Nov. 11, 1952 D. A. GILKERSON 2,617,339

FILM PROCESSING HANGER

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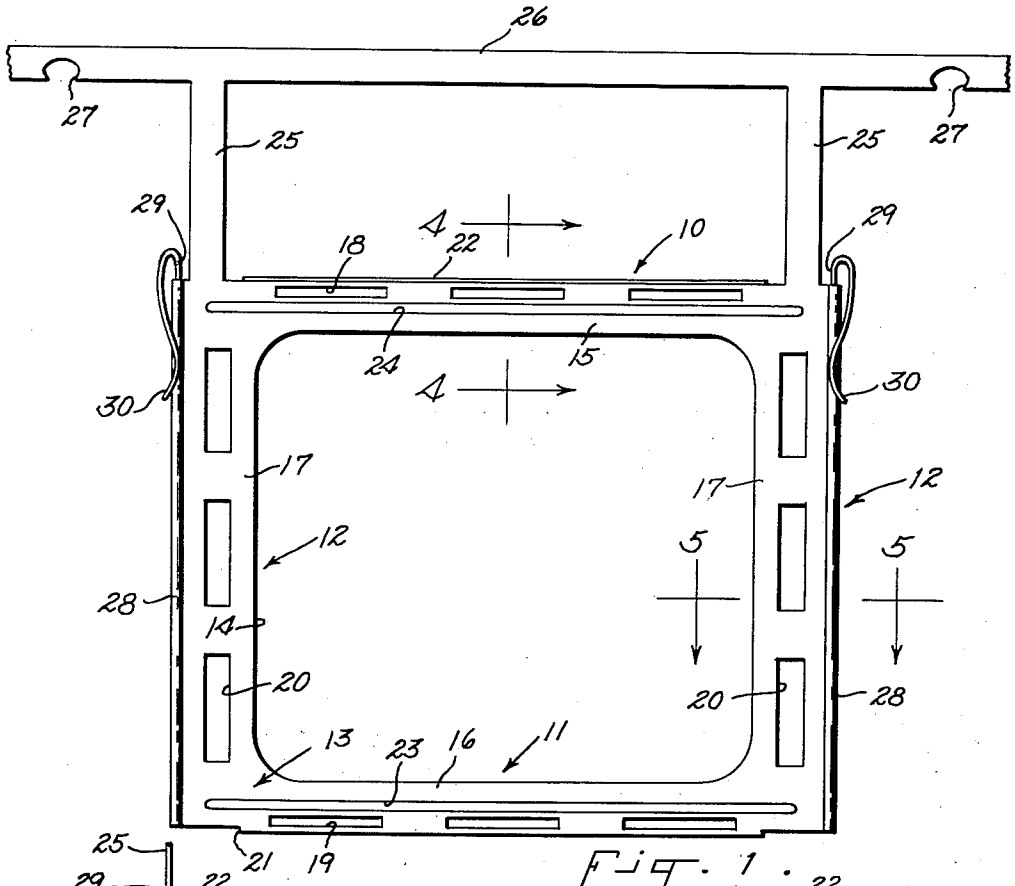


Fig. 1.

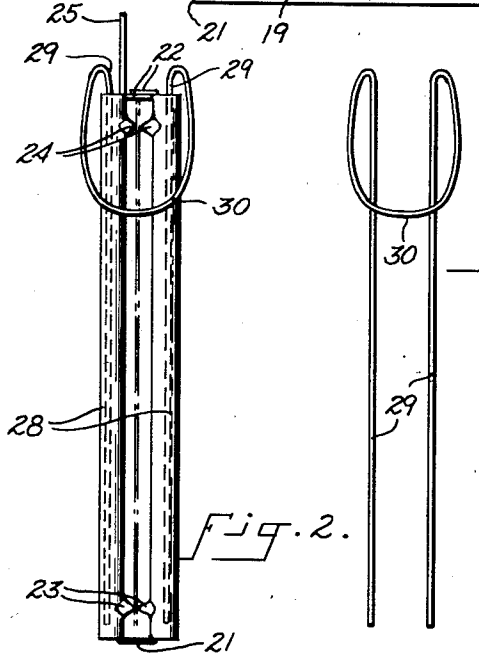


Fig. 2.

Fig. 3.

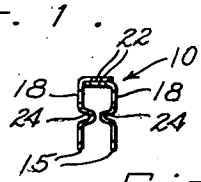


Fig. 4.

