F. W. NORTON.

PHOTOGRAPH DEVELOPING APPARATUS.

APPLICATION FILED NOV. 21, 1912.

1,074,572. Patented Sept. 30, 1913.

Fig. 1.

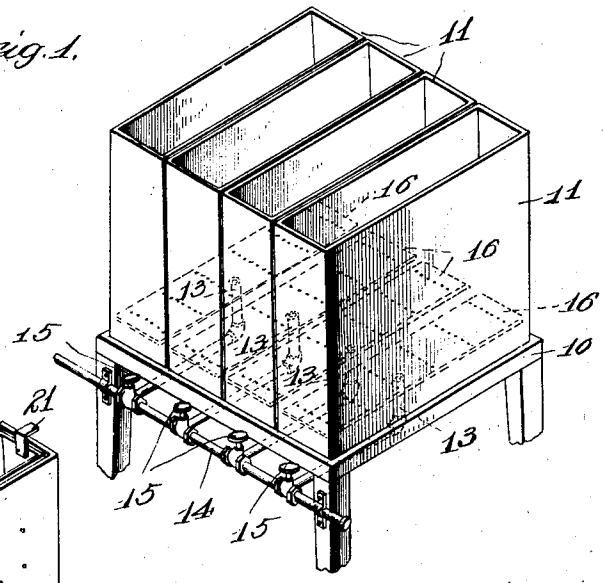


Fig. 4.

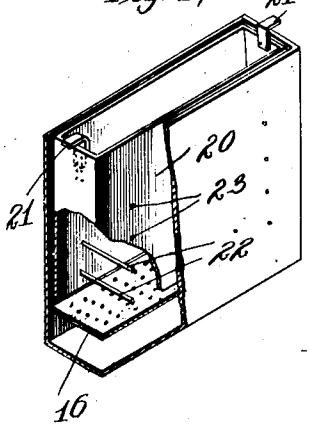


Fig. 2.

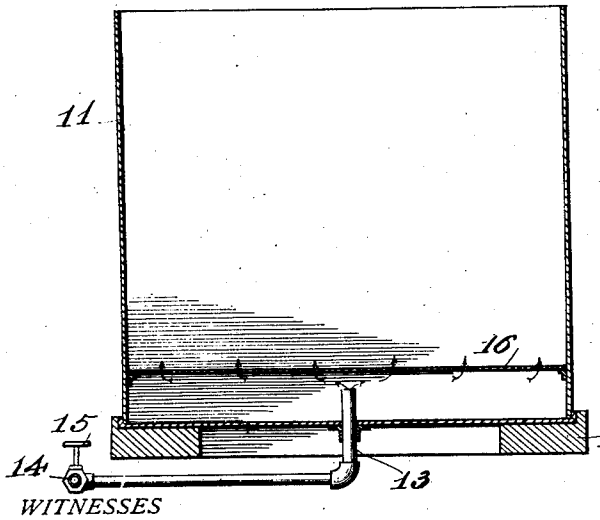
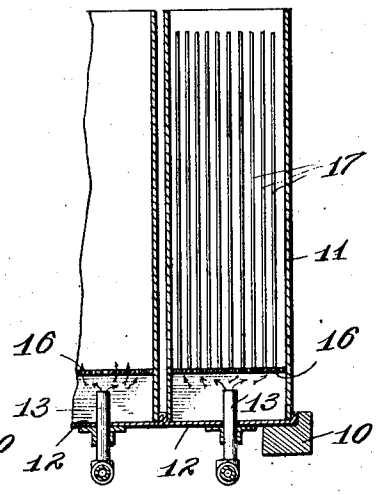


Fig. 3.



WITNESSES

G. A. Pawlowschmidt

T. S. Bryant.

INVENTOR

F. W. Norton

by

H. C. Evertsen Attorneys.

UNITED STATES PATENT OFFICE.

FRANK W. NORTON, OF CEDAR RAPIDS, IOWA.

PHOTOGRAPH-DEVELOPING APPARATUS.

1,074,572. Specification of Letters Patent. Patented Sept. 30, 1913.

Application filed November 21, 1912. Serial No. 733,653.

To all whom it may concern:

Be it known that I, FRANK W. NORTON, a citizen of the United States, and residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Photograph-Developing Apparatus, of which the following is a specification.

This invention relates to improvements in photograph developing apparatus.

An object of the invention is to provide means whereby a large number of photographic films or sheets may be developed simultaneously and which means may be also employed for toning and finishing the photographic prints.

A further object is the provision of an arrangement whereby a plurality of either sheets or prints may be edgewise supported and maintained in separated relations by means of air forced therebetween, while the same are undergoing the photographic bath required in the process of finishing the same.

