July 12, 1949. C. J. HUGHEY 2,475,964

DEVELOPING RACK

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FIG. 1.

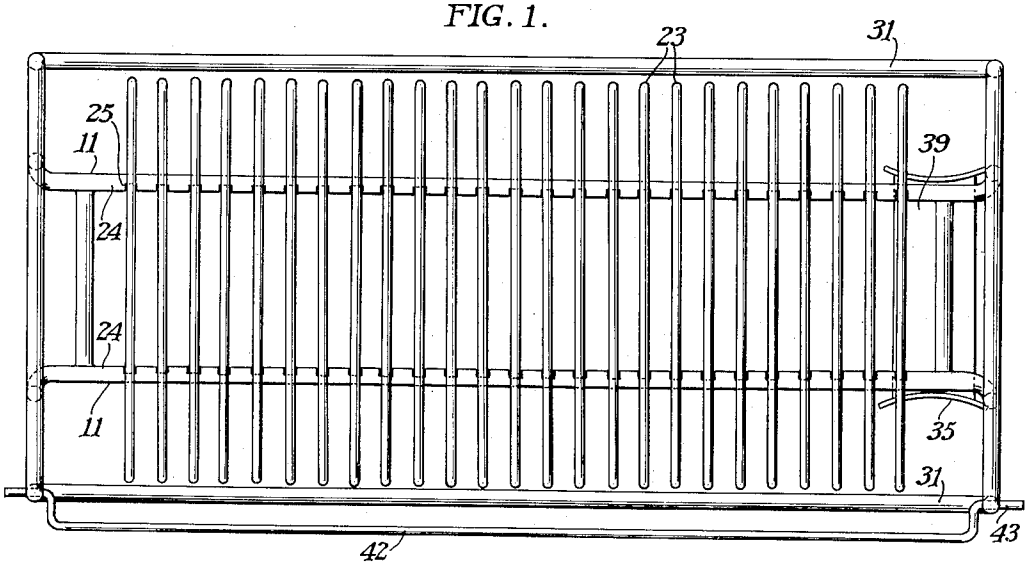
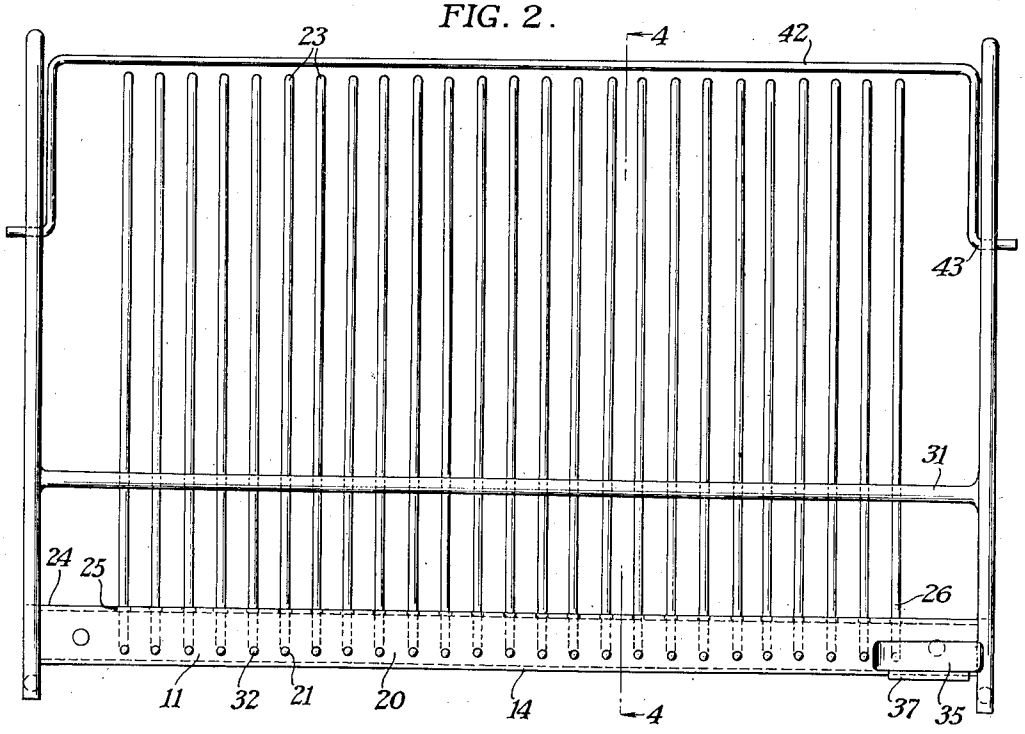


FIG. 2.



