Sept. 7, 1937. W. L. POST 2,092,522

CLIP

Filed May 7, 1934

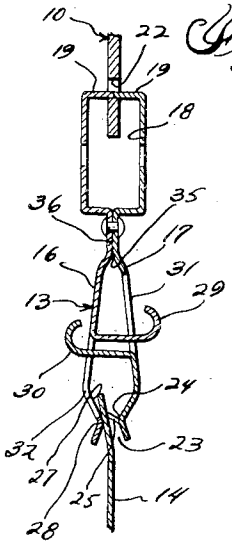


Fig. 2.

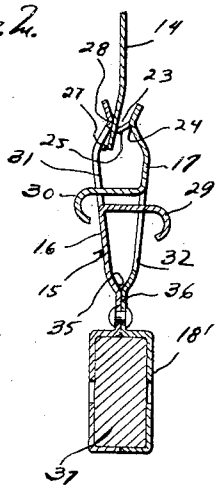


Fig. 3.

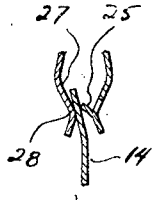


Fig. 4.

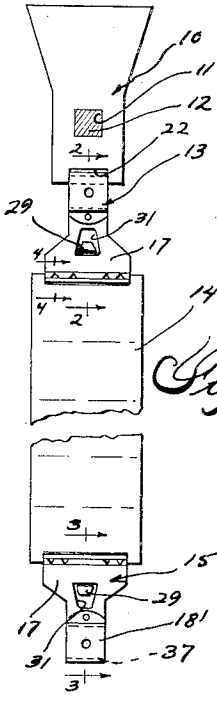


Fig. 1.

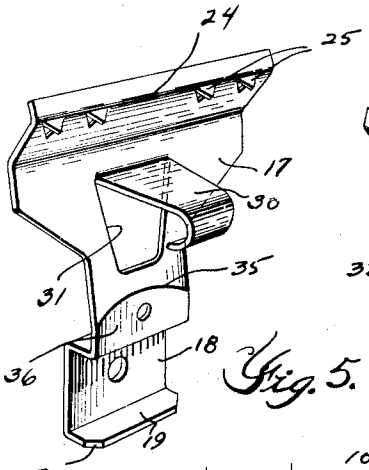


Fig. 5.

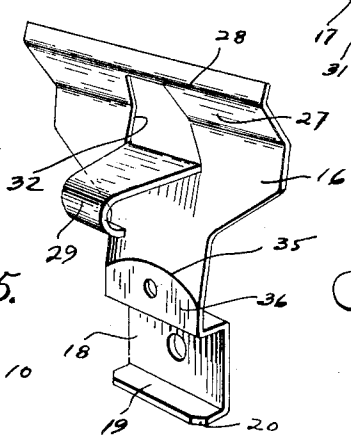


Fig. 6.

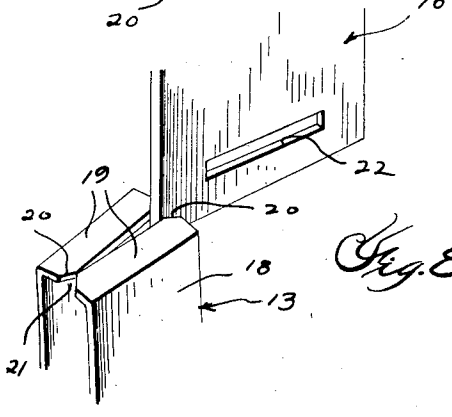


Fig. 8.

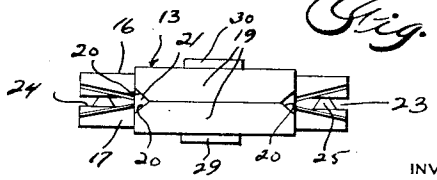


Fig. 7.

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CLIP

William L. Post, Detroit, Mich.

Application May 7, 1934, Serial No. 724,429

10 Claims. (Cl. 24—255)

This invention relates generally to clips and refers more particularly to clips of the type employed in the art of photo-finishing.

