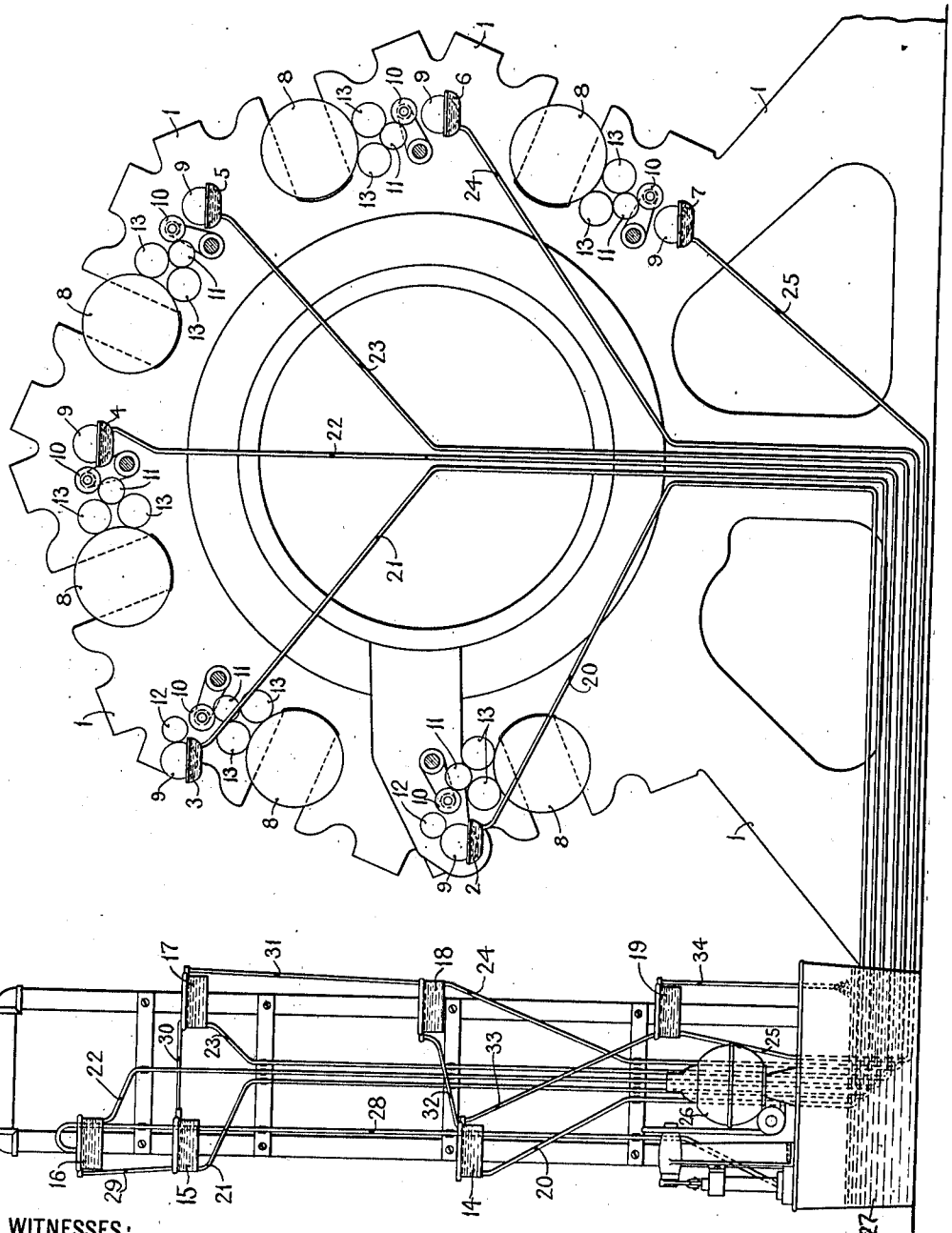
G. E. PANCOAST.

PRESS.

APPLICATION FILED JAN. 29, 1900.

956,864.

Patented May 3, 1910.



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PRESS.

956,864. Specification of Letters Patent. Patented May 3, 1910.

Application filed January 29, 1900. Serial No. 3,100.

To all whom it may concern:

Be it known that I, GEORGE E. PANCOAST, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Presses, of which the following is a specification.

