Aug. 12, 1947. H. M. DYE ET AL 2,425,603

FILM HANGER

Filed April 13, 1944

Fig-1

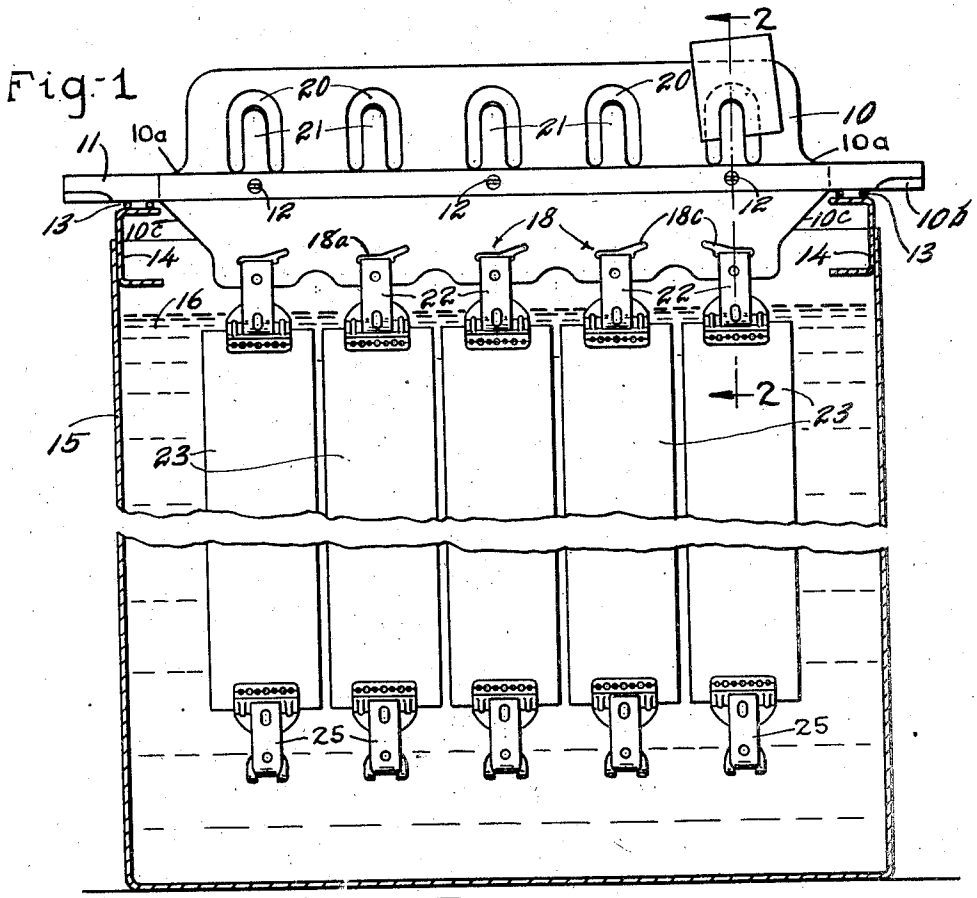
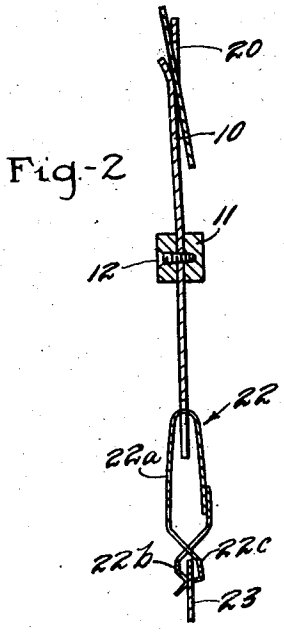


