G. M. DYE.

FILM CLIP.

APPLICATION FILED SEPT. 6, 1919.

1,373,493. Patented Apr. 5, 1921.

Fig. 2

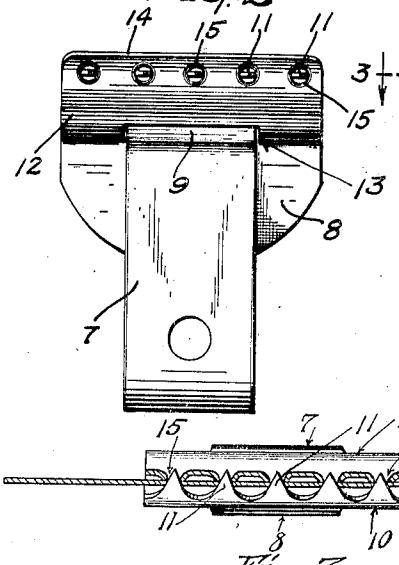


Fig. 1

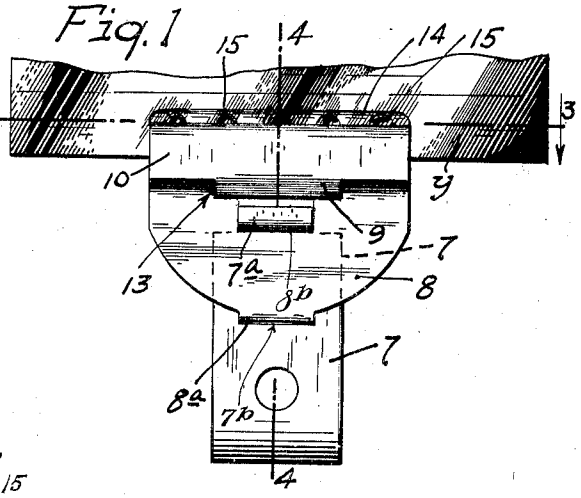


Fig. 3.

Fig. 6

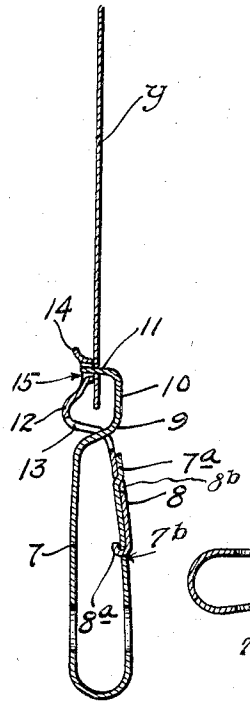


Fig. 4

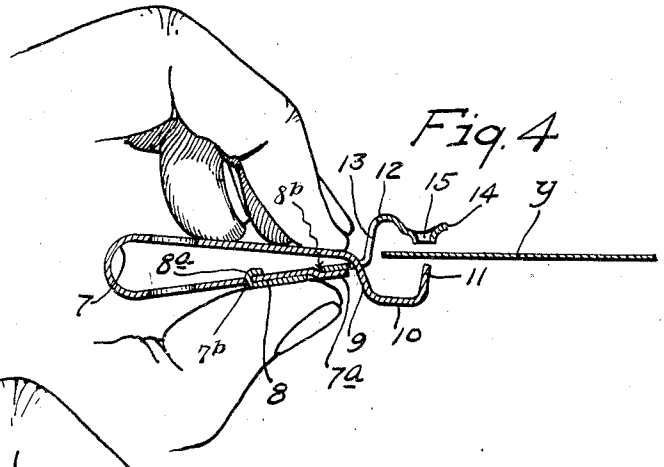
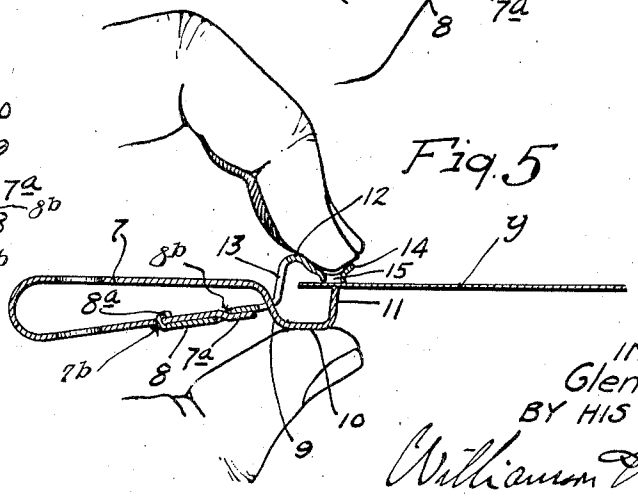


