No. 694,116. Patented Feb. 25, 1902.

E. P. SMITH.

DEVICE FOR SUPPORTING ROLLS IN DEVELOPING TRAYS.

(Application filed May 28, 1901.)

(No Model.)

Fig. 1.

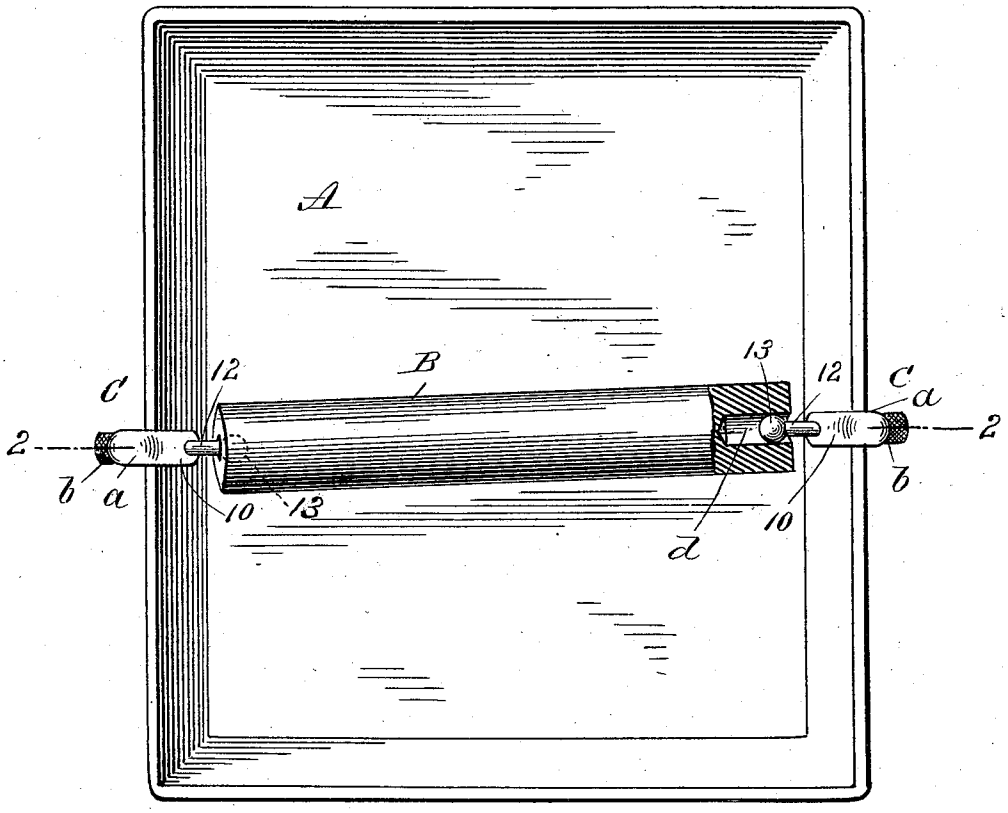


Fig. 2.

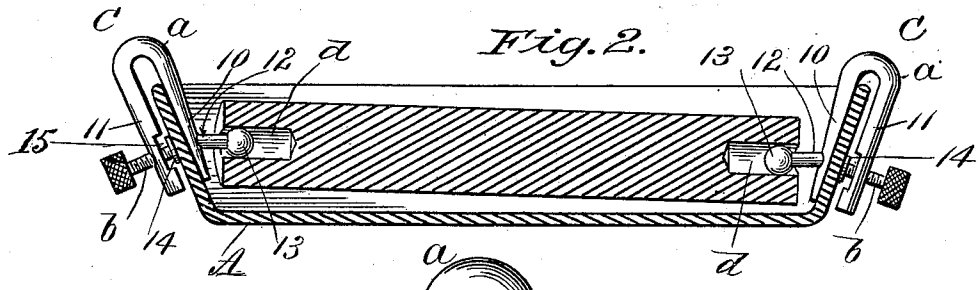
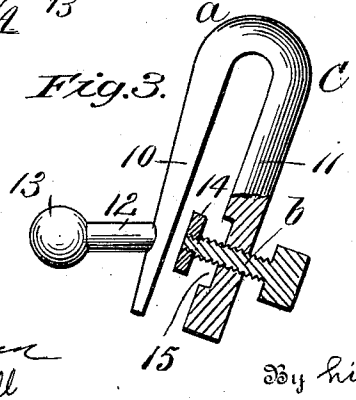


Fig. 3.



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UNITED STATES PATENT OFFICE.

EDWARD P. SMITH, OF SPRINGFIELD, MASSACHUSETTS.

DEVICE FOR SUPPORTING ROLLS IN DEVELOPING-TRAYS.

SPECIFICATION forming part of Letters Patent No. 694,116, dated February 25, 1902.

Application filed May 28, 1901. Serial No. 62,186. (No model.)

To all whom it may concern:

Be it known that I, EDWARD P. SMITH, a citizen of the United States of America, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Devices for Supporting Rolls in Developing-Trays, of which the following is a full, clear, and exact description.

This invention relates to improvements in roll-holding appliances for trays used for developing in photography. It being well known that it is desirable to suspend or support a free-turning roller within the tray so that films which have been exposed in the camera and which are to be developed may by being drawn backward and forward under the roller while being held at their ends by the hands with certainty submerged in the developer, it is a matter of desirability that appliances capable of detachable connection with the tray may be provided for the support of the roller, so that at times when plates are to be developed instead of films the roller may be removed and again as occasion may require as easily applied within the tray.