Fig-2



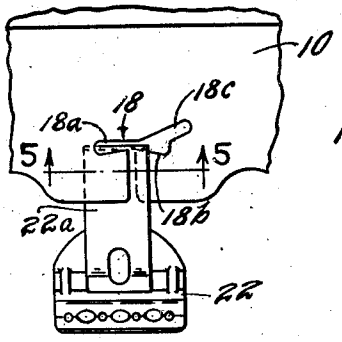


Fig-3

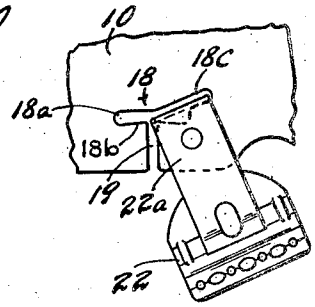


Fig-4

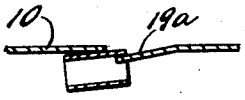


Fig-5

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FILM HANGER

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10 Claims. (Cl. 95—100)

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This invention relates to a film hanger such as is used to support a depending film while said film is being processed. Such hangers usually support a plurality of film holding members or clips. It is also desirable that the hanger have means for holding sheets containing data about the particular film. It is a further desideratum to have a device simple in construction, one which can be easily, quickly and inexpensively produced and one which will be durable and affected as little as possible by the various solutions used with the film.

It is an object of this invention therefore, to provide a simple and efficient film hanger made of an elongated sheet of material and having means for the easy and quick attachment thereto of a film holding clip.

It is a further object of the invention to provide a film hanger comprising an elongated sheet of rather stiff material having supporting means projecting at each end thereof, the same having a plurality of slots transversely spaced adjacent its lower edge, each having a horizontal supporting portion for a film clip and an upwardly inclined communicating entering portion.

It is also an object of the invention to provide a film hanger such as set forth in the preceding paragraph, the same having above said supporting means a plurality of tongues respectively aligned with said slots, said tongues being surrounded by a slot or opening so that a clip is in effect formed adapted to hold a sheet containing film data.

It is more specifically an object of the invention to provide a film hanger formed of an elongated sheet of quite stiff material preferably non-metallic, said sheet having a bar extending throughout its length and projecting at the ends thereof, said bar being constructed to support said sheet in a substantially vertical position, said sheet having adjacent its lower edge a plurality of slots or openings each having a supporting portion for a film clip and a communicating inclined entering portion, each of said slots having an opening extending to the edge of said sheet for the entry of said film clip, said sheet also having above said bar a plurality of means for holding sheets containing data.

It is another object of the invention to provide a hanger having a clip supporting surface on which the clip can readily adjust itself to permit the suspended film to hang vertically.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to similar parts throughout the several views and in which:

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Fig. 1 is a view in front elevation of the film hanger showing clips and films supported thereby and showing in vertical section a support for said hanger and the tank in which said films may be treated.

Fig. 2 is a vertical section taken on line 2—2 of Fig. 1 as indicated by the arrows;

Fig. 3 is a partial view in front elevation shown on an enlarged scale illustrating the entry of a clip into said hanger;

Fig. 4 is a view similar to Fig. 3 showing how a clip is entered into said hanger; and

Fig. 5 is a horizontal section taken on line 5—5 of Fig. 3 as indicated by the arrows further illustrating the entry of a clip.

Referring to the drawing a hanger is shown comprising an elongated piece of sheet material 10. While this may be made of various materials, in practice it has been made of a sheet of plastic material sufficiently stiff to remain substantially in one plane during ordinary handling. Such plastic material is resistant to various liquids used in treating the films such as developing and fixing liquids. Sheet 10 is generally of rectangular form having slightly projecting lugs 10a at each end adjacent its midportion and a supporting means in the form of a bar 11 extends lengthwise of said sheet and projects some distance at either end thereof. Bar 11 is provided with a slot into which sheet 10 is inserted and said sheet is held securely in said bar by a plurality of screws 12 passing therethrough and through the spaced parts of said bar. Bar 11 is shown as substantially square or rectangular in form and thus has a flat lower surface. At its ends said bar is provided with a short bevel or chamber 10b at each side thereof. With the flat lower side on bar 11 it is thus constructed and arranged to conveniently rest on spaced supports. These may take various forms and when the hanger is being moved through a liquid containing receptacle or tank it may be supported upon a link chain 13 illustrated as moving on the top of spaced channel members 14 disposed adjacent the top of a tank or receptacle 15 containing a print treating liquid 16. Bar 11 thus acts to support the sheet 10 in substantially vertical position.

