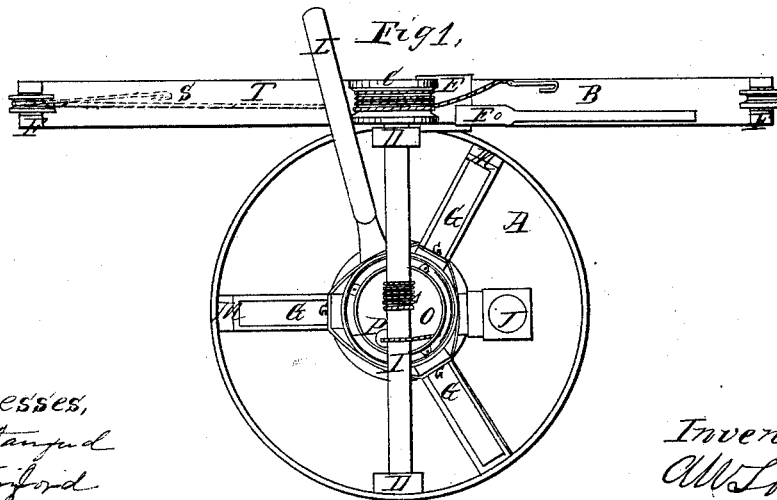
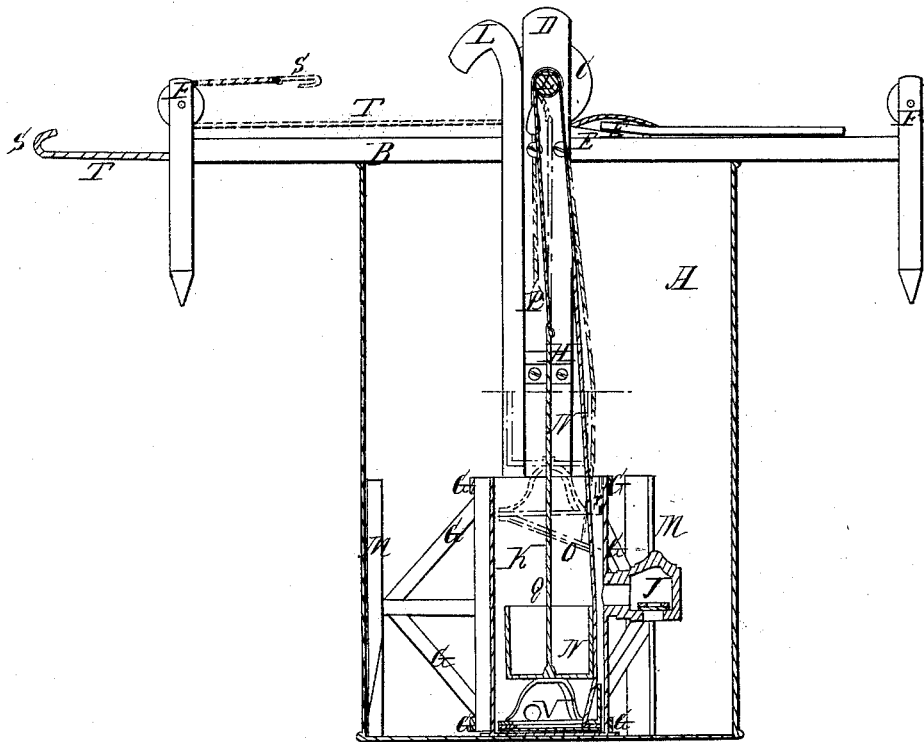


*A. W. Todd,*  
*Water Elevator.*

*N<sup>o</sup> 45,360.*

*Patented Dec. 6, 1864.*  
*Fig 2.*



*Witnesses,*  
*Geo. H. Stanford*  
*J. Stanford*

*Inventor,*  
*A. W. Todd*

# UNITED STATES PATENT OFFICE

A. W. TODD, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN PUMPS FOR LOCOMOTIVE-TENDERS, &c.

Specification forming part of Letters Patent No. 45,360, dated December 6, 1864.