One of the principal objects of this invention is to simplify, render more efficient, and improve generally clips of the foregoing type by providing a design capable of being formed of two complementary sheet metal stampings permanently secured together between the ends thereof to form an integral construction. In accordance with this invention, the complementary stampings are provided with portions at one side of the securing means cooperating to form a jaw for clipping one end of a film and are provided with additional portions on the opposite side of the securing means cooperating to interchangeably receive therebetween a weight and a portion of a hanger or other suitable support.

Another feature of this invention resides in the provision of a clip of the foregoing character, wherein the cooperating portions of the stampings on opposite sides of the securing means therefor are placed under tension by the securing means so as to permit the films to be effectively clamped by the jaws at one end of the clip, and so as to permit the cooperating portions at the opposite end of the clip to be snapped into engagement with the hanger, if desired.

Another advantageous feature of this invention resides in the provision of a clip having jaw portions so constructed as to prevent accidental disengagement of the films from the clip during the frequent handling of the films usually required to completely finish the latter.

A further object of this invention resides in the novel means provided herein for readily separating the jaw portions of a clip the extent necessary to insert one end of a film therebetween. In accordance with this invention a finger engaging piece is struck out from each of the stampings in such a manner that when the latter are assembled to form the clip, the finger engaging piece of one stamping extends through the opening formed in the complementary stamping by striking out the finger engaging piece from this complementary stamping, and the latter finger engaging piece projects through the opening formed in the first named stamping by striking the finger engaging piece therefrom.

A further advantageous feature of this invention resides in the provision of a clip having excellent drainage qualities and being free from protruding edges of the type that would tend to scratch or otherwise mar the films supported immediately adjacent thereto. The drainage feature set forth above provides for appreciably increasing the life of the clip since it prevents the corrosion and erosion of the stampings that would be effected by trapping the strong solutions used in developing films in the clip.

The foregoing as well as other objects will be made more apparent as this description proceeds, especially when considered in connection with the accompanying drawing, wherein;

Figure 1 is a side elevational view of a hanger having a film secured thereto by clips constructed in accordance with this invention;

Figure 2 is a sectional view taken substantially on the plane indicated by the line 2—2 of Figure 1;

Figure 3 is a sectional view taken on the plane indicated by the line 3—3 of Figure 1;

Figure 4 is a fragmentary sectional view taken on the line 4—4 of Figure 1;

Figure 5 is a perspective view of one of the complementary stampings employed in forming the clip;

Figure 6 is a similar view of the cooperating stamping;

Figure 7 is an end elevational view of a clip constructed in accordance with this invention;

Figure 8 is a fragmentary perspective view illustrating the manner in which my improved clip may be snapped into engagement with the hanger shown in Figure 1.

Referring more particularly to Figure 1 of the drawing, it will be noted that I have illustrated in this figure a film hanger assembly comprising a plate 10 apertured as at 11 for receiving a suitable support 12 and having a clip 13 detachably secured to the lower end thereof in a manner to be more fully hereinafter set forth. The clip 13 is for the purpose of removably securing the upper edge of a film 14 to the hanger, and curling of the film is prevented by a second clip 15 fashioned to clip the lower edge of the film 14. In view of the fact that the clips are usually formed of relatively light gage metal, it is ofttimes desirable to increase the weight of the bottom clip 15 and this may be accomplished by associating a weight therewith. Otherwise the top and bottom clips are identical in construction and may be readily interchanged since the weight in the present instance is detachable from the clip 15.

As previously stated, the present invention concerns itself more particularly with the construction of the clips, and accordingly, reference will now be made in detail to the top clip 13 shown best in Figure 2 of the drawing. The clip 13 is

