G. M. DYE.

FILM HOLDING DEVICE.

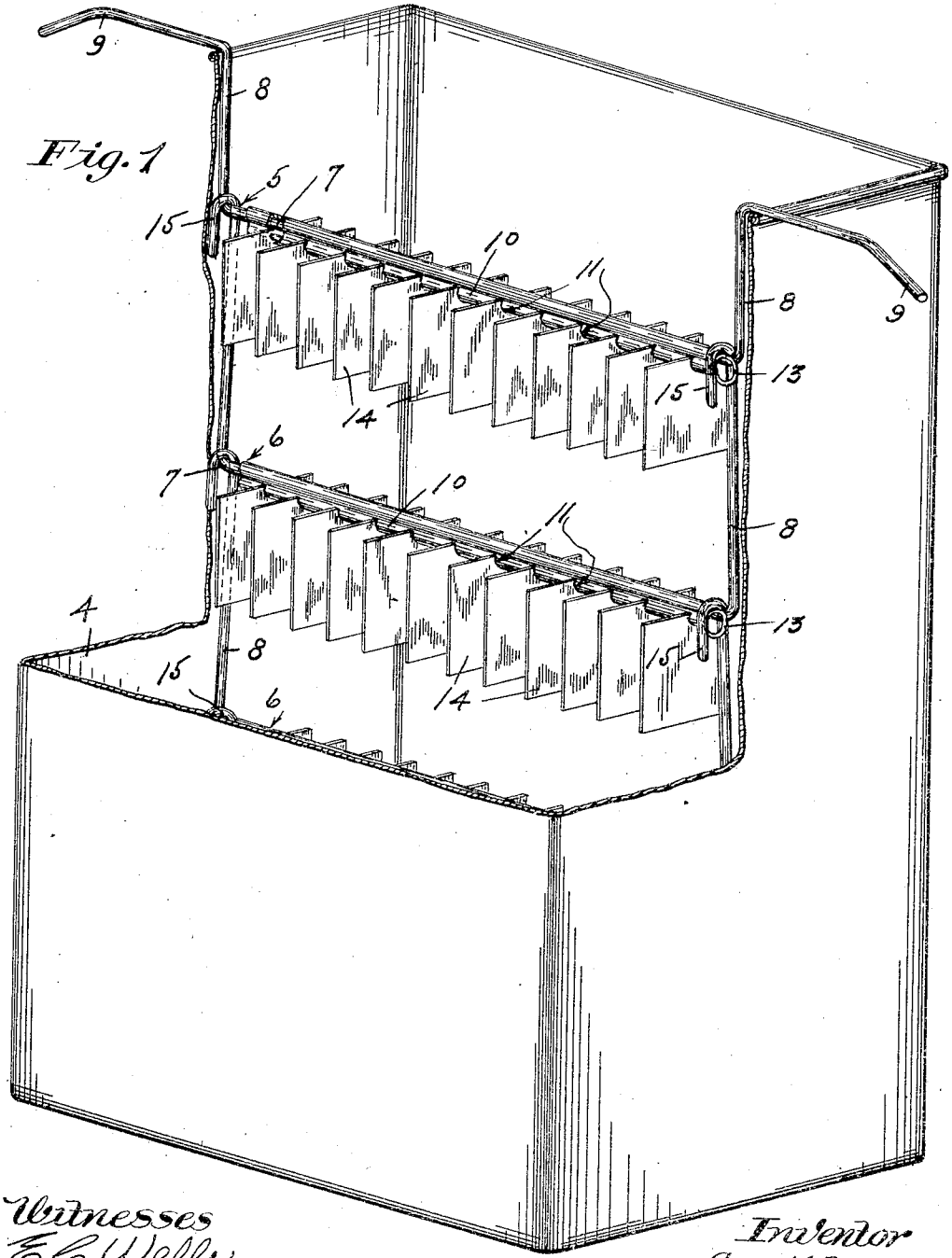
APPLICATION FILED DEC. 18, 1916.

1,258,756.

Patented Mar. 12, 1918.

2 SHEETS—SHEET 1.

Fig. 1



Witnesses
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2 SHEETS—SHEET 2.

