F. W. BARNES.

PHOTOGRAPHIC PLATE RACK.

APPLICATION FILED JUNE 5, 1909.

1,045,663.

Patented Nov. 26, 1912.

2 SHEETS—SHEET 1.

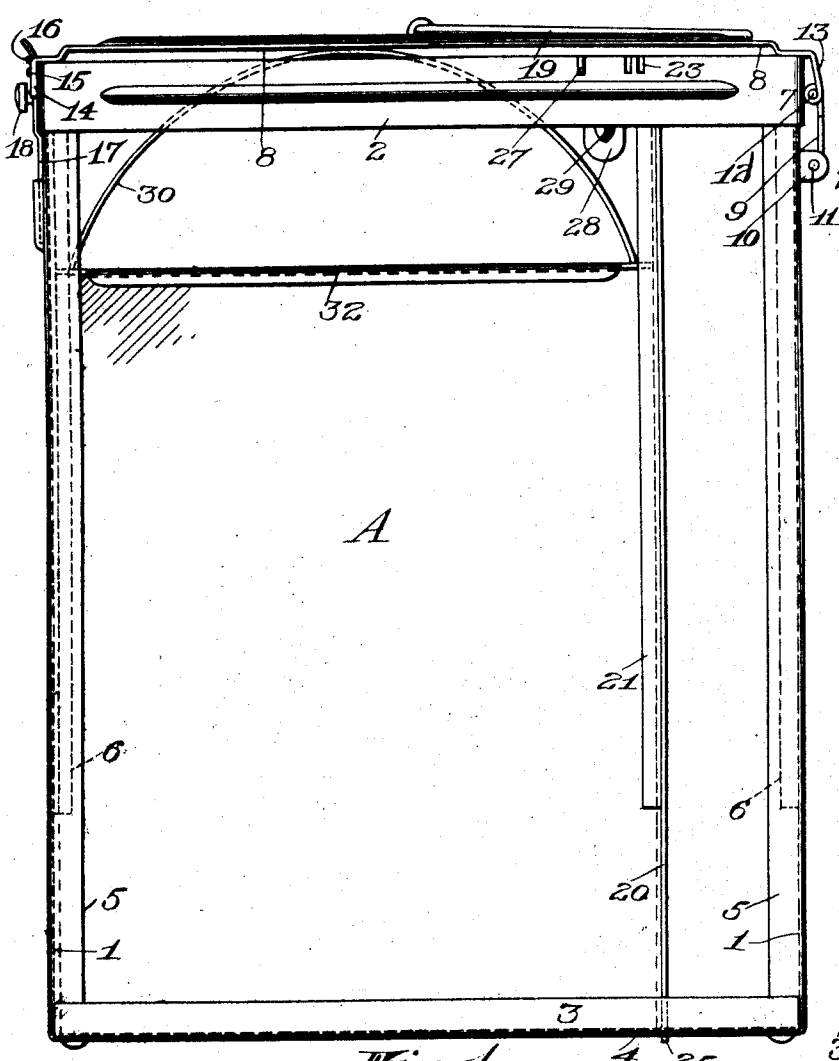

Fig. 1.

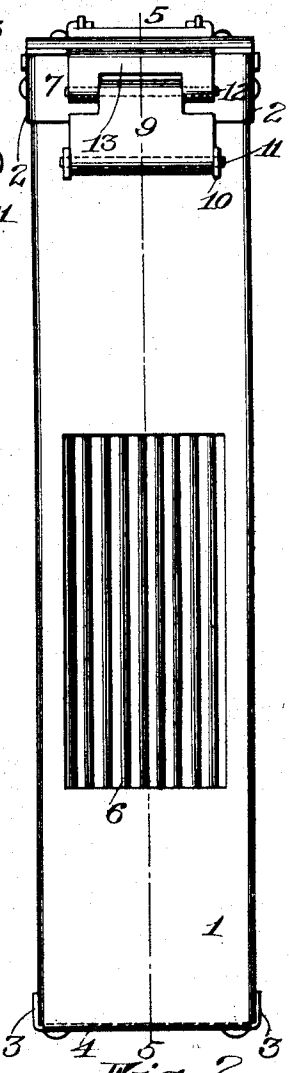

Fig. 2.

