J. B. Atwater.

Railroad Tank Feeder.

No. 41,047. Patented Jan. 5, 1864.

Fig. 3.

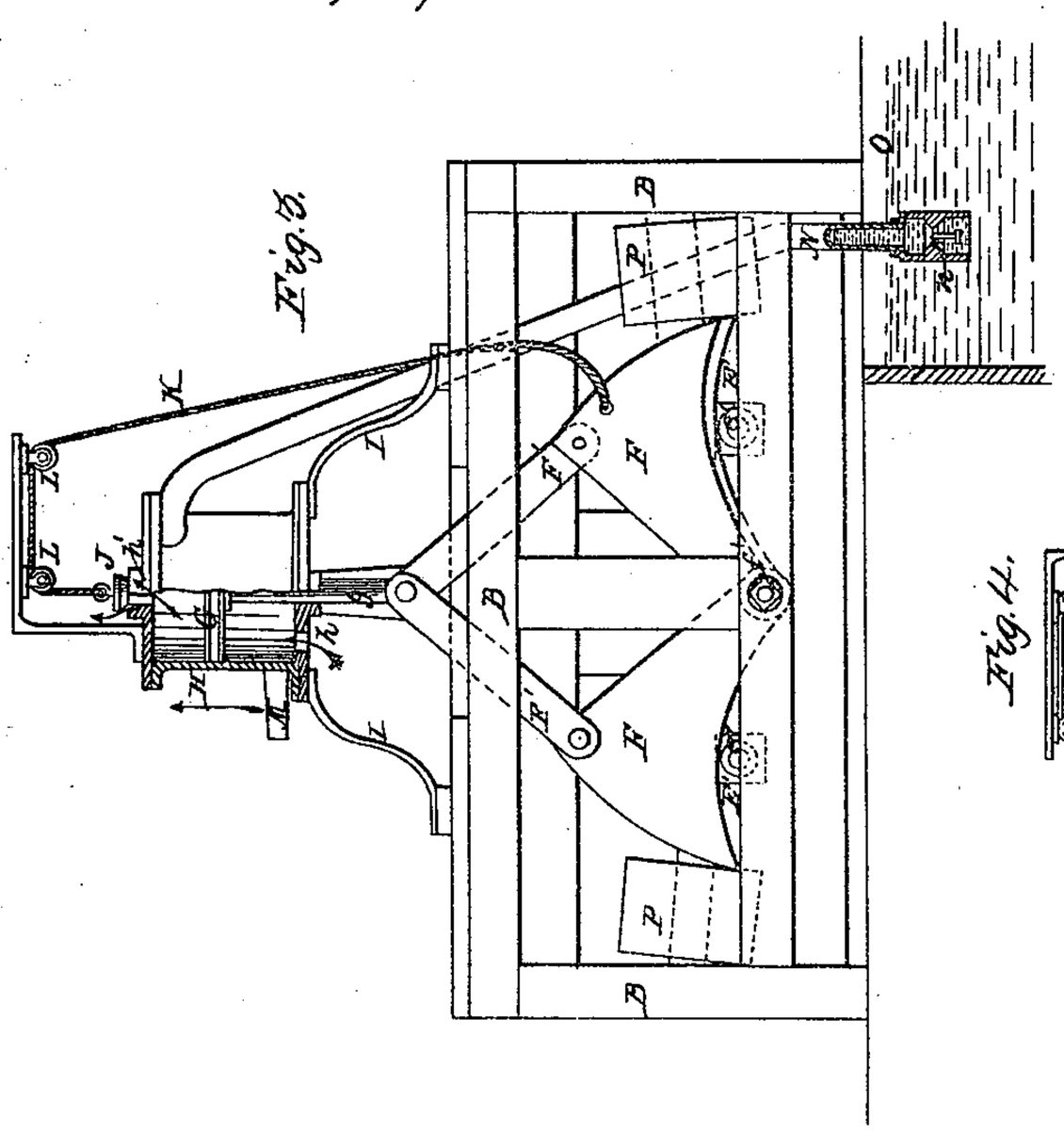


Fig. 4.