CARTER J. HUGHEY
INVENTOR

BY Newton M. Perrin
J. Griffin Little
ATTORNEYS

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FIG. 3.

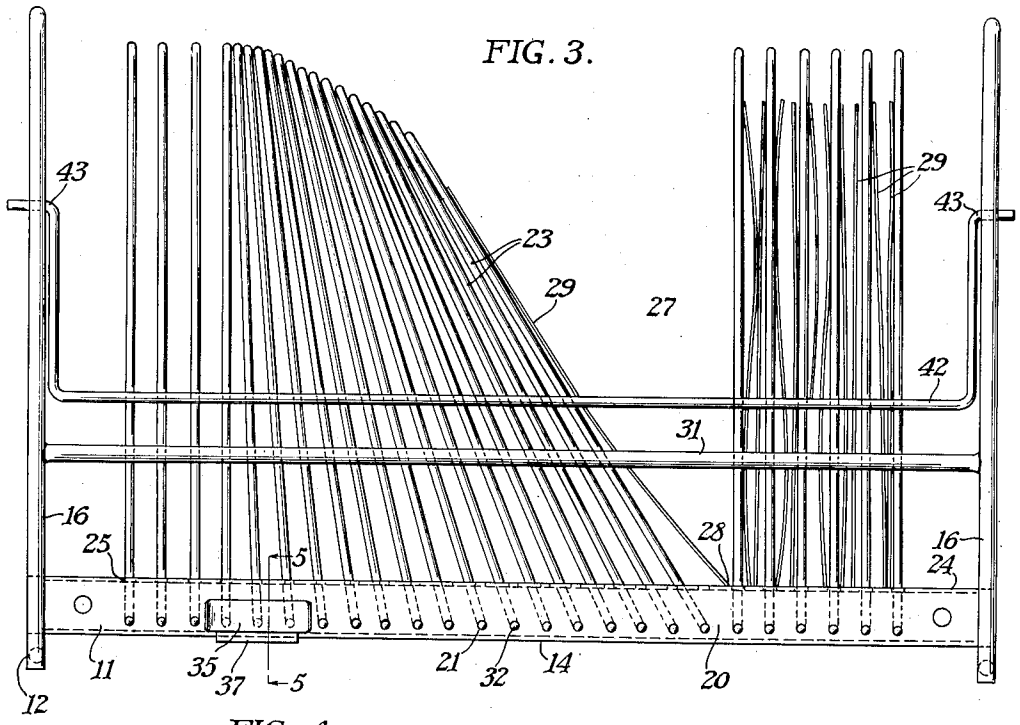


FIG. 4.

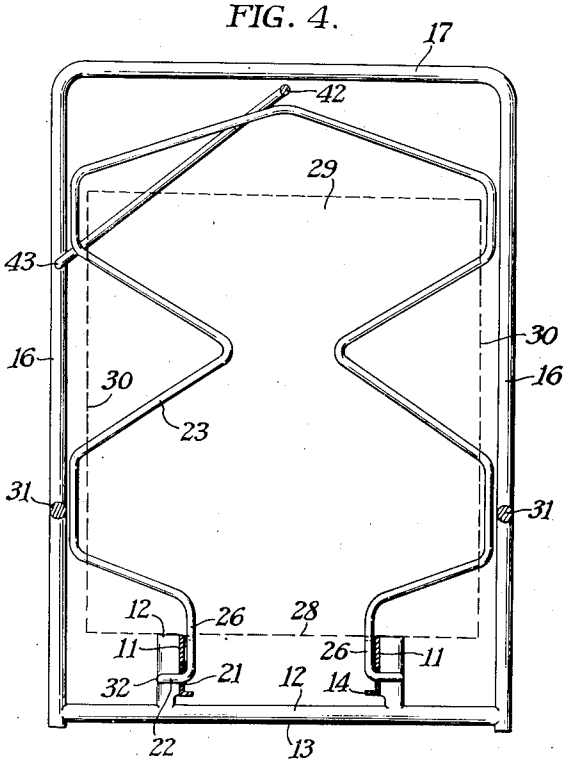


FIG. 5.