Fig. 2

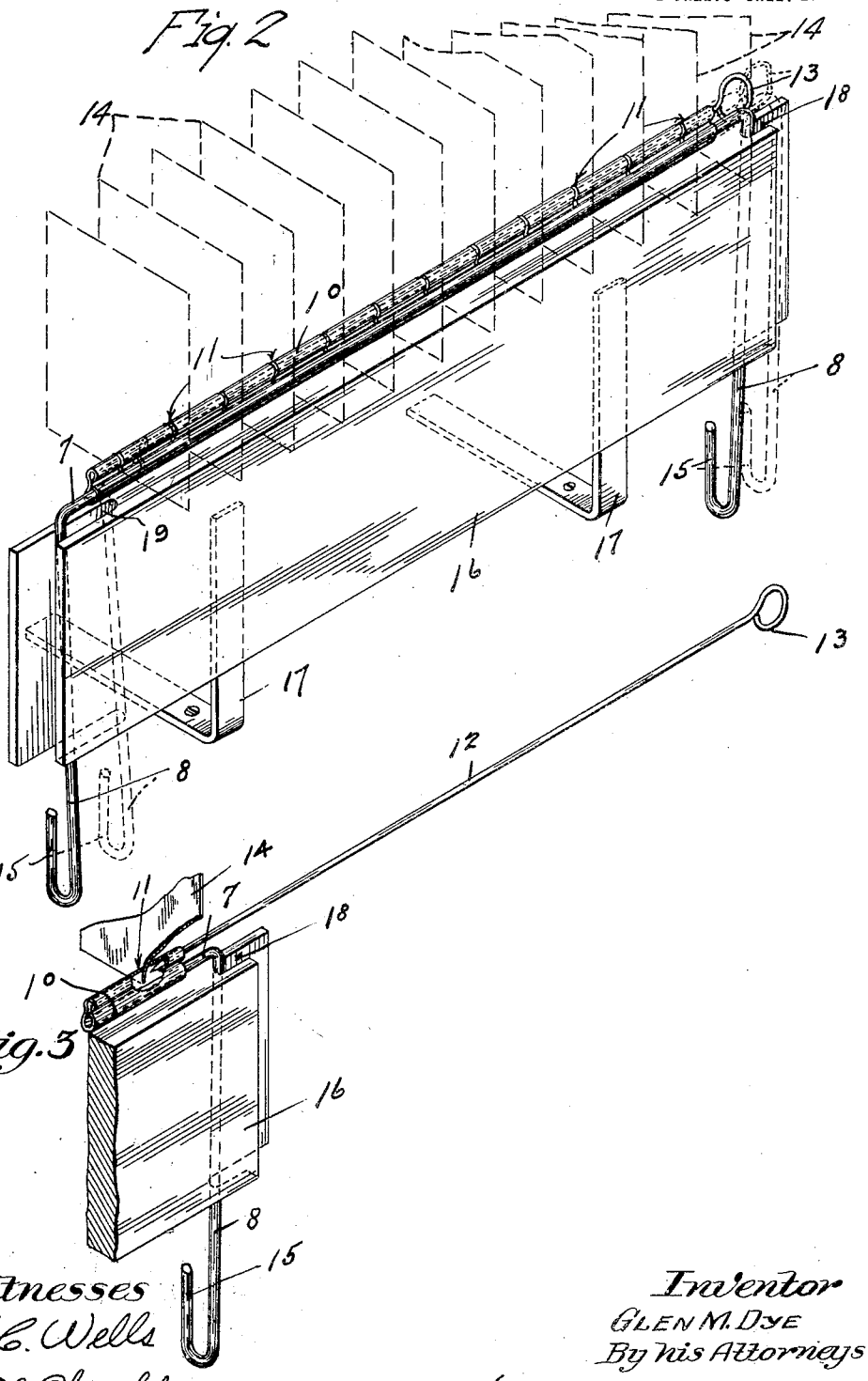


Fig. 3

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UNITED STATES PATENT OFFICE.

GLEN M. DYE, OF MINNEAPOLIS, MINNESOTA.

FILM-HOLDING DEVICE.

1,258,756. Specification of Letters Patent. Patented Mar. 12, 1918.

