May 17, 1932. C. BORNMANN 1,858,576

FILM AND PLATE HANGER

Filed Aug. 18, 1930

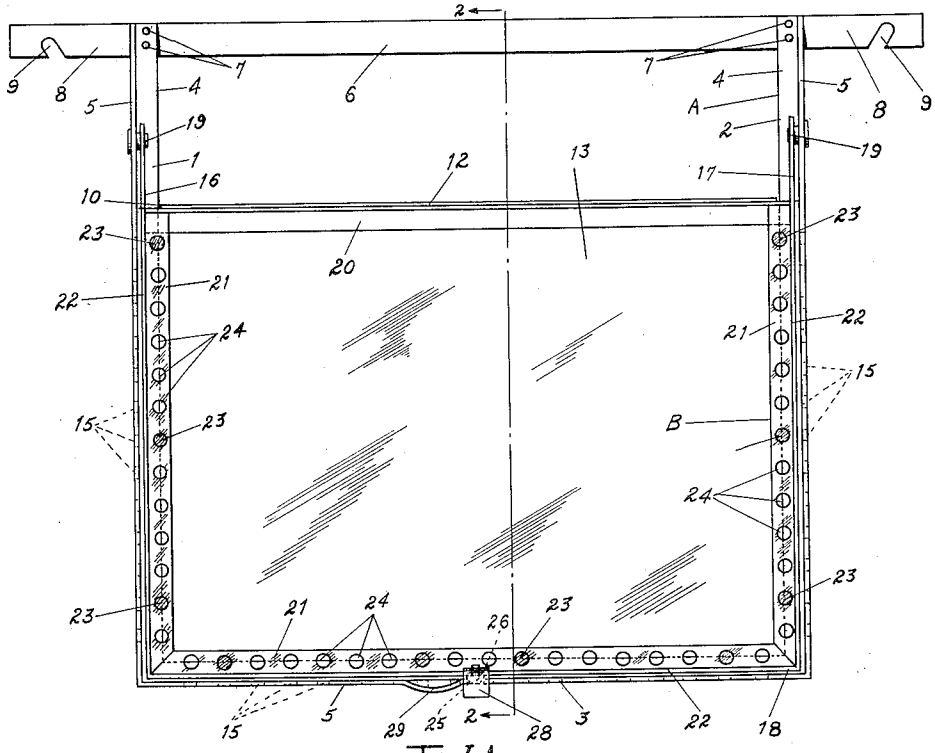


Fig. 1.

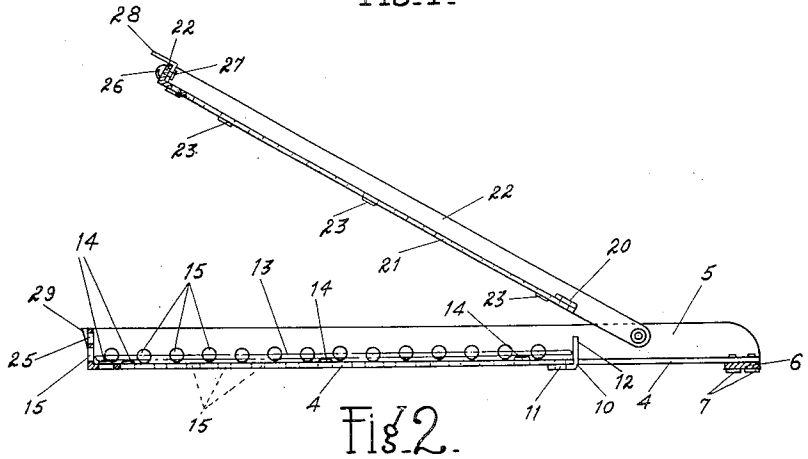


Fig. 2.

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# UNITED STATES PATENT OFFICE

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## FILM AND PLATE HANGER

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My invention relates to film and plate hangers and has for its primary object the provision of a holder or hanger for photographic films or plates during the process of developing, washing, fixing and drying thereof.

An important object of my invention lies in the provision of a hanger of this character which positively locks the film or plate therein thus eliminating the possibility of its dropping out or becoming displaced while being treated.

Another object of my invention lies in the provision of means on the hanger for engaging the edges of the film or plate at a few spaced points only, thus insuring not only the film or plate being tightly held in the hanger, but also making it possible for the developing or fixing fluids and drying air to reach practically every part of the surface of the plate or film.

Still another object lies in the provision of a hanger provided with openings around its retaining edges, to permit the free passage of fluids and air therethrough during the process of use.

A further and important object of my invention lies in the provision of a novel frictional retaining or locking means for the frame members of the hanger.

Other objects and advantages in details of construction and arrangement of parts will be apparent as the description proceeds, reference now being had to the figures of the accompanying drawings forming a part of this application, and wherein like reference numerals indicate like parts.

In the drawings:—

Figure 1 is a front plan view of my improved hanger.

Figure 2 is a side sectional view of the hanger taken on the line 2—2 of Figure 1, certain parts being shown in section for clearness.

The hanger includes a U-shaped frame member A having the sides 1 and 2 and the closed end 3. This U-shaped frame is preferably formed in one piece by bending and may be of any suitable material, but is preferably of a metal having acid resisting properties. The metal forming this frame is of angular form having the lateral flanges 4 and the vertical flanges 5. The upper free ends of the frame A are connected by a flat strip 6 of preferably the same material as the frame, riveted or otherwise secured to the flanges 4 as at 7. The ends of this strip 6 extend beyond the legs 1 and 2 of the frame as at 8 and are provided with notches 9 by means of which the hanger may be suspended by the strip 6 upon rods, pins, chains or other devices provided therefor.