The object of this invention is to provide supporting-bearings for the opposite end portions of the roller which is so constructed as to be most readily detachably connected to the side wall of the tray, and to be capable of affording an easy, free, and almost frictionless journal for the roller even if care is not taken to adjust the roller-supporting members with precision either in opposition on the opposite side walls of the tray or at exactly the same heights in relation to the opposite walls or even if the inclinations of the side walls of some trays may be different from those of others.

The invention consists in journal-support devices for a roll to be used within a developing-tray, said support devices being designed for use in pairs and constructed substantially as hereinafter described, and set forth in the claims.

The improvements are illustrated in the accompanying drawings, in which—

Figure 1 is a plan view illustrating the journal-support devices and roller as applied for use in relation to a developing-tray. Fig. 2 is a cross-sectional view as taken on line 2 2, Fig. 1. Fig. 3 is a side view and partial vertical sectional view on one of the detachable journal-supports for the roller.

In Figs. 1 and 2 the opposite journal-support devices are shown as out of line both as to the height of their points of opposition and also as to their dispositions in relation to the length of the tray, such being intended as a showing of an exaggeration in inaccuracies of the adjustments of the roll-supporting appliances on the opposite sides of the tray, notwithstanding which the roller remains as freely rotatable as if the points of journal-support at the opposite ends therefor were strictly in opposition.

In the drawings, A represents the tray, B the roller, and C C represent the devices for detachable connection on the opposite side walls of the tray and which have the journal-support members for the roll. Each device C consists of a U-shaped clip *a* or a clip otherwise formed and adapted to be connected or engaged with the side wall of the tray and which has a member of leg 10, which is adapted to extend down within the side wall of the tray and at a suitably low position thereon has an inwardly-extending stud or extension 12, provided or formed at its end with a ball 13. As shown, the clip *a* has in addition to the inner depending member or leg 10 the outer leg 11, transversely through the lower portion of which threads the screw *b*, the same having a knurled head and at its inner end the bearing disk or flange 14 to afford a wider bearing of the clamping-screw. The portion of the outer leg of the clip *a* through which the screw *b* is passed is recessed, as at 15, so as to accommodate the disk 14 therein to leave the clip free for detachment when the screw is outwardly turned a comparatively slight extent, and this recessed feature tends to render the device somewhat more compact. The length of the stud or stem 12 is extended from the supporting member 10 therefor at an angle which while approaching a right angle is otherwise than such, so that, as seen in Fig. 2, while the clip is set on the wall of the tray on a slant the stud 12 may be approximately horizontal.

The roller is provided with an axial opening extending entirely through or end openings extended partially therethrough, as in-

dicated at *d*, the diameters of said openings being slightly greater than the diameter of the balls at the inner ends of the studs.

The engagement of the roller with its bored ends over and about the ball-ended stems of the detachable appliances C C may be readily performed by securing one of the devices C in place, engaging one end of the roll therewith, and sliding the ball-ended portion of the other device C into the bored end of the roll during the action of placing the second device in engagement on the side wall of the tray.

While in the drawings the roll is shown with the capability of free rotation, even although one end thereof is higher than the other and is skewed in relation to a right line across the tray, which disposition might be the result of a hasty assemblage of the parts, of course in practice the operator would so adjust the parts ordinarily with a closer approximation to a true opposition of the clip.

I am aware that trays have been provided with detachably-engaged means for the support of the roller, which means comprised clips having at their inner ends comparatively long straight journal shafts or rods for the roller; but such device necessitates that the axes of both the journal-rods be exactly coincident; otherwise there would be a binding of the roller thereon, and such device just mentioned is non-adaptable to different trays the side walls of which have different inclinations or slants.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. Devices for supporting a roller in a developing-tray, consisting of paired detachable supports for application on the opposite side walls of the tray each having an inwardly-projecting stud, provided with an enlarged ball at its inner end.

2. The combination with the developing-tray having at the opposite side walls thereof, detachable supporting appliances, each provided with an inwardly-extending approximately horizontal stud having at its inner end an enlarged ball, of the axially-bored roller having journal-bearing engagements, over the balls, substantially as described.

3. In a device of the character described, a detachable support for the side of the tray having a member adapted to extend downwardly in an oblique direction on the inner side of the tray which is provided with a stud extending inwardly at an obtuse angle to the downwardly-extending member and thereby have an approximately horizontal disposition, and having at its end the enlarged ball for the purpose set forth.

4. In a device for the purpose explained, a clip comprising separating depending members 10 and 11, the one 10 having the stud 12 extended inwardly therefrom at an obtuse angle, and provided with the enlarged spherical end 13, and the clamping-screw threading transversely through the member 11, substantially as set forth.

5. In a device for the purpose explained, a clip comprising separating depending members 10 and 11, the one 10 having the stud 12 extended inwardly therefrom at an obtuse angle, and provided with the enlarged spherical end 13, and the member 11 constructed with the recess 15 having the screw *b* threading through such recessed portion and provided at its inner bearing end with the circular enlargement, substantially as described.

Signed by me at Springfield, Massachusetts, this 27th day of May, 1901.

EDWARD P. SMITH.

Witnesses:
WM. S. BELLOWS,
M. A. CAMPBELL.