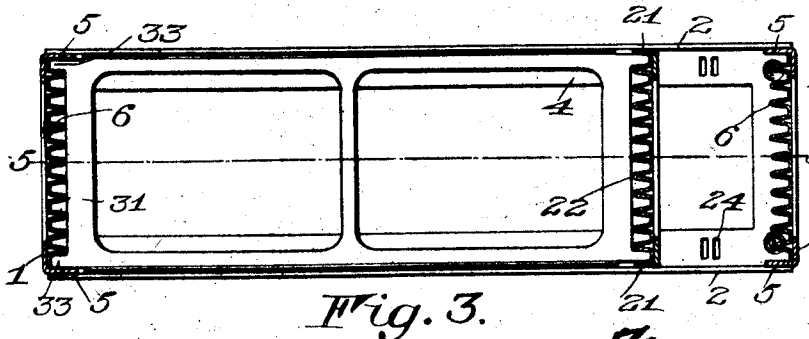

Fig. 3.

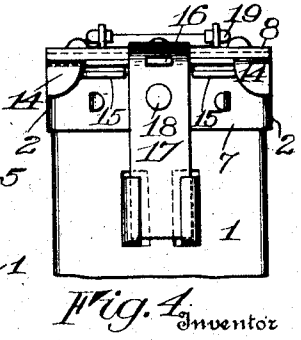

Fig. 4.

Witnesses

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2 SHEETS—SHEET 2.

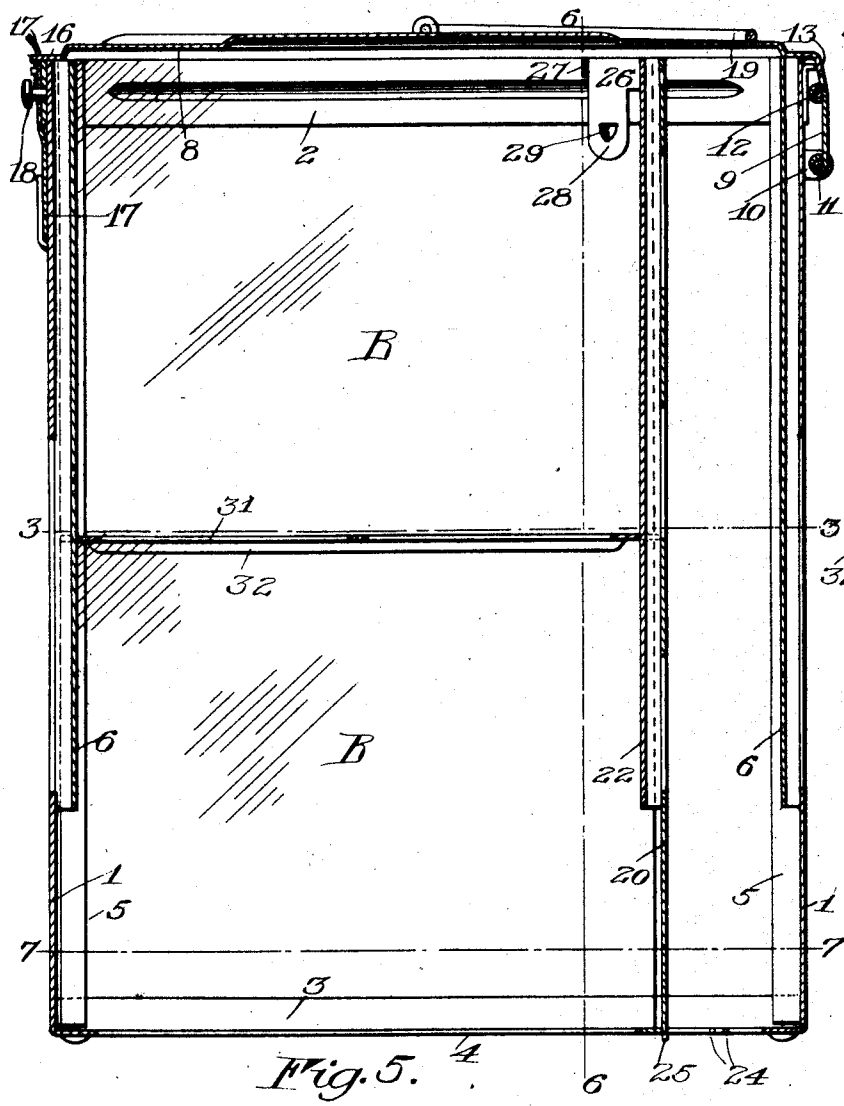

Fig. 5.

