

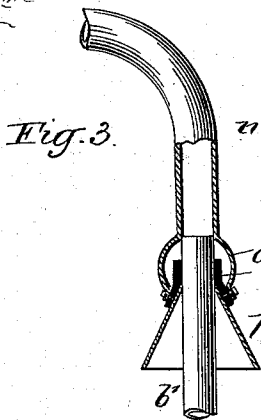
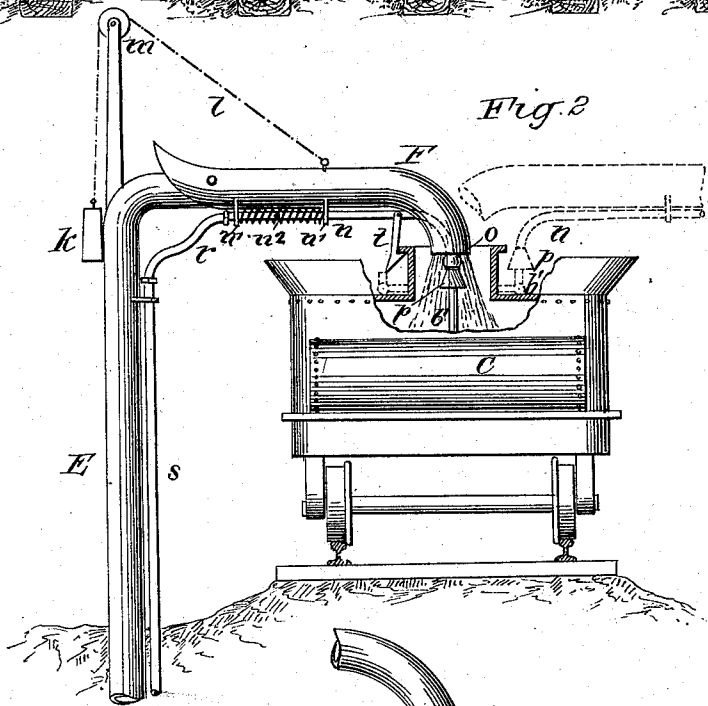
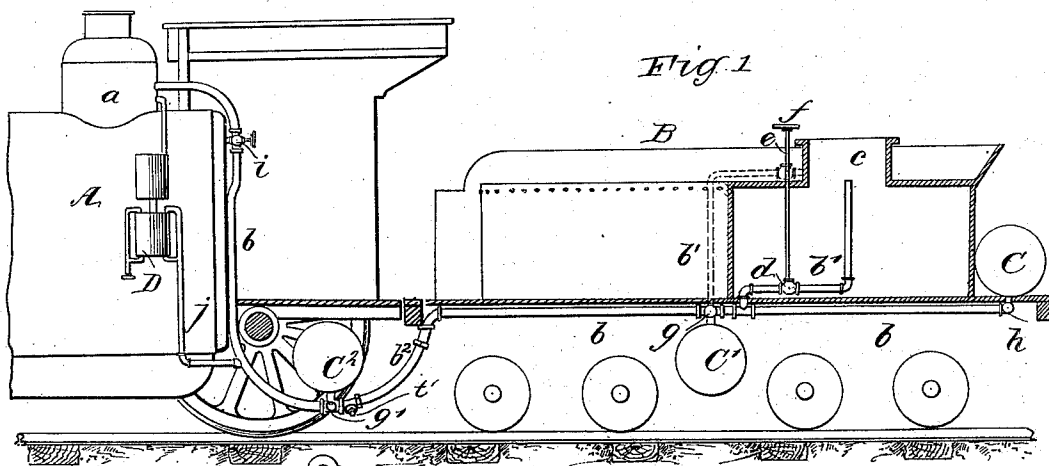
(No Model.)

G. P. GLENN.

ACTUATING APPARATUS FOR WATER ELEVATORS.

No. 535,368.

Patented Mar. 12, 1895.



WITNESSES:

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GEORGE P. GLENN, OF JACKSONVILLE, FLORIDA.

ACTUATING APPARATUS FOR WATER-ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 535,368, dated March 12, 1895.

