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DEVELOPING TRAY

2,268,457

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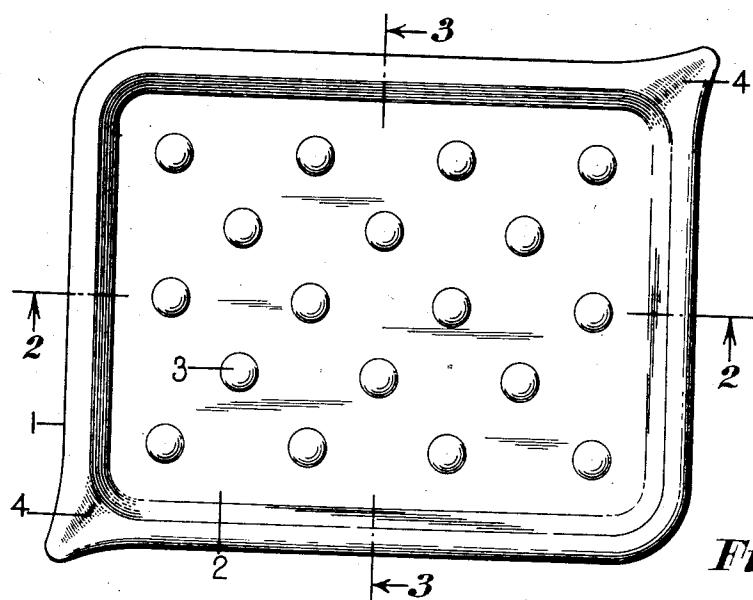


Fig. 1

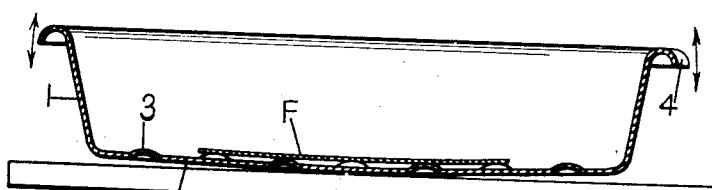


Fig. 2

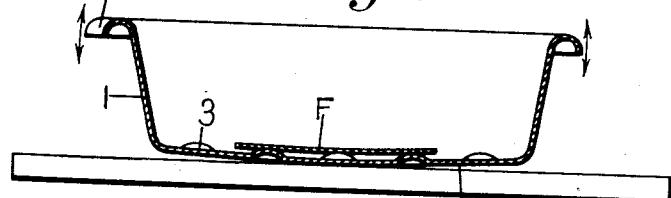


Fig. 3

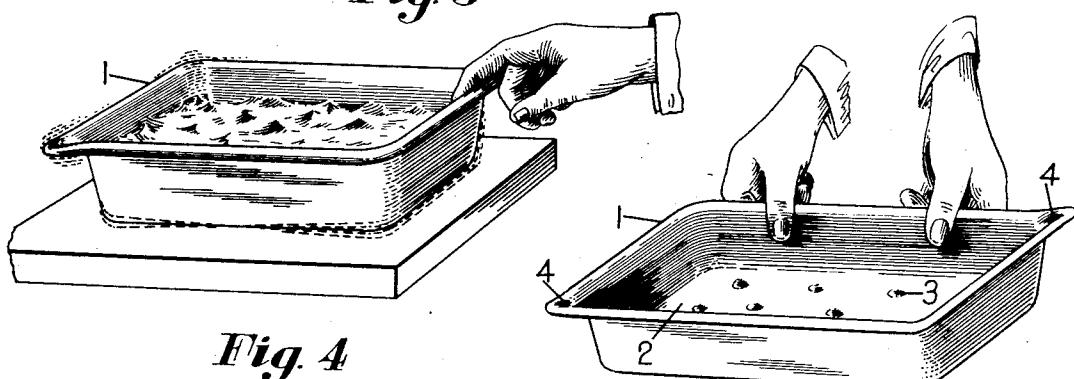


Fig. 4

Fig. 5

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DEVELOPING TRAY

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1 Claim. (Cl. 95—95)

My invention relates to a developing tray. It has to do, more particularly, with a tray which is adapted to contain developing liquids and in which films, plates, and sensitized paper may be developed.