Sheet 10 is provided adjacent its lower edge with longitudinally spaced slots 18. Each of these slots comprises a horizontal portion 18a

having a lower supporting edge 18b. Edge 18b is of arcuate form having a convex top. This horizontal portion of the slot may be called the supporting portion. Each of said slots 18 also has a communicating upwardly inclined portion 18c which may be called the receiving portion of the slot. Portions 18c as shown in Fig. 1, extend upwardly to the right in all except the slot at the right hand end of sheet 10, in which latter slot portion 18c extends upwardly to the left. The reason for this is that there is more room for the slot extending to the left and toward the adjacent end of the sheet. An opening or slot 19 communicates with slot 18 substantially midway of the horizontal supporting edge 18b, which opening 19 extends to the lower edge of sheet 10. The ends of sheet 10 below bar 11 are inclined as shown at 10c. Above bar 11 sheet 10 is provided with a plurality of inverted U-shaped slots or openings 20, which openings are in vertical alignment with the slot portions 18a. Each opening 20 surrounds and forms a central tongue 21 which upstands from the body of the sheet and extends substantially to the top of bar 11. There is some resiliency to sheet 10 so that the tongues 21 with the openings 20 form in effect a clip so that a sheet of paper or envelope may be disposed at one side of sheet 10 and between the same and tongue 21 so as to be firmly held in position. See Figs. 1 and 2.

As shown in Figs. 1 to 4, the hanger supports a film-holding clip 22. This clip is formed at its top from a strip of somewhat resilient metal, which strip is formed into a loop or bight 22a closed at its top. The sides of loop 22a have respectively secured thereto film holding jaws 22b and 22c between which the film 23 is clamped. Jaws 22b and 22c are shown as crossing diagonally so that said jaws may be opened by pressing together the sides of loop 22a. While any convenient form of clip could be used with the device the clip illustrated is similar to that shown in U. S. Patent No. 2,254,798.

In operation, the clips will be placed on the device as shown in Figs. 3 to 5. One of the sides of loop 22a is placed substantially parallel to the front of sheet 10 and the sheet 10 at one side of opening or slot 19 is pressed laterally so as to be offset as shown at 19a in Fig. 5. The clip is now moved so that the offset portion 19a enters said loop. Said loop is moved into the receiving portion 18c of slot 18 as shown in Fig. 4. The clip can now be reversed in movement and readily moved or slid into the horizontal portion 18a where it will be supported by gravity upon the edge 18b. The clips are now in the position shown in Fig. 1. The films 23 can be attached to the clips before or after the clips are placed in the hanger. It is customary to have a weighted clip 25 secured to the lower end of the film to hold it in vertical depending position. It often happens that the jaws of the clip will not extend at right angles to the long edge of the film. If the supporting loop of the clip rests on a horizontal surface the film would be canted at its upper end and the weight on the lower end of the film would tend to twist and fold the film. With the arcuate surface 18b the clip loop will rock and adjust itself so the film can hang perfectly flat in a vertical position. This is an important feature of the hanger. It is customary in commercial developing establishments to have the data concerning the film, such as the name of the customer, number of prints desired, etc., placed on a record sheet. This sheet or an envelope in