My invention relates to presses, and more especially to means for supplying liquid for use in presses, and particularly to means for supplying damping liquid in lithographic presses.

It has for its object to provide better and more efficient means for supplying liquid to one or more fountains in a press, and especially for supplying damping liquid to the water fountain or fountains of a lithographic press; and also to provide improved and more efficient means for maintaining a desired level of liquid in the fountain or fountains of a press.

It consists of the novel devices herein shown and described.

In the drawing accompanying this specification and forming a part hereof, I have shown my invention as embodied in and applied to the damping mechanism of a multi-color lithographic printing press. It is evident, however, that my invention is not limited to use in such a press, as it may be employed with advantage, in at least some of its features, in any kind of a press or any kind of a machine having liquid distributing or liquid applying mechanism; nor is it limited to supplying damping liquid, as it may be used, if desired, for supplying ink to any kind of a press, or for supplying any liquid to the fountain or fountains of a press. In the drawing accompanying this specification, I have, however, shown my invention as applied, in its preferred form, to a multi-color lithographic press, and to supplying water or other suitable damping liquid for use in such a press, and I will now proceed to describe in detail the said embodiment of my invention, as shown in the drawing.

The drawing represents a side view of a multi-color lithographic press with my improvement, in its preferred form, applied thereto, all parts of the multi-color lithographic press, not necessary to be shown to make intelligible the application of my invention to the press, being omitted.

In the press, shown in the drawings, 1 represents the frame-work of the press, and 2, 3, 4, 5, 6 and 7 represent a series of fountains for supplying damping liquid for application to printing cylinders or forms 8, 8 mounted in the press concentrically around an impression drum (not shown). The liquid fountains 2—7 inclusive form a series of liquid fountains, one for each printing form, arranged at different levels. In the form of my invention, shown in the drawings, these are supplied with water or other suitable damping liquid in a manner presently to be described. 9, 9 are the water fountain rollers arranged in the fountains 2—7 in the usual manner. Ductors 10 arranged and operating in the usual manner take the damping liquid from the water fountain roller and deliver it directly to rider 11 in the usual manner in all of the cases shown in the drawings, except the two at the left hand side where the ductors instead of taking the damping liquid directly from the water fountains 9 take it from supplementary rollers 12, which rotate with and take the damping solution from the water fountain rollers 9. The supplementary rollers 12 are used in the two positions shown, simply for the sake of convenience, and do not in any way affect my present invention. Riders 11 deliver the damping solution to water applying rollers 13 in the usual manner.

In the best embodiment of the invention the means for supplying the liquid to the fountains are constructed to maintain the liquid at an intermediate level in the fountains so that the fountains can not overflow or become dry.

In the embodiment of my invention, shown in the drawing, my improved means for furnishing a supply of liquid to the fountains of the press, and for maintaining the desired intermediate liquid level in each fountain consist of a series of liquid receptacles, one for each fountain, each receptacle arranged at the same level as its fountain, and a pipe connecting each receptacle with its fountain for maintaining the same liquid level in the fountain as in the receptacle. The receptacles referred to are, as shown,

preferably placed outside of the press. These receptacles are numbered in the drawing 14, 15, 16, 17, 18 and 19 and correspond respectively with fountains 2, 3, 4, 5, 6 and 7. The pipes connecting the different receptacles with their corresponding fountains are as follows: pipe 20 connecting receptacle 14 with fountain 2, pipe 21 connecting receptacle 15 with fountain 3, pipe 22 connecting receptacle 16 with fountain 4, pipe 23 connecting receptacle 17 with fountain 5, pipe 24 connecting receptacle 18 with fountain 6 and pipe 25 connecting receptacle 19 with fountain 7. By means of these pipes the same liquid level is maintained in each fountain as in its corresponding receptacle.

