July 25, 1961 S. E. WEISMAN 2,993,426

FILM TRANSFER TANK

Filed Oct. 17, 1958 4 Sheets-Sheet 1

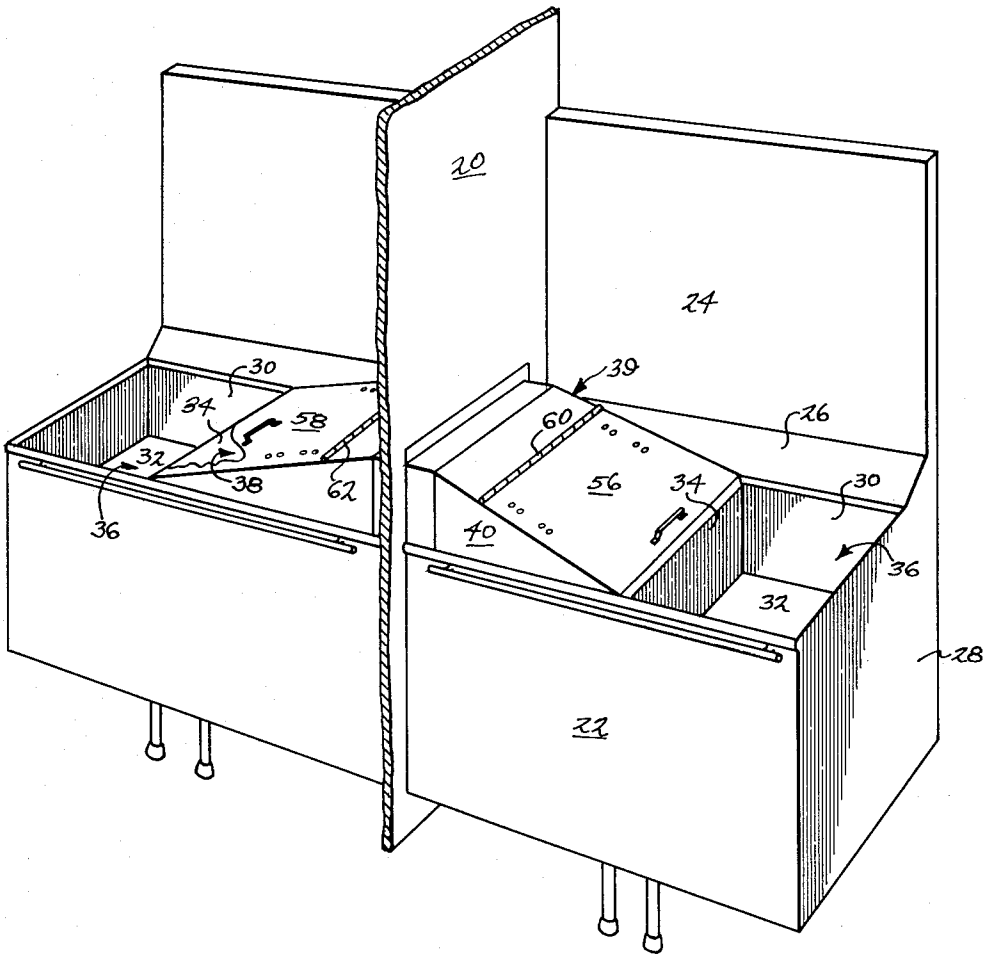


FIG. 1

INVENTOR.
Stanley E. Weisman
BY
Morse & Altman
ATTORNEYS

July 25, 1961 S. E. WEISMAN 2,993,426