formed essentially of two complementary sheet metal stampings 16 and 17 riveted or otherwise permanently secured together intermediate the ends. The adjacent portions of the stampings at one side of the securing means are bent to form inwardly opening channel-shaped sections cooperating with each other in the assembled relation of the stampings to form a retainer or tube 18. The outer legs 19 of the channel-shaped portions 18 abut each other in the normal plane of the clip and the stampings are so fashioned that when secured together in the manner previously set forth the channel-shaped portions 18 are placed under a tension tending to resist separation of the legs 19. As shown particularly in Figure 7, the ends of the legs 19 are beveled as at 20 to form substantially V-shaped guides 21 of sufficient dimension to receive a portion of the lower edge of the plate 10. In Figure 8 of the drawing the clip is illustrated in a position where a portion of the lower edge of the plate 10 is engaged with one of the V-shaped guides, and as will be observed from this figure relative movement of the plate and clip toward each other causes a cam action at the point of engagement of the lower edge of the plate with the beveled surfaces 20 of the V-shaped guide 21 to spread the legs 19 a sufficient distance apart to permit inserting the lower end of the plate therebetween. In this connection attention is now called to the fact that the plate 10 is formed with a slot 22 at the lower end thereof having a length equal to, or slightly greater than the length of the leg portions 19 so that registration of the edges of the leg portions with this slot permits the leg portions to snap into engagement with each other within this slot. The width of the slot 22 is sufficient to provide for moving the clip to the angle required for engaging one of the V-shaped guides with the lower edge of the slot to permit spreading the leg portions the distance necessary to detach the clip from the plate.

The portions of the stampings on the side of the securing means opposite the channel-shaped portions 18 are fashioned to form a jaw 23 for clipping one end of the film 14. In detail, the stamping 17 is bent adjacent the extremity thereof to form an inwardly projecting bead 24 extending for the full length of the jaw 23 and having portions struck inwardly therefrom to form lugs 25 pointed at their extremities to pierce the portion of the film disposed within the jaw. As shown particularly in Figure 4, the lugs 25 are inclined toward the center of the clip and act to hold the film in contact with the inwardly inclined wall 27 formed by a bead 28 on the stamping 16. The arrangement is such that any relative movement of the clip and film in directions to disengage the film from the clip, without first spreading the jaw 23, will increase the clamping action on the film due to the fact that the inclined wall 27 directs movement of the portion of the film in the jaw toward the pointed ends of the lugs 25. The foregoing construction provides for reducing the tension between the cooperating jaw portions of the stamping to the minimum without the danger of accidental disengagement of the films and clips.

In accordance with this invention the cooperating jaw portions of the stampings are separated to release the film therebetween by forming suitable finger pieces 29 and 30 on the stampings 16 and 17 respectively. As shown in the drawing, the finger pieces 29 and 30 are formed by striking out portions of the stampings 16 and 17 respectively. In detail, the finger engaging piece 29 is extended laterally through the opening 31 formed in the stamping 17 by striking out the finger engaging piece 30, and the latter is in turn extended laterally in the opposite direction through the opening 32 formed in the stamping 16 by striking out the finger engaging piece 29. The finger engaging pieces extend the minimum distance beyond the confines of the clip proper so as not to scratch or otherwise mar films that may be supported on either side of the clip, and in order to insure against such action by the finger engaging pieces, the extremities of the latter are bent inwardly in the manner shown in the drawing.

Another feature of this invention resides in forming the clip in such a manner as to prevent accumulation of the developing solutions between the stampings 16 and 17. The feature of effectively draining the clip is of particular importance when the latter is used as a weight for the lower end of a film during the process of developing the film, and is accomplished herein by so forming the stampings that when the portions thereof in proximity to the securing means are in engagement, an arcuate ridge 35 is formed transversely of the clip between the stampings. In other words, the construction is such that when the substantially flat portions 36 of the stampings, shown best in Figures 5 and 6, are in abutting relationship the upper edges of the flat portions cooperate to define the arcuate ridge 35, which obviously provides for draining any solution finding its way between the stampings. The above feature minimizes corrosion and erosion of the clip by the various solutions used to develop films and, as a consequence, provides for materially increasing the life of the clips.

The lower clip 15 shown in Figure 1 is identical in construction to the clip 13 previously described, with the exception that a suitable weight 37 is inserted in the tubular shaped portion 18' of the clip. The weight 37 is merely frictionally held in assembled relation with the tubular portion 18', and accordingly, may be readily removed, if desired. Inasmuch as the clip 15 is identical in construction to the clip 13, the clips may be readily interchanged by merely removing the weight 37 from the bottom clip and assembling the latter with the plate 10 in the manner hereinbefore described in connection with the clip 13. The weight 37 may then be merely inserted in the tubular portion 18 of the clip 13 and the latter used as a bottom clip.

