

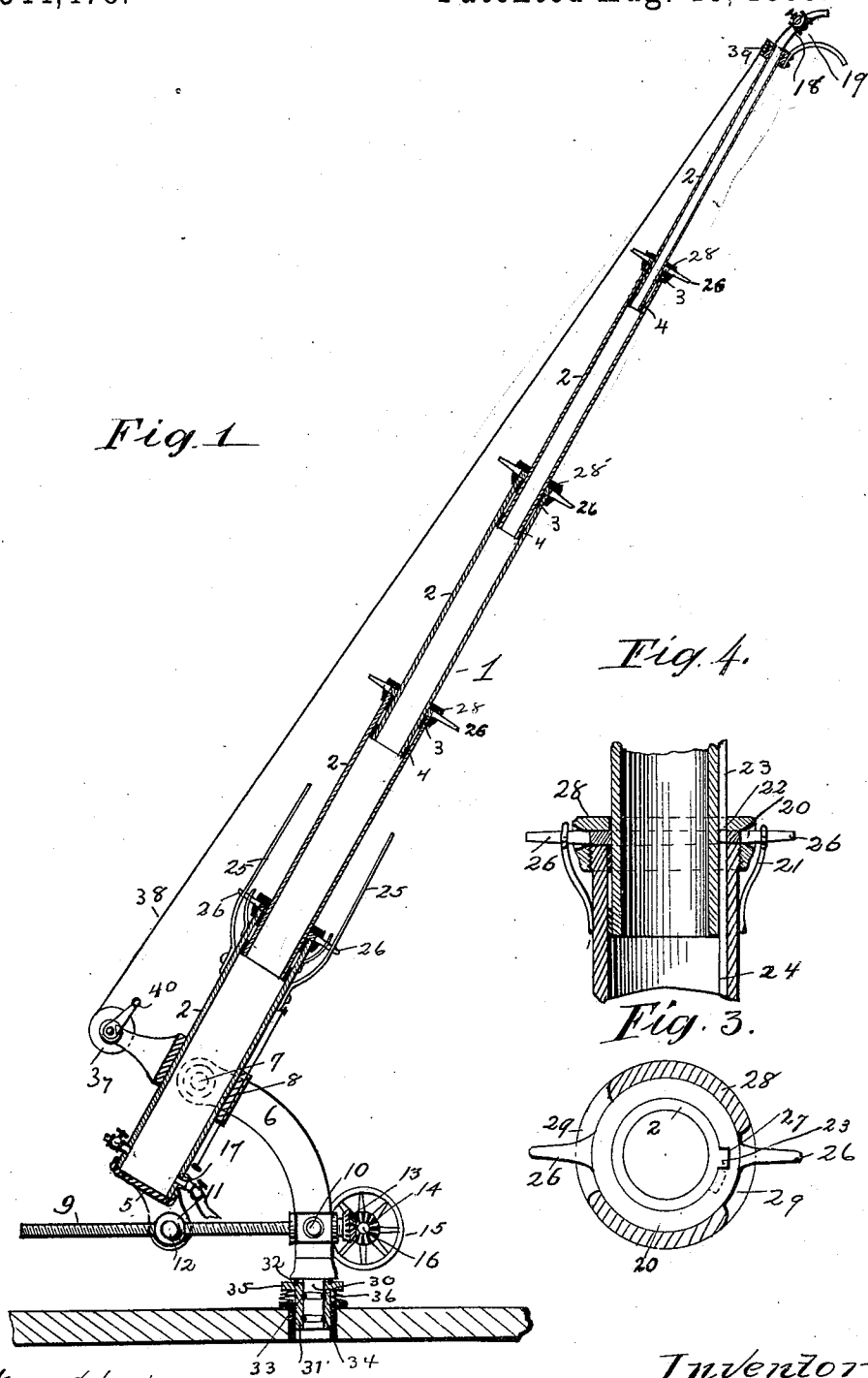
(No Model.)

2 Sheets—Sheet 1.

C. DAMM.
WATER TOWER.

No. 544,478.

Patented Aug. 13, 1895.



