

1,044,433.

Patented Nov. 12, 1912.

2 SHEETS—SHEET 1.

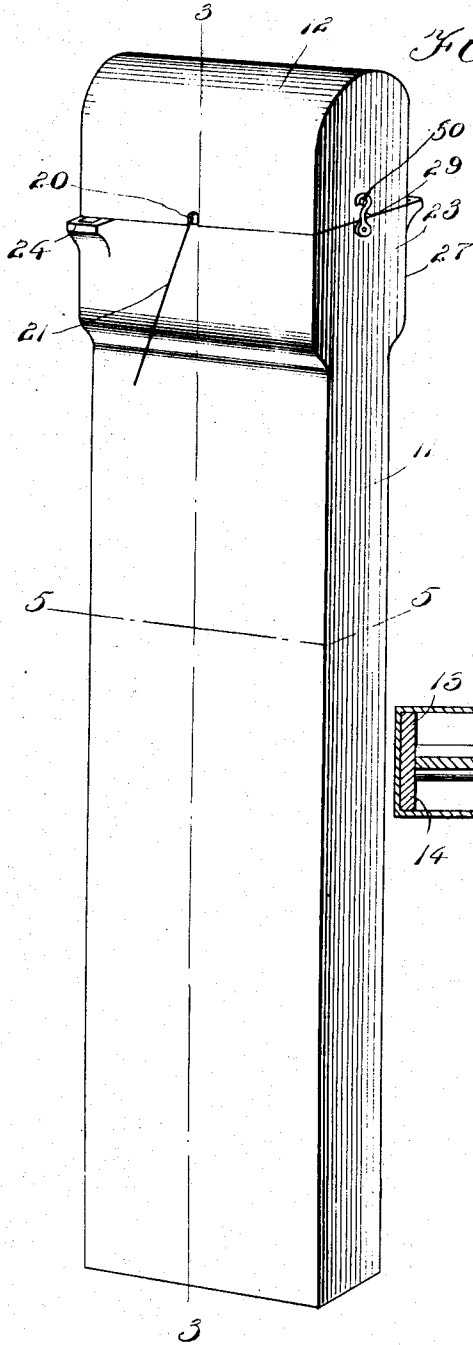


Fig. 1.

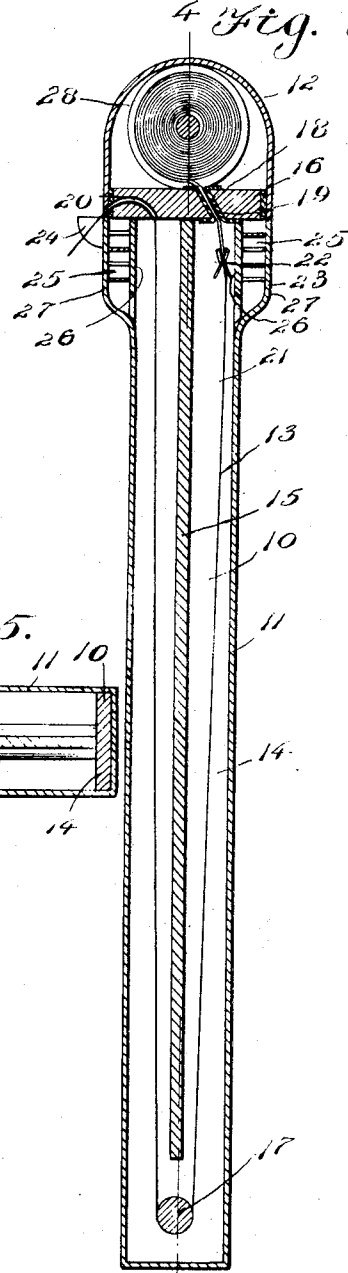


Fig. 3.

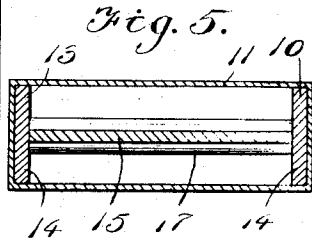


Fig. 5.

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2 SHEETS-SHEET 2.

Fig. 4.