The desired level in each fountain is maintained by supplying liquid thereto, preferably continuously, and by providing for an overflow for carrying any excess of the liquid away, preferably to a lower fountain. In the embodiment of my invention, shown in the drawing, the liquid is supplied to and the overflow carried away from the receptacles, although my invention is not limited to this form of embodiment, as it is evident that for some features of my invention the supply of the liquid could be made directly to the fountain or fountains themselves and the overflow proceed directly from the fountain or fountains themselves instead of to or from the receptacle or receptacles, the important feature being that the devices are provided for supplying a liquid to the distributing mechanism in a press such devices being located at levels corresponding to levels of the respective distributing mechanism and each supplied with an excess of liquid and allowed to overflow, whereby a level may be maintained in the said devices at the desired level or head. In the form shown, I supply liquid continuously to the highest receptacle 16 by means of a pump 26, which forces the liquid from a reservoir 27 through pipe 28, discharging it into the highest receptacle 16. The excess of liquid from this receptacle overflows through an overflow pipe 29 into the next lower receptacle 15. The excess from this receptacle passes through overflow pipe 30 to the next lower receptacle 17, and so on to the lower receptacles through the overflow pipe 31 leading to receptacle 18, overflow pipe 32 leading to receptacle 14, and overflow pipe 33 leading to the lowest receptacle 19. From this lowest receptacle an overflow pipe 34 discharges the excess back into reservoir 27. By reason of the fact that the several overflow pipes communicate with the receptacles at points below the tops of the receptacles and below the tops of the corresponding fountains the liquid is maintained substantially at a predetermined intermediate level both in the receptacles and in the fountains. By these means, the desired liquid level can be maintained in each receptacle, and consequently in its corresponding fountain. Any other suitable means than the pump 26, shown in the drawing, may, of course, be employed for supplying liquid to the highest receptacle or fountain, or to any one of the receptacles or fountains. As the details of pump 26 form no part of the invention, they are not shown in full, and will not be further described.

In the form of press, shown in the drawing, the inking mechanism is omitted for the sake of clearness. If desired, my improved device could be used for supplying ink to the ink fountain or fountains of a press or for supplying any liquid to a fountain or fountains in a press. It is of especial value, however, in connection with supplying water fountains of a lithographic press, and especially of a multi-color lithographic press.

By means of my improvement, the liquid in the fountains can always be maintained at a desired level. This is of great value, especially in the damping or inking mechanism of a press, as thereby the amount of damping liquid or of ink applied to the printing forms does not vary, but is the same at all times. My device is of especial value in multi-color presses where the damping or inking mechanism is generally not easily accessible, and where supervision of the same is difficult. My improved device is automatic in operation and requires practically no supervision, the level of the liquid in the different fountains being always and automatically maintained at the desired point. The use of the outside auxiliary liquid levels of the different receptacles simplifies the construction and operation of such a press, and enables the operator to discover at once any irregularity in the supply of liquid.

Many changes from the form of devices, shown in the drawing, may, of course, be made without departing from my invention.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a printing press, the combination with a plurality of distributing mechanisms arranged at different levels, of a plurality of devices located at corresponding levels for supplying said distributing mechanisms with liquid, means for furnishing an excess of liquid to one of said devices, and an overflow for carrying the excess of the liquid to a lower device, whereby a supply of liquid may be maintained in said devices.

2. In a printing press, the combination with a plurality of distributing mechanisms arranged at different levels, of a plurality of devices located at corresponding levels for supplying said distributing mechanisms with liquid, means for furnishing an excess of liquid to one of the devices, an overflow for carrying the excess of the liquid to a

lower device, and an overflow for carrying an excess of liquid from said lower device, whereby a supply of liquid may be maintained in said devices at a desired level or head.

3. In a printing press, the combination with a plurality of distributing mechanisms arranged at different levels, of a plurality of devices located at corresponding levels for supplying said distributing mechanisms with liquid, means for furnishing an excess of liquid to the highest one of the devices, and an overflow for carrying the excess of liquid from each device to the next lower device, whereby a supply of liquid may be maintained in each device at a desired level or head.

4. In a printing press, the combination with a plurality of distributing mechanisms arranged at different levels, of a plurality of devices located at corresponding levels for supplying said distributing mechanisms with liquid, means for furnishing an excess of liquid to the highest one of the devices, an overflow for carrying the excess of liquid from each device to the next lower device, and an overflow for carrying away any excess of liquid from the lowest device, whereby a supply of liquid may be maintained in each device at a desired level or head.

5. In a lithographic printing press, the combination with a plurality of damping mechanisms arranged at different levels, of a plurality of devices located at corresponding levels for supplying the damping mechanisms with damping liquid, means for furnishing an excess of damping liquid to one of the devices, and an overflow for carrying the excess of the liquid to a lower device, whereby a supply of damping liquid may be maintained in said devices.

