H. S. KILLGORE.

PHOTOGRAPHIC FILM HOLDER.

APPLICATION FILED JUNE 5, 1917.

1,269,457. Patented June 11, 1918.

Fig. 1.

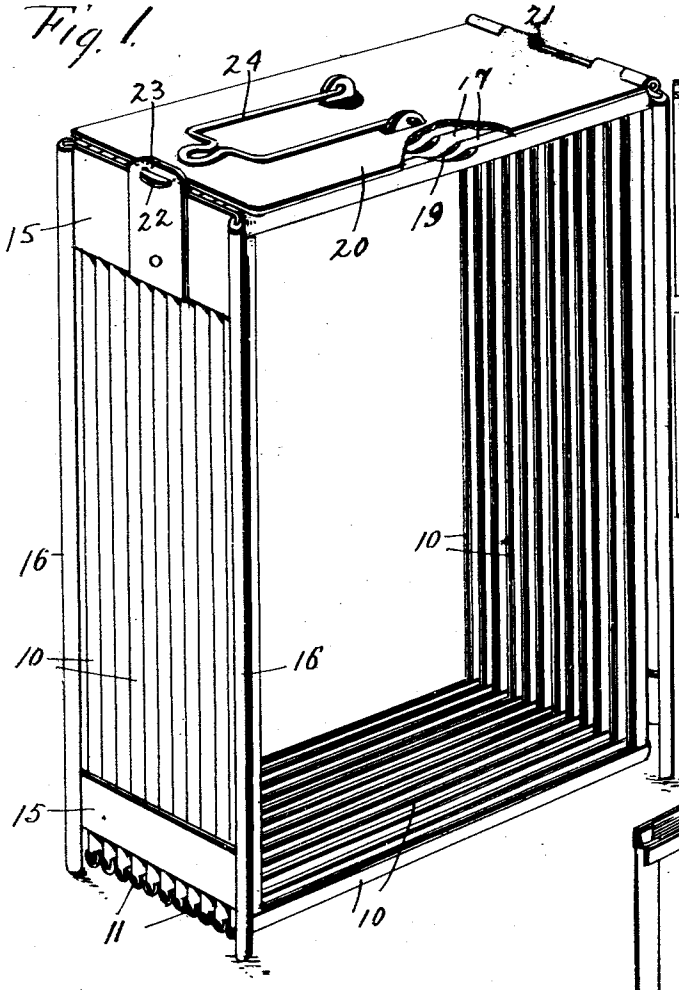


Fig. 2.

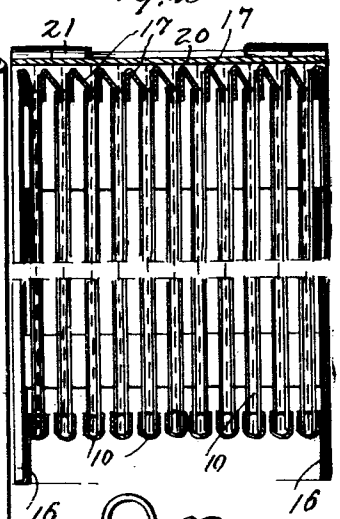


Fig. 3.

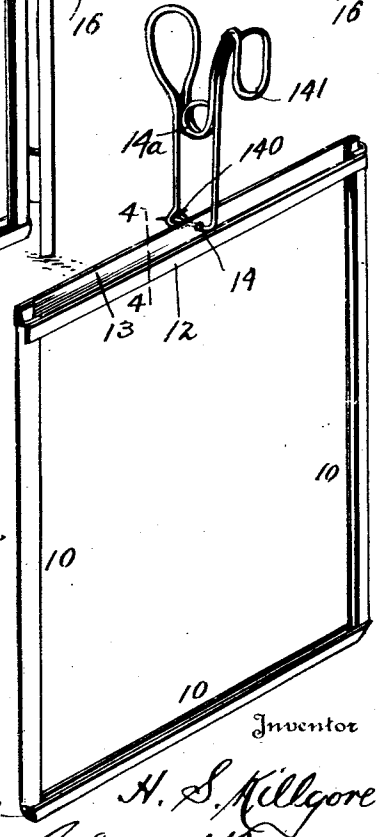


Fig. 5.

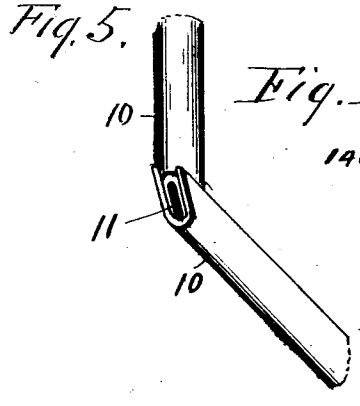
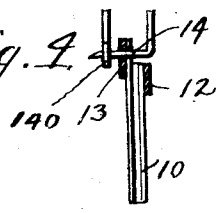


Fig. 4.



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PHOTOGRAPHIC-FILM HOLDER.

1,269,457. Specification of Letters Patent. Patented June 11, 1918.

Application filed June 5, 1917. Serial No. 172,994.

To all whom it may concern:

Be it known that I, HIRAM S. KILLGORE, a citizen of the United States, residing at Eldon, in the county of Miller and State of Missouri, have invented certain new and useful Improvements in Photographic-Film Holders, and do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

The object of my invention generally stated, is to provide a frame or holder of inexpensive character which will, nevertheless, efficiently perform its function for holding cut films to support the same in a tank, jar, or other receptacle containing developing fluid, and to this end my invention consists in the holder constructed substantially as hereinafter specified and claimed.