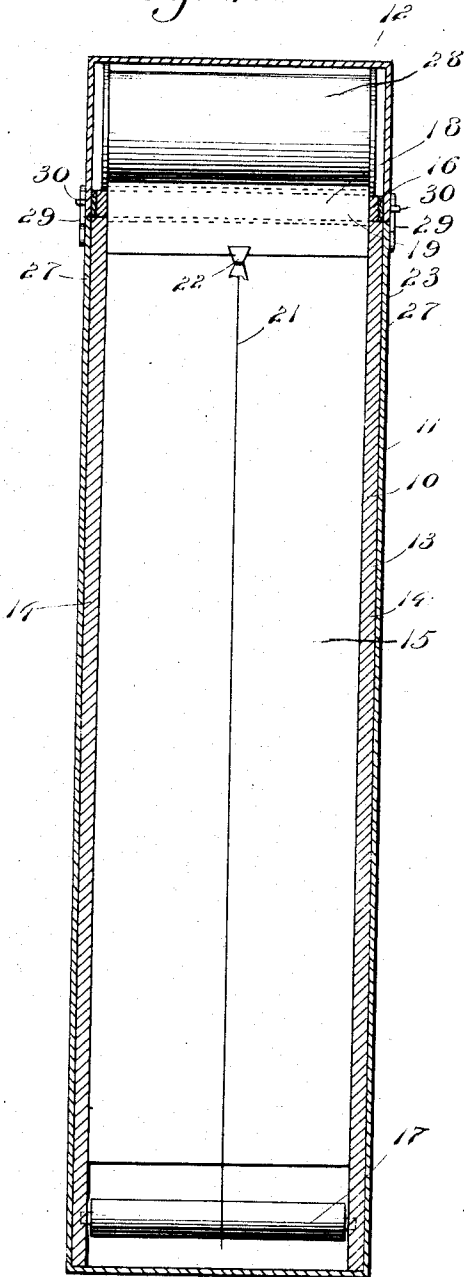


Fig. 2.

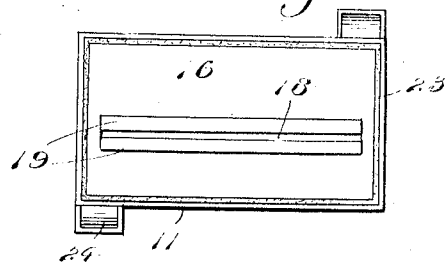
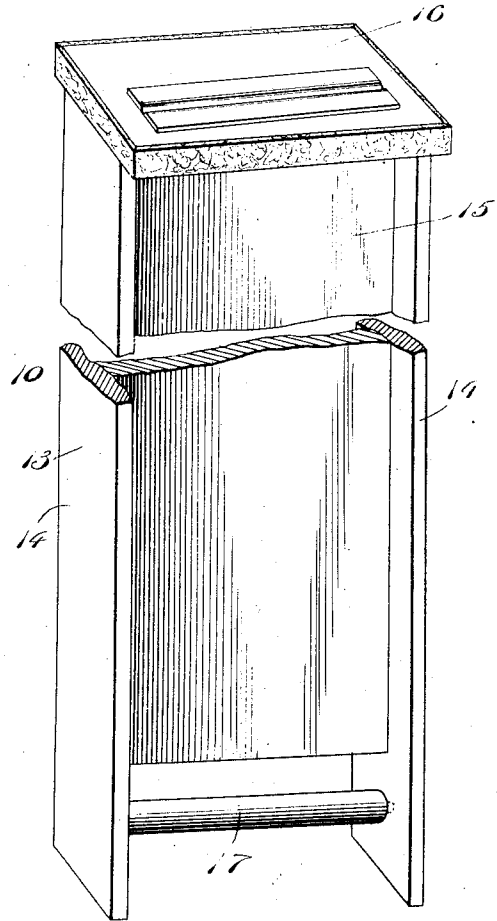


Fig. 6.



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UNITED STATES PATENT OFFICE.

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DEVELOPING-TANK.

1,044,433.

Specification of Letters Patent.

Patented Nov. 12, 1912.

Application filed February 27, 1912. Serial No. 630,188.

To all whom it may concern:

Be it known that I, ISAAC A. BELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Developing-Tanks, of which the following is a specification.

The invention relates to photography, and has for an object to provide a tank for developing roll films.

The invention embodies more particularly a device adapted to receive the film roll and arranged within a tank, with means for unwinding the film from the roller and passing the same through the tank to expose the film to the developing action of the fluid contained in the tank.

In the further disclosure of the invention, reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference denote corresponding parts in each of the views, and in which,

Figure 1 is a perspective view of the tank. Fig. 2 is a plan view with the cover removed. Fig. 3 is a vertical transverse sectional view taken on the line 3—3 of Fig. 1. Fig. 4 is a vertical sectional view taken on the line 4—4 of Fig. 3. Fig. 5 is a horizontal sectional view taken on the line 5—5 of Fig. 1. Fig. 6 is a perspective view of the holder.

Referring more particularly to the views, use is made of a holder 10 for insertion in a tank body 11 provided with a cover 12, the holder 10 consisting of a frame 13 having guide bars 14 forming standards, a partition 15 being interposed between the guide bars 14. Secured to the upper ends of the guide bars 14 is a head 16, the partition 15 terminating at the upper end in the mentioned head 16. The lower end of the partition 15 is spaced a distance from the lower ends of the guide bars 14, and mounted adjacent the lower end of the partition is a roller 17. The head 16 is provided with an inclined longitudinally extending slot 18, through which the film is adapted to pass, as will be hereinafter more fully disclosed, and for this reason, the sides of the slot 18 are preferably covered with pieces of rubber cloth 19, as shown, thus preventing the emulsion on the film from becoming scratched or otherwise injured, when the film is drawn through the slot 18. A passage 20 is formed in the head 16, and a cord 21 is passed

through the passage, the said cord being then passed downwardly around a roller 17 and terminating at one end in a chamber 22, the other end of the cord being arranged to freely depend exteriorly of the head 16.