Application filed July 29, 1893. Serial No. 481,859. (No model.)

To all whom it may concern:

Be it known that I, GEORGE P. GLENN, of Jacksonville, in the county of Duval and State of Florida, have invented a new and Improved
5 Actuating Apparatus for Water-Elevators, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a side elevation, partly in section, of my improved apparatus. Fig. 2 is a rear view, partly in section; and Fig. 3 is an enlarged side elevation, partly in section, of the connection between the parts of the pneumatic
10 conducting pipe.

15 Similar letters of reference indicate corresponding parts in all the views.

The object of my invention is to furnish apparatus adapted to utilize steam and compressed air, separately or in combination, for
20 actuating pneumatic water elevators, also to provide a coupling device for connecting the pneumatic pipes of the apparatus.

My invention consists in a steam or air pipe carried by the locomotive and tender and
25 provided with suitable valves, and an air pipe carried by the movable joint of the water supply pipe and furnished with a coupling device for automatically forming a connection with the pipe carried by the tender, all as
30 will be hereinafter more fully described.

With the steam dome *a* of the locomotive A, is connected a steam pipe *b*, which passes below the foot-board of the locomotive and underneath the floor of the tender B, communicating with the cylinder C at the rear
35 of the tender. A branch *b'* of the pipe *b* passes upward through the floor of the tender into the water space, and extends horizontally to a point below the opening *c* through which
40 it extends upwardly above the level of the water. The horizontal part of the branch *b'* is provided with a valve *d*, having an elongated stem *e* which reaches through the top of
45 the tank and is furnished at its upper end with a hand wheel *f*. The two parts of pipe, *b*, carried respectively by the locomotive and the tender are connected by the flexible pipe, *b*².

50 The pipe *b* communicates with a cylinder C' suspended underneath the floor of the tender, and is also connected with the cylinder C² placed under the foot-board of the locomotive.

The connection between the cylinders C' and C² and the pipe *b*, is made through three-way valves *g*, *g'*, and the connection between the pipe *b* and the cylinder C, is made
55 through an ordinary valve *h*. In the pipe *b* near the dome *a* is placed a valve *i*. Where the locomotive is provided with an air pump D, the air eduction pipe *j* is connected with
60 the pipe *b*, and the cylinders C, C', C², are charged with air by the pump.

A water supply pipe E rises from the water supply tank and is provided at its upper end with a water discharge nozzle F, which
65 is pivoted to the horizontal end of the pipe E, and the said nozzle is counterbalanced by a weight *k*, which is connected with the nozzle by a cord or chain *l* extending over a pulley *m*.

An air pipe *n*, which penetrates the end of the nozzle F, is suspended from the nozzle F
70 by eyes *n'*, and is curved downwardly in the said nozzle. It is provided with a spherical end *o*, to which is fastened the funnel *p*, and an intervening sleeve *q* of elastic material is
75 inserted between the spherical end of the pipe *n* and the small end of the funnel. The funnel *p* forms a guide for the branch *b'* of the pipe *b*, so that when the nozzle is inserted in the top of the water tank, the funnel *p* will
80 receive the upper end of the said branch and guide it so that it will pass through the elastic sleeve *q* into the spherical end *o* of the pipe *n*, thus forming an air and steam tight
85 joint between the branch *b'* and the pipe *n*. On the pipe *n* between the eyes *n'* is placed a spiral spring *n*² which is secured at the middle to the said pipe *n*, so that when the end
90 of the pipe may be drawn in one direction or the other, it will, when released, return to a central position. The pipe *n* is connected by a section *r* of a flexible tube with the pipe *s*
95 extending downwardly into the water supply tank, and the said tank is made steam and air tight so that after the connection between the pipe *n* and the branch *b'* is made, steam
100 or air, or a combination of both may be passed through the pipe *b*, the branch *b'* and the pipes *n*, *s*, to the tank, creating sufficient pressure above the water in the tank to force it upwardly through the pipe E.

Where locomotives are not provided with pneumatic air pumps, steam alone will be used for the purpose of raising the water.

