

(No Model.)

J. E. PRUNTY.

FIRE EXTINGUISHING APPARATUS.

No. 441,697.

Patented Dec. 2, 1890.

Fig. 1.

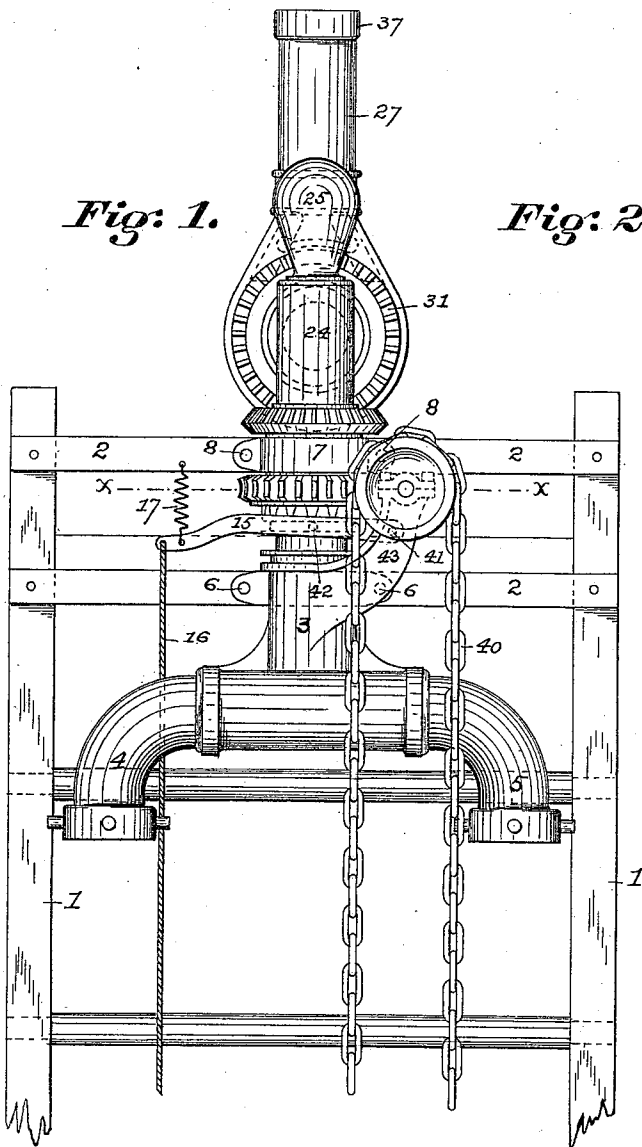


Fig. 2.

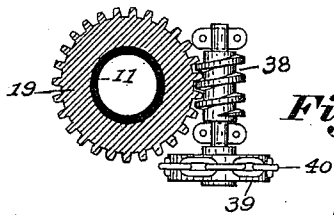
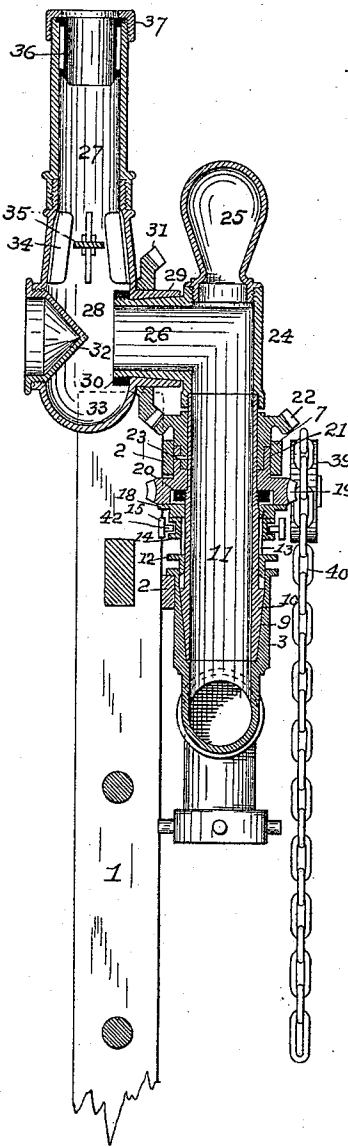


Fig. 3.

Witnesses

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FIRE-EXTINGUISHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 441,697, dated December 2, 1890.

Application filed July 12, 1890. Serial No. 358,514. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. PRUNTY, of the city of Baltimore, and State of Maryland, have invented certain new and useful Improvements in Fire-Extinguishing Apparatus, of which the following is a complete specification.

My invention relates to that class of fire apparatus known as "water-towers," and is intended to be secured to the top of a ladder, either a single ladder or an extension-ladder, which may be raised into the air opposite a burning building, and by means of a chain operated from the ground turned so as to throw a stream of water in any desired direction. The gearing by which the device is operated is so constructed as to be very simple, and the chain and sprocket wheel is made to operate the nozzle so as to turn it in all directions.

