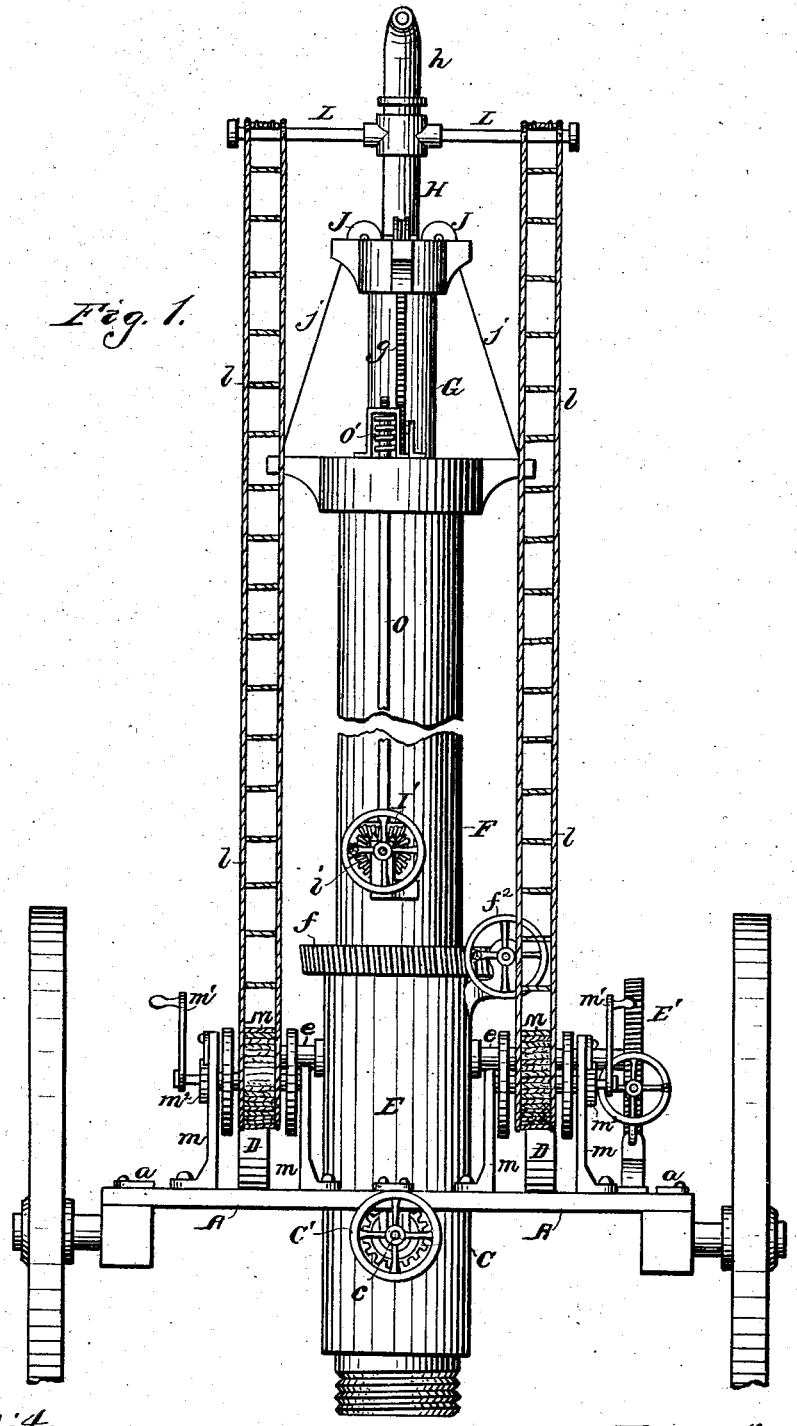
(No Model.) 3 Sheets—Sheet 1.

W. H. COGSWELL & T. H. MELVIN.

PORTABLE WATER TOWER.

No. 259,669. Patented June 20, 1882.

Fig. 1.



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(No Model.) 3 Sheets—Sheet 2.

