Dec. 26, 1950 B. D. EISNER 2,535,728

DEVICE FOR HOLDING PHOTOGRAPHIC PRINTS WHILE DEVELOPING OR FIXING

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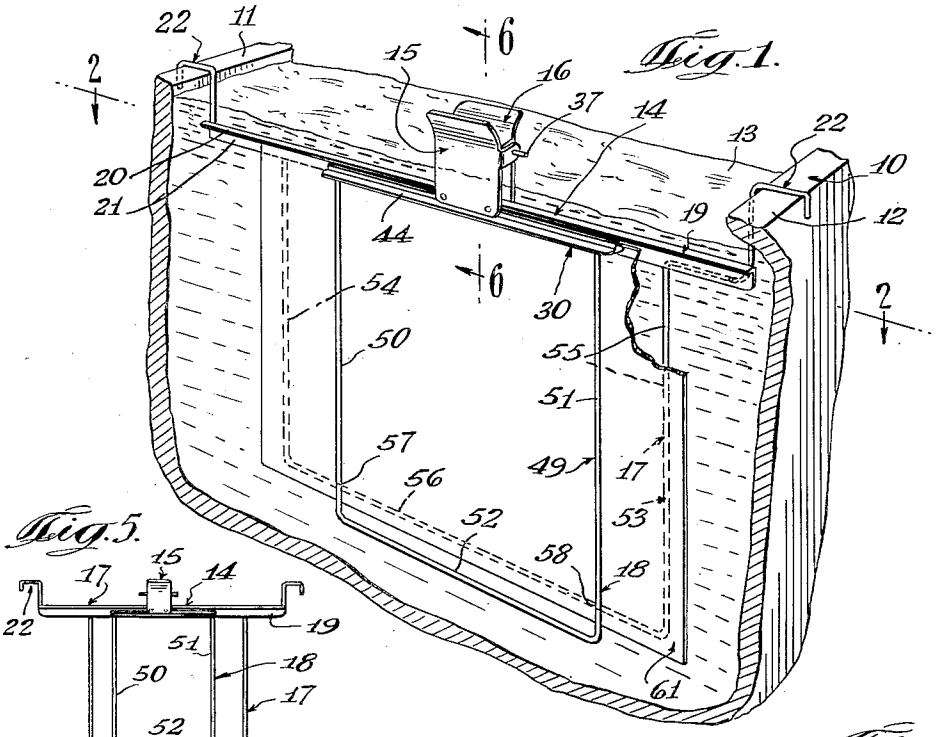


Fig. 1.

Fig. 5.

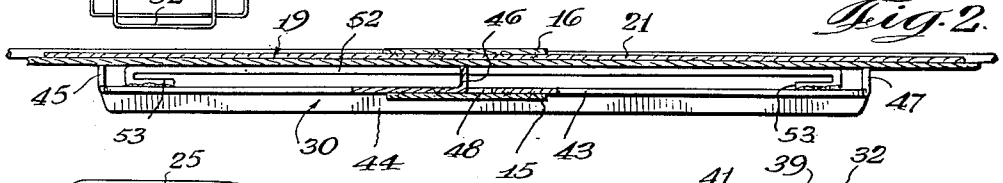


Fig. 2.

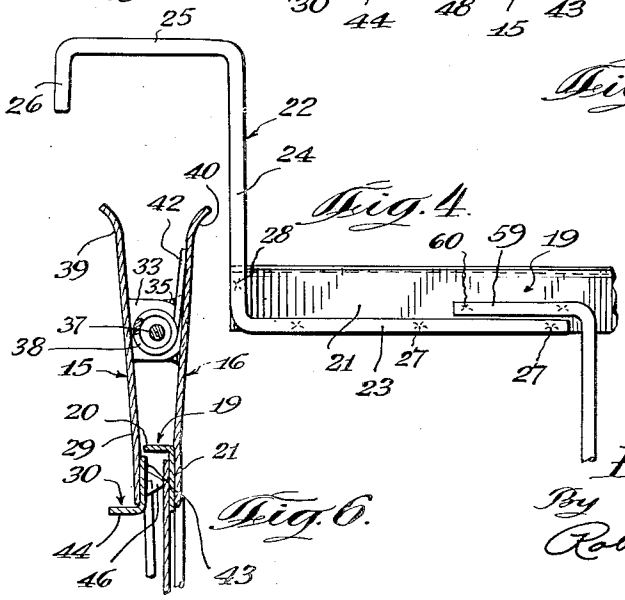


Fig. 4.