The tank 11 is elongated in form and is enlarged at the upper end thereof to form a head 23, a plurality of tubular ears 24 being formed on the head 23 on opposite sides thereof, with the inner ends of the ears terminating in curved passages 25 formed between inner walls 26 and outer walls 27 of the head 23, the entrances of the mentioned ears constituting filling openings, and the mentioned passages being curved, so that rays of light will be prevented from passing or being reflected into the tank 11. By referring to Fig. 3, it will be seen that the upper end of the head 23 of the tank 11 forms a base or support for the head 16 of the holder 10, and the cover 12 is adapted to be secured to the head 23 to inclose a film roll 28 mounted upon the head 16 of the holder 10, suitable hooks 29 being mounted to swing on the head 23 and adapted to engage pins 30 secured to the cover 12, thus locking the cover 12 to the tank body 11, the joint between the cover and the tank body being so arranged that rays of light will be prevented from passing within the tank body or cover.

In the use of the device described, when it is desired to develop the film roll 28, the usual roller of the film roll is mounted upon the head 16 of the holder 10, and the black paper strip of the film roll, constituting the usual cover or protection for the film, is passed through the slot 18, the end of the mentioned strip being then pulled downwardly to unwind the film from the film roll, until the edge of the first film is in position to pass through the slot. The clamp 22 is then secured to the mentioned strip, and the holder is then mounted in the tank body 11, after which the cover 12 is mounted in position, as shown, and secured by the hooks 29 engaging the locking pins 30. The developing solution is then poured into the tank body through one of the filling openings formed by one of the ears 24, and the fluid passing through the curved passage 25 will flow into the tank body and partially fill the same. The exteriorly depending end of the cord 21 is then grasped and by pulling thereon the film will be drawn

from the roller of the film roll and pulled downwardly around the roll 17 of the holder 10. It will thus be seen that the entire film will be exposed to the developing action of the fluid in the tank body, and when the exposure of the film in the mentioned developing solution has been sufficient to properly develop pictures, the tank body is tilted to permit of pouring the developing solution therefrom, the mentioned solution being adapted to flow outwardly through one of the passages 25 formed in the head of the tank body, and thence outwardly through one of the ears 24. Clear water is then poured into the tank and by slightly shaking the tank body, the water will cleanse the film and remove any of the acid or developing solution that may still be upon the film, after which if the film has been sufficiently cleansed, the cover 12 is removed from engagement with the tank body and the developed film is taken therefrom by first withdrawing the holder 10 from the tank body 11 and then removing the film from the holder, after which the film is plunged into the fixing bath, thus completing the developing operation.

With the device of the character described, it will be seen that the film can be developed in day-light, thus obviating the necessity of first entering a dark room or the like, in order to position the film for the purpose of developing the same, the film being also removable from the tank in day-light, for the purpose of transferring the film to the fixing bath to complete the developing process. It will be further seen that the device described is compact in form, and simple in construction, and the mentioned device can be conveniently carried in the pocket.

It will be readily understood that the device described can be made in various forms and sizes, without departing from the spirit of the invention, and it will be further understood that I do not limit myself to the particular construction disclosed in the drawings and described in the specification, the scope of the invention being defined in the appended claims.

What is claimed is:

1. In a developing tank, the combination with a tank body, of a head formed on the tank body and provided with curved passages terminating in filling openings to permit of pouring a developing fluid into said tank body, a holder for removable insertion within the tank body and adapted to receive a film roll, means mounted exteriorly of the said tank body and extending within the same to grip the film and unwind the same from the roller thereof and to expose the film to the developing action of the fluid in the said tank, and a cover for connection with the said tank body and adapted to inclose the said film roll.

2. In a developing tank, the combination with a tank body, of a holder for removable insertion in the said body, said holder comprising a plurality of guide bars, and a partition interposed between the said guide bars, a roller mounted at one end of the said guide bars, a head secured to the other end of the guide bars and adapted to receive a film roll, a cover for the said tank body and adapted to inclose the film roll, and means mounted exteriorly of the tank body and extending therein to grip the film roll and unwind the same from the roller thereof.

3. In a developing tank, the combination with a tank body, of a holder for removable insertion in the said body, said holder comprising a plurality of guide bars, and a partition interposed between the said guide bars, a roller mounted at one end of the said guide bars, a head secured to the other end of the guide bars and adapted to receive a film roll, a cover for the said tank body and adapted to inclose the film roll, and a cord mounted exteriorly of the tank body and extending therein to grip the film roll and unwind the same from the roller thereof.

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

ISAAC A. BELL.

Witnesses:

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O. HENRIKSEN.