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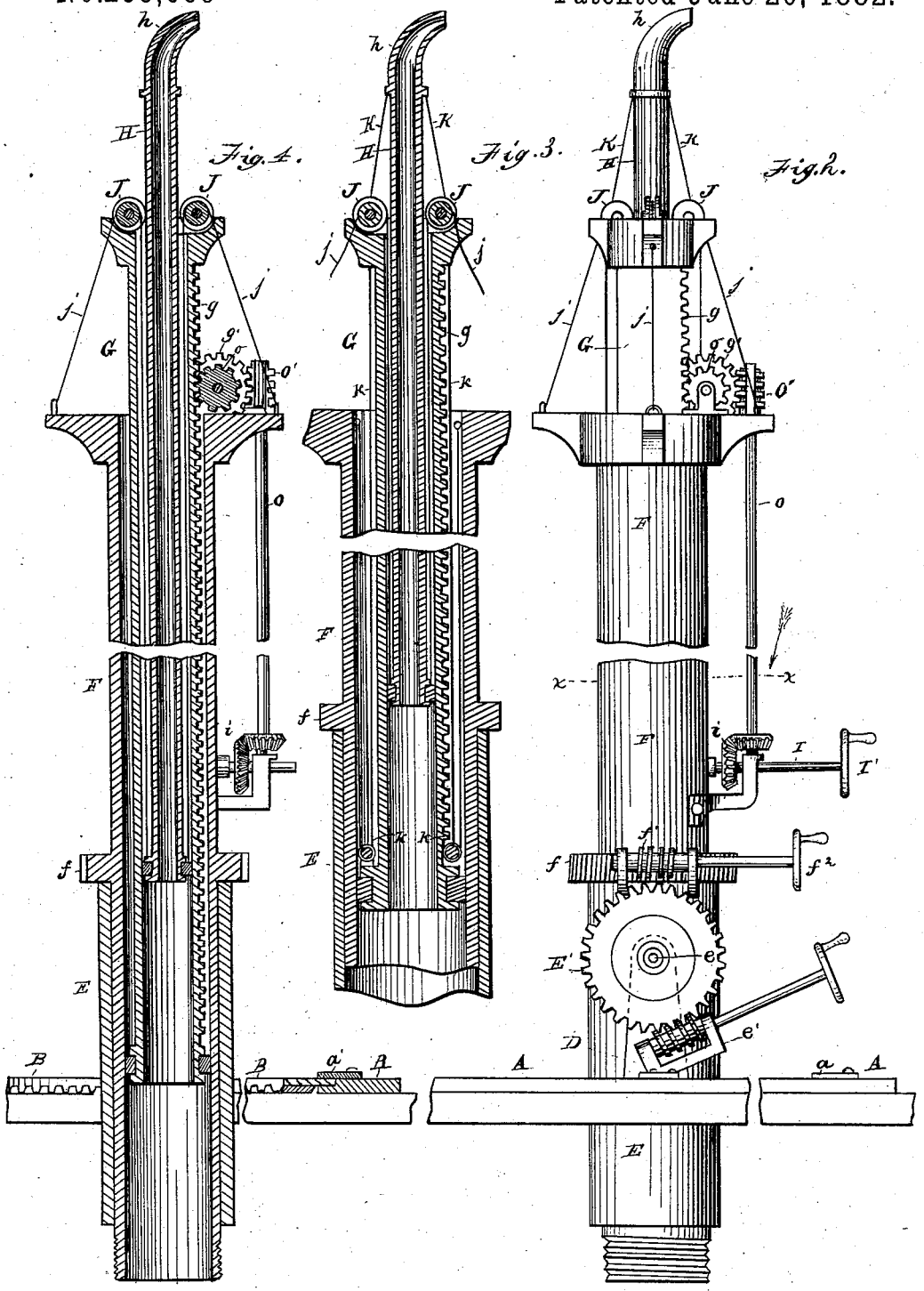

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(No Model.) 3 Sheets—Sheet 3.

W. H. COGSWELL & T. H. MELVIN.

PORTABLE WATER TOWER.

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Fig. 5.