The most commonly used developing tray at the present time is provided with a flat bottom. When processing film or printing paper in a flat bottom tray, the film or papers, when immersed in the solution in the tray becomes attracted to the bottom of the tray by capillary attraction and, no matter how much the tray is rocked by the processor, the paper will not come loose from the bottom until dislodged by the fingers or wooden tongs provided for this purpose. The tongs are also used for the purpose of turning prints and films when processors are allergic to chemicals in the solution used. However, when flat bottom trays are used it is difficult to lift the film or paper with the fingers or with tongs, inasmuch, as it is difficult to pass them beneath the film or paper. Film or paper processed in a flat bottom tray will become ruined if it is not quickly turned, for otherwise uneven development occurs.

Another type of tray which has been provided has a bottom which is provided with elongated grooves pressed downwardly into the bottom. This type of structure has the same disadvantages substantially as the tray having the flat bottom. In addition, these grooves interfere with free flow of the solution. Another type of tray embodies a bottom which is provided with elongated ribs embossed upwardly in said bottom. These ribs are adapted to facilitate lifting of the film or paper with the fingers or wooden tongs. However, due to the fact that they are elongated, they form obstructions to the fingers or tongs and sometimes make lifting of the film or paper difficult. Also these ribs are usually disposed in widely spaced relationship so that small prints or sections of paper will work down between the ribs and will lie flat on the bottom of the tray, making lifting thereof difficult and preventing proper development.

Another type of tray suggested in the prior art, is one embodying a flat bottom with widely spaced projections for supporting photographic plates. However, this tray was devised when photographic plates were in common use, as distinguished from photographic films. This prior art tray is not suitable for films which vary widely in size and some will pass down between the projections of this prior art tray onto the flat bottom surface. Furthermore, this prior art tray

was made of glass having a flat bottom surface adapted to rest on a table or other support and could not be rocked without lifting it from the table. This disadvantage is present in all the prior art trays with which I am familiar. These prior art flat bottom trays are difficult to manipulate when agitating the chemicals with said tray. The only way that the chemicals may be agitated is by lifting one end or side of the tray from the surface on which the tray is disposed and allowing the fluid to flow back and forth. This sometimes causes the fluid to be spilled and does not give even and uniform agitation.

Another disadvantage of these prior art trays resides in the fact that they have not been provided with a pouring lip arrangement suitable for both right and left handed persons or so arranged that the tray could be emptied either with the right or left hand without turning the tray completely around.

One of the objects of my invention is to provide a developing tray which has a bottom of such a nature that the developer will contact with both the upper and lower surfaces of the film or paper so that even development can be obtained without the necessity of turning the film or paper.

Another object of my invention is to provide a tray of the type indicated which can be used effectively with film or paper substantially regardless of its size.

Another object of my invention is to provide a developing tray which has a bottom of such a nature that lifting of the film or paper may be easily and quickly accomplished with the fingers or with tongs.

Another object of my invention is to provide a developing tray which has a bottom of such a nature that the tray may be rocked to agitate the chemicals within said tray without the necessity of lifting the tray from the surface on which it rests.

Another object of my invention is to provide a developing tray which has a pouring lip arrangement of such a nature that either the left hand or the right hand may be used with ease to lift the tray and pour the liquid from the tray into a bottle or suitable container.

Another object of my invention is to provide a tray made of metal, plastic, rubber or any other suitable material and of such a nature that it may be pressed out in one piece, thereby making it economical to manufacture.

This application is a continuation in part of

my co-pending application Serial No. 317,623 filed February 7, 1940.

The preferred embodiment of my invention is illustrated in the accompanying drawing wherein similar characters of reference designate corresponding parts and wherein:

Figure 1 is a top plan view of developing tray made according to my invention.

Figure 2 is a vertical sectional view taken substantially along line 2—2 of Figure 1.

Figure 3 is a vertical sectional view taken substantially along line 3—3 of Figure 1.

Figure 4 is a perspective view of the developing tray showing how it may be rocked to agitate the developing liquid.

Figure 5 is a perspective view illustrating how the developing tray may be picked up by either the right or left hand to pour the liquid out of the tray through one or the other of the pouring lips.