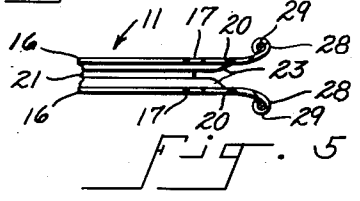


Fig. 5.

INVENTOR.
DOROTHY A. GILKERSON
BY
Buckhorn and Cheatham
Attorneys

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FILM PROCESSING HANGER

Dorothy A. Gilkerson, Honolulu,
Territory of Hawaii

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2 Claims. (Cl. 95—100)

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My invention relates to a device for holding a rectangular sensitized film during the processing thereof whereby the film may be exposed to developing the fixing materials without requiring the operator to expose his hands to the processing materials. An object of the present invention is to provide a device of the character described which can be used for holding photographic film of either the cut type or the pack type, the holder being particularly designed to make allowances for the variations in sizes of the two types of film and the variations in the nature of the two types of film. Heretofore hangers have been devised particularly for cut film; however, such hangers are so designed that pack film may be used therein only by cutting the pack down to the size of the cut film, which must be done in total darkness and requires time and a cutting machine. When such a hanger is lowered into a tank to allow processing fluids completely to cover the surfaces of the film, the extremely flexible and unruly film used for pack film purposes often buckles and pops out of the hanger because the rim thereof is too narrow. An object of the present invention is to provide a holder which will prevent the displacement of either pack film or cut film.

The principal object of the present invention is to provide a hanger which is loaded from the end rather than from the top or bottom as in prior art devices. The disadvantage of hangers which must be loaded from the top or bottom is that a hanger of this character must be removed from its rack or shelf, loaded with the film, and then placed aside while other hangers are being loaded, all of this to be accomplished in total darkness and requiring a large darkroom. With the present invention a plurality of devices made in accordance with my invention may be loaded while the holders remain in position on a rack, and thereafter the entire rack may be immersed in the developing and fixing solutions.

A further object of the present invention is to provide a holder of the character in question which may be easily loaded and unloaded by a person operating in total darkness, and one which may be inexpensively formed of readily available materials.

The foregoing and other objects and advantages of the invention will be more readily apparent from inspection of the accompanying drawing wherein like numerals refer to like parts throughout.

In the drawing, Fig. 1 is a side view of a film holding device formed in accordance with my invention;

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Fig. 2 is an end view of the device;

Fig. 3 is a view of the film retaining means incorporated in the device;

Fig. 4 is a vertical section taken substantially along line 4—4 of Fig. 1; and

Fig. 5 is a horizontal section taken substantially along line 5—5 of Fig. 1.

The preferred form of the invention herein illustrated is made of thin sheet metal such as stainless steel, but it is to be appreciated that the device may be formed of other materials such as plastics inert to the processing materials. The invention comprises an upper, horizontal, downwardly open, U-shaped channel generally designated by the numeral 10, a lower, horizontal, upwardly open, U-shaped channel generally designated by the numeral 11, and a pair of vertically disposed means generally designated by the numeral 12, each of such vertically disposed means joining one end of the lower U-shaped channel to the corresponding end of the upper U-shaped channel to define therewith a relatively thin, rectangular frame. In the preferred manner of forming the rectangular frame from sheet metal a sheet of metal is stamped and bent upon itself in the following manner: Opposed identical side plates 13 are provided with large, symmetrically disposed openings 14 defining narrow edge portions as follows—the upper edge portions 15 defining the flanges of the upper channel; the lower edge portions 16 defining the flanges of the lower channel: and the vertical edge portions 17 defining the vertical means 12. A plurality of rectangular slots 18 may be provided in the portions 15 and similar slots may be provided in the other portions, such as slots 19 in the portions 16 and slots 20 in the portions 17, whereby the side plates are substantially open throughout to permit access of the processing materials to the surfaces of the film maintained within the holder. The side plates 13 are connected by a bottom member 21 bridging the space therebetween to provide the bottom of the lower channel. The upper edges of the side plates are joined together by horizontally directed flanges 22 which are overlapped to define the top of the upper channel, the flanges preferably being soldered or otherwise fixed together. The joining portions 21 and 22 are relatively narrow so that the side plates are held in closely spaced relation to each other. However, in order to permit ready insertion of a film through the slot between the vertical portions 17, the side plates are spaced apart several times the thickness of the film, and a pair of horizontally extending, opposed beads 23 are struck inwardly from the

portions 16 and a similar pair of opposed beads 24 are struck inwardly from the portions 15 in order to define means to hold the upper and lower edges of the film in spaced relation to the metal side plates throughout the greater portion of their extent.