Witnesses
Jacob Firth
Joseph Lehmann

Inventor
Conrad Damm
by Wm. M. Monroe
Attorney

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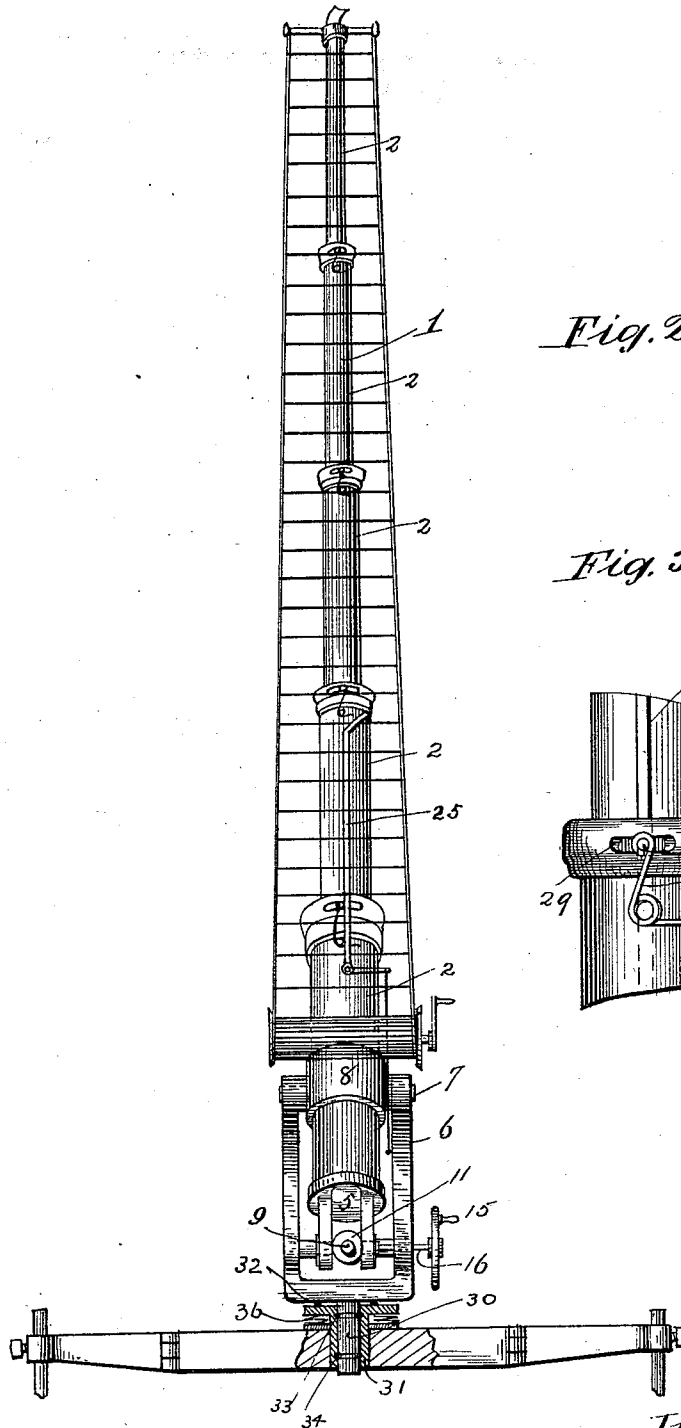
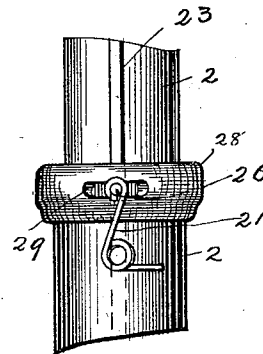


Fig. 2.

Fig. 5.



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UNITED STATES PATENT OFFICE.

CONRAD DAMM, OF CLEVELAND, OHIO.

WATER-TOWER.

SPECIFICATION forming part of Letters Patent No. 544,478, dated August 13, 1895.

Application filed September 29, 1894. Serial No. 524,435. (No model.)

To all whom it may concern:

Be it known that I, CONRAD DAMM, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Water-Towers, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in combined fire-ladders and water-towers, and the objects of the invention are to provide means for quickly raising the hose-nozzle and presenting it exactly in the location required for horizontal or vertical use, without interfering with surrounding objects, and with close connection therewith of a fire-ladder for the escape of individuals exposed to the flames, and for easy access to the extremity of the hose-nozzle and for manipulation thereof.

My invention consists in the hydraulic tower or mast, with means for telescoping the same and for locking the sections, and in the combination of parts and arrangement and construction of parts, as hereinafter described, shown in the accompanying drawings, and more specifically pointed out in the claims.

In the drawings, Figure 1 is a longitudinal view of the device showing the mast in vertical central section. Fig. 2 is an end view of the same; Figs. 3 and 4, details of the locking device. Fig. 5 is an exterior view of the same.

The hydraulic tower 1 is composed of watertight sections 2 fitted with suitable packing-rings, as 3 and 4, upon the upper and lower extremities. The lower section is closed below and provided with a pivotal bearing upon a supporting-fork 6 by means of trunnions 7, secured upon the thickened wall 8 upon the section. All vertical movements are given the tower from horizon to zenith by means of the supporting-screw 9, swiveled in the pivoted bearings 10 in the fork and passing through the nut 11, pivoted at 12 on the cap 5, and operated by bevel-gears 13 and 14 and hand-wheel 15 upon the transverse shaft 16, which projects far enough to make the wheel accessible.

