R. NEWMAN.

MEANS FOR DEVELOPING FILMS.

APPLICATION FILED OCT. 12, 1917.

1,277,462. Patented Sept. 3, 1918.

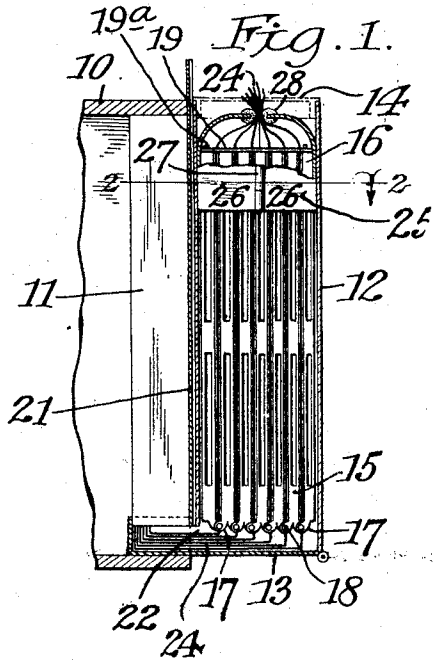


Fig. 1.

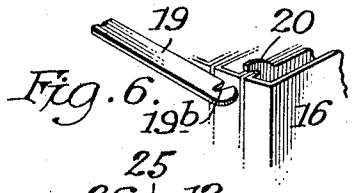


Fig. 6.

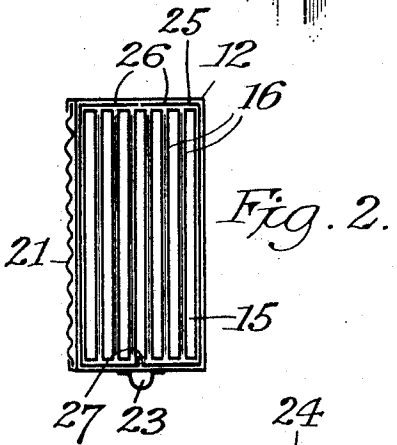


Fig. 2.

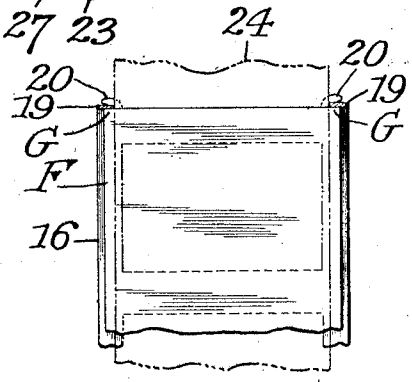


Fig. 4.

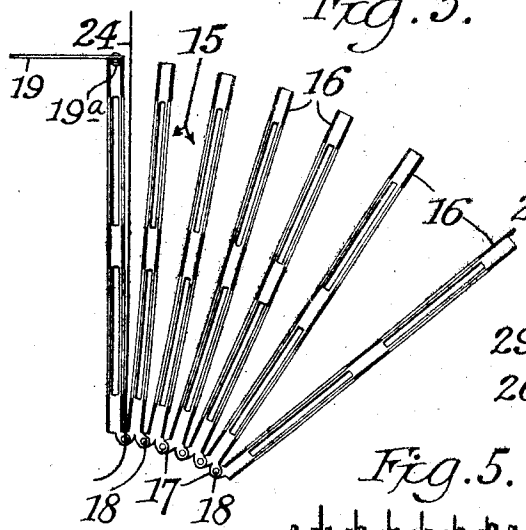


Fig. 3.

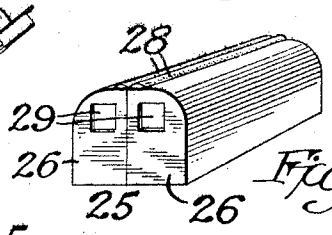


Fig. 7.

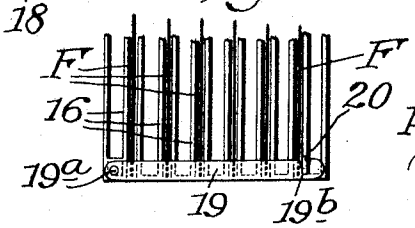


Fig. 5.

WITNESSES

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UNITED STATES PATENT OFFICE.

REUBEN NEWMAN, OF NEW YORK, N. Y.

MEANS FOR DEVELOPING FILMS.

1,277,462. Specification of Letters Patent. Patented Sept. 3, 1918.

Application filed October 12, 1917. Serial No. 196,186.

To all whom it may concern:

Be it known that I, REUBEN NEWMAN, a citizen of the United States, and residing at New York, county and State of New York, have invented a new and useful Improvement in Means for Developing Films, of which the following is a specification.

This invention relates to means for developing films, and is an improvement on the construction shown in an application filed by me October 12, 1916, Serial No. 125,131, allowed July 19, 1917.