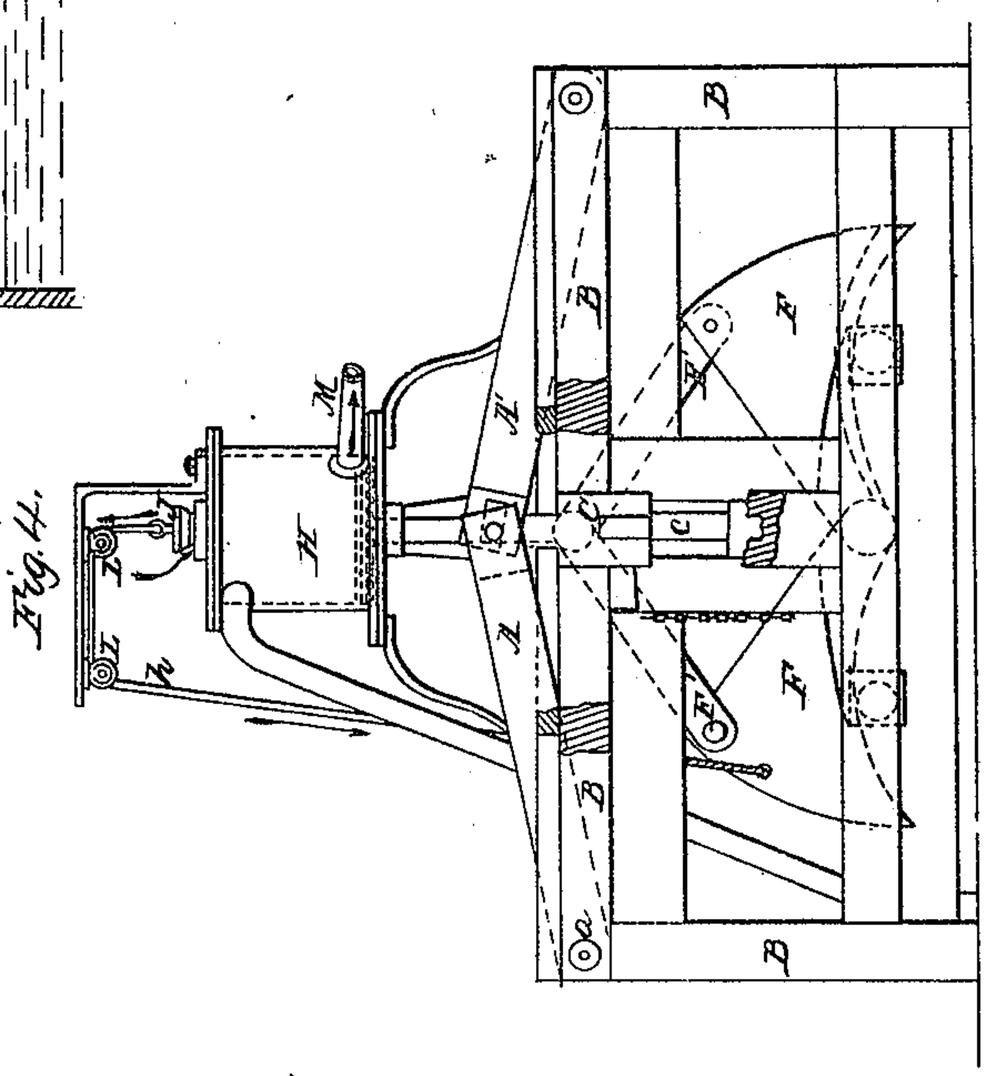


Fig. 2.

