

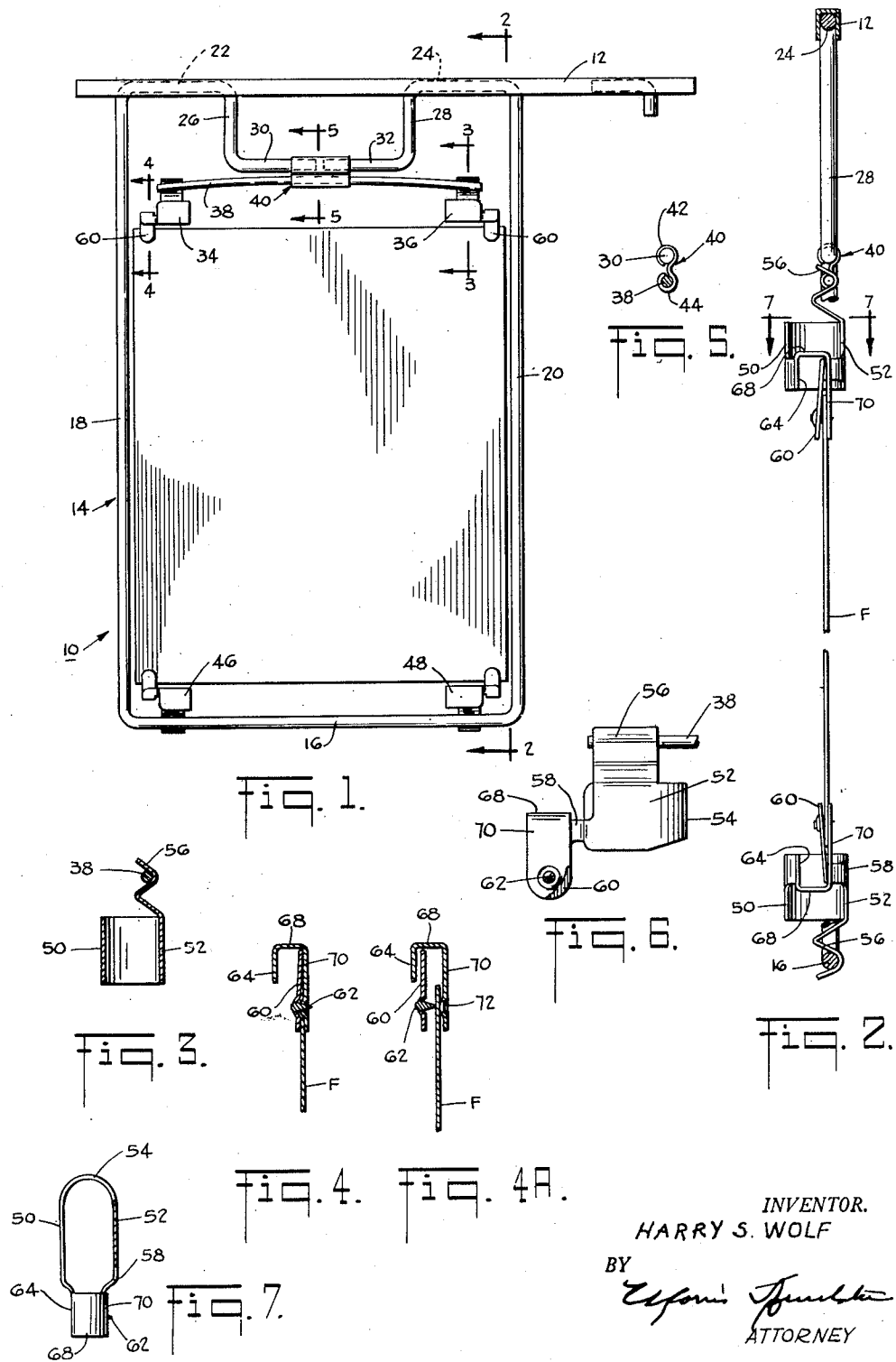
Oct. 14, 1952

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2,613,580

FILM HOLDER

Filed Nov. 17, 1949



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2,613,580

FILM HOLDER

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Application November 17, 1949, Serial No. 127,882

1 Claim. (Cl. 95—100)

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This invention relates to film holders.