With these objects in view and others that will appear as the nature of the invention is better understood, the same consists in the novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the appended claims.

In the drawings forming a part of this application and in which like numerals of reference designate corresponding parts throughout the several views: Figure 1 is a perspective view of a four-tank arrangement of the device. Fig. 2 is a longitudinal vertical sectional view taken through one of the tanks. Fig. 3 is a transverse vertical sectional view taken through portions of two adjacent tanks and showing the photographic members edgewise positioned in one of the same, and Fig. 4 shows a tank partially broken away of the preferred form of construction with a holder suspended therein.

Referring more in detail to the drawings, a rectangular supporting frame 10 has mounted thereon the fluid containers 11, here illustrated as four in number and of equal size, each one embodying the elements of the present invention and being identical in construction.

For forming said containers a bottom member 12 is preferably constructed supported upon the frame 10, having an air inlet pipe 13 entering substantially at the central point of the bottom thereof. Said air inlet pipes 13 are connected to the main air supply pipe 14 which may be supplied with air from either a compressor or air reservoir while the air pressure through the inlets 13 is controlled through each by a separate air valve 15.

The containers 11 are provided with perforated screens 16 forming false bottoms therein and beneath the level of which the air inlets 13 enter and terminate.

In operation while the apparatus may be employed for performing the usual operations in photography of both developing and toning the prints, it will be seen that the invention is primarily designed for more perfectly handling a large number of the photographic sheet members whether films or prints during the required process of bathing and washing the same. The present invention carries out this object by agitating the immersing fluid on all sides of the photographic members and also preventing the adherence of separate members together.

In operation, the containers 11 whether all designed for the same solution or different solutions in the several steps of the process, are adapted to freely receive the photographic members 17 edgewise positioned as best shown in Fig. 3 of the drawings upon the foraminous false bottom 16, it being understood that the container is filled with the photographic chemicals or fluid to a height above the members 17 so as to completely immerse the same as illustrated. The inflow of air through the inlets 13 controlled by the valves 15 forces the same through the fluid beneath the floor 16, through the perforations of the latter and upwardly between and upon all sides of the photographic members 17, thus agitating the fluid around the same and thereby perfecting the photographic process.

In providing different baths in the separate containers, the photographic members when completely acted upon by one fluid, may be readily removed and inserted in the next container in the series.

Instead of mounting the photographic members upon the foraminous bottom 16, it is found preferable to provide a lining member 20 open at both the top and bottom and adapted to be suspended within the container 11 by means of brackets 21 adjust-

ably secured to the opposite ends of the lining. Said lining is provided with transverse members such as wires or cords 22 secured through side perforations 23 thereof and upon which the photographic members are edgewise positioned. It is desirable that the top edges of the photographic members be only slightly beneath the upper surface of the process fluid and for this purpose the transverse members 22 are adapted for properly positioning any size of photographic members therein.

The preferable form of the invention is shown in Fig. 4 in the use of the lining member 20, but it is noted that when the latter is employed, it is not essential to include the foraminous bottom 16 as the same no longer forms a supporting means and may therefore advantageously be omitted.

While the forms of the invention herein shown and described are what are believed to be preferable embodiments thereof, it is nevertheless to be understood that minor changes may be made in form, proportion and details of construction without departing from the spirit and scope of the invention as set forth in the appended claims.

Having now fully described my invention and in what manner the same is designed for use, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. A device of the class described comprising a frame work, a bottom tray member positioned thereon, separated containers upon the upper face of said tray member, casings positioned in each of said separated containers, foraminous false bottoms, one within each of said containers, fluid inlets tapped through said tray member in each of said containers and beneath the false bottom thereof, and means for regulating the flow of fluid to said inlets, said false bottom being adapted to edgewise support photographic members thereon within the casings and immersed within the fluid of said containers.

2. A device of the class described comprising a container adapted to receive a photographic solution, a perforated false bottom horizontally positioned therein adjacent the bottom thereof, an air inlet pipe entering said container below said partition, a lining vertically adjustably supported within said container above said false bottom and transverse means carried by said lining for adjustably supporting photographic members immersed within the solution of said container.

3. A photograph developing apparatus comprising a tray member, containers mounted upon said tray member, foraminous false bottoms positioned within each of said containers, air inlets passing through said tray member and communicating with the interior of each of said containers, said false bottoms being adapted to edgewise support photographic members thereon immersed within the fluid of said containers.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK W. NORTON.

Witnesses:
JOHN M. ELY,
ETHELYN GRAU.