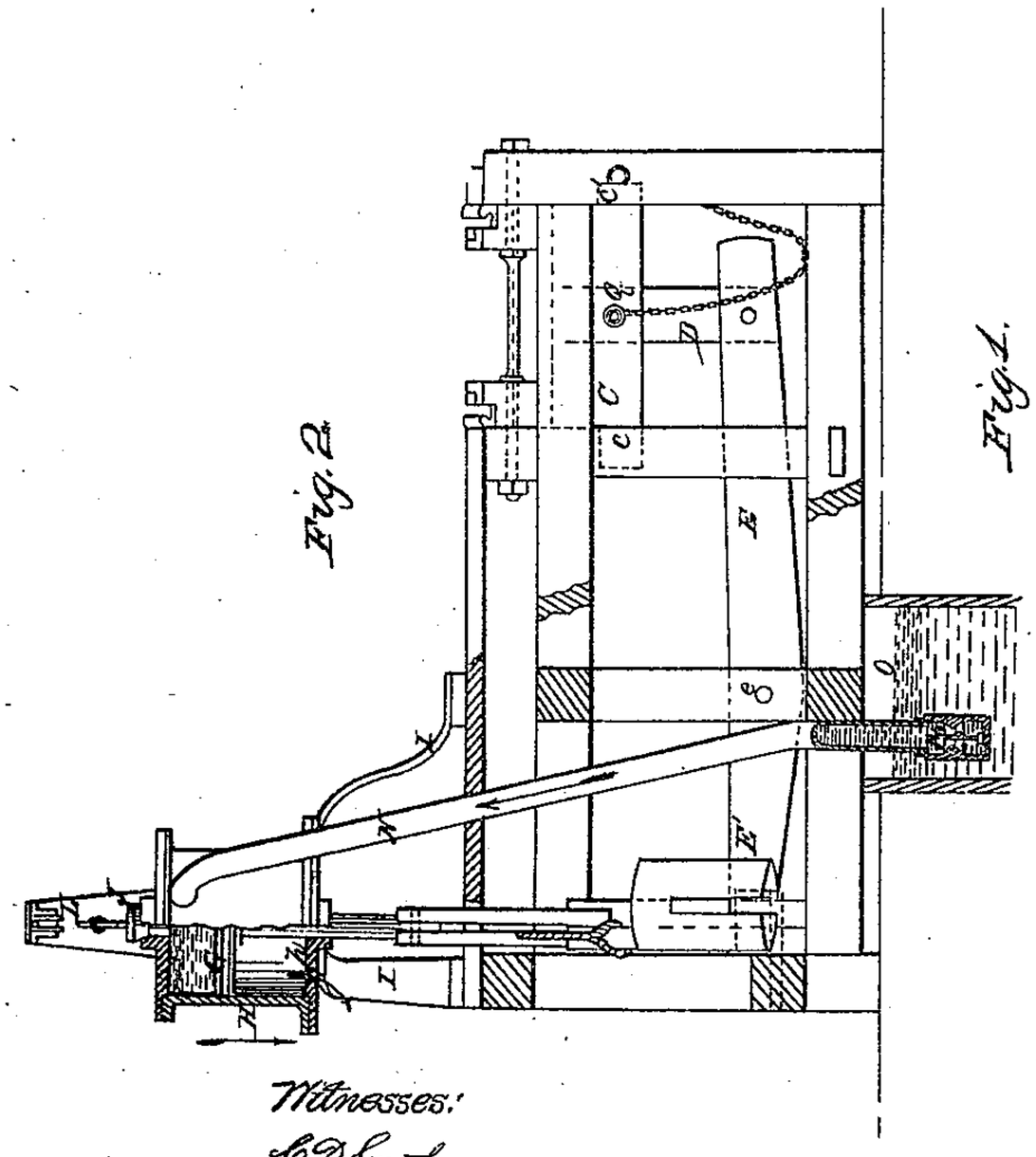