More particularly, my invention is concerned with an improved construction for film holders of the type adapted to support photographic film, and particularly large photographic negatives such as X-ray films, during the handling thereof for developing and drying.

It is an object of my invention to provide a film holder of the character described which is of rugged construction, constitutes relatively few and simple parts and is comparatively inexpensive to manufacture.

Film holders of the character described come in various sizes, each designed to handle a different conventional film size. Heretofore, it has been customary for different sizes of film holders either to incorporate frames of different overall sizes or to use frames constituting a plurality of members whose overall sizes are the same but which are differently permanently secured together to accommodate the differently sized films. Both these constructions are disadvantageous in that with the former many different overall sizes of frames must be made and with the latter the frame is not sturdy and durable.

It is an object of my invention to provide film holders including a one-piece frame of improved construction which can be modified readily during its manufacture to handle different sizes of films with the same overall size of film holder.

It is another object of my invention to provide a film holder of the character described, having an improved form of clip, which is less likely to be deformed accidentally.

Other objects of my invention will in part be obvious and in part will be pointed out hereinafter.

My invention accordingly consists in the features of construction, combinations of elements and arrangements of parts which will be exemplified in the device hereinafter described and of which the scope of application will be indicated in the appended claim.

In the accompanying drawings in which is shown one of the various possible embodiments of my invention,

Fig. 1 is an elevational view of a film holder embodying my invention, the same being shown as it appears when supporting a film;

Fig. 2 is an enlarged vertical fragmentary sectional view taken substantially along the line 2—2 of Fig. 1, being illustrative of the construction of the frame and clips;

Fig. 3 is an enlarged sectional view taken substantially along the line 3—3 of Fig. 1;

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Fig. 4 is an enlarged sectional view taken substantially along the line 4—4 of Fig. 1 and showing the clip in film-engaging position;

Fig. 4a is a view similar to Fig. 4, but with the clip open to admit film;

Fig. 5 is a sectional view taken substantially along the line 5—5 of Fig. 1 and showing the member employed to connect the frame of the film holder to a wire which supports the clips;

Fig. 6 is a front view of one of the clips; and

Fig. 7 is a sectional view taken substantially along the line 7—7 of Fig. 2.

Referring now in detail to the drawings, I there have shown a photographic film holder constructed in accordance with my invention. Said film holder includes a frame support bar 12 which may be of channel-shaped cross-section (see Fig. 2) and is adapted to be supported on a drying rack or developing tank.

The film holder also includes a hollow frame 14 of generally rectangular shape. Said frame is made from a stiff elongated member, for example a single length of metal wire, and constitutes a horizontal bottom bar 16 having a pair of erect side bars 18, 20 at its ends. At the tops of the side bars are horizontal intumed branches 22, 24 which terminate in downwardly extending vertical arms 26, 28 whose lower ends carry inwardly extending horizontal reaches 30, 32. Said reaches are in horizontal alignment and have their tips juxtaposed.

The vertical arms 26, 28 and horizontal reaches 30, 32 jointly form a U-shaped member which, in effect, depends from the bar 12 and which is arranged to support an upper pair of clips 34, 36. By varying the length of the arms 26, 28, the vertical dimension of the U-shaped support easily can be changed during manufacture of the frame 14, whereby one-piece frames of the same overall size can accommodate differently sized photographic films. Such variation in size of the U-shaped support need not be and preferably is not employed to enable the same overall size of frame to handle all film sizes, as it would cause the support to become overly long, and, therefore, for comparatively small film sizes the frames are made with smaller overall dimensions. However, even there by varying the length of the U-shaped support, a frame of fixed external dimensions may accommodate films of different sizes.

The branches 22, 24 are located within the channel-shaped bar 12 and are secured thereto in any suitable fashion, for example by welding.

