July 15, 1952 R. D. CHAMBERS 2,603,135

FILM-PROCESSING TANK

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FIG. 1.

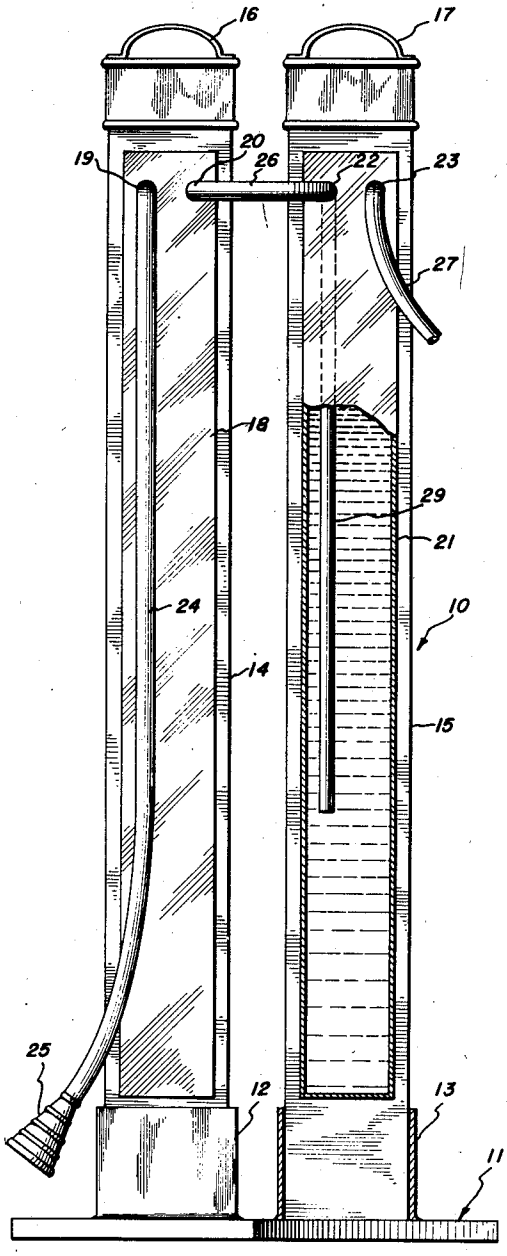


FIG. 2.

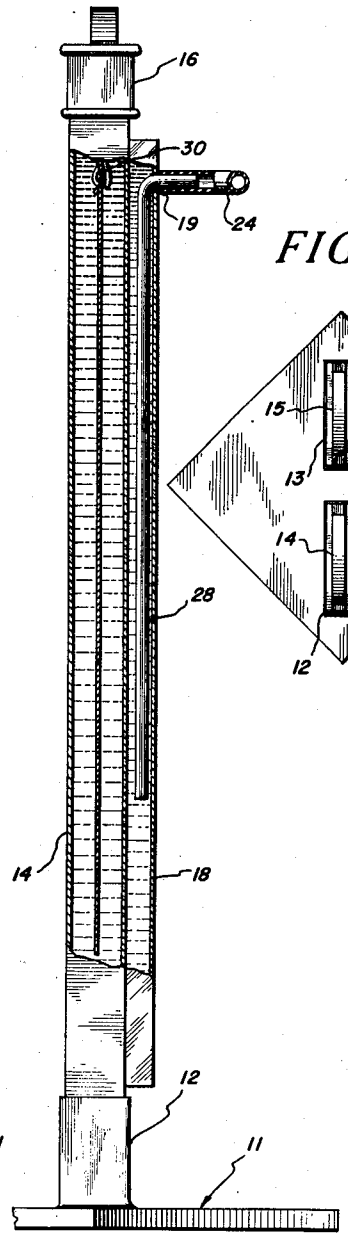


FIG. 3.

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FILM-PROCESSING TANK

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2 Claims. (Cl. 95—96)

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This invention relates to photographic equipment, and more particularly to a film-processing tank.

An object of this invention is to provide a film-processing tank which is particularly adapted for use by amateurs in developing and fixing roll film disposed in a vertical position.