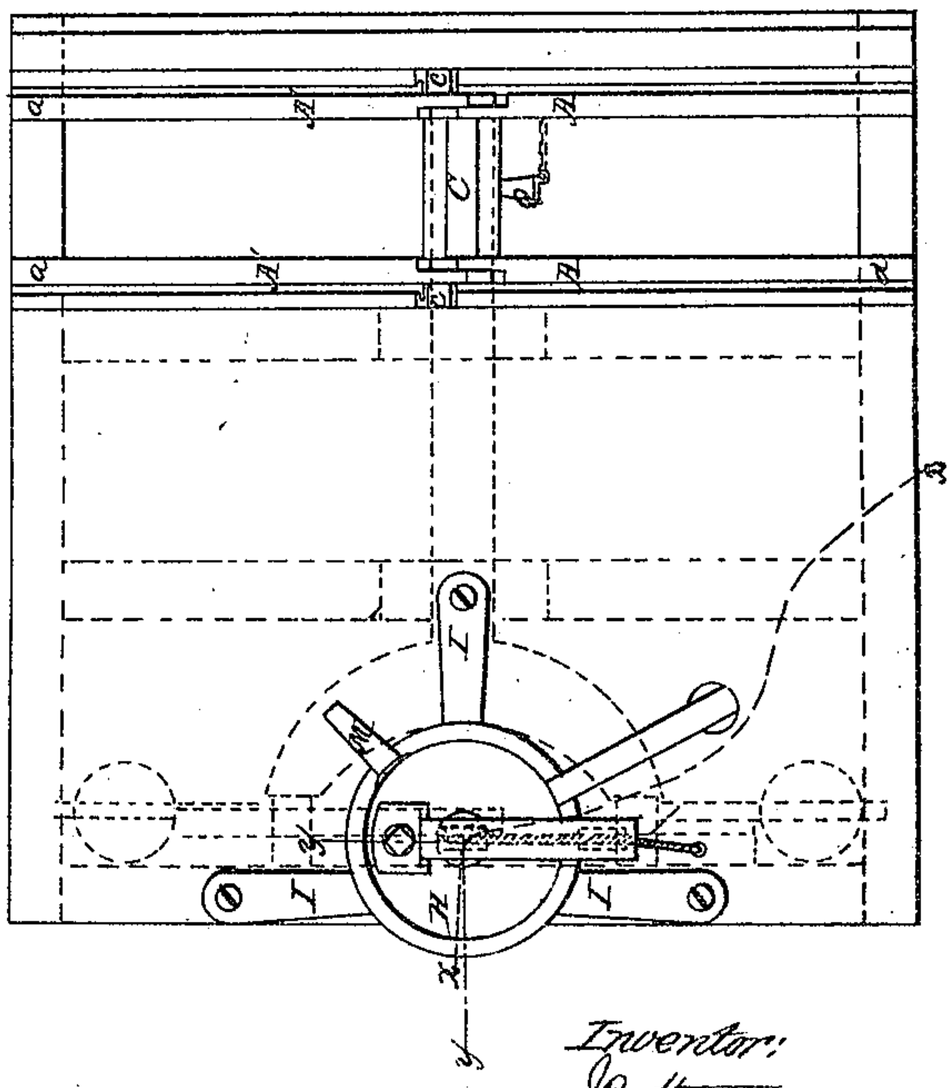