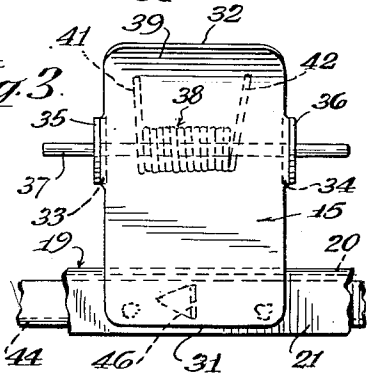


Fig. 3.

Fig. 6.

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DEVICE FOR HOLDING PHOTOGRAPHIC PRINTS WHILE DEVELOPING OR FIXING

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5 Claims. (Cl. 95—100)

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The present invention relates to devices for holding photographic prints while developing or fixing, and is particularly concerned with an improved print holder for the vertical immersion of photographic prints into a tank which is to receive the prints in vertical position.

One of the objects of the invention is the provision of an improved print holding device which is easily opened and closed by means of one hand so that the other hand may be used for placing the print in the holder, as distinguished from the devices of the prior art, many of which have a plurality of separate securing devices for holding the corners of the print.

Another object is the provision of an improved print holder which is adapted to hold the print in substantially flat condition without preventing the access of developer or fixer solution to any part of the print, except perhaps the point contacts by means of which it is clamped.

Another object is the provision of suitable guides for holding a photographic print in a flat condition, but which, nevertheless, permit the access of the developing and fixing solutions to all parts of a print.

Another object of the invention is the provision of improved print holders which are simple, capable of economical construction, efficient, and which may be manufactured so cheaply that it is placed within the means of a vast number of purchasers; and a multiplicity of such clips may be used with one clip for each print.

Other objects and advantages of the invention will be apparent from the following description and the accompanying drawings, in which similar characters of reference indicate similar parts throughout the several views.

Referring to the single sheet of drawings accompanying this specification:

Fig. 1 is a fragmentary view in perspective of a photographic solution tank, shown in connection with a print holder and a print, the print holder embodying the present invention;

Fig. 2 is a sectional view through the print holder, taken on the plane of the line 2—2 of Fig. 1, looking in the direction of the arrows;

Fig. 3 is a full size fragmentary elevational view of the spring actuated supporting members which clamp the print in the holder;

Fig. 4 is a full size fragmentary elevational view of the supporting end of the print holder;

Fig. 5 is a front elevational view of the present print holder, shown on a reduced scale;

Fig. 6 is a fragmentary vertical sectional view

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taken on the plane of the line 6—6 of Fig. 1, looking in the direction of the arrows.

The present print holders are intended to be used for the immersion of photographic prints in developing or fixing tanks which are deep enough so that the prints may be immersed in vertical position. Such a tank is shown in perspective in Fig. 1 and indicated by the numeral 10 as having two end walls 11 and 12 which are spaced from each other a distance that is adequate so that the tank can receive a wide range of sizes of prints. 13 indicates the solution in the tank, which is brought up to such a point that the entire print is immersed when held by the present holder.

The print holder is indicated in its entirety by the numeral 14, and it preferably comprises a pair of spring pressed actuating members 15, 16, each of which fixedly supports a combined frame and clamping member. The larger of these frames, which is indicated at 17, is fixedly secured to the actuating member 16; and the smaller of the frames, which is indicated at 18, is fixedly secured to the actuating member 15.

The larger frame 17 preferably includes a longitudinally extending clamping member in the form of a sheet metal angle 19 (Fig. 6), which is almost as long as the length of the tank 10 so that the sheet metal angle 19 may be received in the tank; but its ends come close to the walls 11, 12.

This angle member 19 has a horizontal flange 20 and a vertical flange 21; and these flanges, being at right angles to each other, makes the angular clamping member 19 substantially rigid. At each end the angle member 19 carries a tank hook 22; and as these hooks are identical, only one of them need be described.

The tank hook 22 is shown in elevation in Fig. 4; and it comprises a horizontal attaching portion 23, a vertical hanging portion 24, a horizontal tank-engaging portion 25, and a depending end 26 for assuring its securement on the tank wall.

The tank hooks 22 may be made out of metal wire; and the entire device is preferably made out of stainless steel in the form of sheet metal and wire so that the print holder is adapted to resist corrosion; and it will never have any rust or other foreign matter on its frames or clamping members, which might mar or stain the prints.