Another object of this invention is to provide a film-processing tank including a temperature control system for maintaining the developing and fixing solutions at a predetermined temperature during processing of film.

A further object of this invention is to provide a film-processing tank which is particularly adapted for the storage of the developing and fixing solutions when not being used in processing films, the storage being effected in a manner which will effectively minimize oxidation of the solutions.

A still further object of this invention is to provide a film-processing tank provided with temperature control means adapted to be connected to any convenient source of water under pressure.

A still further object of this invention is to provide a temperature control film-processing tank which is relatively simple in structure and cheap to manufacture.

The above and still further objects and advantages of the invention will become apparent upon consideration of the following detailed description of the invention, when taken in conjunction with the accompanying drawings, wherein:

Figure 1 is a front elevational view, with parts broken away and in section, of the film-processing tank of the present invention;

Figure 2 is a side elevational view, with parts broken away and in section, taken from the left of Figure 1; and

Figure 3 is a top plan view of the film-processing tank shown in Figure 1.

Referring now more particularly to the drawings, wherein like reference numerals have been used throughout the several views to designate like parts, there is shown the film-processing tank of the present invention, generally designated by the numeral 10, which includes a base 11 having two upstanding sockets 12, 13 disposed in side-by-side spaced relation with respect to each other and supported on the base.

Supported in the upstanding socket 12 is a first vertically disposed receptacle 14 having a closed bottom and an open top. The receptacle 14 is fabricated of any suitable plastic or metallic, heat-conductive material, and is adapted to receive a developing solution. Disposed in side-by-side, spaced relation with respect to the receptacle 14 is a second vertically disposed receptacle 15 which has an open top and a closed bottom, the bottom being supported within the upstanding socket 13 of the base 11. The receptacle 15 is similarly fabricated of any suitable plastic or metallic material which has a relatively high coefficient of conductivity and is adapted to accommodate a fixing solution.

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Each of the receptacles 14, 15 is provided with a closure 16, 17 for tightly sealing their respective open tops, and thereby provide a light-tight chamber for the reception therein of the film to be processed. It is to be noted that only a relatively small cross-sectional area of the contents of each of the receptacles 14, 15 will be exposed to the atmosphere during use, which effectively minimizes the oxidation of the developing and fixing solutions.

Disposed in abutting and confronting relation with respect to the front face of the receptacle 14 and secured thereto is a first closed-ended water jacket, designated by the reference numeral 18, the jacket being provided with an inlet 19 contiguous to and spaced from the closed upper end, and an outlet 20 disposed in horizontal alignment with respect to the inlet 19. Disposed in abutting and confronting relation with respect to the front face of the receptacle 15 and secured longitudinally thereof is a second water jacket 21 which is similarly provided with a horizontally aligned inlet 22 and outlet 23. The respective inlets and outlets of the water jackets 18, 21 are disposed at a level which is convenient for connection to a sink, lavatory or any other suitable source of water under pressure.

Disposed exteriorly of the water jacket 18 is an inlet conduit 24 which has one end extending through the inlet 19 and in communication with the interior of the jacket 18, and has its other end provided with a coupling 25 for connection to a source of water under pressure. Extending between the outlet 20 of the jacket 18 and the inlet 22 of the jacket 21 is a connecting conduit 26 which has one end in communication with the jacket 18 and has the other end in communication with the jacket 21. Disposed exteriorly of the jacket 21 and having one end extending through and supported within the outlet 23 thereof is an outlet pipe 27, the other end of the pipe being adapted for connection to a drain pipe. Disposed longitudinally within the water jacket 18 is a circulating pipe 28 which has one end supported in communication with the adja-

cent end of the inlet pipe 24, and has its other end terminating contiguous to and spaced from the closed lower end of the jacket 18. Similarly disposed within the jacket 21 is a second circulating pipe 29 which has one end supported in communication with the adjacent end of the connecting conduit 22, and has its other end terminating contiguous to and spaced from the closed lower end of the jacket 21. Each of the aforementioned circulating pipes 28, 29 is fabricated of a suitable non-corrosive material, such as copper tubing. The inlet pipe 24, the circulating pipe 28, the water jacket 18, the connecting pipe 26, the circulating pipe 29, the water jacket 21, and the outlet pipe 27 cooperate to form a water-circulating system which is disposed in abutting and confronting relation with respect to the respective receptacles to thereby maintain the latter at any desired temperature.