The device shown in this application contains several features of importance described and claimed in another application filed concurrently with this one, the serial number of which is 358,516, particularly the distributing-chamber located at the base of the nozzle.

In the drawings, Figure 1 is a front elevation of my device secured to the top of a ladder. Fig. 2 is a vertical section of the same. Fig. 3 is a horizontal section of supply-pipe through line *x x* of Fig. 1.

In the drawings, 1 represents the ladder; 2 2, two cross-bars at the top of the ladder, to which the device is bolted.

3 is a T-shaped supply-pipe having two curved elbows 4 and 5 for the attachment of two lines of hose and arranged in such a position that the two lines of hose will be on either side of the ladder, leaving a clear ladder in the center.

6 6 are two lugs cast or secured to the side of the pipe 3, and by which said pipe is secured to the lower cross-bar 2.

7 is a strap surrounding the upper part of the device, and 8 8 are laterally-projecting ends thereof by which said strap is bolted to the upper cross-bar 2. The strap 7 must be loose enough around the device to permit it to turn freely within it.

Referring to Fig. 2, 9 is a conical socket in the vertical part of pipe 3.

10 is a conical end of pipe 11, which fits into

the conical socket 9 and is ground to a water-tight joint. The cone end of pipe 11 is arranged to enter the socket of pipe 3 and to bear at the bottom of the socket upon an offset provided for the purpose.

12 is a packing-gland surrounding the pipe 11 and entering the top of the socket 9, and below which packing is placed to insure a water-tight joint.

13 is a feather secured to either side of the pipe 11, and which prevents the clutch-ring 14 from turning.

14 is a movable clutch-ring surrounding the pipe 11 and fitting upon the feather 13, and provided with clutch-teeth on its upper side and surrounded by a central groove.

15 is a forked lever pivoted at 41 and either arm of which is provided with a pin 42, which projects inwardly into the groove on the exterior of the clutch-ring and serves to move said ring up and down.

16 is a cord by which the forked lever is operated, and 17 is a retractile spring secured to the lever 15 at one end and at the other to the upper bar 2, and by which the clutch-lever is held at its highest elevation and the clutch held closed until opened by drawing upon cord 16.

18 is the upper clutch-ring, the lower side of which is provided with clutch-teeth which mesh with the teeth of the lower clutch-ring 14. This ring is securely fastened to the under side of the worm-wheel 19.

19 is a worm-wheel surrounding the pipe 11 and by which said pipe is turned. 38 is a worm journaled in an arm 43, extending from the side of the pipe 3, to one end of which is secured a sprocket-wheel 39, over which passes a chain 40, meshing with said wheel and turning it.

20 is a set collar screwed to the pipe 11 on the end of a shoulder on said pipe and over which the worm-wheel 19 passes, said ring entering a recess in the under side of the worm-wheel. This ring is provided for the purpose of sustaining the weight of the structure above it.

21 is the hub of the wheel 19, which is turned out on the interior at its upper end for the admission of the hub of the beveled gear 22 into it.

23 is a pin or pins by which the two hubs

are secured to one another. It will be readily seen that the hubs of these two wheels may be united in any suitable manner. The strap 7 is here shown in section surrounding the hubs of the two wheels 19 and 22.

22 is a beveled gear meshing with the gear 31.

24 is an elbow secured to the top of the pipe 11 and having a dome 25 secured to it immediately above the pipe 11.

26 is a laterally-extending portion of the elbow, the exterior of which is the form of a cone.

27 is the nozzle.

28 is a distributing-chamber at the lower end of the nozzle, circular in form, and of much greater diameter than the nozzle-pipe. This distributing-chamber 28 has an aperture in each side. Surrounding one aperture is a projecting pipe 29, the interior of which is ground into a conical socket, which fits upon the cone upon the exterior of the elbow-pipe 26 and forms with it a ground joint, which is water-tight, but which will permit the nozzle to rotate freely upon the elbow.

30 is a ring screwed on the end of the elbow-pipe 26, which projects into the distributing-chamber 28 and which holds the parts firmly together.

31 is a beveled gear keyed to the projecting pipe 29 and meshing with the beveled gear 22, and by which the nozzle and distributing-chamber are rotated upon a horizontal axis.

32 is a conical plug screwed into the other aperture in the side of the distributing-chamber and the apex of which projects into the chamber and stands opposite the center of the water-inlet.

33 is a chamber surrounding the base of the cone-plug, in which the water is caught as it flows off of the surface of the cone and from whence it finds the way to the nozzle.

34 34 are wings or blades secured to the interior of the narrowed portion of the distributing-chamber and parallel to the axis of the nozzle. These wings are provided for the purpose of taking the twist out of the water as it comes from the distributing-chamber.

35 is a baffle-plate inserted across the nozzle for the purpose of retarding the flow of water and equalizing the reaction or force of the current.

