide over the bottom rail 31 of said rack, all as will be clearly understood from Figs. 3, 4, 5 and 6. In order to hold the member 45 in its adjusted position, and to prevent the same from becoming detached from the rack proper the spring catch 50 is provided on the extension 46, which catch slips under the turned up edge 51 of the top rail 29, as illustrated. In a like manner on the opposite side of the rack proper there slides a similar adjustable double plate holding member 55 provided with a similar right angular extension having a turned over lip 56 and outwardly and downwardly bent lip 57 as best illustrated in Fig. 4. The extension of this plate holding member is also provided with a catch 58 similar in construction to and performing the same function as the catch 50 on the extension 46 of the member 45.

It is evident from the construction so far described, that by suitably adjusting the members 26, 45 and 40, plates 60 of varied dimensions may be readily accommodated and in like manner by suitably adjusting the

plate holding members 36, 41 and 55 plates 61, 62 and 63 all of the most varied dimensions may be also readily accommodated.

A cover 65 provided with perforations 66 and hinged at 67, see Fig. 2, is provided for the rack 23 and serves to hold the parts securely in position. This cover, if desired, may be further provided with a handle 68 capable of being folded down and with a snap catch 69 for securely holding it in position.

A partition 70 is preferably provided in the tank between which and one wall of the tank proper the rack 23 snugly fits, and this partition leaves a clear passageway 71, as best illustrated in Fig. 2. In the cover 2 between the bottom 4 of the depression 3 and the diaphragm plate 7 is located another partition as shown in Fig. 2 which separates the passage of the developing fluid from the water passages, and which forces the said developing fluid to flow through the orifice 8, along the passage 71 and to rise from the bottom of the tank upwardly into contact with the plates.

The operation of the apparatus will be clear from the foregoing, but may be briefly summarized, as follows:—Plates of any desired size are placed in the rack 23, and the plate holding members are suitably adjusted to accommodate the sizes of the various plates; when the cover 65 of the rack is securely closed by means of the catch 69, and the rack containing the plates is then placed in its position in the tank, as illustrated in Fig. 2. The cover 2 of the tank is then slipped over the body portion 1, so that the brackets 22 attached to the diaphragm plate 7 of said cover may rest upon the top 65 of the plate holding rack and hold the same securely in position. The locks 15 are now engaged with the lugs 13 on the cover and the cam levers 16 are turned in order to produce a liquid tight joint between the upper edge 18 of the body 1 and the diaphragm 7. Developing fluid may now be introduced through the inlet 5, the outlet passage 20 being closed, the said fluid will flow through the orifice 8, along the passage 71 to the bottom of the tank, when it will rise in contact with the plates in the well known manner. While this operation is going on the tank may be freely reversed and turned on its sides so as to bring the developing fluid into intimate contact with all portions of the plates. There being no passages through which light can enter during this operation the operator is assured against accident from that cause. After the developing fluid has acted for a sufficient time it is allowed to pass out of the tank through the orifice 20 and water is introduced through the inlet 6, and permitted to pass down through the orifices 9, 10 and 11, into

contact with the plates. It is preferable to have this water run continuously through the tank, and to this end, the tank may be first filled with water and then the cock 21 may be opened sufficiently far to let the same run out only so fast as it runs in, and thereby a continuously running stream through the tank may be provided.

It will be noticed that all the passages into the tank are crooked or broken in direction, and that, therefore any light that might otherwise enter the tank is effectively shut off.

The plate holding members being readily detachable from the rack 23, they may be easily removed at any time for cleaning or other purposes, and the rack itself being readily detachable from the tank may be easily moved about by its handle 68.

It is obvious that those skilled in the art may vary the details of construction and the arrangement of parts without departing from the spirit of the invention, and therefore, I do not wish to be limited to such details, except as may be required by the claims.

What I claim is:

1. In a photographic developing apparatus, the combination of a liquid and light tight tank; and a plate holding rack in said tank provided with plate holding members at each end, and with independently adjustable sliding plate holding members extending from each side of said rack and partially across the same, whereby plates of different sizes may be accommodated, substantially as described.

2. In a photographic developing apparatus, the combination of a liquid and light tight tank; a removable plate holding rack therein; stationary plate holding members at each end of said rack; and slidingly and independently adjustable plate holding members extending from the sides of said rack partially across the same, adapted to hold plates of different sizes, substantially as described.

3. In a photographic developing apparatus, the combination of a liquid and light tight tank having inlets for water and developing fluid; a removable plate holding rack adapted to rest in said tank; a plurality of stationary members adapted to hold plates carried by said rack; means for holding said rack securely in place in said tank; and slidingly adjustable and removable plate holding members extending partially across said rack adapted to accommodate plates of different sizes, substantially as described.

4. In a photographic developing apparatus, the combination of a liquid and light tight tank having inlets for water and developing fluid and an outlet for the same;

a removable plate holding rack provided with a cover adapted to rest in said tank; means for holding said rack and cover securely in place in said tank; stationary plate holding members co-acting with said rack; and removable and slidingly adjustable plate holding members extending partially across said rack adapted to accommodate plates of different sizes, substantially as described.

5. In a photographic developing apparatus, the combination of a liquid and light tight tank; and a plate holding rack adapted to rest in said tank, said rack provided with stationary plate holding members extending partially across the ends of said rack, with independently adjustable plate holding members extending across the ends of said rack on each side of said stationary members, and with adjustable plate holding members extending from the sides of said rack and partially across the body portion thereof, substantially as described.

6. In a photographic developing apparatus the combination of a liquid and light tight tank provided with a cover having inlets for water and a developing fluid, provided with means compelling said fluid to first descend to the bottom of said tank and then to rise in contact with the plates, and provided with an outlet for said liquids; a plate holding rack in said tank provided with adjustable plate holding members adapted to simultaneously accommodate plates of different sizes; and a cover on said rack adapted to hold said members in place, substantially as described.

7. In a photographic developing apparatus the combination of a liquid and light tight tank provided with a cover having a dish cavity 3, and having inlets for water and a developing fluid and having a diaphragm plate 7 separated from the bottom of said cavity; a partition 72 between said bottom and said plate 7; said tank being provided with a passage compelling said fluid to first descend to the bottom of said tank and then to rise in contact with the plates, and provided with an outlet for said liquids; a plate holding rack in said tank provided with adjustable plate holding members adapted to simultaneously accommodate plates of different sizes; and a cover on said rack adapted to hold said members in place; substantially as described.

8. In a rack for holding photographic plates, the combination of a plurality of stationary members, adjustable plate holding members coacting with said stationary members; means for holding said adjustable members in their adjusted positions; and a cover for said rack adapted to hold said parts in place, substantially as described.

9. A plate holding member for plate
holding racks comprising a plurality of cor-
rugations; an extension rigid therewith; a
bent over lip at one end of said extension;
5 an outwardly and downwardly bent lip at
the other end of said extension; and a catch
between said lips, substantially as described.

In testimony whereof I affix my signa-
ture in presence of two witnesses.

DAVID CHARLES McCANDLESS.

Witnesses:

L. F. CLINTON,

C. H. DZUCK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."