Where air pumps are used, should it become desirable to fill the water tank without drawing upon the boiler for steam, by operating the air pump, air may be drawn from the cylinders C, C', C².

To hold the pipe *n* in connection with the branch *b'*, the nozzle F is furnished with a gravity catch *t*, which engages a flange on the top of the water tank. Where, for any reason, it is undesirable to pass the branch pipe *b'*, through the bottom of the water tank, it may be carried up outside of the water tank, as indicated in dotted lines, and branched above the water tank, in which case the pipe *n* will not enter the nozzle F, but will be along the under side thereof, as shown in dotted lines.

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

1. The combination, with a pneumatically operated water elevator, a water discharge pipe and a water discharge nozzle, of a pneumatic supply pipe attached to said discharge pipe, a pneumatic supply nozzle carried by said discharge nozzle, and a flexible pipe joining said supply pipe with said supply nozzle, substantially as specified.

2. The combination with the water discharge pipe and the longitudinally movable pneumatic supply pipe, of a spring, the central portion of which is secured to the said supply pipe, and stops held on the discharge pipe and adapted to be engaged by the respective ends of the spring, substantially as described.

3. In an actuating system for a pneumatic water elevator and in connection with a locomotive and its tender, the combination, with the discharge nozzle of said water elevator, of a pneumatic supply nozzle carried by said discharge nozzle and connected with the pneumatic supply pipe of said elevator, a conical guide at the mouth of said supply nozzle, and an elastic rubber tube located in the mouth of said supply nozzle and adapted to make close connection with the pneumatic conducting pipe carried by the tender, substantially as specified.

4. The combination of a locomotive and tender, a valved pneumatic conducting pipe carried by said locomotive, a valved pneumatic conducting pipe carried by said tender, a flexible pipe joining said conducting pipes, and a water inlet to the tank of said tender, with a pneumatically operated water elevator, a water discharge pipe, a discharge nozzle, a pneumatic supply nozzle, a pneumatic supply pipe, and a flexible pipe joining said supply nozzle with said supply pipe, substantially as specified.

5. In an actuating system for a pneumatic water elevator, and in combination with a locomotive and tender, a conducting pipe carried by the tender and terminating at the water inlet of said tender, a supply nozzle carried by the discharge nozzle of said water elevator and adapted to connect automatically with said conducting pipe carried by the tender, a supply pipe for said elevator connected with said supply nozzle and carried to said elevator by the discharge pipe of the same, and a flexible joint connecting said supply nozzle with said supply pipe, substantially as specified.

6. In an actuating system for a pneumatic water elevator and in combination with a locomotive and tender, a steam generator, an air compressing apparatus operated by said steam generator, a valved and jointed conducting pipe extending from said air compressing apparatus to the water inlet of said tender, air tanks connected with said conducting pipe, the water inlet to the tender tank, a supply nozzle carried by the discharge nozzle of said elevator, a conical guide at the mouth of said supply nozzle, an elastic tubular connection located within the mouth of said supply nozzle and adapted to connect closely with said conducting pipe at the water inlet of the tender, and a flexible joint connecting said supply nozzle with the supply pipe of said elevator, substantially as specified.

7. In an actuating system for a pneumatic water elevator, the combination of a locomotive and tender, the steam generator of said locomotive, the water inlet for the water tank of said tender, an air pump carried by said locomotive, a steam pipe connecting said air pump with the steam space of said steam generator, a branched conducting pipe carried by said locomotive and tender and extending to said water inlet, a valve in said conducting pipe near said inlet, means for operating said valve, air tanks carried by said locomotive and tender, connections joining said conducting pipe with said air tanks and with said air pump, a supply nozzle carried by the discharge nozzle of said elevator, a conical guide in the mouth of said supply nozzle, an elastic tubular connection located within the mouth of said supply nozzle and adapted to connect closely with the end of said conducting pipe at said water inlet, and a flexible joint connecting said supply nozzle with the supply pipe of said elevator, substantially as specified.

GEORGE P. GLENN.

Witnesses:

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FRANK CASSIDY.