No. 828,773. PATENTED AUG. 14, 1906.

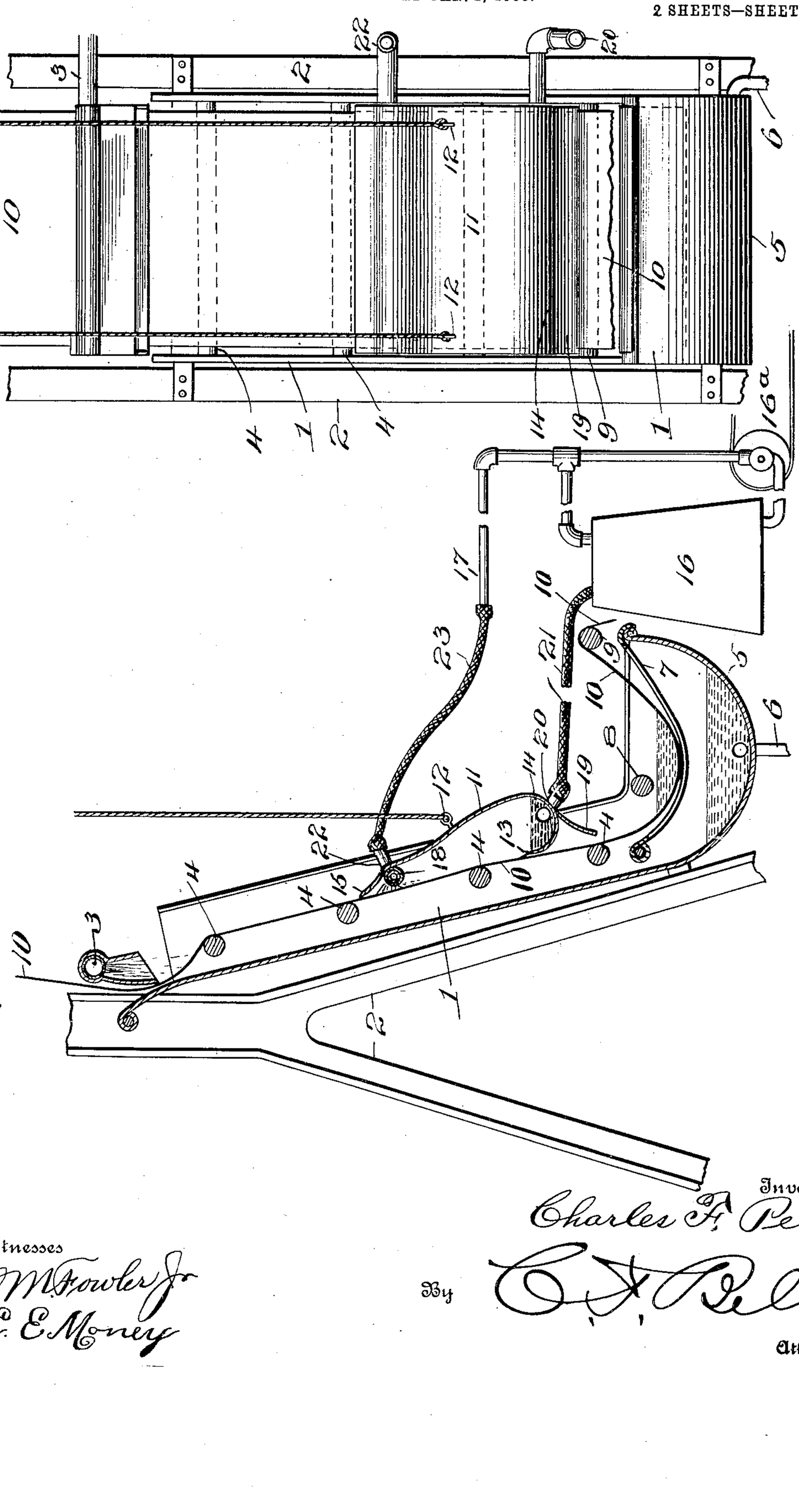
C. F. PEASE.

LIQUID SEPARATOR AND DISTRIBUTER FOR WASHING AND POTASHING BLUE PRINTS.

APPLICATION FILED JAN. 2, 1906.

2 SHEETS—SHEET 1.

Fig. 2.