Dependingly carried by the cover 18 is a film-supporting clip 30, the cover 17 being provided with a similar clip, not shown. Each of the clips is adapted to engage one end of a roll of film to be developed, the other end usually being weighted for maintaining the film in an unrolled condition.

In actual use, the respective receptacles 14, 15 are supported within the sockets 12, 13, and the coupling 25 is connected to any suitable source of water under pressure. The cover 16 is then removed and a developing solution is poured into the receptacle 14. If desired, the volumetric content of the receptacle 14 can be selected to accommodate a standard commercial quantity of developing solution, such as a half-gallon. Similarly, the cover 17 is removed and a fixing solution is poured into the receptacle 15. The film to be processed is then removed from its conventional paper backing and supported within the receptacle 14 in a vertical position, the upper end being detachably secured to the clip 30. The cover 16 is then replaced and the developing can be continued with a light on, if desired. During the developing process, the temperature of the receptacle 14 can be maintained within predetermined temperature limits by controlling the quantity and temperature of the water flowing through the circulating system. After developing, the film is removed from the receptacle 14 in a darkened room and supported within the receptacle 15 to be fixed. Throughout the entire developing and fixing process, the respective covers 16, 17 are in tight closing engagement with the receptacles to prevent oxidation of the developing and fixing solutions and to prevent the exposure of the film being processed to light. From the foregoing it is readily apparent that the novel film-processing tank of the present invention is highly desirable for use by amateurs, since it is simple in operation and relatively cheap to manufacture.

Although only one embodiment of the present invention has been described, numerous modifications can be made without departing from the spirit of the invention as set forth in the appended claims.

What I claim is:

1. In a film processing tank for developing and fixing roll film, a base, a pair of upstanding sockets arranged in spaced relation and carried by said base, a first vertically disposed receptacle open at its top having its lower end portion supported in one of said sockets for the reception of a developing solution, a second vertically disposed receptacle open at its top having its lower end portion supported in the other of said sockets for the reception of a fixing solution, a detachable closure closing the open top of each of said receptacles, clip means carried by each of said closures for dependingly supporting film to be treated, a water jacket arranged exteriorly of each of said receptacles and secured thereto, the jacket of each receptacle extending from a point adjacent to and below its closure and terminating at a point adjacent to and above its supporting socket, a connecting conduit having one end in communication with one of said jackets and having the other end in communication with the other of said jackets, an inlet conduit having one end in communication with said one of said jackets and having the other end adapted to be connected to a source of water under pressure, and an outlet conduit having one end in communication with the other of said jackets and having its other end adapted to be connected to a drain pipe.

2. In a film processing tank for developing and fixing roll film, a base, a pair of upstanding sockets arranged in spaced relation and carried by said base, a first vertically disposed receptacle open at its top having its lower end portion supported in one of said sockets for the reception of a developing solution, a second vertically disposed receptacle open at its top having its lower end portion supported in the other of said sockets for the reception of a fixing solution, a detachable closure closing the open top of each of said receptacles, clip means carried by each of said closures for dependingly supporting film to be treated, a water jacket arranged exteriorly of each of said receptacles and secured thereto, the jacket of each receptacle extending from a point adjacent to and below its closure and terminating at a point adjacent to and above its supporting socket, a connecting conduit having one end in communication with one of said jackets and having the other end in communication with the other of said jackets, an inlet conduit having one end in communication with said one of said jackets and having the other end adapted to be connected to a source of water under pressure, an outlet conduit having one end in communication with the other of said jackets and having its other end adapted to be connected to a drain pipe, a first vertically disposed circulating pipe positioned within said one of said jackets and having its upper end in communication with said inlet pipe and having its lower end terminating adjacent to and spaced from the lower end of said one of said jackets, and a second vertically disposed circulating pipe positioned within the other of said jackets and having its upper end in communication with the adjacent end of said connecting conduit and having its lower end terminating adjacent to and spaced from the lower end of said other of said jackets.

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