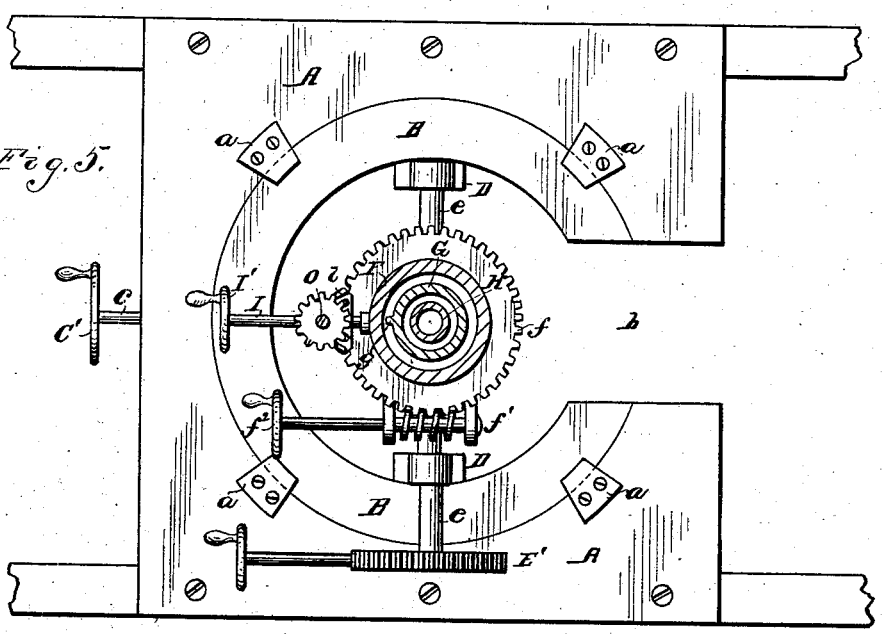
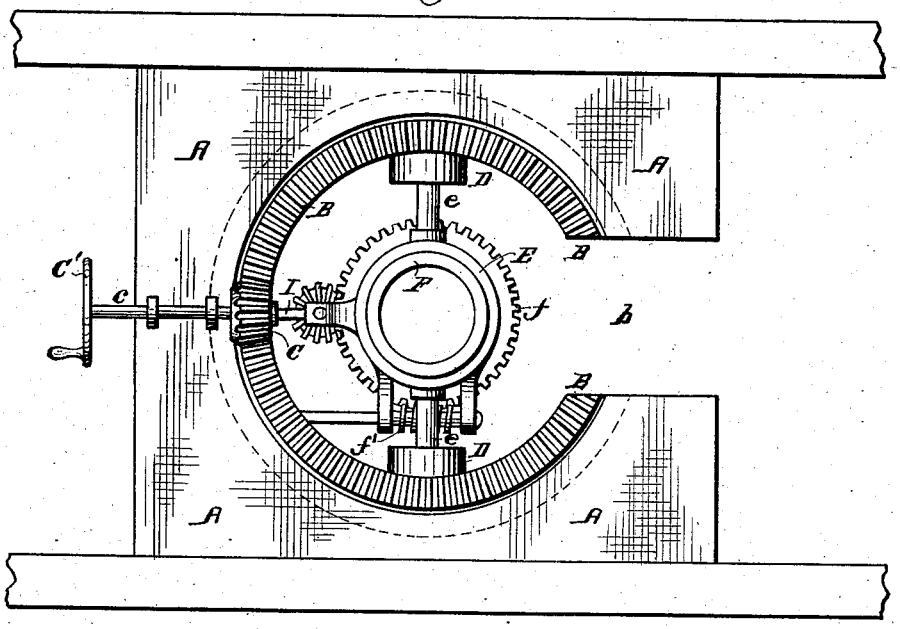


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM H. COGSWELL AND THOMAS H. MELVIN, OF CHICAGO, ILLINOIS.

PORTABLE WATER-TOWER.

SPECIFICATION forming part of Letters Patent No. 259,669, dated June 20, 1882.

Application filed June 27, 1881. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. COGSWELL and THOMAS H. MELVIN, of the city of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Portable Water-Towers, of which the following is a specification, reference being had to the accompanying drawings.

The object of our invention is to produce a portable stand-pipe sufficiently light and compact to enable it to be readily and expeditiously transported, easily erected, and through which, by connection with a water-supply, water may be effectually thrown to any desired point of a burning building, and which may also afford means of escape therefrom.