Witnesses

J. M. Fowler Jr.

L. E. Money

Inventor

Charles F. Pease

By C. F. Pease

Attorney

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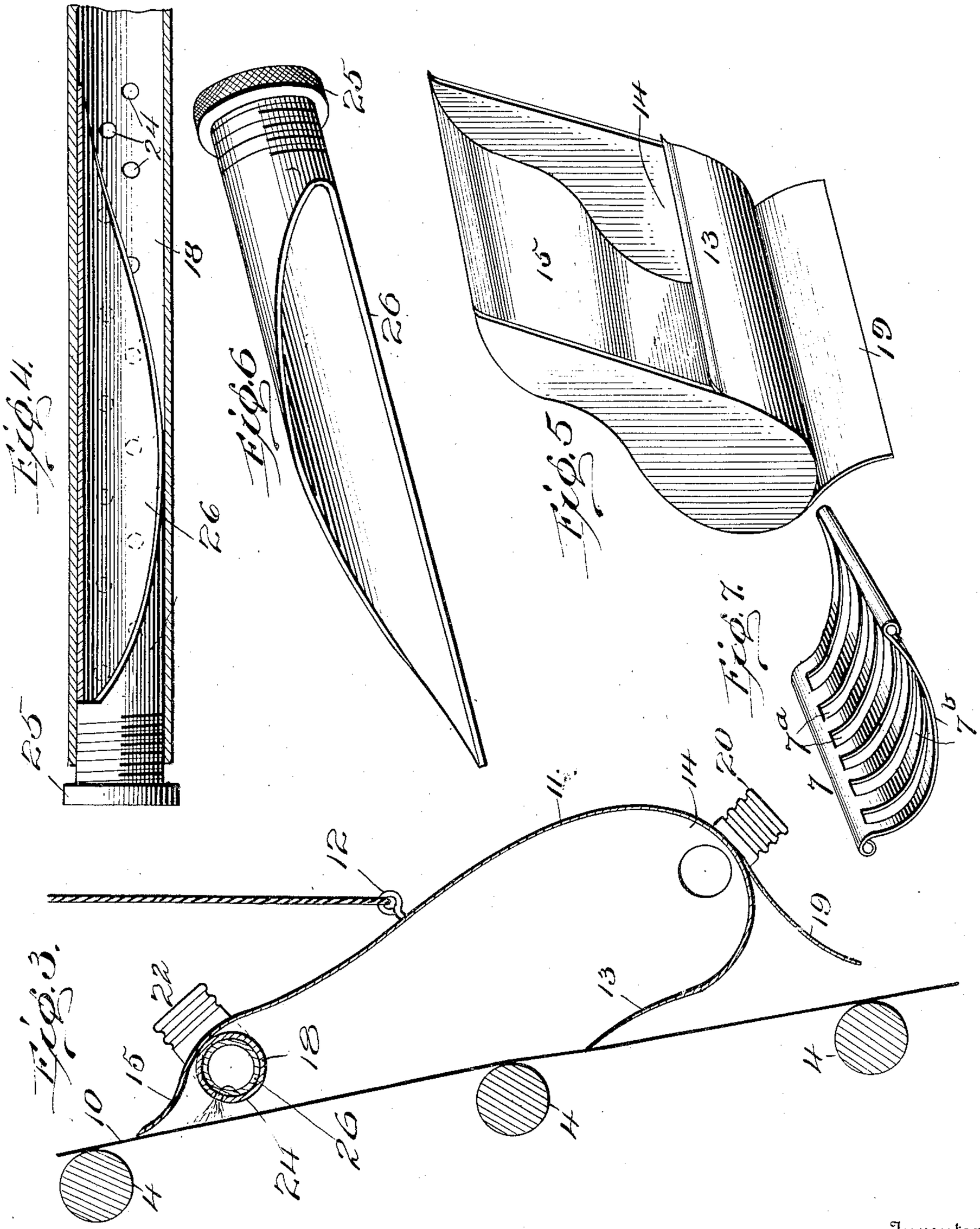

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J. M. Fowler Jr
L. E. Money

Inventor
Charles F. Pease
By C. F. Pease
Attorney

UNITED STATES PATENT OFFICE.

CHARLES F. PEASE, OF CHICAGO, ILLINOIS.

LIQUID SEPARATOR AND DISTRIBUTER FOR WASHING AND POTASHING BLUE PRINTS.

No. 828,773. Specification of Letters Patent. Patented Aug. 14, 1906.

Application filed January 2, 1906. Serial No. 294,094.