A principal object of the present invention is to provide an improved spacer unit constituted by a plurality of open work frames hingedly connected, one to the other, which construction greatly facilitates the assembling of the parts for the developing operation.

A further object is to provide a spacer unit adapted for use in connection with pack films whereby the lead strips of said films are easily threaded through the spacer structure and brought up and held to be conveniently grasped by the fingers when desired.

I clearly illustrate my invention in the accompanying drawing, which forms a part of this specification, and in which drawings similar reference characters are employed to designate corresponding parts throughout the several views, in which:—

Figure 1: is a partial sectional elevation showing a portion of a camera, a film pack and my improved developing tank assembled and in operative position.

Fig. 2: is a diagrammatic horizontal section taken on the line 2—2 of Fig. 1.

Fig. 3: is a diagrammatic vertical sectional elevation of the spacer unit.

Fig. 4: is a fragmentary elevation of the spacer unit showing the means employed to retain the films while the lead strips are being pulled out of the tank.

Fig. 5: is a plan view of a portion of the spacer unit showing the films in place.

Fig. 6: is a detail perspective showing a portion of the stop bar and the means for interlocking the parts.

Fig. 7: is a detail perspective view of a cap piece employed.

In the drawing I show at 10, a portion of a camera adapted to receive a film pack 11.

Made fast to the camera in any desired manner is my improved developing tank 12, provided at the bottom with a hinged end piece 13, and at the top, as indicated in dotted lines in Fig. 1, with a water tight cover 14. A spacer unit 15, is constituted by a plurality of open work frames 16, having perforated ears, 17, receiving pins 18, by which said frames are hingedly connected one to the other as shown, one outermost frame having stop bars 19, pivoted thereto at 19^a, the free ends being notched as at 19^b, to engage undercut lugs 20, formed on the opposite outermost frame as shown.

As arranged the stop bars 19, lie flat on the frame edges to overly the film passages as clearly shown in Figs. 4 and 5, the films as at F, being wider than the lead strips 24, will engage the undersides of the stop bars 19, as shown at G, when being drawn upwardly by said lead strips and will be retained in the spacer structure as will be readily understood.

A corrugated slide or plate 21, is provided to close the passage 22, after the films have been drawn therethrough and into the tank to be developed, a light tight pouring spout or passage 23, being provided as in the above mentioned allowed application.

After the films have been drawn into the developing tank and arranged between the frames of the spacer unit with their lead strips or tongues 24, projecting above the spacer unit, a cap 25, is placed on over the free ends of the frames, said cap being constructed of two parts 26, having hinged connection as at 27, and being provided at the top, at their meeting edges, with felt 28, or the like, to provide a light tight joint. Said parts 26, may be provided with openings 29, to facilitate the flow of the developing fluid in the tank.

After the cap 25, has been placed on over the frames, the films are drawn into the tank and up between the said frames, after which the slide 21, is forced downwardly to close the passage 22, and the cover 14, secured in position, the tank is then removed from the camera and inverted to permit of the developing fluid being introduced through the spout 23, as in the allowed application above referred to.

The object of corrugating the slide 21 is to permit air confined in the tank, to escape as the developing fluid enters.

The terms and expressions employed are used as terms of description and not of limitation, and I have no intention, in the use of such terms and expressions, of ex-

cluding any mechanical equivalents of the features shown and described, or portions thereof, but recognize that various structural modifications are possible within the scope of the invention claimed.

What I claim is:—

1. In combination with a developing tank, a spacer unit comprising open work frames hinged one to the other as described.

2. In combination with a developing tank, a spacer unit comprising frames having perforated ears, adapted to receive pins to attach the same one to the other.

3. In combination with a developing tank, a corrugated plate slidable therein, and a spacer unit comprising open work frames hinged one to the other as described.

4. In combination, a developing tank, a corrugated plate slidable therein, a spacer unit comprising open work frames hinged together and a two part cap piece adapted to inclose the free ends of the frames as described.

5. In combination with a developing tank, a spacer unit comprising open work frames hinged one to the other, means for locking said frames together and a two part cap adapted to inclose the free ends of the frames as described.

6. In combination with a developing tank, a spacer unit comprising a plurality of frames hinged together, a stop bar pivoted to one of said frames and overlying the edges of the film passages to be engaged by the films for the purpose specified.

7. In combination with a developing tank, a corrugated plate slidable therein, a plurality of frames hinged together, stop bars hinged to one frame and interlocked with another, said bars being arranged to lie flat on the top free edges of the frames across the film passages for the purposes specified.

8. In combination with a developing tank, a spacer unit comprising frames having integral ears pivoted one to the other, stop bars pivoted to one outermost frame and means for interlocking said bars to the opposite outermost frame for the purpose specified.

In witness whereof I have signed my name to this specification this 3rd day of October, 1917.

REUBEN NEWMAN. [L. S.]

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