FILM TRANSFER TANK

Filed Oct. 17, 1958 4 Sheets-Sheet 2

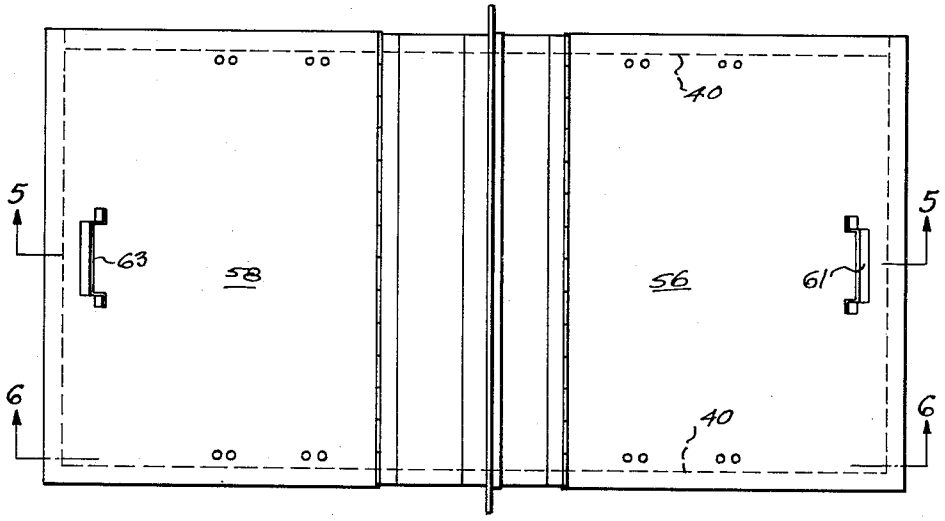


FIG. 2

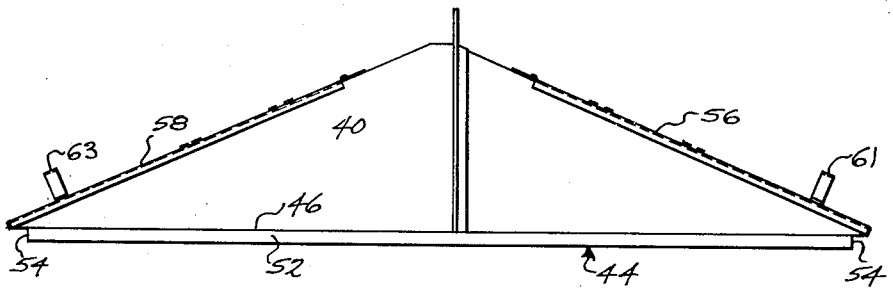


FIG. 3

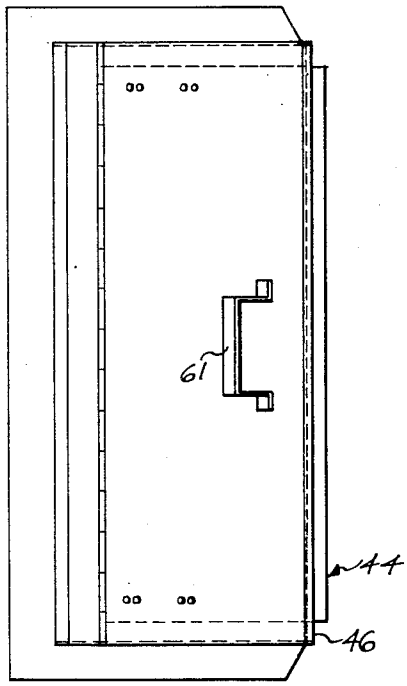
INVENTOR.
Stanley E. Weisman
BY
Morse & Altman
ATTORNEYS