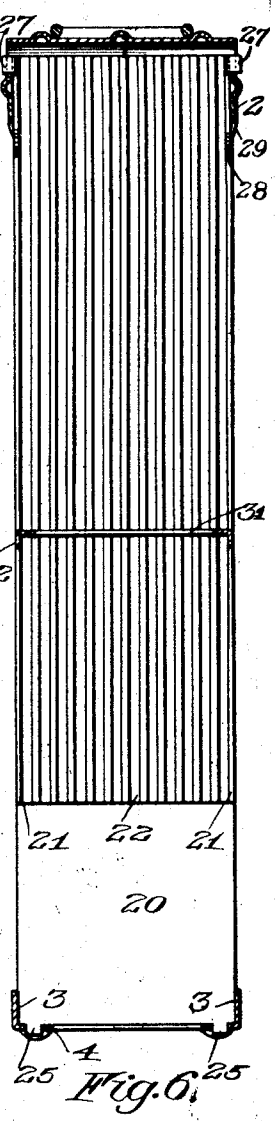

Fig. 6.

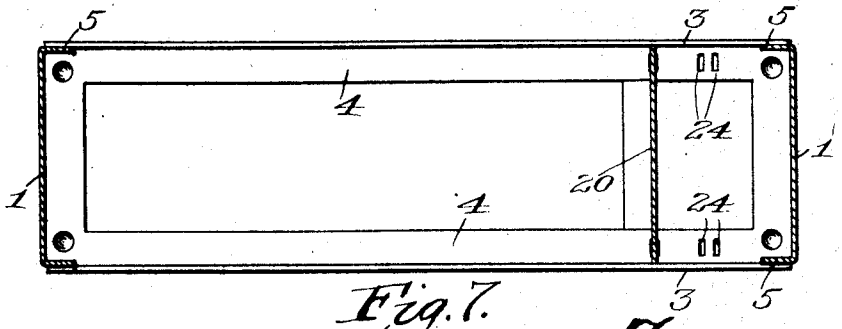

Fig. 7.

Witnesses

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UNITED STATES PATENT OFFICE.

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PHOTOGRAPHIC-PLATE RACK.

1,045,663. Specification of Letters Patent. Patented Nov. 26, 1912.

Application filed June 5, 1909. Serial No. 500,285.

To all whom it may concern:

Be it known that I, FREDERICK W. BARNES, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Photographic-Plate Racks; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

The present invention relates to photography and more particularly to the development and general chemical treatment of photographic plate negatives and it has for one of its objects to provide a suitable rack or container for holding a single plate or a plurality of plates during treatment, which rack will be simple and convenient in operation and capable of production at a relatively low cost.

My improvements are further directed toward providing a device of the nature outlined having features adapting it for use with plates of a number of different sizes, the latter being in each instance held securely to prevent damage, either by contact with each other or otherwise while offering ready means of access for the fluid bath.

To these and other ends the invention consists in certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings: Figure 1 is a side elevation of a rack constructed in accordance with and illustrating one embodiment of my invention with a plate of a particular size in position therein; Fig. 2 is a rear end view showing more particularly the hinge connection of the closure; Fig. 3 is a horizontal section taken substantially on the line 3—3 of Fig. 5 but with the plates shown in position in the latter figure omitted; Fig. 4 is a fragmentary front end elevation showing, in detail, the securing latch for the closure; Fig. 5 is a central vertical section taken substantially on the line 5—5 of Figs. 2 and 3, the parts being shown, however, in positions adapting the rack for plates of another size, two such plates being shown in position therein; Fig. 6 is a vertical section taken substantially on the line 6—6 of Fig. 5 with the plates omitted, and Fig. 7 is a horizontal section taken substantially on the line 7—7 of Fig. 5 with the plates omitted.