17 is the nozzle for water-inlet into the lower or largest section.

18 is the hose-outlet leading from the last or smallest section and provided with the stop-valve 19 closed before elevating the tower, which elevation is accomplished by means of the hydraulic power obtained through the inlet-nozzle, the smaller section being pushed out first like a piston and the other sections following one at a time until a hollow telescopic mast is produced with the hose-nozzle or connection at the smaller end. It will be seen that the mast can be raised when in the vertical position and so avoid contact with overhead wires or other obstructions, or it can be forced out in the horizontal position and afterward raised by means of the elevating-screw. The hydraulic power exerted in elevating the mast will also serve to elevate a man with the upper section who can at once attend to directing the hose upon the fire. Each cap 28 is applied to the upper end of a section and rigidly secured thereto, and through this cap, on opposite sides, are formed the slots 29. Inside of each stationary cap is placed a partially-rotating ring 20, which serves to lock the section 2 just above it in place. This ring 20 has an opening 27 formed in its inner edge, as shown in Fig. 3, and which opening corresponds to the spring 23, which passes through it. To each rotating ring are secured two arms 26, which extend through the slots 22, and to each arm is secured the free end of a spring 21, secured to a section 2 at their lower ends. These springs exert their pressure in the same direction, and when the section just above them is raised to its full height and the transverse slot in its spline comes just opposite the partially-rotating ring 20, the ring is turned as far as the slots will permit the arms to move, and then the section is locked in place by the edge of the ring moving horizontally through the transverse slot in the spline, so as to move the recess 27 in the ring out of the line with the spline. As each section is raised into position its locking-ring is moved by the spring, so as to lock it in place. To unlock the sections so that they will close within each other when the hydraulic pressure is removed each locking-ring, beginning at the lower one, must be operated in its turn, and then the sections will descend one at a time.

For the purpose of operating these rings

the lever 25 is pivoted at its lower end upon the lower section, and to the lower cranked end is fastened an operating cord, by means of which the lever is readily operated from the ground. The upper end of the lever is free, and when a pull is exerted on the cord this upper end bears against the arm or arms 26, so as to rotate the locking-ring against the pressure of the springs, and thus bring the recess opposite the spline, when the weight of the section causes it to descend.

In Figs. 3 and 4 are shown details of the terminal caps 28 of the several sections inclosing the rings, and slotted on the side at 29 to permit the necessary movement of the projecting arms. The foundation for the mast is seen to consist of the fork mounted upon the vertical spindle 30, bearing in the sleeve 31 and provided with ball-bearings 32, 33, and 34. The sleeve 31 is provided with the extended flanges 35, which are supported by the vertically-operating springs 36. Any good form of wagon trucks and wheels suitable for a portable machine can be employed. In Figs. 1 and 2 are also shown a drum 37 and rope or wire ladder 38, mounted upon the lower section. The ladder is secured at the upper end to cross-bars 39 and when the mast is extended is tightly drawn to serve as a means of escape from an upper window or for access to the hose-nozzle at the upper extremity of the mast. When the mast descends, the ladder is neatly wound upon the drum by the winch-handle 40. More than one inlet for the water can be made in the bottom section, so that greater pressure can be applied, or one delivery-nozzle can be attached and the water driven directly through the section. It is of course understood that the valve is closed at the top of the mast until the mast is extended and the sections securely locked; then it may be opened and the water projected wherever desired. A valve is also inserted in the lower

section by means of which the water can be gradually withdrawn when it is desired to lower the mast.

The convenience of increased accessibility to the fire resulting from the greater elevation of the hose and the easy manipulation are very great.

Other apparatus for saving life can readily be attached to the ladder or tube, such as a pulley and rope at the extremity, by which a seat or basket could be lowered by the firemen below; also slight changes in the construction and arrangement could be made without altering the spirit of the invention.

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

1. In a hydraulic tower, a suitable support, and a series of sections mounted thereon and provided with splines and adapted to telescope one within the other; and the slotted caps, combined with locking rings provided with vertical grooves in their inner edges, and with arms on their outer edges to project through the slots in the caps; springs applied to the arms to cause the locking rings to rotate, and a lever for operating the locking rings, substantially as described.

2. In a hydraulic tower, the combination of a truck, a fork swiveled upon said truck, a telescopic mast constructed in sections pivoted within said fork, splines extending the full length of each section, bearing in slots in the next lower sections, locking rings secured at the upper ends of each section adapted automatically to enter slots on the splines, and means for unlocking the rings, substantially as set forth.

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Witnesses:

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