July 25, 1961 S. E. WEISMAN 2,993,426

FILM TRANSFER TANK

Filed Oct. 17, 1958 4 Sheets-Sheet 3

FIG. 4



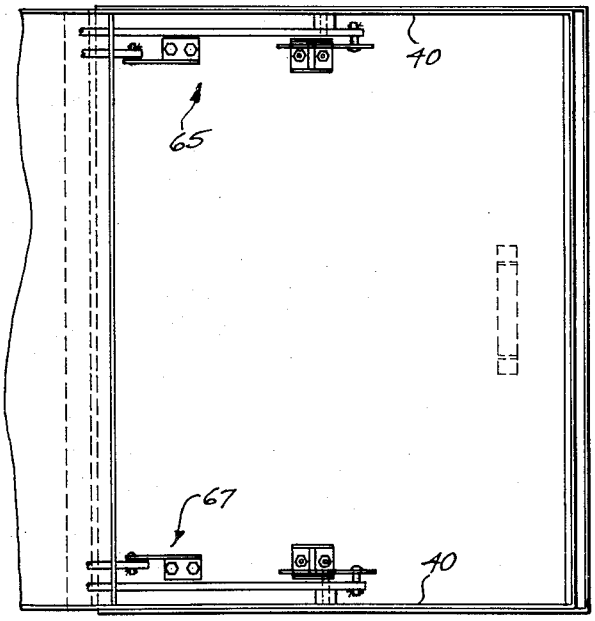


FIG. 7

INVENTOR.
Stanley E. Weisman
BY
Morse & Altman
ATTORNEYS

July 25, 1961 S. E. WEISMAN 2,993,426

FILM TRANSFER TANK

Filed Oct. 17, 1958 4 Sheets-Sheet 4

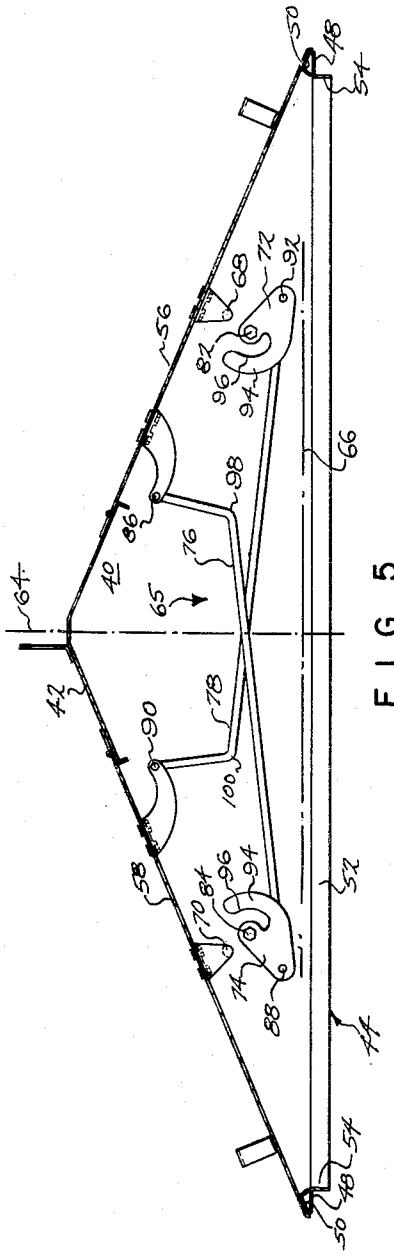


FIG. 5

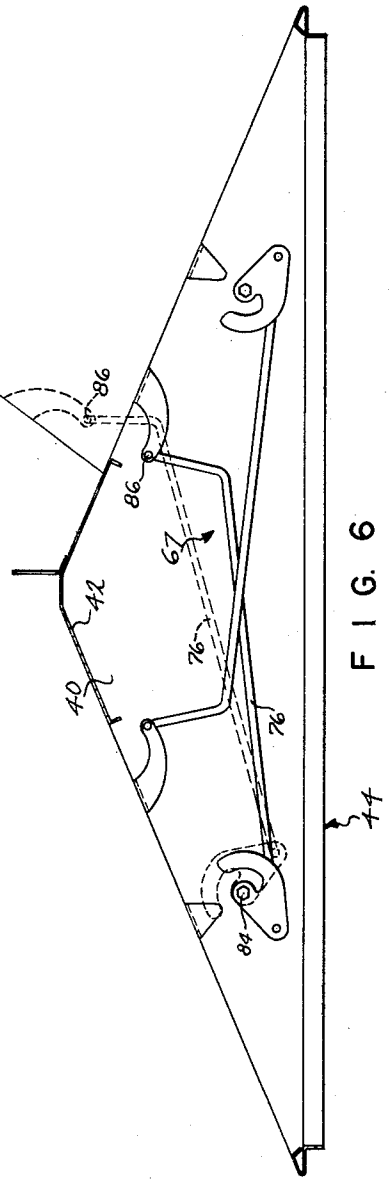


FIG. 6

INVENTOR.
Stanley E. Weisman
BY
Morse & Altman
ATTORNEYS

United States Patent Office 2,993,426 Patented July 25, 1961

2,993,426

FILM TRANSFER TANK

Stanley E. Weisman, Brighton, Mass.
(% Portland Sheet Metal Works Inc.
440 Somerville Ave., Somerville 43, Mass.)

Filed Oct. 17, 1958, Ser. No. 767,968
8 Claims. (Cl. 95—90)

The present invention relates to photography and, more particularly, to apparatus employed in the processing of photographic materials. Oftentimes in the processing of photographic materials, it is convenient to employ two darkrooms and a transfer tank extending between them for the purpose of permitting an operator in one darkroom ready access to materials placed in the tank by an operator in the other. Under such circumstances, in the event that the closures for the tank in both darkrooms are opened simultaneously, one darkroom when illuminated may transmit light through the tank to the other darkroom, where photographic materials being processed may be harmed. The present invention contemplates a novel interlocking structure which ensures that the closure for the tank in one darkroom is locked when the closure for the tank in the other darkroom is opened.

The primary object of the present invention is to provide a film transfer tank, extending between two darkrooms, that is characterized by a novel interlocking construction by which the closure for the tank in one darkroom is locked when the closure for the tank in the other darkroom is opened. This interlocking construction comprises a plurality of components of novel design arranged for operation in a novel manner. Generally, the components includes a plurality of catches mounted at first positions on the closures, a plurality of cams pivoted at second positions on the tank, and a plurality of links of which certain extremities are pivoted at third positions on the closures and other extremities are pivoted at fourth positions on the cams. Generally, the arrangement is such that when one closure is opened, motion is transmitted through links responsive thereto from certain third to certain fourth positions in order to cause engagement between the cams and the catches at certain first and certain second positions associated with the other closure.