which it is placed, can be held by the tongue 21 above the particular clip carrying the film. There is thus a coaction and combinative relation between the clamping means comprising tongue 21 and the slot 18 beneath the same. As stated, the sheet or envelope can be placed between tongue 21 and the body of sheet 10 and will be securely held in position. The hanger loaded with the films can be supported by the projecting portions of member 11 in any desired place. As the hanger is lowered into position between supports the inclined edges 10c act to guide it into central position. In one operation the hanger and supported films are moved through a receptacle containing the developing and other liquids in a machine comprising the moving chains 13 which thus support the bar 11. It is evident that the clips 22 can be removed from slots 18 by first sliding the side of the loop 22 into the receiving portion 18c and then sliding it out through opening 19 as shown in Fig. 5. The beveled lower corners at the ends of bar 11 protect the material and function as positioning and guiding means in certain machines in which the hanger is handled.

From the above description it will be seen that we have provided a greatly improved and very useful film hanger. The device is very easily made by cutting or punching the slots for openings in the sheet 10. With the arrangement of slots 18 the clips can be very easily and quickly placed in the hanger and they are supported securely in the desired position. As stated, sheet 10 is made from plastic which is resistant to the liquids used on the film so that the hanger does not become corroded and unsightly as is the case with metal hangers. The hanger is neat and of pleasing appearance. The device has been amply demonstrated in actual practice, found to be very successful and efficient, and is being commercially made.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts, without departing from the scope of applicants' invention, which generally stated, consists in a device capable of carrying out the objects above set forth, in the parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:

1. A hanger for film-clips or holders having in combination, an elongated sheet of material, a support for said sheet projecting at each end thereof, said sheet having formed therein adjacent its lower edge a plurality of spaced slots, each adapted to receive a film-supporting clip each of said slots having a supporting portion and a communicating laterally extending receiving portion communicating therewith, said sheet having an opening extending from each of said supporting portions to the lower edge of said sheet, said sheet being somewhat flexible and resilient so that a clip formed of a flat strip having a loop at its top may be passed through said opening with the sides of said opening spread apart and may be passed edgewise into said receiving portion and then reversely moved to be disposed wholly in said supporting portion and a plurality of spaced means adjacent the upper edge of said sheet and formed integral with said sheet for holding sheets of data, said means being respectively aligned vertically with said slots.

2. A hanger for film holders or clips having in combination an elongated sheet of flexible re-

silient material, a support for said sheet projecting at each end thereof, said sheet having formed therein adjacent its lower edge a plurality of spaced elongated slots each having a supporting portion with a lower side said portion being adapted to have a flat strip formed into a loop extending therethrough with the upper side of said loop engaging said lower side and each of said slots having a receiving portion communicating with said supporting portion and extending laterally therefrom in an inclined direction so that an edge portion of said strip can be moved into said receiving portion through said supporting portion and can then be reversely moved and disposed wholly in said supporting portion, said sheet being somewhat flexible and resilient and having an opening extending from each of said slots to the lower edge of said sheet through which opening said strip can be moved edgewise into said supporting and receiving portion.

3. A hanger for film-clips having supporting loops at their upper ends formed of sheet material having in combination, an elongated sheet of material, a support for said sheet projecting at each end thereof, said sheet having formed therein adjacent its lower edge a plurality of spaced slots each having a supporting portion with a substantially horizontal lower side and a receiving portion communicating with said supporting portion and extending laterally therefrom in an upwardly inclined direction, said sheet being somewhat flexible and resilient and having a slot extending substantially vertically from each of said slots to the lower edge of said sheet, whereby a side of said loop of a clip can be moved through said last mentioned slot with said sheet flexed into said inclined portion and then reversely moved into said supporting portion so as to be completely disposed in said slot.

4. A hanger for film-clips having in combination, a sheet of material having a slot therein constructed and arranged to receive a loop of a clip, which loop is formed of a flat substantially rigid material, said slot having a curved convex edge at its lower side on which said loop rests whereby said loop can rock on said surface to permit a weighted film to hang in flat vertical position.