To all whom it may concern:

Be it known that I, CHARLES F. PEASE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Liquid Separators and Distributers for Washing and Potashing Blue-Prints, of which the following is a specification.

This invention relates to the treatment of blue-print drawings, photographic prints, and the like, and pertains especially to means for simultaneously washing, toning, and setting or fixing the print or picture upon blue-print or other similar or suitable paper.

While this invention may be used independently and in connection with various machines or devices for spraying and washing by a liquid element, the invention is especially applicable to and is designed as an improvement upon the devices shown in my Patents No. 786,596 and No. 797,910, and for the purpose of exemplifying the invention it is shown applied to the water-tray of said patents.

The various rollers and the rack shown and described in this application are claimed in my application filed March 15, 1906, Serial No. 306,198.

To assist in developing, toning, and fixing the prints, a potash solution is employed, preferably of bichromate of potash, the result being an intensifying of the blue and a clearing of the white, so as to give a much more contrasty print and at the same time fixes the color, so that it is not liable to fade.

The prime object of the invention is to provide a liquid-distributer or potashing device adapted to be suspended in touch with a traveling sheet of blue-prints while the latter are being washed, to furnish in such device means to deflect and carry off the washing element or water from the print before the latter enters the device, to furnish in such device a spray-pipe to control or regulate the discharge of potash or other solution against the prints for toning or fixing them, and to furnish said device with a potash-deflector.

In the accompanying drawings, forming part of this application, Figure 1 is a side elevation of the lower frame part of one of my patent washing and drying machines, showing the application of this invention in vertical section. Fig. 2 is a front view. Fig. 3 is an enlarged sectional view of the potashing attachment. Fig. 4 is a detail longitudinal section of the solution-spray pipe. Fig. 5 is a detail perspective view of the potashing attachment. Fig. 6 is a detail perspective view of the spiral-shaped tube. Fig. 7 is a perspective view of the drag-rack.

The same numeral references denote the same parts throughout the several views of the drawings.

The washing-tray 1 is attached to the lower frame part 2 of the blue-print washing and drying machine under a suitable water-spray pipe 3. A series of rollers 4 extend across the front of the tray and are journaled in the sides of the tray. The basin 5 of the tray is provided with a suitable water-outlet 6 and a rack 7, composed of strips 7^b, spaced by slits 7^a. This rack supports the paper and limits the sagging thereof under weight of the water thereon forming its first bath. A roller 8 is positioned over the rack 7 to prevent the paper or blue-print sheet 10 from being lifted out of the basin as it is drawn over the guide-roller 9 and said rack to the rollers 4.

The device, which is termed the "potashing device" or "liquid-distributer," is made of thin sheet metal, preferably in the shape shown in the drawings, and its closed front 11 is provided with eyes 12 for suspending the device in touch with the traveling sheet 10. The device is open in the rear, and the contact-points of the device with the traveling sheet are only two, one of which is the knife-edge of the wing 13, projecting from a solution or potash trough 14, and the other is the knife-edge of the water-deflector 15. The knife-edge of the deflector and of the wing engage the blue-print sheet and keep it in engagement with the rollers 4. The deflector takes the water from the sheet at its knife-edge, and the wing strips the potash or other solution from the sheet into the trough, whence it is returned to a suitable tank 16. The potash or other solution is forced by a pump 16^a through suitable pipes 17 from the tank to a spray-pipe 18, hereinafter to be described in detail. An apron 19 projects from the trough to carry the water from the device-front 11 onto the blue-print sheet, whence the water drains off at the sides into the basin. The trough is provided with a nipple 20, to which a pipe or hose 21 is connected for returning the potash solution to the tank 16, and the spray-pipe 18 has a similar nipple 22, connected to one of the pipes 17 by a hose 23.

The potash-spray pipe 18 extends through-

out the width of the machine and has perforations 24. This pipe is fitted with a screw-cap 25, having attached thereto a spiral tube 26. It is obvious that a partial revolution of the cap will place the tube in such position relative to the pipe perforations as to vary the spray as desired.

The functions of the potash attachment or liquid-distributer are many—notably, it being located in the path of the water the latter is deflected or removed from the prints during the potashing thereof, it carries the deflected water back to the prints for their first water-bath in advance of the potash-bath, it diverts or removes the potash solution from the prints in advance of the second water-bath and holds said solution for return to a tank for repeated use, and it keeps the blue-print paper spread out upon the rollers 4, with just sufficient bearing to permit free travel of the paper.