6. In a lithographic printing press, the combination with a plurality of damping mechanisms arranged at different levels, of a plurality of devices located at corresponding levels for supplying the damping mechanisms with damping liquid, means for furnishing an excess of damping liquid to one of the devices, an overflow for carrying the excess of the liquid to a lower device and an overflow for carrying any excess of liquid from said lower device, whereby a supply of liquid may be maintained in said devices at a desired level or head.

7. In a lithographic printing press, the combination with a plurality of damping mechanisms arranged at different levels, of a plurality of devices located at corresponding levels for supplying the damping mechanisms with damping liquid, means for furnishing an excess of damping liquid to the highest one of the devices and an overflow for carrying the excess of liquid from each device to the next lower device, whereby a supply of liquid may be maintained in each device at a desired level or head.

8. In a lithographic printing press, the combination with a plurality of damping mechanisms arranged at different levels, of a plurality of devices located at corresponding levels for supplying the damping mechanisms with damping liquid, means for furnishing an excess of damping liquid to the highest one of the devices, an overflow for carrying the excess of liquid from each device to the next lower device, and an overflow for carrying away any excess of liquid from the lowest device, whereby a supply of liquid may be maintained in each device at a desired level or head.

9. In a printing press the combination of a liquid fountain, a liquid receptacle arranged at the same level as the fountain, and a pipe connecting the receptacle and the fountain for maintaining the same liquid level in the fountain as in its receptacle.

10. In a printing press the combination of a liquid fountain, a liquid receptacle arranged at the same level as the fountain, a pipe connecting the receptacle and the fountain for maintaining the same liquid level in the fountain as in its receptacle, means for furnishing a supply of liquid to the liquid receptacle and an overflow for carrying away any excess of liquid, whereby liquid may be supplied to the fountain and may be maintained therein at a desired level.

11. In a printing press the combination of a series of liquid fountains arranged at different levels, a series of liquid receptacles one for each fountain, each receptacle arranged at the same level as its fountain, and pipes connecting the receptacles with their respective fountains for maintaining the same liquid level in each fountain as in the receptacle connected therewith.

12. In a printing press the combination of a series of liquid fountains arranged at different levels, a series of liquid receptacles one for each fountain, each receptacle arranged at the same level as its fountain, pipes connecting the receptacles with their respective fountains for maintaining the same liquid level in each fountain as in the receptacle connected therewith, means for furnishing a supply of liquid to one of the receptacles, and an overflow for carrying any excess of liquid to a lower receptacle or fountain, whereby liquid may be supplied to each fountain.

13. In a printing press the combination of a series of liquid fountains arranged at different levels, a series of liquid receptacles one for each fountain, each receptacle arranged at the same level as its fountain, pipes connecting the receptacles with their respective fountain for maintaining the same liquid level in each fountain as in the receptacle connected therewith, means for

furnishing a supply of liquid to one of the receptacles, an overflow for carrying any excess of liquid to a lower receptacle or fountain, and an overflow for carrying any excess of liquid therefrom, whereby liquid may be supplied to each fountain and may be maintained therein at a desired level.

14. In a printing press the combination of a series of liquid fountains arranged at different levels, a series of liquid receptacles one for each fountain, each receptacle arranged at the same level as its fountain, pipes connecting the receptacles with their respective fountains for maintaining the same liquid level in each fountain as in the receptacle connected therewith, means for furnishing a supply of liquid to the highest one of the receptacles, and an overflow for carrying any excess of liquid from each receptacle to the next lower receptacle or fountain, whereby liquid may be supplied to each fountain and may be maintained therein at a desired level.

15. In a printing press the combination of a series of liquid fountains arranged at different levels, a series of liquid receptacles one for each fountain, each receptacle arranged at the same level as its fountain, pipes connecting the receptacles with their respective fountains for maintaining the same liquid level in each fountain as in the receptacle connected therewith, means for furnishing a supply of liquid to the highest one of the receptacles, an overflow for carrying any excess of liquid from each receptacle to the next lower receptacle or fountain, and an overflow for carrying any excess of liquid from the lowest receptacle or fountain whereby liquid may be supplied to each fountain and may be maintained therein at a desired level.

16. In a lithographic printing press the combination of a water fountain, a damping liquid receptacle arranged at the same level as the fountain, and a pipe connecting the receptacle and the fountain for maintaining the same liquid level in the fountain as in its receptacle.