Similar reference numerals throughout the views indicate the same parts.

In the particular embodiment of the invention shown the rack proper comprises oppositely arranged end walls 1 and connecting side or lateral walls formed by upper and lower rails 2 and 3, respectively, the latter being preferably angular in cross section so that the inner or bottom flanges may constitute a bottom 4 or, in fact, the bottom parts of the side and the end walls may, as they are in practice, be formed of a single piece of sheet material punched and stamped to the form shown. The upper rails 2 can be more conveniently made of a separate continuous strip of material forming a tie piece for the extremities of the end walls. In any event, it is desirable that a skeleton construction, substantially as shown, be used throughout in order that the liquid baths into which the plates must be immersed may readily reach all parts of the latter. The end walls 1 are also preferably provided with inwardly turned flanges 5 at their edges and between these flanges on the inner sides of the walls are arranged a plurality of vertically extending guides 6 for holding the plates in position within the rack, the upper ends of the guides terminating at or opposite an upper open side of the rack bounded by the band 7 forming the upper side wall rails 2, through which opening the photographic plates are inserted edgewise within the rack.

A closure 8 is provided for the insertion opening which is preferably hinged to the rack in the manner illustrated best in Figs. 1 and 2 for the reasons hereinafter noted. The hinge connections comprise in the present instance a link 9 pivoted to the rack by means of lugs 10 at a point 11 removed from the mouth of the opening, preferably below the upper edge of one of the upper walls 1. The link is in turn pivoted at 12 to a depending flange portion 13 on the cover so that when the latter is open this double hinge arrangement will allow it to lower to a vertical position flat against the exterior of the rack and the end wall thereof. By this arrangement the cover is disposed in a position well out of the way and removed from the openings so that the operator will have clear and unobstructed access for the

rapid insertion of the edges of the plates within the guides 6 and furthermore the cover will not be in a condition to overbalance the rack or in a position in which the operator would be liable to come into contact therewith and spill the contents. It is, however, connected with the rest of the structure at all times and therefore not liable to be misplaced.

At its free or forward edge the cover is, in the present instance, provided with depending ears 14 (Fig. 4) coöperating with the corresponding opposite sides of outwardly turned ears or projections 15 on the band 7 that serve to center the cover properly over the opening and also to center a tongue 16 thereon in position to engage within a perforated spring latch 17 mounted on an end wall of the rack and operating upon a guiding pin 18. There is also attached to the cover, and preferably in the center thereof, a bail or handle 19 by means of which the operator immerses the rack and its contents within the bath and draws it therefrom.

When the plates to be developed are of a size corresponding substantially to the interior dimensions of the rack, as thus far described, they are inserted in the manner heretofore described, the cover is fastened in place to hold them securely by engagement with their upper or outer edges and the operation of immersion proceeded with, the rack and its contents being allowed to stand aside when withdrawn to allow the solution to drain off from the surfaces of the plates, the latter being held out of contact with each other and with the rack, except at the extreme edges. In order, however, to render the rack capable of advantageous use in the manipulation of plates of smaller dimensions I provide an adjustable and preferably removable intermediate wall 20 of substantially the same construction as the end walls 1 including side flanges 21 and guides 22 and arranged between them. In the present instance it has several selective fixed positions, as indicated by the recesses 23 in the upper side rails 2 and the recesses 24 in the bottom portions 4 of the lower side rails 3. The removable wall is inserted through the open side of the rack to a position between the side walls with its guides opposite those on one of the end walls and has projections 25 on its lower edge that cooperate with the recesses 24 in the bottom, while at its upper end and at either side, flanges 26 are provided extending parallel with and against the inner faces of the side rails 22 having formed thereon projections 27 that engage within the recesses 23. Extensions 28 on these flanges 26 form oppositely disposed spring catches having lips 29 struck therefrom to engage beneath the lower edges of the side rails 2, the said lips being disengaged by inward pressure on the members 28 and it will be seen that by reason of the skeleton construction of the rack the operator has easy access to the catches and may press them together with his thumb and his finger, either by reaching in from the open side or by straddling the top rails 2.