In operation the strip or paper sheet of indefinite length bearing prints is drawn upwardly during continuous flow of water and potash solution. The potashing attachment intercepts the water as the latter falls from its spray-pipe, and said attachment carries the water by way of the apron 19 onto the prints below the trough 14 for the first water-washing of the prints. During the passage of the water over the said attachment the prints receive the potash-spray, and as the prints exit from under said attachment they receive a final wash or rinsing by the water-spray. The deflector 15 takes the water from the sheet, and the apron directs its return to the sheet, while the wing 13 diverts the potash solution from the sheet into the trough 14. The water accumulating at the lower loop of the paper, where it rests on the rack 7, and the constant moving of the paper under this water and its upward passage against the downward flow of water from the apron gives the prints a thorough first washing. The knife-edge of the wing 13 removes the surplus water from the prints as they enter the potashing attachment, so that the prints have the first water-wash removed before they receive the potash-wash. Then the potash-wash is removed by the deflector edge and the said wing edge before the prints are finally washed or rinsed.

It is obvious that the said attachment may be used in connection with other liquids or solutions for the treatment of various articles or materials other than blue-prints.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In apparatus for the treatment of blue-prints with two liquids, a distributer adapted to be positioned in touch with the print to separate the liquids and to direct them onto the print separately.

2. In apparatus for the treatment of blue-prints with two liquids flowing thereon, a distributer poised in the path of one of the liquids to deflect this liquid from the print, and means within the distributer to direct the other of said liquids onto the print during said deflection.

3. In apparatus for the treatment of blue or other prints with two liquids flowing thereon, a distributer poised in the path of one of the liquids to deflect this liquid from the print, means carried by the distributer to return the deflected liquid to the print, and means within the distributer to direct the other of said liquids onto the print during said deflection.

4. In a blue-print washer having two liquid discharges to the print, a distributer having a deflector to take one of the liquids from the print in advance of the discharge of the other liquid onto the print.

5. In a blue-print washer having two liquid discharges to the print, a distributer having a deflector to take one of the liquids from the print in advance of the discharge of the other liquid onto the print, the said distributer adapted to return the deflected liquid to the print.

6. In a blue-print washer having two liquid discharges to the print, a distributer having a deflector to take one of the liquids from the print in advance of the discharge of the other liquid onto the print, a trough formed by the distributer and having a wing to divert said other liquid from the print into the trough, and an apron depending from the distributer to return the deflected liquid to the print.

7. In apparatus for the treatment of blue-print sheets with two flowing liquids, a distributer poised in the path of one of the liquids to deflect this liquid from and return it to the sheet, and a spray-pipe to direct the other liquid against the sheet during said deflection.

8. A potash attachment for blue-print washers, comprising a pipe to spray the print with potash, and a potash-receptacle having an edge to direct the potash from the print into the receptacle during the passage of the print over said edge.

9. The combination, with a potash-spray pipe, a potash-supply tank and suitable connections from the tank to the spray-pipe, of a distributer into which said pipe discharges, said distributer having a trough to catch the potash, and a return-pipe from the trough to the tank.

10. The combination, with a traveling sheet of blue-prints, and a water-spraying device, of a potashing attachment positioned in the path of the water-spray to divert the water from the sheet during the potashing of the sheet.

11. The combination, with a liquid-distributer for print-washers, of a perforated

spray-pipe within the distributer, and a spiral tube having a screw-cap working in the pipe to revolve the tube.

12. A device for distributing an intensifying liquid over blue-prints during the washing thereof, comprising a pipe to direct the liquid onto the prints, a receptacle into which the liquid is discharged from the prints, and suitable circulating-pipes connecting a supply-tank with the spray-pipe and with the receptacle.

13. A device for distributing blue-print-intensifying fluid to and removing it from the print, comprising a spray-pipe, a trough under the pipe and having a deflecting-wing to direct the liquid into the trough, and suitable circulating-pipes connecting the device with a supply-tank.

14. In the treatment of blue-prints by a continuous flow of water and intensifying liquid thereon, means for separating the water and liquid comprising a device having an open back adapted to engage the prints for taking the said liquid therefrom, and a closed front adapted to take the water from the prints and return it thereto.

In witness whereof I hereunto set my hand in the presence of two witnesses.

CHARLES F. PEASE.

Witnesses:

GEO. F. MULLIGAN,

KATHERINE CULLINAN