17. In a lithographic printing press the combination of a water fountain, a damping liquid receptacle arranged at the same level as the fountain, a pipe connecting the receptacle and the fountain for maintaining the same liquid level in the fountain as in its receptacle, means for furnishing a supply of liquid to the liquid receptacle and an overflow for carrying away any excess of liquid, whereby liquid may be supplied to the fountain and may be maintained therein at a desired level.

18. In a lithographic printing press the combination of a series of water fountains arranged at different levels, a series of damping liquid receptacles one for each fountain, each receptacle arranged at the same level as its fountain, and pipes connecting the receptacles with their respective fountains for maintaining the same liquid level in each fountain as in the receptacles connected therewith.

19. In a lithographic printing press the combination of a series of water fountains arranged at different levels, a series of damping liquid receptacles one for each fountain, each receptacle arranged at the same level as its fountain, pipes connecting the receptacles with their respective fountains for maintaining the same liquid level in each fountain as in the receptacle connected therewith, means for furnishing a supply of liquid to one of the receptacles, and an overflow for carrying any excess of liquid to a lower receptacle or fountain, whereby liquid may be supplied to each fountain.

20. In a lithographic printing press the combination of a series of water fountains arranged at different levels, a series of damping liquid receptacles one for each fountain, each receptacle arranged at the same level as its fountain, pipes connecting the receptacles with their respective fountains for maintaining the same liquid level in each fountain as in the receptacle connected therewith, means for furnishing a supply of liquid to one of the receptacles, an overflow for carrying any excess of liquid to a lower receptacle or fountain, and an overflow for carrying any excess of liquid therefrom, whereby liquid may be supplied to each fountain and may be maintained therein at a desired level.

21. In a lithographic printing press the combination of a series of water fountains arranged at different levels, a series of damping liquid receptacles one for each fountain, each receptacle arranged at the same level as its fountain, pipes connecting the receptacles with their respective fountains for maintaining the same liquid level in each fountain as in the receptacle connected therewith, means for furnishing a supply of liquid to the highest one of the receptacles, and an overflow for carrying any excess of liquid from each receptacle to the next lower receptacle or fountain, whereby liquid may be supplied to each fountain and may be maintained therein at a desired level.

22. In a lithographic printing press the combination of a series of water fountains arranged at different levels, a series of damping liquid receptacles one for each fountain, each receptacle arranged at the same level as its fountain, pipes connecting the receptacles with their respective fountains for maintaining the same liquid level in each fountain as in the receptacle connected therewith, means for furnishing a supply of liquid to the highest one of the receptacles, an overflow for carrying any

excess of liquid from each receptacle to the next lower receptacle or fountain, and an overflow for carrying any excess of liquid from the lowest receptacle or fountain, whereby liquid may be supplied to each fountain and may be maintained therein at a desired level.

23. In a printing press the combination of a liquid fountain, a liquid receptacle arranged outside of the press at the same level as the fountain, and a pipe connecting the receptacle and the fountain for maintaining the same liquid level in the fountain as in its receptacle.

24. In a printing press the combination of a series of liquid fountains arranged at different levels, a series of liquid receptacles one for each fountain, each receptacle arranged outside of the press at the same level as its fountain, and pipes connecting the receptacles with their respective fountains for maintaining the same liquid level in each fountain as in the receptacle connected therewith.

25. In a multi-color lithographic press the combination of a series of water fountains arranged at different levels, a series of damping liquid receptacles one for each fountain, each receptacle arranged outside of the press at the same level as its fountain, and pipes connecting the receptacles with their respective fountains for maintaining the same liquid level in each fountain as in the receptacles connected therewith.

26. In a press the combination of a liquid fountain, a liquid receptacle arranged at the same level as the fountain, a pipe connecting the receptacle and the fountain for maintaining the same liquid level in the fountain as in its receptacle, means for furnishing a continuous supply of liquid to the liquid receptacle and an overflow for carrying away any excess of liquid, whereby liquid may be supplied to the fountain and may be maintained therein at a desired level.