In the drawings, Figure 1 is a front elevation of the machine, with a portion of the vehicle upon which it is supported. Fig. 2 is a side elevation of the same. Fig. 4 is a longitudinal section. Fig. 3 is a longitudinal section of a portion of the machine, showing the device for depressing the upper section of pipe. Fig. 5 is a top view of the machine as it would appear cut off at the line *x x*, Fig. 2. Fig. 6 is a bottom view.

Like letters indicate like parts in the different figures.

A is a platform securely fixed to the vehicle or other support upon which the machine is erected. This platform has a central circular opening, as shown, a wide slot being cut from the central opening through one side of the platform, at *b*.

B is a turn-table, upon which all the other parts of the machine are supported, resting upon a bed-plate or suitable bearings in the platform A, and secured in its position by the cap-plates *a a a a*. The turn-table consists of a broad flat ring, with a section removed at *b* to correspond with the slot in the platform, and is provided with cogs on its under side. The pinion C is fixed upon one end of the shaft *c*, which is secured in bearings on the lower side of the platform A, and engages the cogs on the under side of the turn-table. A crank or hand wheel, C′, is fixed upon the other end of the shaft *c*, by turning which the pinion C engaging the cogs on the turn-table causes it to rotate.

Secured to the turn-table, and rising vertically from it, are the standards D D.

E is a sleeve, from opposite sides of which extend laterally the trunnions *e e*, which are secured in bearings in the standards D D, the sleeve being thus pivoted and capable of oscillation upon the standards. One of the trunnions extends beyond its standard and has fixed upon its extremity the worm-wheel E′. Below the worm-wheel E′ is fixed the worm *e′*, which engages the wheel E′. By turning the screw *e′* the wheel E′ is revolved, and the sleeve E may thus be deflected to and fixed at any desired inclination.

F is a section of metal pipe, having secured to its periphery the rim or flange *f*. Arranged to slide easily within this pipe is the smaller section G, in which in turn slides freely the still smaller section H, to the extremity of which is secured the nozzle *h*. The sections are thus capable of projection and retraction like the sections of a telescope, and are concentric with each other, as shown in Fig. 5. The difference in the diameters of the pipes should be sufficient to allow the introduction of the mechanism hereinafter described.

At the bottom of the section G is a flange of the proper size to nearly fill the interior of the pipe F. In the periphery of the flange is a groove or furrow in which packing is secured, making the lower end of the section G fit closely into the section F, in which it can reciprocate like a piston. The section H is provided with a flange, and packed in a similar manner to fit the section G, and thus, when the sections are extended, they form a continuous pipe with water-tight joints. The flange *f* has cogs in its periphery which are engaged by the worm *f′*, which turns in bearings formed in brackets secured to the upper part of the sleeve E. Upon the extremity of the screw-spindle is the crank f^2, by which the screw is turned, and, engaging the cogs in the flange, the system of pipes may be thus rotated to any desired point. Upon one side of the section G and extending its entire length is the rack *g*. Working in this rack is the pinion *g′*, which is secured upon a short axis supported in suitable bearings upon the end of the section F.

Upon one extremity of the axis carrying the

pinion g' is the worm-wheel o, which is operated by the worm O' on the upper extremity of the shaft O, which turns in bearings attached to section F, the lower bearing being a short distance above the flange f.

On the lower extremity of the shaft O is a mitered spur, which is engaged by the mitered spur i, fixed on the shaft I, which is centered upon the section F, and projects at right angles therefrom, having upon its outer extremity the crank I'. Upon turning the crank I' the worm O' is rotated, causing the pinion g' to revolve, which, working in the rack g, raises the section G, projecting it from the section F to any desired height or correspondingly retracting it.

In practice it is preferred to place two racks upon the pipe on opposite sides, a similar mechanism being employed to operate each. The projection of the section G causes the section H to project therefrom by the operation of the mechanism to be described. Sheaves J J are secured in bearings upon the top of section G.

Cables j j, preferably of wire, are attached to the upper ends of section F, and, passing up over the sheaves J, extend downward between the pipes G and H, and are attached to the flange at the bottom of the pipe H. The device thus forms a pulley, and when the section G is projected, the ends of the cables between the pipes are contracted, thus projecting the section H. For depressing the same section a similar device is used, operating in an opposite direction.