5. A hanger for films and the like constructed and arranged to support a plurality of film clips having in combination, an elongated sheet of material, a support for said sheet projecting at each end thereof, said sheet having formed therein adjacent its lower edge, a plurality of spaced slots each having a supporting portion adapted to have a flat strip forming the suspending means for a film clip pass therethrough and engage the lower side thereof, each of said slots having a receiving portion extending from and communicating with said supporting portion into which one edge portion of said strip may be moved, said sheet having an opening extending from each of said supporting portions to the lower edge of said sheet, said sheet being somewhat flexible and resilient so that said sheet may be sprung to move the sides of said opening laterally, and said strip may be passed edgewise through said opening and moved into said receiving portion temporarily and then reversely moved into said supporting portion.

6. A holder for film clips comprising a sheet of resilient flexible material, a support for said sheet at each end thereof, said sheet having an elongated slot formed therein adjacent its lower edge, said slot having a supporting portion adapted to be disposed horizontally and adapted to have a flat strip forming part of a film clip pass therethrough and be supported on the lower side thereof, said slot having a receiving portion communicating with and extending at an angle to said supporting portion, said sheet having an opening extending from the bottom of said supporting portion to the lower edge of said sheet so that the sides of said opening may be sprung laterally and said strip moved therethrough flatwise and then be moved edgewise into said receiving portion and then reversely moved edgewise into said supporting portion.

7. The structure set forth in claim 6, the bottom of said supporting portion being convexly curved.

8. A support for film clips comprising a sheet of resilient flexible material, a support for said sheet at each end thereof, said sheet having adjacent its lower edge a plurality of laterally spaced elongated slots, each of said slots having a supporting portion through which a flat strip forming part of a film clip may pass and be supported on the lower side of said portion, each of said slots having a receiving portion communicating with and extending at an angle to said supporting portion, said sheet having openings extending from the bottom of each of said slots respectively to the lower edge of said sheet whereby said strip may be passed flatwise through said opening and may then be moved edgewise into said receiving portion and reversely moved and be disposed wholly in said supporting portion, and a plurality of spaced means adjacent the top of said sheet formed integrally with said sheet and respectively alined vertically with said slots for holding a sheet of data referring to the film carried in the clip supported in the alined slot.

9. A hanger for clips having in combination, an elongated sheet of flexible resilient material, a bar extending longitudinally of said sheet and projecting at the ends thereof, said bar having a vertical slot extending therethrough from adjacent one end to adjacent the other end thereof, said sheet extending through and being disposed in said slot, means securing said sheet in said slot, said sheet having edges at its ends below said bar inclining upwardly and outwardly to said bar, and having a plurality of laterally spaced means formed therein between said bar and its top edge respectively adapted to hold data sheets, and having a plurality of laterally spaced slots adjacent its lower edge below said bar, said slots having horizontally extending portions and being adapted to receive and support the bight portion of a loop formed of a strip of sheet material at the top of a film-holding clip, said slots being respectively vertically aligned with said slots.

10. A hanger for film-holding clips having in combination, an elongated sheet of stiff, flexible and resilient material, a support for said sheet projecting at each end thereof between its top and bottom edges, said sheet having a plurality of laterally spaced inverted U-shaped slots adjacent its upper edge, each of said slots surrounding a tongue extending vertically and having a free upper end located close to the top of said slot, whereby a data sheet may be clamped between said tongue and the body of said elongated sheet by pressing the upper portion of said tongue out of the plane of said sheet and then permitting it to clamp said data sheet between the same and body of said elongated sheet, said sheet hav-

ing a plurality of laterally spaced clip-receiving slots adjacent its lower edge, said slots having horizontally extending portions and said sheet having openings extending vertically from said slots to the bottom edge of said sheet, whereby a clip formed of a flat strip having a loop at its top may be passed through said opening with the sides of said opening sprung apart and may be disposed in said slot and supported therein, whereby a film can be supported in said clip and the data regarding said film be placed on said data sheet vertically aligned with said clip.

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