*To all whom it may concern:*

Be it known that I, A. W. TODD, of the city of Chicago, county of Cook, State of Illinois, have invented a new and Improved Mode of Raising or Forcing Water; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

In Figure 2, A represents a well to be made large in proportion to the demand of water, and to be sunk deep enough for the water to rise above the valve J, so that the water will flow in sufficient quantity to fill the cylinder K up to said letter J. If the cylinder K is entirely submerged, so much the better. Thus it will be seen that when the valve O is raised by the rope 1 on windlass I to the hoop N, as seen above the cylinder K, and is sufficiently weighted with any material, and released, all the water beneath it is forced up and through pipe L, the valve J being closed until valve O passes it, at which moment it opens, and the water rushing on top the valve O will add weight at the precise moment when it is most wanting or needed. The cylinder K is made stationary by means of the frames G G G by two simple wedges, M M. It is expected that the well will be curbed and the posts D D spiked to it.

As the cylinder K sits on the bottom of the well, a suitable foundation should be provided to keep it from sinking when the bottom of the well is soft.

The transverse bar H is to keep the rod 2, which raises valve O, in its place, secured by as suitable strip, as seen at H.

The weight P, swung over the windlass I, is intended to bring the valve O to its proper place when hoisted to its upper position.

The valve O is made sufficiently large for the quick egress of the water above it, thus making but little resistance in being hoisted. The iron hoops, as seen at G G G G, Fig. 2—one at bottom and one at top—are to secure the frames G G G to the cylinder K.

In case either or both of the valves O and J should need repairing, it may be done by removing the wedges M M and transverse bar H. The cylinder K, frames G G G, and pipe L may all be raised above water by means of a rope being attached to the frames G G G and over windlass I.

The valve J can be screwed off and easily repaired.

Cylinders may be made of any desirable size, from two to six feet diameter by six or eight feet high, and placed in wells, cisterns, or any place where the water will rise to valve J, and the water may be forced to any height by adding weight to hoop N, as the diameter of cylinder and height the water is required to be raised requires, and so soon as the valve O reaches the bottom all the water in pipe L runs back, thus all trouble and expense caused by freezing is avoided, as it is not expected for any water to be raised only as it is wanted for immediate use.

C, Fig. 1, represents a drum or pulley of sufficient size to draw up with ease whatever weight may be swung to the windlass I, to which it is attached.

The ropes T T, which operate the drum C, are passed around the pulleys F F, Fig. 2, which are made stationary, one on each side of the well at any desirable distance from it, and at the proper distance from the railroad-track, so that as the locomotive passes slowly by the hook S is attached to it and carried as far beyond F as the hook S' is beyond F, as seen at Fig. 1, dotted line. At the same time the hook S is drawn to 3, Fig. 1, ready to be attached to the return of the locomotive or train that may come the other way.

The drum C is intended to be attached and detached to windlass I by the ship and unship arrangement, by which arrangement the windlass I and hoop N run back without revolving the drum G. Thus the rope arrangement is kept in tact, and in case two or more trains should be going the same way the pulley C and ropes T T and hooks S S are easily put in proper position by hand.

The hooks S S, when drawn by the locomotive to the proper point, are detached like the weight of a pile-driver, at which moment the pulley C is caught by the lever E at fulcrum E, and held till the water is ready to be received, when it is unshipped from the windlass I, which revolves back, letting down the hook N and valve O, thus forcing the water through pipe L, while the drum C remains quiet, &c. Care should always be taken not to entirely release the windlass I and hoop N until the valve O is known to be in contact with the water, as in case of low water the

valve O might be drawn above it, and if let fall would produce a bursting shock in all probability. The shield *r*, on the valve O, next the valve (or opening) J is to prevent the water from passing around while the valve O is passing the inlet-valve J. The opening V is the exit of water into pipe L, which is shown to be passed by valve O after all the water is driven up through said pipe L, thus allowing what water remains in pipe L to escape back, &c. The water in the well must rise as high as the inlet-valve J, as a lower depth would not give supply; hence the water is taken in above mud and sand, which is a very important consideration.

Fig. 1 is a top view of the same, and like letters and figures represent the same as in Fig. 2.

I am aware that there have been many plans for raising water; but

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

The combination and arrangement of the well A, cylinder K, frames G G G, wedges M M, hoops G G G, pipe L, valves O and J, hoop N, rope and weight P, rod 2, transverse bar H, orifice V, windlass and rope I, stanchions or posts D, pulley C, with ship and unship arrangement pulleys F F, ropes TT, hooks S S, lever E, and fulcrum E, sills B, substantially upon the principle and in the manner herein set forth.

A. W. TODD.

Witnesses:

G. W. STANFORD,  
JAIRUS STANFORD.