At a point spaced below the strip 6, the legs 1 and 2 of the frame A are also secured together by an angle strip 10 suitably rigidly secured at its ends to the rear sides of the horizontal flanges 4 of the frame A. This strip 10, also preferably of the same acid resisting metal as the horizontal flange 11, the ends of which are secured to the flanges 4, has a forwardly extending vertical flange 12 (see Figure 2). Thus there is provided an open frame defined by the angle member 1, 2, 3 and 10 adapted to receive a photographic film or plate 13, the edges of which rest upon the flanges 4 and 11. The flanges 4 are provided at a plurality of spaced points with small raised portions 14 upon which the edges of the film or plate 13 rest out of contact with the flanges 4 whereby fluid used in the treatment of the film 13 can readily pass between the flanges 4 and the edges of the film or plate. This feature of supporting the edges of the plate or film at spaced points only, also eliminates the danger of the film or plate sticking to the holder thus making it readily removable without danger to the emulsion thereon.

The flanges 4 and 5 of the frame are perforated as at 15 for the double purpose of rendering the hanger lighter in weight and for permitting the fluid with which the film or plate 13 is treated to readily reach the edges of the film or plate lying adjacent these flanges.

A second U-shaped frame member B is provided with the two upright legs 16 and 17 and with the closed side 18. The upper free ends of the legs 16 and 17 are pivoted to the vertical flanges 5 of the legs 1 and 2 of the

frame A as at 19, any suitable pivot means being provided for this purpose. The frame B, as is clear from the drawings, lies within the vertical flanges 5 of the frame A and swings freely upon the pivots 19. The legs 16 and 17 of the frame B are secured together at a point just immediately below the flange 12 of the cross strip 10 by a flat cross strip 20 suitably connected at its ends to the legs 16 and 17. The frame B is also of a material resistant to acid and the material is of angular form providing the horizontal flanges 21 and the vertical flanges 22. The horizontal flanges 21 terminate on the legs 16 and 17 at the points where the cross strip 20 is secured thereto. The cross strip 20 lies directly below the flange 12 of the cross strip 10 and cooperates with the flanges 11 and 12 of the cross strip 10 when the frame B is swung to closed position to provide a channel-like groove for the upper edge of the film or plate 12 to be held therein. The horizontal flanges 12 of the frame B are provided with spaced depressed portions 23 so positioned as to directly overlie the raised portions 14 on the flanges 4 of the frame A, when the frame B is closed as shown in Figure 1. Thus the edges of the film or plat 13 is securely held between the members 14 and 23 at spaced points only. In the closed position of the frame B, the flanges 21 of the frame directly overlie the flanges 4 of the frame A, being held in slightly spaced relation therefrom by means of the members 14 and 23, whereby to provide a retaining channel or groove for the edges of the film or plate 13. The flanges 21 of the frame B are also perforated as at 24 for the same purpose as explained in connection with the perforations 15 in the frame A.

The vertical flange 5 of the portion 3 of the frame A is provided centrally with a small opening 25 (see Figure 2), adapted to receive a rounded locking lug 26 carried centrally of the vertical flange 22 of the portion 18 of the frame A. This locking lug 26 may as shown take the form of one end of a rivet 27 which also serves to secure to the flange 22 the bent finger piece 28 which when in closed position overhangs the edges of the frame members. The vertical flange 5 on the portion 3 of the frame A is preferably bent outwardly slightly as at 29 at a point directly adjacent the opening 25 whereby the operator may readily insert a fingernail or an instrument for the purpose of springing the portion 3 of the frame A outwardly to assist in lifting the frame B out of locking engagement therewith. Ordinarily this springing operation will not be required because of the spring material of which the frame members are made and the rounded locking lug 26, which, if the frame A is held rigidly, by using the bent portion 29, and the frame B is lifted upwardly by means of the finger piece 28, will permit ready disengagement of the locking lug 26 from the opening 25. Likewise, when the frame B is closed, after a film or plate 13 has been inserted in a frame A, the locking lug 26 will snap into locking engagement in the opening 25 thus securely holding the film or plate 13 in the hanger.

It is believed that the operation of the device is apparent from the foregoing description. Of course, changes may be made in details without departing from the spirit and scope of my invention. I do not limit myself, therefore, to the exact form herein shown and described other than by the appended claims.

What I claim is:

1. A film and plate hanger comprising a pair of open frames pivoted together and provided with cooperating flanges forming retaining channels for the edges of a film or plate therein, and means on said flanges for engaging the film or plate at spaced points only, said means comprising oppositely disposed lugs formed on said flanges at spaced intervals for aligned engagement with said film edges on opposite sides thereof.

2. A film and plate hanger comprising a pair of open frames pivoted together and provided with cooperating flanges forming retaining channels for the edges of the film or plate therein, one of said frames lying within the other, and means for frictionally locking said frames in closed position, said means comprising a recess in one of said flanges and a cooperating pin in another of said flanges, and a finger piece secured on said latter flange by said pin.

3. A film and plate hanger comprising a pair of open frames pivoted together and provided with cooperating flanges forming retaining channels for the edges of the film or plate therein, one of said frames lying within the other, and means for frictionally locking said frames in closed position, said means comprising a recess in one of said flanges and a cooperating pin in another of said flanges, and a finger piece secured on said latter flange by said pin, and lugs on said flanges for engaging the edges of said film or plate at spaced intervals only.

In testimony whereof, I affix my signature.

CARL BORNMANN.