Other objects of the present invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the apparatus possessing the construction, combination of elements and arrangement of parts, which are exemplified in the following detailed disclosure, and the scope of which will be indicated in the appended claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description, taken in connection with the accompanying drawing wherein:

FIGURE 1 is a perspective view of a film transfer tank embodying the present invention, shown incorporated in a suitable photographic processing cabinet;

FIG. 2 is a top plan view of the film transfer tank of FIG. 1;

FIG. 3 is a front elevation of a portion of the film transfer tank of FIG. 2;

FIG. 4 is an end elevation of the portion of the film transfer tank illustrated in FIG. 3;

FIG. 5 is a sectional view of the portion of the film transfer tank illustrated in FIG. 3, taken substantially along the line 5—5 of FIG. 2;

FIG. 6 is a sectional view of the portion of the film transfer tank illustrated in FIG. 3, taken substantially along the line 6—6 of FIG. 2; and

FIG. 7 is a fragmentary detail view of the portion of the film transfer tank illustrated in FIG. 2.

Generally the cabinet of FIG. 1 extends through and is snugly received by an opening through a partition 20 between a pair of darkrooms. The cabinet comprises an outer sheet metal framework including the vertical front panel 22, a vertical rear panel 24 and an oblique intermediate panel 26, all longitudinally extending through partition 20 between a pair of end panels, one of which is shown at 28. The cabinet also comprises an inner sheet metal framework including: an intermediate vertical panel 30 and an intermediate horizontal panel 32, both of which extend longitudinally between one end panel 28 and the other; and a pair of transverse vertical panels 34, 34 adjoining front panel 22, intermediate horizontal panel 32 and intermediate vertical panel 30. These transverse panels, in conjunction with these adjoining longitudinal panels, define liquid containing regions 36, 36 and therebetween the liquid containing region 38 of the transfer tank now to be described in reference to FIGS. 2 through 7.