Application filed December 18, 1916. Serial No. 137,703.

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-Holding Devices; 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 relates to photography, and more especially to work-handling devices in fluid-treating apparatus. To the above end the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings,

Figure 1 is a perspective view of a liquid holding tank with a portion thereof broken away to expose the film holding device supported therein;

Fig. 2 is a perspective view of a supporting bracket for holding the film holding device in a loading position, the films being diagrammatically shown by means of broken lines; and

Fig. 3 is a fragmentary view corresponding to Fig. 2, with the exception that the pin has been partly withdrawn and in position to pierce a film.

The numeral 4 indicates a rectangular liquid holding tank within which the film holding device is supported. This film holding device comprises a main or upper section 5, which is complete in itself, and one or more supplemental sections 6 supported, the one from the other and the uppermost thereof from the main section 5.

The main section 5 is made up of a rod 7 having its ends bent laterally to afford a pair of arms 8, the free ends of which are bent laterally and outward to afford fingers 9. These fingers 9 are arranged to rest on the rim of the tank 4 on opposite sides thereof and support the rod 7 therein by means of its arms 8. It will be noted that the fingers 9 are quite long, so as to support the film holding device within tanks varying considerable in width. A tubular body member 10, folded from a sheet of metal, has one of its longitudinal edges folded around the rod 7, between the arms 8 thereof, to permanently and rigidly connect said body member to the rod 7. Transversely cut in the body member 10, is a multiplicity (as shown twelve) of film receiving slots or seats 11. A long sharp pointed pin 12 having a head 13 is adapted to be inserted through the body member 10 to pierce and hold films 14 as they are successively inserted in the slots 11, as indicated in Fig. 2.

The supplemental sections 6 are identical with the main section 5, with the exception of the fingers 9, and the parts thereof are designated by like reference numerals. The ends of the arms 8 of the supplemental sections 6 are bent to form hooks 15 adapted to interlock with the rods 7, just inside of the arms 8, and suspend the uppermost supplemental section 6 from the main section 5 and the other of said supplemental sections, the one from the other, as shown in Fig. 1. Obviously, the engagement of the hooks 15 with the arms 8 holds the several sections detachably interlocked and against endwise movement, with respect to each other. By taking hold of the fingers 9, the entire film holding device may be let down into the tank 4 or removed therefrom.

While loading the sections 5 and 6 with films 14, I provide a supporting bracket 16, as shown, in the form of a board set vertically edgewise and rigidly held in position by a pair of angle irons 17 secured to a table or other suitable support. The ends of the bracket 16 are notched at 18 and 19 to receive the arms 8 of a section, while the body member 10 thereof rests on the upper longitudinal edge of said bracket. It will be noted that the rear prongs of the bracket 16, formed by the notches 18 and 19, are longer than the front prongs thereof and that the notch 19 is somewhat deeper than the notch 18. In positioning one of the sections 5 or 6 on the bracket 16, a horizontal endwise movement thereof toward the right is necessary to carry the left hand arm 8 into the notch 19 and then a reverse movement of the section will carry its right hand arm 8 into the notch 18. By making the rear prongs of the notches 18 and 19 longer than the front prongs thereof, it makes the entering of the arms 8 in the notches 18 and 19 an extremely simple matter. When the right hand arm 8 is in the bottom of the notch 18, the left hand arm 8 still remains in the notch, thus securely holding the respective section against lateral separation from the

supporting bracket 16, as shown in Fig. 2. It is also important to note that when one of the sections 5 or 6 is positioned on the supporting bracket 16, the head of the pin 12 is at the right of the operator.

In loading one of the sections 5 or 6, after the same has been positioned on the supporting bracket 16, as shown in Fig. 2, the pin 12 is withdrawn, as indicated in Fig. 3. The operator, standing in front of the supporting bracket 16, takes hold of the head of the pin 12 with his right hand and uses his left hand to successively place the films 14 in the slots 11 working from the right toward the left. As each film 14 is placed in its respective slot or seat 11, the operator gives the pin 12 a step of movement sufficient to pierce and hold the film. The engagement of the right hand arm 8 with the bottom of the notch 18 holds the respective sections 5 or 6 against endwise movement, during the piercing of the films 14 by the pin 12. The left hand portions of the body member 10 at each slot 11 forms a rigid surface against which the films 14 bear, while being pierced by the pin 12, thus preventing the same from being torn or mutilated.