The smaller plates, indicated by A in Fig. 1, are inserted between the adjustable wall 20 and its opposing end wall in much the same manner as are the larger ones, but as the plates as commercially supplied in standard sizes are not often of dimensions which are multiples of each other, the plate A of next smaller size, though engaged at both lateral edges, is not long enough in the other direction to be held against movement by the cover 8 and this is desirable as, during the process of development, the plates and rack are usually inverted a number of times. I therefore interpose between the upper or outer edges of these plates and the cover a yielding member 30, shown in Fig. 1. This member is preferably in the form of a curved or bowed strip of resilient material, such as spring metal, as shown, and is compressed by the cover, when closed, so that a tension is exerted upon the plates and they are held firmly in position.

Referring now more particularly to Figs. 5 and 6, a method is shown of arranging two or more plates B of a still smaller size in each guide, or in other words, superposed in the same plane, the two plates in the instance shown being equal, together in one dimension, to the height of the rack. In such a case I provide a separating or tray plate 31, shown in plan view in Fig. 3, which extends transversely of the photographic plates between the guides 6 and 21 and is preferably fitted with depending flanges 32 that fit over the edges of the outer plates of the lower tier and with projections 33 at its ends which extend between the flanges 5 and 21 and the guides 6 or, if desired, within two or more of the guides themselves to hold it in place. After one of the small plates has been inserted in each of the guides the tray plate is inserted through the open side of the rack and it thus separates the adjacent edges of the plates and prevents them from chipping or otherwise harming each other.

The invention is suggestive of other uses than that of developing, as herein described, in which plates are racked in a similar manner, but in any event the practise of the invention obviates the necessity of providing a number of racks, one for each size of plates and the attendant inconvenience.

I claim as my invention:

1. In a photographic plate rack, the combination with a frame or holder having interiorly arranged guides and an open side through which the plates are adapted to be

inserted edgewise within said guides, of a closure for the open side of the holder and a yielding or resilient filler member formed to fit within the closure above the plates and between the guides and to be confined between the edges of the latter and the closure.

2. In a photographic plate rack, the combination with a frame or holder having interiorly arranged guides and an open side through which the plates are adapted to be inserted, edgewise, within the guides, of a tray plate formed to extend between the guides above and in contact with the outer edges of the plates, a closure for the open side of the holder and a yielding filler member composed of a curved sheet of resilient material formed to fit within the holder above the tray plate and between the guides and to be confined between the latter and the closure.

3. In a photographic plate rack, the combination with a frame or holder having a plurality of interiorly arranged guides disposed in rows and an open side through which the plates are adapted to be inserted, edgewise, within the guides, of a tray plate formed to extend between the guides to separate the adjacent edges of superposed plates, said tray plate being provided with projections engaging the guides to hold it in place within the rack and being of sufficient width to extend from end to end of the rows of guides.

4. In a photographic plate rack, the combination with a frame or holder having interiorly arranged guides on one of its end walls and an opening at the ends of the guides through which the plates are adapted to be inserted, edgewise, each plate at one edge contacting with a guide, of a removable wall arranged opposite said end wall having corresponding guides thereon with which the opposite edges of the plates are adapted to coöperate, said wall being comprised between the lateral walls of the holder which intersect the end wall and removable edgewise through the opening and oppositely disposed spring catches at opposite edges of the removable wall coöperating with the lateral walls of the holder and accessible to the fingers of the operator from the exterior of the latter.

5. In a photographic plate rack, the combination with the end and side walls thereof, the latter comprising upper and lower rails having recesses therein, of a movable wall arranged opposite the end wall and comprised between the side walls and being provided with projections coöperating with the recesses in the latter and oppositely disposed spring catches on the movable wall cooperating with the upper rails of the side walls to hold the movable wall in place.

6. In a photographic plate rack, the combination with the end and side walls thereof, the latter comprising upper and lower rails having recesses therein, of a movable wall arranged opposite the end wall and comprised between the side walls and being provided with projections coöperating with the recesses in the lower rails, flanges on the upper end of the movable wall having projections thereon coöperating with the recesses in the upper rails and extensions on the flanges provided with lips forming spring catches engaging the said upper rails on their inner sides and adapted to release when pressed together.

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Witnesses:

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