The stainless steel print holder is automatically maintained in a clean condition, thereby assuring the absence of rust marks on the prints.

The horizontal portion 23 of the hook 22 may

be secured to the vertical flange 21 of the clamping member 19 adjacent its lower edge by spot welding at a plurality of points, indicated at 27. The upwardly turned vertical part 24 of hook 22 may be again spot welded to the clamp 19 adjacent the end of the vertical flange 21, as, for example, at 28.

Securing the horizontal portion 23 adjacent the lower edge greatly increases the rigidity of securement because this enables the additional securement along the vertical portion 24. The length of the vertical portion 24 is preferably such that the clamping member 19 will be wholly immersed in the solution.

The width of the upper tank-engaging portion 25 is preferably such that it extends across the edge of the tank, this permitting the depending portion 26 of the hook to extend downwardly outside the tank.

The vertical flange 21 of the clamping member 19 is also secured to the actuating member 16 by a plurality of spot welds, the actuator 16 overlapping the vertical flange 21. The actuators 16 and 15 may be identical in construction; and each may consist of a flat body portion 29 which is adapted to be welded or otherwise secured to the two clamping members 19 and 30.

The actuating members 15 and 16 are substantially rectangular in elevation, as shown in Fig. 3; but each actuating member has between its ends 31, 32 a pair of transversely extending ears 33, 34, 35, 36. These transverse ears 33—36 serve as pivot flanges and are provided with registering apertures for passing a stainless steel pivot pin 37.

The pivot pin 37 may consist of a length of wire which is placed loosely through the apertures in the pivot flanges 33—36, as the pivot pin does not need to be riveted over, since it is held in place by the spring 38, further to be described.

At the upper ends of the actuating members 15 and 16 these members are curved outwardly, as indicated at 39, 40. This forms curved finger-engaging surfaces at 39 and 40 so that the fingers will not slip off the actuating members 15 and 16.

The pivot pin 37 supports a helical spring 38, which is initially tensioned and has its two ends 41, 42 (Fig. 3) projecting radially in such manner that they may engage the under side of the actuating members 15 and 16 adjacent the end where the fingers are applied. Thus the ends 41, 42 of spring 38 tend to spread the actuating members 15 and 16 apart above the pivot pin 37, and at the same time the spring urges the actuating members 15 and 16 toward each other below the pivot pin 37.

The lower end of the actuating member 15 is preferably fixedly secured, as, for example, by spot welding, to the vertical flange 43 of the angular clamping member 30, as shown in Fig. 6. This clamping member 30 preferably also has a horizontal flange 44 to give the necessary rigidity; and in this case the actuating member 15 is welded to the inside of the angle.

The clamping member 30 is preferably formed with a plurality of transversely extending prongs or points 45—47, the top of which may be seen in Fig. 2. Two of these prongs 45, 47 are preferably formed one at each end of the clamping member 30 by merely shaping the vertical flange 43 into a pointed triangular prong and bending it at right angles. Any number of such prongs may be provided; but I find that it is sufficient to provide

one at each end and preferably one more prong, 46, midway between the ends.

The prong 46 is preferably punched out of the vertical flange 43, leaving a hole, as indicated at 48 (Fig. 2) behind the actuating member 15. The apex of these prongs is preferably formed in a blunt point for engaging the print without making a hole, as shown in Fig. 6.

The clamping member 30 is preferably made shorter than the clamping member 19; and it preferably supports a depending wire frame 49. This depending wire frame is preferably substantially rectangular in shape, having two vertical legs 50, 51, and a horizontal leg 52. The two vertical legs are preferably provided at their upper ends with inwardly turned attaching portions 53, as shown in Fig. 2; and these attaching portions are welded, soldered, or otherwise secured to the vertical flange 43 of clamping member 30.

As the wire is preferably of less diameter than the length of the prongs 45—47, there is a clearance between the upper ends 53 of the wire frame 49 and the other clamping member 19. The relatively fixed clamping member 19 also preferably supports a depending wire frame 53 of substantially rectangular shape.

This wire frame 53 includes the two vertical portions 54, 55 and a horizontal portion 56. In this case the horizontal portion 56 is preferably longer than the similar portion 52 of the other frame so that the legs 54, 55 of the fixed wire frame 53 are located outwardly of the wire frame 49. The legs 50, 51 of the movable wire frame 49 are preferably longer than the legs 54, 55 of the fixed wire frame 53 so that the legs 50, 51 engage the horizontal portion 56 of the fixed wire frame, as, for example, at the points 57 and 58.