With reference to the drawing, I have illustrated a tray 1 which is of substantially rectangular form. This tray is preferably shallow and is preferably formed of a single piece of metal, preferably of enameled steel so that the developing liquid will not corrode or otherwise act on the steel. However, it can be made of other suitable material.

The tray is provided with a substantially flat but slightly convex bottom 2, as shown in Figures 2 and 3 of the drawing. However, the bottom is provided with a plurality of protuberances 3 which project upwardly from the upper surface thereof and are disposed substantially throughout the area of the bottom. These protuberances 3 are preferably arranged in lateral and longitudinal rows and are preferably stamped into the bottom of the tray by a single pressing operation, the tray being turned bottom side up during this pressing operation. Each of the protuberances is very small, being of convex form when viewed from the inside of the tray and of concave form when viewed from the outside bottom surface as illustrated best in Figures 2 and 3. They are preferably of substantially spherical form so that they will not injure sensitized paper or film in the process of developing or be an obstruction to the fingers or wooden tongs.

Since the projections on the bottom are very small spaced protuberances, they will not form obstructions to the fingers or tongs like elongated ribs. Furthermore, there will be less danger of injury to the film or paper since there will be much less area of contact between the protuberances 3 and the film or paper. Also, although the protuberances 3 will not form obstructions to the tongs or fingers, they are sufficiently close together to prevent small film or paper from lying flat on the bottom. Protuberances 3 will support the film F (Figs. 2 and 3) or paper in spaced relationship to the bottom so that it may be readily lifted.

At diagonally opposed upper corners I provide pouring lips 4 which are formed simultaneously with the formation of the tray. These pouring lips are of great convenience, when located as shown in the drawing, with the one to the left of the front corner and the one to the right at the rear corner. This makes it possible to use either the right hand or the left hand to pour the liquid from the tray, without the necessity of turning the tray around as is the case when only one pouring lip is provided, or when a plurality of lips which are not properly arranged

are provided. Figure 5 brings out this feature clearly.

Referring now to Figures 2, 3 and 4 it will be noted that the outside bottom of the tray is of convex form so as to facilitate agitation of the developing fluid contained therein. As shown in Figure 4, the developing tray may be rocked to agitate the fluid by merely using a slight downward force on the side or end of the tray without picking up the tray with the consequent danger of spilling the liquid. This tray is so constructed that the center of the outer surface is slightly lower than any other point thereof and this surface gradually curves upwardly in all directions from the center towards the four corners and sides to provide for easy rocking of the tray. Since it is necessary when developing or processing films, plates and printing paper, to keep the developer in constant agitation, it can be seen that my tray provides a safe and easy way to accomplish this.

It will be apparent from the above description that I have provided a developing tray having many advantages. It can be used more effectively than flat bottomed trays. The film or papers will not be held to the bottom by capillary attraction. The film will be supported upon protuberances on the bottom of the tray so that when the tray is rocked back and forth, the developing solution will flow both above and beneath the film or paper. Consequently, the film will be developed evenly and uniformly. The protuberances will not interfere with the free flow of the developing solution past the film. Also they will not form obstructions to the fingers or tongs and, therefore, the film or paper may be readily lifted with the fingers or tongs. Furthermore, the film or paper will be supported by the protuberances substantially regardless of its size and there will be substantially no danger of the film passing between the protuberances and resting on the bottom of the tray.

Another advantage of my invention is that the two lips which are formed at diagonally spaced corners are a great convenience in the dark room since it is not necessary to turn the tray around so as to pour the developing liquid or other solutions into bottles or jugs for preservation. Either the right or left hand may be used to perform this pouring operation.

Another advantage of my invention is the contour of the outside surface of the bottom which permits easy rocking movement to agitate the fluid contained in the tray. This movement may be imparted by merely touching the side or end of the tray with a finger instead of lifting it as in the case in prior art trays.

Various other advantages will be apparent from the drawing and the following claim.

Having thus described my invention, what I claim is:

A developing tray comprising a comparatively shallow body portion and an outwardly curved bottom which is curved in all directions to facilitate rocking in all directions, said bottom having a plurality of upwardly projecting small spaced protuberances pressed into the lower surface thereof, said body portion having two pouring lips formed thereon at diagonally opposed upper corners, the pouring lip at the front being at the left and the one at the rear being at the right so that pouring can be carried out by either the right or the left hand without turning the tray

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