Fig. 5



INVENTOR
Glen M. Dye
BY HIS ATTORNEYS
Williamson & Merchant

UNITED STATES PATENT OFFICE.

GLEN M. DYE, OF MINNEAPOLIS, MINNESOTA.

FILM-CLIP.

1,373,493. Specification of Letters Patent. Patented Apr. 5, 1921.

Application filed September 6, 1919. Serial No. 322,079.

To all whom it may concern:

Be it known that I, GLEN M. DYE, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Film-Clips; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide an improved clip for holding photographic films, and the like; and to such ends, generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

As is a well known fact, film clips, in accordance with general practice, have been applied to the upper ends of film strips to support them from a suitable overhead cord, bar, or the like, and have been applied to the lower ends of such films as act as weights for holding the films suspended in straight vertical position. As the chemicals of the developing and fixing liquids act slowly to eat away the metal of the clip, it is important that the said clip be so constructed that it will have good drainage when applied either end up, or, otherwise stated, there must be no pockets that will hold the liquid when the film is removed from the bath and is hung up to dry with the clips applied.

Also, in clips hitherto provided for this purpose, there has been no certainty that the barbs of the holding jaws would properly penetrate and hold the film. Moreover, a common defect in film clips heretofore designed, has been found in the fact that the emulsion covered faces of the film would be pressed against an extended flat surface of the clip and would adhere thereto, so that a considerable portion of emulsion would be removed when the clips were taken from the negatives after the negatives have been dried.

My invention provides a film clip that will certainly puncture and positively hold the film, which will be quickly drained when removed from the liquid and which will not tear the emulsion from the dried negative when the clip is removed from the negative.

The improved clip, in its preferred form, is illustrated in the accompanying drawings wherein like characters indicate like parts throughout the several views.

Referring to the drawings:

Figure 1 shows the clip applied to a film, looking at the clip from what may be treated as its front side;

Fig. 2 is an elevation of the clip looking at the same from what may be treated as the rear side;

Fig. 3 is a section taken approximately on the line 3—3 of Fig. 1;

Fig. 4 is a section taken approximately on the line 4—4 of Fig. 1, but illustrating the manner in which the clip is applied to the film;

Fig. 5 is a view corresponding to Fig. 4, but showing a slightly different step in the application of the clip to the film; and

Fig. 6 shows the clip completely applied to the film.

An ordinary photographic film is indicated in the drawings by the character *y*. The clip is preferably made from spring sheet brass, but may be made of any suitable metal. In its best form, it is made in two sections 7 and 8, the said section 7 being bent into U-shaped form and provided at one end with a laterally bent neck 9 that is extended to form a head 10, which, at its edge, is formed with a toothed flange, which latter affords an alined series of sharp pointed V-shaped teeth or bars 11. The clip section 8 comprises a flat base flange that is rigidly secured to the short prong or end of the U-shaped spring member 7; and, as shown, this connection is made by clenching ears 7^a and 8^a, respectively, on said members 7 and 8, and which ears 7^a and 8^a, are clenched through slots 7^b and 8^b in the members 7 and 8. The extended portion of the plate or section 8 has full width laterally bent portion 12 that is formed with a slot opening 13 through which the neck 9 of member 7 as passed and works freely. Beyond its neck portion 12, member 8 is extended full width to form a clamping jaw or head 14; and this head 14 is formed with laterally pressed tubular bosses 15 that afford seats for the pointed ends of the barbs 11 of member 7.