36 is a mouth-piece made with parallel interior sides and much smaller than the main nozzle-pipe. The lower end of this mouth-piece is beveled backward or squared off abruptly so as to offer much resistance to the flow of the water. The result of this structure will be that the water against the walls of the nozzle will become to a great extent dead and the stream will flow through a pipe of dead water, thus avoiding much of the friction of the usual form of nozzle.

The operation of the device is as follows: Suppose the device is in the position shown in Fig. 1. If now the cord 16 be drawn and the clutch-ring 14 drawn down so as to dis-

engage the upper clutch-ring it will be seen that this ring, the worm-wheel, and beveled gear will be free to turn without moving the pipe 11, but the gear 22 will turn the gear 31 and that will cause the nozzle 27 to be revolved about a horizontal axis in either direction to any extent that may be desired. If we suppose it has arrived at a horizontal position, or a little above the horizontal, so as to be in position to throw a horizontal stream of water into a window or into a house if now the cord 16 be released and the clutch-ring 14 ascends and locks with the clutch-ring 18, a continued movement of the same chain will rotate the pipe 11 and the nozzle upon a vertical axis in either direction, so as to direct the stream in any direction in a horizontal plane.

Many features shown but not claimed in this application are made the subject of another application filed July 12, 1899, Serial No. 358,516. Subject-matter of that application consists of, first, the combination of a vertical stand-pipe provided with a conical joint, a superstructure provided with a nozzle and device for revolving the superstructure upon the stand-pipe; second, the combination of a stand-pipe having a conical joint, a superstructure provided with means for revolving it, said superstructure having a right-angle elbow and a nozzle, the lower end of which is provided with a distributing-chamber, the horizontal portion of the elbow having a swiveled joint; third, the combination of a supply-pipe with a nozzle provided at its lower end with a distributing-chamber, into the side of which is inserted a supply-pipe, said chamber having on its inner side opposite the water-inlet a cone, the apex of which stands in line with the center of the water-inlet; fourth, the combination of a supply-pipe with a revoluble nozzle provided on its end with a distributing-chamber having on its one side an aperture for the admission of water, from which a section of pipe projects on the exterior which forms one part of a conical joint connected with the supply-pipe, a cone which projects into the chamber from the side opposite the water-inlet, and means for revolving the distributing chamber and nozzle around the supply-pipe; fifth, the combination of a supply-pipe with a nozzle, a distributing-chamber connected with the supply-pipe at one side and provided on its interior with a cone which projects toward the water-inlet, said chamber being provided with blades secured to its interior in the water-way between the distributing-chamber and the nozzle; sixth, the combination of a supply-pipe with the nozzle, a distributing-chamber connected to the supply-pipe at one side and provided with a cone on its interior secured to the wall of the chamber on its opposite inlet, said distributing-chamber being provided with a baffle-plate secured to this interior and in the path of the stream of water as it leaves the distributing-chamber.

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

1. In a fire-extinguishing apparatus, the combination of a supply-pipe provided with a swiveled water-tight joint and having mounted upon it a sliding clutch-ring feathered to the exterior of the pipe, another clutch-ring revolving freely upon the pipe and secured to a gear-wheel, which also revolves freely upon said pipe except when held by the clutch, and means co-operating with said gear-wheel to turn it, a beveled gear secured to the first gear and turned by it, a set collar firmly secured to the pipe and upon which the gears rest, an elbow secured to the upper end of said supply-pipe and united to a distributing-chamber and nozzle by a swiveled water-tight joint, and a beveled gear secured to the distributing-chamber and meshing with the first beveled gear by which it is turned, substantially as described.

2. In a fire-extinguishing apparatus, the combination of a supply-pipe provided with a swiveled water-tight joint and having journaled upon it a gear-wheel, and a clutch device to lock said gear to the pipe at will, means co-operating with said gear to turn it, an elbow secured to the upper end of the pipe, a

distributing-chamber and nozzle connected thereto, the distributing-chamber being secured to the elbow by a swiveled water-tight joint, the axis of which is at right angles to the axis of the supply-pipe, and a gear secured to the distributing-chamber and meshing with the gear journaled upon the supply-pipe, substantially as described.

3. In a fire-extinguishing apparatus, the combination of a supply-pipe provided with a swiveled water-tight joint, a worm-wheel journaled upon the supply-pipe and meshing with a worm mounted in suitable bearings, means for turning the worm, beveled gear secured to the worm-wheel and also journaled upon the supply-pipe, a clutch adapted to lock the worm-wheel to the supply-pipe at will, an elbow secured to the upper end of the supply-pipe and having a right-angle extension, a distributing-chamber secured to the elbow by a swiveled water-tight joint, a beveled gear secured to the distributing-chamber and meshing with the first beveled gear, and a nozzle secured to the distributing-chamber for discharge of water, all substantially as described.

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