In loading the sections 5 and 6, the section 5 should be loaded first, removed from the supporting bracket 16 and temporarily hung up by its fingers 9 on pegs or other supporting means, not shown. One of the supplemental sections 6 is next loaded and hung from the section 5 by means of interlocking its hooks 15 therewith. If other supplemental sections 6 are loaded, they are hung, the one from the other, as shown in Fig. 1. After sufficient sections have been loaded to reach substantially to the bottom of the tank 4, the same are lifted by the fingers 9 from the supporting pegs and deposited in the tank 4.

From the above description, it is evident that after the films are once secured to the film holding device, they need not again be touched by hand during the developing, fixing, washing and drying thereof. By means of the finger pieces 9, the device may be lifted from one tank to the other, during the developing, fixing and washing, and then hung on tanks or other supports, while the films are drying. After the films are dry, the lowermost section 6 is detached from the other sections and the films removed therefrom by withdrawing the pin 12. By repeating this operation, the films may be very quickly removed from the device.

It is, of course, understood that one or more sections may be used at a time and as many film holding devices placed in the tank, at the same time, as the tank will hold. By means of the different sections, the films of different packs may be kept together and it is only necessary to mark one film on each section, for the purpose of identification. The above described invention, while extremely simple and of comparatively small cost to manufacture, has, in actual usage, proven highly efficient for the purpose had in view.

What I claim is:—

1. A film holding device comprising a body member having longitudinally spaced film receiving seats, and a pin insertible through said seats to pierce and hold films, said pin being held by the body member, except for endwise movement.

2. A film holding device comprising a tubular member having a film receiving slot, and a pin insertible into said tubular member to pierce and hold a film, said pin being held by the tubular member, except for endwise movement.

3. A film holding device comprising a tubular member having a plurality of longitudinally spaced film receiving slots, and a pin insertible into said tubular member to pierce and hold films, said pin being held by the tubular member, except for endwise movement.

4. A film holding device comprising a tubular member having a plurality of longitudinally spaced film receiving slots and also having supporting arms, and a pin insertible into said tubular member to pierce and hold films, said pin being held by the tubular member, except for endwise movement.

5. A film holding device comprising upper and lower horizontal body members detachably suspended at their ends, the latter from the former, and each thereof having means for suspending a plurality of films therefrom, said upper body member having arms engageable with the rim of a liquid holding tank for supporting said body members with the films in the liquid in the tank, said lower member being suspended below the films held by the upper body member.

6. A film holding device comprising a rod having its ends bent to form a pair of arms, a tubular body member secured to the intermediate portion of said rod and having a plurality of longitudinally spaced film receiving slots, and a pin insertible into the tubular member to pierce and hold films, said arms arranged to engage the rim of a liquid holding tank and support the film holding device with the films in the liquid in the tank.

7. A film holding device comprising a plurality of vertically spaced rods having their ends bent to form pairs of arms, a tubular body member secured to the intermediate portion of each of said rods and having a plurality of longitudinally spaced film receiving slots, and a pin insertible into the tubular body member of each rod to pierce and hold films, all of said arms, with the

exception of the uppermost pair, having looped ends arranged to engage certain of said rods to suspend the one from the other, said uppermost pair of arms arranged to engage the rim of a liquid holding tank and support the film holding device with the films in the liquid of the tank.

8. A film holding device comprising a tubular member having supporting arms and a plurality of longitudinally spaced film receiving slots, and a pin insertible into said tubular member to pierce and hold films, in combination with a supporting bracket with which said arms are engageable for holding the film holding device in a loading position.

9. A film holding device comprising a tubular member having supporting arms and a plurality of longitudinally spaced film receiving slots, and a pin insertible into the tubular member to pierce and hold films, in combination with a supporting bracket with which said arms are interlocked by an endwise movement of the film holding device to hold the same in a loading position.

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

GLEN M. DYE.

Witnesses:

CLARA DEMAREST,

H. D. KILGORE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."