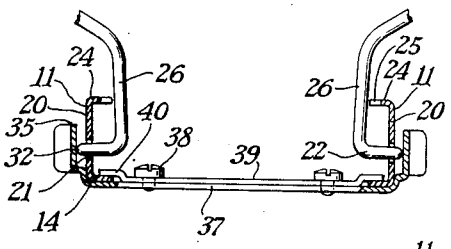
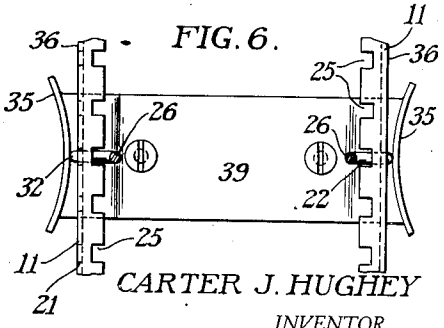


FIG. 6.



CARTER J. HUGHEY
INVENTOR
BY J. Griffin Little
ATTORNEYS

Patented July 12, 1949

2,475,964

UNITED STATES PATENT OFFICE

2,475,964

DEVELOPING RACK

Carter J. Hughey, Rochester, N. Y., assignor to Eastman Kodak Company, Rochester, N. Y., a corporation of New Jersey

Application July 31, 1945, Serial No. 608,042

7 Claims. (Cl. 95—100)

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The present invention relates to a supporting rack, and more particularly to a rack for supporting photographic prints during the development or processing thereof. The term "print" is used in its generic sense and covers cut or sheet photographic film, as well as photographic paper prints.

In developing racks now on the market, prints are positioned between and are spaced by open wire frame members which are arranged in fixed vertical relation. Due to this fixed relation, difficulty is encountered in placing or loading the prints between the wire members. This is particularly true when prints are arranged in pairs and in back-to-back relation, as is the usual practice. The difficulty is further aggravated when the racks are loaded in a darkroom or in total darkness, as is sometimes required.

In order to overcome these loading difficulties, the present invention provides an improved form of rack in which the wire supporting frame members are not fixedly secured to the base, but rather, are pivotally or rockably mounted thereon. When the rack is to be loaded the wire frames are pivoted on the base, as will be later explained, and moved to an inclined position. When the space between a pair of frame members is to be loaded, one of the frame members is moved to a vertical position whereupon the lower ends of the frame flexes outwardly and into a pair of aligned slots in the base to hold and lock the frames in erected or vertical position. A pair of prints is then placed in back-to-back relation between the vertical frame and the adjacent inclined frame. The latter is then moved to the vertical position and also snaps into holding relation with another pair of slots formed in the base. The two vertical frame members are now in print retaining position. The various other spaces are similarly filled and the inclined frame members are successively moved to the vertical position and then automatically move into locking or holding relation in the aligned slots formed in the base. By means of this arrangement, the prints can be more readily and easily positioned between the adjacent pairs of frame members. When the rack is to be loaded, the individual frame members are separately moved, by a mechanism to be later described, out of their holding relation and are free so that they may be moved to the inclined position, all as will be hereinafter more fully described.

The present invention has, therefore, as its principal object the provision of a developing rack in which the wire frame members are pivotally or rockably mounted on the base so that they

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may be selectively moved from a print retaining position to a print receiving position, and vice versa.

Another object of the invention is the provision of an arrangement for automatically and independently holding the individual frame members in locking relation with the base when the frames are moved to print retaining position.

Still another object of the invention is the provision of a simple and effective device for separately disconnecting each frame member from its holding member to permit the frame member to be pivoted or rocked relative to said base to a print receiving position.

Yet another object of the invention is the provision of a rack of the class described which is simple in construction, easy to operate, and highly effective in use.

To these and other ends, the invention resides in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Fig. 1 is a plan view of a developing rack constructed in accordance with the preferred embodiment of the present invention;

Fig. 2 is a side elevation view of the rack illustrated in Fig. 1 with the wire frame members arranged in vertical or print-retaining position;

Fig. 3 is a view similar to Fig. 2 but showing some of the frame members in the released position and inclined to facilitate the loading of the prints between the frame members;

Fig. 4 is a vertical transverse sectional view through the rack taken substantially on lines 4—4 of Fig. 2, showing the arrangement of the parts when the frame members are arranged in print-retaining position;

Fig. 5 is a partial view of the structure shown in Fig. 4, showing the mechanism for disengaging the individual frame members from locking or holding relation with the base so that the frame members may be moved to print-receiving position; and

Fig. 6 is a plan view of the mechanism illustrated in Fig. 5.

Similar reference numerals throughout the various views indicate the same parts.