In assembling the two parts of the clip, the extended body portion of member 7 is inserted endwise through slot 13 of member 8, and then the said members 7 and 8 are clenched together, as illustrated. In the

completed clip, the spring tension of member 7 normally forces the points of barbs 11 into the open ends of bosses 15, so that the coöperating elements 11 and 15, when the barbs are forced through the film, will very securely hold the film. If the spring tension is not sufficient to cause the barbs to penetrate the film, the jaws or heads of the two members 7 and 8 may be pressed together by an operation clearly indicated in Fig. 5. Fig 4 shows the manner in which the clip may be handled to separate the jaws for the application of the clip to the film, and Fig. 6 shows the manner in which the film is held by the clip. By reference particularly to this latter view, Fig. 6, it will be seen that the film, not only will be positively held by the barbs 11 and bosses 15, but that this is accomplished with but very slightly extended contact with the emulsion of the film. The barbs, themselves, do not contact with any extended portion of the emulsion and the offset edges of the tubular bosses 15 engage the emulsion only on sharply defined lines that cover practically no considerable portion of the emulsion. No flat surface of any part of the clip is engaged with the emulsion of the film.

Films, as is well known, are covered with emulsion on both sides, so that it is highly important that no flat or extended portion of the clip be engaged with either side of the film.

Obviously, the clip will be rapidly drained when removed from the liquid or solution. When the clip is applied with its jaws uppermost, drainage will be afforded by the notch 13 of member 8, and when the clip is turned other end up, there will be free drainage downward through the plurality of openings afforded between the barbs 11. (See particularly Fig. 3.)

The clip described may be easily stamped in two sections, substantially as described and illustrated, and these two sections may be quickly, cheaply, and efficiently put together and interlocked, so that the film may be made at very reasonably small cost. Moreover, the clip is formed without any small neck portions, or the like, that would be quickly destroyed by the chemical action of the solution.

What I claim is:

1. A film clip having coöperating jaws, the one jaw having pointed barbs and the other having laterally offset tubular bosses, into the offset sides of which bosses said barbs are arranged to enter in the clip-holding action, whereby the film will be perforated and positively held by engagement therewith only in the immediate vicinity of the points of perforation.

2. A film clip having coöperating jaws, the one jaw having pointed barbs and the other having laterally offset tubular bosses into the offset sides of which bosses said barbs are arranged to enter in the clip-holding action, whereby the film will be perforated and positively held by engagement therewith only in the immediate vicinity of the points of perforation, the body of said clip being in the form of a spring tending to seat said barbs in said bosses.

3. A film clip having coöperating jaws, the one jaw having pointed barbs and the other having laterally offset tubular bosses into the offset sides of which bosses said barbs are arranged to enter in the clip-holding action, whereby the film will be perforated and positively held by engagement therewith only in the immediate vicinity of the points of perforation, the body of said clip being in the form of a spring tending to seat said barbs in said bosses, and the end portions of the jaws of said clip being crossed and passed, the one through the other.

4. In a film clip, the combination with a flat spring member bent into U-shaped formation and formed at the end of the one prong with a relatively wide laterally offset head having a row of pointed barbs, of a second flat metal member interlocked to the short prong of the first member, having a laterally bent neck with a clearance notch through which the longer prong of said first member works freely, said second member having an extended head portion formed with laterally pressed sleeve-like bosses into which the pointed barbs of the first member are adapted to enter.

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

GLEN M. DYE

Witnesses:
BERNICE G. BAUMANN,
HARRY D. KILGORE.