Mounted above liquid containing region 38 is a sheet metal superstructure designated generally by 39. This superstructure includes a framework in the form of a pair of opposed substantially triangular panels 40, 40. The apices of triangular panels 40, 40 are joined by a cross web 42 of angular cross-section in a plane parallel to the planes of panels 40, 40. The lower edges of panels 40, 40 are joined by an angle rim 44. Angle rim 44 includes longitudinal horizontal strips 46, 46, the outer edges of which are soldered to the lower edges of panels 40, 40. Angle rim 44 includes horizontal transverse strips 48, 48 the outer edges of which are folded reversely as at 50, 50. The vertical longitudinal strips 52, 52 and transverse strips 54, 54 of angle rim 44 are designed for snug reception in the cabinet of FIG. 1 by the corresponding portions of front panel 22, intermediate panel 30 and transverse panels 34, 34. A pair of closures 56 and 58, respectively, are pivoted to the remote transverse edges of cross web 42 by lighttight hinges 60 and 62 and may be opened manually by handles 61 and 63. Closures 56 and 58, when closed, abut against the coplanar upper edges of triangular panels 40, 40, cross web 42 and transverse strips 48, 48 in order to render the transfer tank lighttight. In accordance with the present invention, closures 56 and 58 are interrelated so that when one is opened the other is locked in the manner now to be described.

In order to ensure that opposite longitudinally extending edges of closures 56 and 58 remain in lighttight contact with the corresponding edges of triangular panels 40, 40 cross web 42 and transverse strips 48, 48, an interlock 65 is provided adjacent one of triangular panels 40 and an interlock 67 is provided adjacent the other of triangular panel 40. As will be seen in FIGS. 5 and 6, interlocks 65 and 67 are mirror images of each other so that only one need be described. As shown in FIG. 5, the operative relationships among the components of interlock 65 will be described in reference to a coordinate system in the form of the vertical plane shown as a phantom line at 64, and a horizontal plane, shown as a phantom line 66. Interlock 65 includes: a pair of catches 68 and 70 mounted on closures 56 and 58, respectively; a pair of cams 72 and 74 which are capable of locking with catches 68 and 70, respectively; and a pair of links 76 and 78 which, respectively, are connected between closure 56 and cam 74 and between closure 58 and cam 72. Closure 56 when opened transmits motion through linke 76 to cam 74. Closure 58 which opened transmits motion through link 78 to cam 72. Cams 72 and 74 are pivoted to panel 40 at positions 82 and 84, respectively. Link 76 is pivoted between a position 86 on closure 56 and a position 88 on cam 74. Link 78 is pivoted between a position 90 on

closure 58 and a position 92 on cam 72. Cams 72 and 74 include fingers 94, 94 having cam profiles 96, 96 that operate similarly. Thus, finger 94 of cam 72 abuts against catch 68 when cam 72 is pivoted about position 82. The distance between position 82 and that section of cam profile 96 most closely adjacent to catch 68 is somewhat greater than the distance between position 82 and that section of cam profile 96 more remote from catch 68. In consequence, after being engaged by cam profile 96, catch 68 is drawn with increasing pressure toward position 82.

The operating positions of the various components are such that when closures 56 and 58 are closed, the distances from plane 64 to the following operating positions increase in the indicated sequence: 86 and 90 first; 82 and 84 second; 68 and 70 third; and 92 and 88 fourth. Under these circumstances, the distances from plane 66 to the following operating positions increase in the indicated sequence: 92 and 88 first; 82 and 84 second; 68 and 70 third; and 86 and 90 fourth. In order to prevent links 76 and 78 from abutting against the pivots at positions 82 and 84, links 76 and 78 are elbowed at 98 and 100 respectively.