A developing rack of the present invention comprises a base formed with a pair of spaced longitudinal channel side members or rails 11 connected by a pair of spaced transverse members 12 which extend beyond the members 11, as best shown in Figs. 1 and 4. The top of the members 11 and 12 are in horizontal alignment, but the

bottom edges 13 of the member 12 extend slightly below the bottom edges 14 of the member 11 for a purpose to be later described. The ends of the member 12 are suitably connected to upstanding rods 16 which in turn are connected by cross or tie member 17 which serve as handles for positioning the rack in and removing it from the developing or processing solution.

The channel-shaped side members 11 are arranged in the manner shown so that the webs 20 thereof extend vertically. These webs are formed with pairs of transversely aligned holes 21 adapted to receive the lower out-turned free ends 22 of a plurality of resilient wire frame members 23 of general inverted U shape. The opposite lower ends of each frame member are thus positioned in a pair of these transversely aligned holes 21 so that each frame member is separately and independently pivotally or rockably mounted on the side members 11 of the base. The top flange 24 of each side member 11 is formed with a series of open end slots 25, each slot being positioned vertically above and in alignment with one of the holes 21. The arrangement is such that when each frame member is moved to a vertical or print-retaining position, as shown at the right of Fig. 3, the opposite vertical portions 26 of each frame member come into register with a pair of the aligned slots 25. When this point is reached, the frame member 23 flexes outwardly to move the portions 26 into the opposite slots 25, the sides of which engage the portions 26 to hold the frame member 23 in vertical or print-retaining position.

When, however, the rack is to be loaded, it is desirable to move the frame members 23 from the vertical or print-retaining position shown in Fig. 2 and at the right of Fig. 3, to an inclined or print-receiving position, shown at the center of Fig. 3. To secure this result, the opposite out-turned ends 22 of each frame member are pressed inwardly or towards each other by a mechanism to be later described. This movement serves to move the portions 26 inwardly and out of the slots 25. The frame member 23 may now be swung or pivoted separately on the base 11 about holes 21 to the inclined position shown in Fig. 3. This action may be continued until all the frame members are in the inclined position.

The first frame member may then be swung into vertical position whereupon the portions 26 will automatically snap into the opposite slots 25. This will then leave a large space 27 in which a pair of films or prints may be positioned in back-to-back relation. The lower edges 28 of the prints 29 are supported on the top flanges 24 of the members 11, while the sides 30 of the print engage rods 31 connected to the vertical rods 16 to retain the prints in position between the frame members. After the prints have been properly positioned, the next frame member is swung to its vertical position, and the portions 26 thereupon move into the slots 25. The prints 29 are now positioned between a pair of closely arranged vertical frame members. The operation is continued until all, or the desired number of, the openings 27 between the frame members 23 have been filled or loaded with the prints or films.

The portions 26 can be disengaged from the slots 25 by manually pressing the exposed tips 32 of the ends 22, as will be apparent from an inspection of Fig. 5. It is desired, however, to provide a simple, faster and more satisfactory way to disengage a frame member 23 from the side members 11. To this end, an arcuate shaped member 35 is positioned adjacent the outer surface 36 of each web 20 as best shown in Fig. 6. These members 35 are connected by a cross plate 37 secured by screws 38 to a plate 39, the ends 40 of which engage and ride on the lower flanges of the channel side members 11. Thus the members 35 may be slid longitudinally as a unit along the side members and serve to move or cam the ends 22 inwardly until the point shown in Fig. 6 is reached. At this time, the ends 22 have been moved sufficiently to shift the portions 26 out of the slots 25 to permit the frame members 23 to be pivoted or moved to the inclined position. Thus, by slightly inclining the entire rack to the position to which the frame members are to be inclined, and then sliding or running the arcuate members 35 along the side members 11, the various frame members 23 may be separately and successively disengaged from the slots 25 of the side members 11 and allowed to fall to the inclined position. The members 35 are designed to be operated in either direction so that the direction of inclination of the frame member may be selected. The slight space between the bottom of the members 11 and the members 12 provides a slight clearance in which the plate 37 may move, as is apparent.

The loaded rack is now in condition to be inserted into the developing or processing solution. Such insertion may tend to cause a print to be buoyed up by the developer and to be partially withdrawn from the spaces 27. In order to eliminate any such possibility, a holding arm 42 is arranged to overlie the top of the frame members 23. This holding member is of a U-shape and the ends 43 thereof are pivotally connected to the vertical rods 16, all as shown in Figs. 2 and 3.

The present invention thus provides a developing rack comprising a pair of vertically spaced members between which the prints may be positioned in back-to-back relation. During the loading operation, these prints may be swung to an inclined position so that the prints may be more readily loaded between an adjacent pair of frame members. After the prints are properly positioned, the frame members are then swung to a vertical position and are automatically locked in print holding relation.