27. In a multi-color lithographic press the combination of a series of water fountains arranged at different levels, a series of damping liquid receptacles one for each fountain, each receptacle arranged at the same level as its fountain, pipes connecting the receptacles with their respective fountains for maintaining the same liquid level in each fountain as in the receptacle connected therewith, means for furnishing a continuous supply of liquid to one of the receptacles, and an overflow for carrying any excess of liquid to a lower receptacle or fountain, whereby liquid may be supplied to each fountain.

28. In a press the combination of a series of liquid fountains arranged at different levels, a series of liquid receptacles one for each fountain, each receptacle arranged at the same level as its fountain, pipes connecting the receptacles with their respective fountains for maintaining the same liquid level in each fountain as in the receptacle connected therewith, a reservoir of liquid, means for forcing the liquid from the reservoir to the highest one of the receptacles, an overflow for carrying any excess of liquid from each receptacle to the next lower receptacle or fountain and an overflow for carrying any excess of liquid from the lowest receptacle or fountain to the reservoir, whereby a continuous circulation of liquid throughout the system, a continuous supply thereof to each fountain, and a desired level of liquid in each fountain may be maintained.

29. The combination with a printing press including a liquid applying mechanism, of a fountain for supplying the said applying mechanism with liquid, and automatic means located outside of the press and having a single connection with said fountain for maintaining the liquid substantially at a predetermined level in said fountain.

30. The combination with a printing press including a plurality of liquid applying mechanisms, of a plurality of fountains for supplying said applying mechanisms with liquid, and automatic mechanisms located outside of the press and each having a single connection with the corresponding fountain in the press for maintaining the liquid substantially at predetermined levels in said fountains.

31. The combination with a printing press including printing mechanism, a frame in which said printing mechanism is mounted, and liquid applying mechanism, of a fountain for supplying the said applying mechanism with liquid, and automatic means independent of overflow from the fountain located outside of said frame for maintaining the liquid substantially at a predetermined intermediate level in said fountain.

32. The combination with a printing press including a plurality of printing mechanisms, a frame in which said printing mechanisms are mounted, and a plurality of liquid applying mechanisms, of a plurality of fountains for supplying said applying mechanisms with liquid, and automatic means independent of overflow from the fountain located ouside of said frame for maintaining the liquid substantially at predetermined intermediate levels in each of the said fountains.

33. In a printing press, the combination of a plurality of printing mechanisms, a frame in which said printing mechanisms are mounted, a plurality of liquid distributing mechanisms arranged at different levels, a plurality of fountains arranged at corresponding levels for supplying said distributing mechanisms with liquid, and means lo-

cated outside of said frame for maintaining the supply of liquid in each of said fountains.

34. In a printing press, the combination of a plurality of printing mechanisms, a frame in which said printing mechanisms are mounted, a plurality of liquid distributing mechanisms arranged at different levels, a plurality of fountains arranged at corresponding levels for supplying said distributing mechanisms with liquid, and automatic means located outside of said frame for maintaining the liquid at a substantially uniform level in each of said fountains.

35. In a printing press, the combination of a plurality of liquid distributing mechanisms arranged at different levels, a plurality of receptacles located at corresponding levels for supplying said distributing mechanisms with liquid, means for furnishing an excess of liquid to each of said receptacles, and means for carrying the excess of liquid from said receptacles whereby the liquid is maintained at a desired level.

36. The combination of a liquid applying mechanism, a fountain for supplying said mechanism with liquid, and means for supplying said fountain with liquid, said means being located at a distance from the fountain and having a single connection therewith.

37. The combination with a printing press including a plurality of printing mechanisms, a frame in which said printing mechanisms are mounted, and a plurality of liquid-applying mechanisms, of a plurality of fountains for supplying said applying mechanisms with liquid, and automatic means located outside of the said frame and having a single connection with each of said fountains for maintaining the liquid substantially at predetermined intermediate levels in each of said fountains.

38. The combination of a plurality of liquid applying mechanisms arranged at different levels, a plurality of fountains located at corresponding levels for supplying said applying mechanisms with liquid, and means for maintaining the liquid substantially at predetermined levels in said fountains.

39. The combination of a plurality of liquid applying mechanisms arranged at different levels, a plurality of devices located at corresponding levels for supplying said applying mechanisms with liquid, means for furnishing an excess of liquid to one of said devices, and means for carrying the excess of liquid to a lower device.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

GEORGE E. PANCOAST.

Witnesses:

JOSEPH P. KNAPP,

GUSTAV H. BUCK.