In some embodiments of the invention, however, the frames 49, 53 may be so bent that there is no engagement between them, both being spaced from the paper. The upper ends of the legs 54 and 55 of the fixed wire frame 53 have outwardly turned attaching portions 59, one of which is shown in Fig. 4; and these attaching portions are welded to the vertical flange 21 of the fixed clamping member 19 by a plurality of spot welds 60.

Thus each clamping member has a depending wire frame for guiding and holding the paper of the print, one of the print papers being indicated at 61 (Fig. 1).

The mode of use and operation of the print holder is as follows: When a print is to be placed in it, the print holder may be grasped in the left hand with the thumb engaging at the point 39 and the other fingers of the hand, such as the forefinger, engaging at the surface 40.

The larger frame will then be lowermost, if the holder is held in the horizontal position. By squeezing the portions 39 and 40 together the spring 38 may be compressed in so far as its ends 41, 42 are concerned, and the clamping members 19 and 30 moved away from each other. This will spread the wire frames 49 and 53 considerably more at their lower portions 56 and 52, opening the wire frames to an angle of twenty degrees. The amount of this opening may be varied as desired.

The print may then be laid on the lower and larger wire frame 53, with the right hand, and may be slid toward the left until its edge engages the flange 29 of the clamping member 19. The print should, of course, be located inside the ends of the clamping member 19, and may be slid

longitudinally as desired until it is preferably located midway between the ends.

The actuating members 15 and 16 are then released sufficiently to permit the spring 38 to urge the clamping members 19 and 30 together, whereupon the pointed prongs 45—47 will clamp the print against the flat surface of the flange 21. The wire frames will approach each other, and will engage the opposite sides of the print in such manner as to hold the print in substantially flat condition, especially at its lower edge, which is to be inserted in the solution.

The print may then be lifted by means of the print holder, using the members 15, 15 as a handle; and it may be immersed with the print holder in the solution 13, the wire frames preventing the print from folding up as it is dipped into the free surface of the solution. There is a natural tendency for the print to curl toward one side or the other as it is immersed; but the present frames 49, 53 present the print edgewise so that it is easily and quickly immersed in the solution.

One print is preferably supported upon each print holder; and the print holder and the prints hang from the hooks 22 which engage the tops of the wall of the tank 10.

In the routine of placing and removing prints from the tank, the prints, supported by print holders, may be placed in the tank at one end and left until a certain number have accumulated; and if the timing of the routine is constant, a print may be removed from the other end of the assembly immediately after or before placing a new print at the first end.

In so doing the hooks 22 may be caused to slide along the top wall of the tank as necessary, to make room for new prints. When the print is to be removed from the tank, it is merely lifted by means of the print holder; and it may then be immersed in a fixer tank, from which it is later removed and placed in a washing tank.

It will thus be observed that I have invented an improved print holder which is adapted to facilitate the edgewise immersion of photographic prints into a top open tank. While the prints are engaged by the prong 45—47, this is at the extreme edge of the print; and the prongs produce only very small spots which are undeveloped, and which are not accessible to the solutions.

The frames engage the prints, but only on one side; and thus the solution has access to the paper from the other side, except at the points 57 and 58, where the engagement with the paper is so light that the solution still has access to the paper.

The print holders being made of stainless steel, there is no danger of their corrosion by the solutions used and no danger of producing rust spots on the prints. The print holders may be very economically constructed, as they use only a small amount of sheet metal and a small amount of wire; and they may be used for a long period of time, as there is nothing about them which will wear out when they are properly used.

While I have illustrated a preferred embodiment of my invention, many modifications may be made without departing from the spirit of the invention, and I do not wish to be limited to the precise details of construction set forth, but desire to avail myself of all changes within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. In a print holder for photographic prints, the combination of a pair of metal plates having outwardly curved ends for engagement with the fingers, each of said plates having a pair of integral pivot flanges, the pivot flanges of the two plates overlapping and being provided with registering apertures, a pintle passing through all of said apertures, a clamping and supporting member secured to the lower end of one of said plates, said clamping and supporting member comprising an angle member having a horizontal flange and a vertical flange, and a second clamping member secured to the lower end of the other plate, said second clamping member also comprising an angle member having a horizontal and a vertical flange, and having the horizontal flange outwardly turned, a spring surrounding said pintle and having tangentially extending end portions engaging said plates above said pintle to urge said clamping members together, and a wire frame carried by each of said clamping members, said frames being fixedly secured to the clamping members to depend therefrom in substantially parallel planes when the clamping members engage each other, one of said frames being elongated horizontally beyond the other frame, and the other of said frames being elongated vertically beyond the first-mentioned horizontally elongated frame.