Thus from the foregoing it will be observed that I have provided a relatively simple and inexpensive clip possessing numerous features of considerable importance in the art of developing films. It will further be apparent to those skilled in the art that numerous changes may be made in the non-essentials of the construction without departing from the spirit and scope of this invention, and accordingly, reservation is made to make such changes in the construction of the clip as may come within the purview of the accompanying claims.

What I claim as my invention is:

1. A clip comprising complementary oppositely disposed resilient sheet metal stampings having portions at one end of the clip cooperating to form jaws, means rigidly clamping the stampings together to hold said jaw portions into engagement under tension, and means for separating said jaw portions including lugs struck out from said stampings.

2. A clip comprising complementary oppositely

disposed sheet metal stampings having portions at one end of the clip cooperating to form jaws, each stamping having an opening therethrough, means clamping the sections together to hold said jaw portions into engagement under tension, and means located between the securing means and ends of said jaw portions for separating the latter portions, said means including a lug struck out of one of said stampings and bent laterally to extend through the opening in the other of said stampings and a second lug struck out from the latter stamping and bent laterally to extend through the opening in the former stamping.

3. A clip comprising complementary oppositely disposed sections having portions at one end of the clip cooperating to form jaws, means clamping the sections together to hold the jaw portions into engagement under tension, means located between the securing means and ends of said jaw portions for separating the latter portions, said means including a lug struck out of each of said sections, the lug on one section extended toward the other section through the opening formed by striking out the lug from the second named section and the lug on the second mentioned section extended through the opening formed by striking out the lug from the first named section.

4. A clip comprising opposed spring metal sections cooperating to form gripping jaws urged toward each other by the inherent resiliency of the sections, means for separating the jaws including a lug struck out from each of the sections and having a finger engaging portion, the lug on one section extending toward the other section with the finger engaging portion projecting through the opening formed by striking out the lug from the second section and the lug on the second section extending toward the first section with the finger engaging portion thereof projecting through the opening of the first section formed by striking out the lug therefrom.

5. A clip comprising complementary oppositely disposed spring metal sections having portions at one end co-operating to form jaws normally held into engagement with each other by the inherent tension of the metal and having portions at the opposite ends co-operating to form a housing, a weight disposed in the housing and means for securing the sections together at a point intermediate the jaws and housing.

6. A clip comprising complementary oppositely disposed sections having portions at one end co-operating to form jaws extending for substantially the full width of the sections and having contacting portions intermediate the ends also extending for substantially the full width of the sections, the edges of the contacting portions facing the jaws being curved transversely of the clip and co-operate to form an arcuate ridge between the sections, and means for securing the contacting portions of the sections together.

7. A clip comprising complementary oppositely disposed sections having portions at one end co-operating to form jaws and having portions at the opposite end co-operating to form a housing, said sections further having contacting portions intermediate the jaws and housing, the edges of the contacting portions facing the jaws being arcuate to provide a ridge curved transversely of the clip, and a weight disposed in said housing.

8. A clip comprising complementary oppositely disposed sections secured together intermediate the ends and having portions at one end co-operating to form jaws, said jaws having opposed inwardly extending beads substantially co-extensive with the width of the jaws and having inclined side walls, and gripping lugs projecting from the bead on one of the jaw portions and extending toward the inclined side wall of the bead on the other jaw portion.

9. A clip comprising complementary oppositely disposed sheet metal stampings secured together intermediate the ends and having portions at one end co-operating to form jaws, said jaws having opposed inwardly extending beads substantially co-extensive with the width of the jaws and having inclined side walls, gripping lugs struck out from the bead on one of the jaw portions and extending toward the inner inclined side wall of the bead on the other jaw portion, and means for separating the portions including finger engaging pieces struck out from the portions between the beads and the point at which the stampings are secured together.

10. A clip comprising opposed spring metal stampings having cooperating gripping jaws at one end and each of the stampings having an opening therethrough, means for separating the jaws including a lug struck out from one of the stampings toward the other and having a finger engaging portion exposed through the opening in the latter stamping, and a second lug struck out from the second mentioned stamping toward the first named stamping and also having a finger engaging portion exposed through the opening in the first mentioned stamping.

WILLIAM L. POST.