In the accompanying drawings,—

Figure 1 is a perspective view of an embodiment of my invention in which a number of frames are joined together in a sort of cage to enable the simultaneous submergence of a number of films in the developing fluid;

Fig. 2 is a vertical section through the same;

Fig. 3 is a perspective view of a frame or holder for suspending a single film in the developing fluid;

Fig. 4 is a detail cross section on the line 4—4 of Fig. 3;

Fig. 5 is a similar view of one of the lower corners of one of the frames to show the drainage hole thereat.

I provide a frame into which the film may be inserted and removed by sliding motion, which is of rectangular form, corresponding in form and dimensions with the film and which supports the film at each of its four edges, its support at each side and at the bottom being in a groove or channel and its support at the top being between a pair of light bars that are spaced apart, so that the film may be slid between them in being placed in the frame and in being drawn therefrom. The bottom and side bars 10 of the frame are U-shaped in cross section, and some light and inexpensive sheet metal is employed in making them, and at each of the lower corners where the side and bottom bars join, a slot or hole 11 is cut through the corner to allow the drainage of the fluid from the frame. The top of the frame in the individual form or the form for holding a single film, shown in Fig. 3 consists of two parallel light strips 12 and 13, separated by a space permitting passage between them of a film, and one of which projects higher than the other, so as to afford a guide surface for the ready insertion of the film into the frame, and for the engagement of a suspending hook, that has a horizontal tongue 14, that passes through a perforation in the higher strip 13 above the strip 12. Said hook has two arms, one of which carries the tongue, while the other has an eye 140 that passes over the free end of the tongue, the two arms being joined by a spring coil 14^a intermediate their ends, and which normally holds the eye over the tip of the tongue. One of the hook arms is downturned at its upper end for providing the hook member 141 for catching over a wire or other suitable support.

In the form of my invention shown in Figs. 1 and 2, where a collection of the frames for the simultaneous handling and development of a number of films is illustrated, the frames are joined together on their outer sides near top and bottom by suitable attachment to cross strips 15, and at each of the four corners there is a vertical stiffening post 16, the bottom of each of which is extended slightly below the collection of frames so as to form a supporting foot or leg. The tops of the frames in this case are formed by cross bars 17 that in cross section are substantially inverted V-shaped, the legs of a bar being respectively attached to the adjacent sides of adjacent bars of a frame. Thus, the spaces between adjacent bars are bridged over, and an unobstructed space left in vertical alinement with the grooves of the side bars themselves, and the inclined surface formed by one of the legs of the V constitutes an excellent guide for directing each film into its appropriate holder; or to put it in a different way, an outwardly flaring or diverging guide way is provided by adjacent cross bars 17 for easily directing the film in the frame grooves. The cross bars at substantially mid-length have notches 19 in their upper sides which expose the top edge of the films when in the frames so that they may be readily grasped for lifting out of the frames.

It will be noted that whether the cross bars have the form shown in Fig. 2 or that

shown in Fig. 3, the pair that connect the side bars of the frame and form the guide at the top of the latter are attached to the inturned portions of each side bar and thus a stiff or rigid construction is provided.

The films, when placed in the collection of frames as shown in Fig. 1, are held therein at the top by a plate 20, which is of a size to completely cover the tops of the films, and at one end is connected by a hinge 21, while at its other end it has a tongue 22 that is engaged by a spring latch 23. Pivotally connected to ears on the top of said plate is a wire handle 24 by which the collection of frames and the films therein may be suspended. It will be observed that when the cover plate is in its closed position, the collection of films may be inverted or put in any position without any danger of slipping or sliding out of the frame.

It will be observed that with my invention, there are no projections on the exterior of the hanger and hence, there is no danger of catching on the sides of the developing tank when the hangers are lowered therein, and hence, no traps for bubbles of air endangering the formation of air bells on the film.

The single frame or holder of the construction shown in Fig. 3 with the suspending hook omitted will fit the plate cage of the Eastman plate tank or any other similar tank for holding plates, it being necessary merely to insert the film in the holder and to hold the same in the plate cage just as in the case of a plate. The suspending hook enables the holder with the film to be suspended in any tank or receptacle and for holding the film to dry either in or out of the holder, the film when out of the holder being engaged by the horizontal tongue 14, which is sharp so that it will readily penetrate the film and its projecting sharpened end will be engaged by the eye on one of the hook arms. In the form of my invention shown in Figs. 1 and 2 which embodies a number of holders, the same fit in an Eastman plate tank in place of the plate cage provided for use with such tank and the same can be suspended in any tank or receptacle. It will be observed that no extra loading device is required.

Having described my invention what I claim is,—

1. A holder for photographic films for developing the same, comprising a rectangular frame whose sides and bottom are of sheet metal and V-shaped in cross section, and whose top consists of parallel strips spaced apart, and forming a guide for the insertion of the film into the frame, said strips being respectively attached to the inturned portions of the two frame sides and spaced apart to form opposite film guiding surfaces.

2. A holder for photographic films for developing the same, comprising a plurality of frames each having sides and a bottom with film edge receiving grooves and a top formed of cross bars of substantially inverted V-shape in cross section, each bar between the extreme outer frames lying between and connecting adjacent frames.

3. A holder for photographic films for developing the same, comprising a plurality of frames each having sides and a bottom with film edge receiving grooves and a top formed of cross bars of substantially inverted V-shape in cross section, each bar between the extreme outer frames lying between and connecting adjacent frames, the holder having a movable cover plate for the spaces between said cross bars.

In testimony whereof I affix my signature.

H. S. KILLGORE.