Cables K K are attached to the upper end of section H, and pass downward between the sections F and G, around the sheaves k k, secured to the flange at the bottom of section G, and upward to the top of section F, where they are secured. As section G is depressed the sheaves secured upon its flange contract the cords K K and draw the section H inward. The cables described may be as many in number as may be found to operate most successfully.

L is a yoke or cross-bar fixed at its center upon the section H, at or near its extremity, the ends of the yoke projecting laterally therefrom.

l l are rope ladders attached to the extremities of the yoke L, and which, extending downward, are secured to and wound upon the reels M, whose axes are secured in bearings in the standards m m, which are bolted to the turn-table B. The reels are placed upon the side of the turn-table, toward which the water is thrown from the nozzle h. Each reel is provided with a crank, m', by which it may be turned, and with a pawl and ratchet, m^2, by which its unwinding may be prevented, when desired.

The operation of the machine is as follows: When not in use the sections G and H are drawn into the section F, the ladders l being wound upon the reels, and the pipes lie horizontally upon the vehicle or other support. When it is desired to put the machine in use the screw e' is turned, which revolves the worm-wheel E' and erects the pipes to a vertical position or any desired inclination, the lower end of the pipes dropping through the opening in the platform A. The wheel I' is then revolved, and by the connecting mechanism the section G is elevated, which in turn projects the section H to any desired height. A cap is screwed to the bottom of the section F, with suitable hose-coupling attachments. The hose from the engine or source which supplies the head of water is coupled to the bottom of the pipe, and the water is thus forced through the system of pipes from the nozzle h. As many hose for supplying water to the machine may be connected therewith as the amount of water required demands and the size of the nozzle will permit. By connecting the tower with the source of supply before the sections are projected the pressure of the head of water against the flanged bottoms of the sections G and H assists materially in projecting these sections. By turning the screw f^2 the pipes are rotated and the water directed in any radius from the center of the pipes. If the pipes are in a vertical position, this object can be accomplished by rotating the turn-table B by means of the pinion C; but if the pipes stand in an inclined position the rotation of the turn-table changes the plane of the inclination, which is sometimes desirable. Thus, by the operation of the various devices described, the water may be directed to any desired point. The effect upon the tower of the recoil arising from the discharge of the water from the nozzle is counteracted by the tension of the rope ladders, without which the strain upon the pipes would be likely to result in breakage. The ladders not only act as stays, as described, but they also afford means for the escape of people from burning buildings, thus constituting effective fire-escapes.

The attachment of the ladders will of course prevent the unlimited rotation of the tower; but their tension and flexibility will permit of a partial rotation, which, in connection with the operation of the other devices, will be found sufficient for the practical and efficient working of the machine.

It is obvious that in the construction of a water-tower like the one here described a single ladder attached centrally to the top of the tower may be used, or guy-ropes or cables may be employed in the place of the ladders.

As many sections of pipe may be used as is desired, and of any suitable length; but in practice three sections, each twenty feet in length, will be found the best adapted to meet the needs of various circumstances.

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

1. In a water-tower, a series of annular pipes capable of longitudinal projection and retraction, forming at any point of extension one continuous pipe through which water received at the base of the lower section may be forced from the extremity of the upper section,

in combination with means independent of the column of water for projecting and retracting the several pipes, substantially as described.

2. The combination, in a water-tower, of a series of annular pipes capable of longitudinal projection and retraction, and provided with mechanism for projecting and retracting the same, with a turn-table by means of which the tower may be rotated, substantially as and for the purposes described.

3. In a water-tower, an erectable stand-pipe so supported as to be capable of rotation, provided with a flange having cogs upon its periphery, in combination with mechanism for rotating the same, substantially as described.

4. In combination with a water-tower consisting of a series of longitudinally-adjustable sections, the cords *j* and K, with the sheaves J and *k*, so connected with the sections that the projection or retraction of a section shall project or retract the section contained within it, substantially as described.

5. The independent sleeve E, provided with trunnions, in combination with the tower and mechanism for rotating the tower within the sleeve, substantially as described.

6. The combination of the oscillating longitudinally-adjustable tower F G H with the sleeve E, provided with trunnions, the worm-wheel E′, worm *e′*, rack *g*, pinion *g′*, worm O′, cords *j* and K, flange *f*, screw *f′*, and turn-table B, constructed and arranged substantially as described.

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