Suitable suspension means are fixed to and rise above the frame such as the integral, vertical portions 25 joined by the integral crossbar 26, the ends of which project beyond the frame and are provided with downwardly facing notches 27 to engage the edges of a processing tank. It is to be appreciated that a separately formed hanger may be affixed to the rectangular frame in any suitable manner.

At least one of the end edges of the rectangular frame is left open, preferably both ends being left open so that there is no necessity for orienting the frames in a holding rack in order to have all open ends facing the operator. The outer, vertical edges of the portion 17 are preferably flared outwardly to define a wide entrance into the frame. Vertical guide means are provided at each side of the entry slot such as by means of rolling the outer edge of each portion 17 upon itself to define a vertical, tubular guide 28. A movable film retaining member is slidably mounted adjacent the entry slot, the member preferably comprising a wire member having straight ends 29 forming guide rods smoothly fitting into the tubular guides 28. The upper ends of the guide rods are joined together by suitable means, preferably an intermediate portion 30 of the wire member which is bent downwardly to extend across a portion of the entry slot when the wire member is in lowered position as illustrated in Fig. 1. The reversely bent bight of the wire member forming the portion 30 preferably contacts the outer surfaces of the tubular guides 28 with sufficient force frictionally to retain the member against accidental displacement. However, the operator may slide the retaining member upwardly by engaging the same with any finger of the hand holding the frame, sufficient upward movement being possible to permit the portion 30 to be displaced above the upper surface of the upper U-shaped channel 10 whereupon a film may be slid into or out of the frame through the end entry slot. The length of the rod portions 29 is preferably such that considerable portions thereof will remain within the tubular guides 28 when the intermediate portion 30 engages the lower surface of the overhanging bar 26 in order to prevent accidental loss of the retaining member. The rod portions 29 should slide in the guides 28 fairly easily, but there should be sufficient friction to retain the portion 30 at any position to which the member is adjusted. When a film has been positioned in the hanger it is a simple matter to press downwardly on the upper end of either rod portion 29 or to pull downwardly on the intermediate portion 30 to re-position the retaining member in retaining relation to the slot.

Having illustrated and described a preferred embodiment of my invention, it should be apparent to those skilled in the art that the same permits of modification and rearrangement. All such modifications and rearrangements as come within the scope of the appended claims are considered to be a part of my invention.

I claim:

1. A device for holding rectangular, sensitized films during the processing thereof comprising a rectangular frame comprising a pair of rectangular side plates of slightly longer length and width than the corresponding dimensions of a standard rectangular film, each of said side plates being substantially open throughout to permit exposure of a film placed therebetween to the processing materials, a bottom member spanning the lower edges of said side plates, a top member spanning the upper edges of said side plates, said side plates, bottom member and top member being rigidly connected together to define a frame having at least one of its vertical ends open throughout whereby a film may be slid into and out of the frame between the side plates, means fixed to and rising above said frame for suspending the frame in a processing bath, guide means extending along the vertical edge of each of said side plates at the open end of said frame, a pair of rods each slidably mounted in one of said guide means, and stop means joining the upper ends of said rods, said stop means depending from the upper ends of said rods in close relation to the vertical edges of said side plates whereby to prevent movement of a film from and into said frame when in a lowered position, and said stop means being manually movable above said top member to permit movement of a film from and into said frame.

2. A device for holding rectangular, sensitized films during the processing thereof comprising a rectangular frame comprising a pair of rectangular side plates of slightly longer length and width than the corresponding dimensions of a standard rectangular film, each of said side plates being substantially open throughout to permit exposure of a film placed therebetween to the processing materials, a bottom member spanning the lower edges of said side plates, a top member spanning the upper edges of said side plates, said side plates, bottom member and top member being rigidly connected together to define a frame having at least one of its vertical ends open throughout whereby a film may be slid into and out of the frame between the side plates, means fixed to and rising above said frame for suspending the frame in a processing bath, guide means extending along the vertical edge of each of said side plates at the open end of said frame, and a wire member having its end portions each slidably mounted in one of said guide means, said wire member having a dependent intermediate portion held in close relation to the vertical edges of said side plates whereby to prevent movement of a film from and into said frame when in a lowered position, said wire member being manually movable to position its intermediate portion above said top member to permit movement of a film from and into said frame.

DOROTHY A. GILKERSON.

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