2. In a print holder for photographic prints, the combination of a pair of metal plates having outwardly curved ends for engagement with the fingers, each of said plates having a pair of integral pivot flanges, the pivot flanges of the two plates overlapping and being provided with registering apertures, a pintle passing through all of said apertures, a clamping and supporting member secured to the lower end of one of said plates, said clamping and supporting member comprising an angle member having a horizontal flange and a vertical flange, and a second clamping member secured to the lower end of the other plate, said second clamping member also comprising an angle member having a horizontal and a vertical flange, and having the horizontal flange outwardly turned, a spring surrounding said pintle and having tangentially extending end portions engaging said plates above said pintle to urge said clamping members together, and a wire frame carried by each of said clamping members, said frames being fixedly secured to the clamping members to depend therefrom in substantially parallel planes when the clamping members engage each other, one of said frames being elongated horizontally beyond the other frame, and the other of said frames being elongated vertically beyond the first-mentioned horizontally elongated frame, the said frames comprising three sided rectangular wire members with inwardly turned ends welded to said clamping members respectively.

3. In a print holder for photographic prints, the combination of a pair of metal plates having outwardly curved ends for engagement with the fingers, each of said plates having a pair of integral pivot flanges, the pivot flanges of the two plates overlapping and being provided with registering apertures, a pintle passing through all of said apertures, a clamping and supporting member secured to the lower end of one of said plates, said clamping and supporting member comprising an angle member having a horizontal flange and a vertical flange, and a second

clamping member secured to the lower end of the other plate, said second clamping member also comprising an angle member having a horizontal and a vertical flange, and having the horizontal flange outwardly turned, a spring surrounding said pintle and having tangentially extending end portions engaging said plates above said pintle to urge said clamping members together, and a wire frame carried by each of said clamping members, said frames being fixedly secured to the clamping members to depend therefrom in substantially parallel planes when the clamping members engage each other, one of said frames being elongated horizontally beyond the other frame, and the other of said frames being elongated vertically beyond the first-mentioned horizontally elongated frame, the said vertically extending flange on the second mentioned clamping member being provided at its ends with inwardly turned pointed members for engaging and clamping the print, while permitting access to substantially all of the print by the liquids in which the print is inserted.

4. In a print holder for photographic prints, the combination of a pair of metal plates having outwardly curved ends for engagement with the fingers, each of said plates having a pair of integral pivot flanges, the pivot flanges of the two plates overlapping and being provided with registering apertures, a pintle passing through all of said apertures, a clamping and supporting member secured to the lower end of one of said plates, said clamping and supporting member comprising an angle member having a horizontal flange and a vertical flange, and a second clamping member secured to the lower end of the other plate, said second clamping member also comprising an angle member having a horizontal and a vertical flange, and having the horizontal flange outwardly turned, a spring surrounding said pintle and having tangentially extending end portions engaging said plates above said pintle to urge said clamping members together, and a wire frame carried by each of said clamping members, said frames being fixedly secured to the clamping members to depend therefrom in substantially parallel planes when the clamping members engage each other, one of said frames being elongated horizontally beyond the other frame, and the other of said frames being elongated vertically beyond the first-mentioned horizontally elongated frame, one of said clamping members being elongated at each end beyond the other, and provided at each end with an upwardly extending wire member having a horizontal portion located to extend over the edge of a tank or the like for holding a print in the tank with the print and frames below the free surface of the liquid in the tank.

5. In a photographic print holder, the combination of a pair of pivoted members having separated actuating ends for the fingers, a pair of elongated clamping bars carried by the other ends of said pivoted members in position to engage each other, spring means for urging said bars together, a plurality of spaced teeth carried by one clamping member, for holding a print against the other clamping member, upwardly extending wire arms having downwardly open hoo.s carried by the ends of one bar, for supporting the holder in a bath container, and a depending closed rectangular frame of round wire carried by each bar, the frames being of different dimensions so that the wires overlap each other and engage only at crossing intersections, the said depending frames holding the prints in a plane condition, for immersion, and permitting access to the prints by the bath at substantially all parts of the print from one side or the other.

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