Fig. 1.



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UNITED STATES PATENT OFFICE.

J. B. ATWATER, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN AUTOMATIC RAILROAD-PUMPS.

Specification forming part of Letters Patent No. **41,047**, dated January 5, 1864.

To all whom it may concern:

Be it known that I, J. B. ATWATER, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Automatic Pump for Supplying Railroad-Tanks with Water; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of the apparatus. Fig. 2 is a vertical section thereof at *x x*, Fig. 1. Fig. 3 is a vertical section of the same at *y y*, Fig. 1. Fig. 4 is a side elevation thereof, with parts of the framing removed.

Similar letters of reference indicate corresponding parts in the several views.

The subject of my invention is an apparatus adapted to raise water to supply a railroad-tank by means of the weight of a locomotive passing over the road. This I effect by the use of a section of track so hinged that it will be depressed by the weight of the locomotive, and acting through the medium of suitable levers to elevate the piston of an inverted suction-pump, which piston, as the locomotive passes off the yielding track, is drawn down by the agency of weights, causing the cylinder of the pump to be filled by atmospheric pressure and afterward to discharge into the tank in manner hereinafter explained.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe its construction and operation.

In the accompanying drawings, A A′ represent sections of rail pivoted at their outer ends, *a a a a*, to a stationary framing, B B, and jointed together at the center in such a manner as to adapt them to rise and fall. The jointed center of the said rails rests upon a block, C, fitted to slide vertically in guide-ways *c c*, and connected by a rod, D, to one end of a lever, E, which is fulcrumed at *e* in the stationary frame. The other end of the said lever is bifurcated, as represented by dotted lines in Fig. 1, forming two forks, E′ E′, Fig. 3, provided with anti-friction rollers *e′ e′*.

F F′ represent a pair of compound shear or toggle levers, the lower members, F F, of which are fulcrumed at *f′* to the stationary frame, and rest upon the rollers *e′*, while their upper members, F′ F′, are jointed to the lower end of the rod *g* of a piston, G, which works in the pump-cylinder H. The said cylinder is supported on legs I I, or in any other suitable way, and is in the present illustration provided with four apertures, as follows, namely: First, an air-vent, *h*, at bottom; second, an air-vent, *h′*, at top, guarded by a valve, J, opening outward and raised at proper periods, as hereinafter explained, by means of a cord, K, passing over pulleys L L and attached to one of the levers F; third, a water-discharge spout, M, communicating with the interior of the cylinder at a height above the bottom equal to the thickness of the piston G; fourth, a water-supply port at the upper part communicating with the water-supply pipe N, which is immersed at its lower end in any convenient body of water, as shown at O, and is provided with a check-valve, *n*, to prevent the reflux of water.

P P represent heavy weights attached to the levers F F, and employed to depress the said levers and the piston G and elevate the yielding rails A A when the latter are relieved of the weight of locomotive or cars.

Q represents a pin whereby the slide C may be connected with the rod D or disconnected therefrom, as desired.

Operation: The parts being in the positions represented in Fig. 4, a locomotive passing onto the yielding rails A A′ will have the effect to depress them, thereby forcing up the piston G, causing the air above it to pass out through the valve-guarded aperture *h′*, while the space below it is filled with air through the vent *h*. The positions of the parts and the motion of the piston and of the air at this time are represented in Fig. 3, the black arrow indicating the motion of the piston, and red arrows that of the air. The piston having been raised to the highest extremity of its stroke, and the locomotive or cars having passed off the yielding rails A A′, the weights P depress the levers F and again elevate the yielding rails A A′, the piston G being at the same time drawn down, causing the valve J to close and water to be forced by atmospheric pressure up through the pipe N, so as to fill the cylinder H above the piston G, as illustrated in Fig. 2. As soon as the piston reaches the bottom the valve I is raised by the cord K, attached to

the lever F, and air being thus admitted to the cylinder H the check-valve *n* instantly closes, and the water within the cylinder flows out through the spout M into the tank in readiness to supply the tender of any passing train. This position of the parts is represented in Fig. 4.

In the various figures the black arrows indicate the motion of parts of the machinery, red arrows that of the air, and blue arrows that of the water.

In practice the cylinder H may be made to contain a suitable quantity of water for the supply of one tender—say three hundred gallons.

The frame B B is set opposite the tank-house, the forks E′ E′ of the lever E extending into the tank-house, the cylinder H being placed above the tank and the supply-pipe N made to communicate with a well, cistern, stream, or other convenient body of water.

The yielding rails may have a descent of from three to four inches, which, by the action of the shear levers F F′, may be made to give the piston G a stroke of three feet.

The above-described apparatus is designed to do away entirely with the labor usually required to elevate water for the supply of locomotive-tenders.

By the use of an inverted pump, as described, it will be seen that the influx of water into the cylinder will provide a constantly-increasing weight to assist in depressing the piston, every gallon of water adding eight pounds of power thereto.

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

1. The yielding track A, employed in combination with a pump, G H, substantially as described, for raising water by the weight of a locomotive or car.

2. The combination of the levers E E′ F F′, weights P P, and cord K with the yielding track A and pump G H, for the purpose specified.

The above specification of my improved automatic pump for supplying railroad-tanks with water signed this 12th day of September, 1863.

J. B. ATWATER.

In presence of—
C. D. WOLF,
A. RESLEY.