In operation the transfer tank may be disposed with closure 58 in a developing room and closure 56 in a drying room. In this case, an operator in the developing room may open closure 58 for the purpose of inserting into water, contained by the transfer tank, prints which have been developed, fixed and washed. While closure 58 is open, it is imperative that light from the drying room not be permitted to enter the developing room. Thus when closure 58 is opened, link 78 causes cam 72 of interlock 65 and its counterpart of interlock 67 to pivot into engagement with catch 68 of interlock 65 and its counterpart of interlock 67 in order to prevent an operator in the drying room from opening closure 56.

Since certain changes may be made in the above device without departing from the scope of the invention herein involved, it is intended that all matter contained in the above description and shown in the accompanying drawings shall be interpreted in an illustrative and not in a limiting sense.

What is claimed is:

1. A photographic transfer tank comprising a frame including a pair of generally triangular sheet metal panels, a cross web joining the apices of said panels and a rim joining the edges of said panels opposite said apices, a pair of closures disposed at edges of said panels adjacent said apices, means for pivoting said closures to said cross web, a novel interlock between said closures, said interlock comprising a plurality of catches mounted at first positions on said closures, a plurality of cams, means at second positions for pivoting said cams on said panels, and a plurality of links of which first extremities are pivoted by means at third positions on said closures and second extremities are pivoted by means at fourth positions on said cams, said closures, said panels, and said interlock being so operatively connected that when one of said closures is opened, motion is transmitted through said interlock via certain of said links

in order to cause engagement between certain of said cams and certain of said catches.

2. The photographic transfer tank of claim 1 wherein said cams include fingers presenting cam profiles for engaging said catches.

3. The photographic transfer tank of claim 2 wherein, in sequence, said means at third positions, said means at first positions, said means at second positions and said means at fourth positions are increasingly distant from a plane perpendicular to said edges through said apices.

4. The photographic transfer tank of claim 3 wherein, in sequence, said means at third positions and said means at fourth positions are increasingly distant from a plane through said edges.

5. A photographic transfer tank comprising a frame including a pair of substantially triangular sheet metal panels, a cross-web joining the apices of said panels and a rim joining the edges of said panels opposite said apices, a first closure and a second closure disposed at edges of said panels adjacent said apices, means for pivoting the closures to said cross-web, an interlock between said first closure and said second closure, said interlock comprising a first pair of catches mounted at first positions on said first closure, a second pair of catches mounted at first positions on said second closure, a first pair of cams pivoted by means at second positions on said panels for engagement with and disengagement from said first catches, a second pair of cams pivoted by means at second positions on said panels for engagement with and disengagement from said second catches, a first pair of links such that first extremities thereof are pivoted by means at third positions on said second closure and second extremities thereof are pivoted by means at fourth positions on said first cams, and a second pair of links such that first extremities thereof are pivoted by means at third positions on said first closure and second extremities thereof are pivoted by means at fourth positions on said second cams, said panels, said closures and said interlock being operatively connected such that when said first closure is opened said second closure is locked and when said second closure is opened said first closure is locked.

6. The photographic transfer tank of claim 5, said cams including fingers presenting cam profiles for engaging said catches.

7. The photographic transfer tank of claim 5 wherein, in sequence, said means at third positions, said means at first positions, said means at second positions and said means at fourth positions are increasingly distant from a plane perpendicular to said edges through said apices.

8. The photographic transfer tank of claim 5 wherein, in sequence, said means at third positions, said means at second positions, said means at first positions and said means at fourth positions are increasingly distant from a plane through said edges.

References Cited in the file of this patent

UNITED STATES PATENTS

1,500,345	Spurrier	July 8, 1924
1,603,404	Proctor	Oct. 19, 1926
2,764,920	Harper	Oct. 2, 1956