The upper pair of clips 34, 36 are carried by a slender, elongated resilient element such as

a wire 38, being located adjacent the opposite ends thereof and conventionally permanently secured thereto, for instance by welding. The wire 38 is attached to and supported by the base of the U-shaped support constituting the aligned reaches 30, 32. For this purpose, I provide a connector 40 comprising a piece of sheet metal shaped to include a sleeve 42 that encircles the reaches 30, 32 adjacent their tips and another sleeve 44 that encircles the central portion of the wire. The sleeves are permanently secured to the support and wire in a standard manner, for example by welding.

A lower pair of clips 46, 48 is supported from the bottom bar 16, the mounting therefor optionally being rigid rather than resilient as in the case of the upper clips. The connection between the lower clips and the bottom bar is permanent, welding, for example, being employed.

All of the clips 34, 35, 46, 48 are of identical construction so that the same parts of each are denoted by the same reference numerals. Each clip is made from a single piece of resilient sheet metal stock and includes a pair of spaced parallel arms 50, 52 (see Fig. 7) joined by a return bend 54. One of the arms, e. g., the arm 52, is formed with a Z-shaped tab (see Fig. 3) the adjacent leg of which is disposed at an angle to the plane of said arm. The outer angle of the Z receives the wire 38 or the bottom bar 16 and the inner angle of the Z is employed to locate and orient the clip in a desired position relative to its support (see Fig. 2).

One of the arms, e. g. the arm 52, has an inwardly offset finger 58 extending from the vertical edge thereof opposite the return bend 54 (see Fig. 7). The free end of this finger mounts a vertically extending ear 60 (the ears of the upper pair of clips extend downwardly and the ears of the lower pair of clips extend upwardly (see Fig. 2). Said ear supports a horizontal spike 62 whose pointed end is directed away from the arm 50.

The arm 50 has an inwardly offset finger 64 similar to the finger 58. Said finger 64 supports a horizontal bridge plate 68 (the bridge plate of the upper clips is above the fingers 58, 64 and of the lower clips is below these fingers). Vertically extending from the bridge plate is an ear 70 similar in shape to the ear 60 and in registry therewith, but not provided with a spike. The ear 70 is fashioned with a through opening 72 aligned with the spike and designed to pass the same. The ears 60, 70 are relatively positioned reversely of the arms 50, 52; that is to say, if the arm 52 be considered to be on the right, as shown in the upper clip on Fig. 2, and the arm 50 be considered to be on the left, then the ear 60 carried by the arm 52 is on the left-hand side of the ear 70 carried by the arm 50.

The bend 54 is so shaped that in the finished clip the arms 50, 52 are lightly biased apart whereby to urge the ears 60, 70 into contact with one another. Abutment of these ears determines

the closed position of the clip 22. To open the clip the arms 50, 52 are pressed together manually, thereby forcing apart the ears 60, 70. Movement of the ears in such direction is limited by abutment of the ear 60 against the finger 64.

It will be noted that the construction of the clip is such that both its open and closed positions are determined by abutment of parallel flat surfaces so that there is little likelihood of the clip being deformed accidentally.

It thus will be seen that I have provided a device which achieves all the objects of my invention and is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein described, or shown in the accompanying drawings, is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

A film holder comprising a frame support bar, a one-piece stiff hollow frame of rectangular shape including a stiff bottom bar, stiff side bars at the ends of the bottom bar, branches extending inwardly from the side bars and a U-shaped clip support, the upper ends of the arms of said clip support being in one piece with the inner ends of the branches, said support extending downwardly toward the bottom bar of the frame, means to connect said branches to said support bar, an elongated resilient element, means to connect said element to the base of the U-shaped clip support, said last-named means comprising a pair of integrally connected sleeves one of which encircles said element and the other of which encircles the base of the clip support, an upper pair of clips connected to said element adjacent the ends thereof and a lower pair of clips connected to the bottom bar and vertically registered with the upper clips.

HARRY S. WOLF.

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