While one embodiment of the invention has been disclosed, it is to be understood that the inventive idea may be carried out in a number of ways. This application is, therefore, not to be limited to the precise details described but is intended to cover all variations and modifications thereof falling within the terms of the appended claims.

I claim:

1. A photographic developing rack comprising, in combination, a base, a plurality of separate print supporting members rockably supported on and extending upwardly from said base and movable from a print retaining position to a print receiving position, means on said base adjacent the supports for said members for engaging the latter when moved to print supporting position to hold said members in said position, and means carried by said base for disengaging said members from said holding means to permit movement of said members to print receiving position.

2. A photographic developing rack comprising, in combination, a base, a plurality of separate print supporting members rockably supported on and extending upwardly from said base and movable from a print retaining position to a print receiving position, means on said base adjacent the supports for said members for engaging the

latter when moved to print retaining position to hold said members in said position, and a single means carried by said base for separately and successively disengaging said members from said holding means to free said members so that they may be rocked on said base for movement to print receiving position.

3. A photographic developing rack comprising, in combination, a frame, a plurality of separate print supporting members rockably supported on and extending upwardly from said frame and movable from a print retaining position to a print receiving position, means on said frame for separately holding each member in print retaining position, and means slidably mounted on said frame and movable thereon to separately and progressively release each member from its holding means to permit said members to be moved to print receiving position.

4. A photographic developing rack comprising, in combination, a frame comprising a pair of spaced side rails, a plurality of resilient inverted U-shaped members extending upwardly from said frame and having their free ends rockably mounted in said side rails so that said members may be selectively moved from a vertical print retaining position to an inclined print receiving position, holding means formed on said side rails, said members when in said vertical position being arranged in registry with said holding means and flexing in one direction to cooperate with said holding means to retain said members in said print retaining position, and means carried by said rails for individually flexing said members in another direction to move said members out of cooperating relation with said holding means to permit said members to be moved to said print receiving position.

5. A photographic developing rack comprising, in combination, a frame comprising a pair of spaced side rails, a plurality of resilient inverted U-shaped members extending upwardly from said frame and having their free ends rockably mounted in said side rails so that said members may be selectively moved from a vertical print retaining position to an inclined print receiving position, holding means formed on said side rails, said members when in said vertical position being arranged in registry with said holding means and flexing in one direction to cooperate with said holding means to retain said members in said print retaining position, and means slidably mounted on said rails and individually engaging said ends of each member to separately flex each member to disengage it from its holding means so that said members may be separately rocked on said rails to said print receiving position.

6. A photographic developing rack comprising, in combination, a frame having a pair of spaced side members formed with pairs of aligned openings, a plurality of resilient inverted U-shaped frame members having the lower free ends thereof turned outwardly and extending into said openings to independently rockably mount said frame members on said side members, the latter being formed with pairs of transversely aligned open-end slots positioned above and in vertical alignment with said openings, said frame members being rockable on said side members about said ends to position independently said frame members in a vertical print retaining position and to bring said members into registry with said slots whereupon said frame members will flex outwardly individually and into a pair of said slots to hold said frame members in print retaining position, and a member slidably mounted on said side members and adapted to engage simultaneously the opposite lower ends of each frame member to press the ends toward each other to flex the frame members inwardly and move them out of said slots and out of holding relation with said side members to permit the frame members to be rocked individually on the side members to an inclined position to facilitate the loading of prints between said frame members.

7. A photographic developing rack comprising, in combination, a frame having a pair of spaced side members formed with pairs of aligned openings, a plurality of resilient inverted U-shaped frame members having the lower free ends thereof turned outwardly and extending into said openings to independently rockably mount said frame members on said side members, the latter being formed with pairs of transversely aligned open-end slots positioned above and in vertical alignment with said openings, said frame members being rockable on said side members about said ends to position independently said frame members in a vertical print retaining position and to bring said members into registry with said slots whereupon said frame members will flex outwardly individually and into a pair of said slots to hold said frame members in print retaining position, a pair of releasing members slidably mounted on said side members and adapted to engage the lower ends of said frame members to press said ends inwardly to disengage said frame members from said slots to enable said frame members to be moved from the vertical print-retaining position to an inclined print-receiving position to facilitate the positioning of prints between said frame members, and means for connecting said releasing members so that the latter will be effective in successively pressing simultaneously both lower ends of the same frame members to thereby progressively disengage each frame member from holding relation with the side members to free each frame member for individual and separate rocking movement on said side members.

C. J. HUGHEY.

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