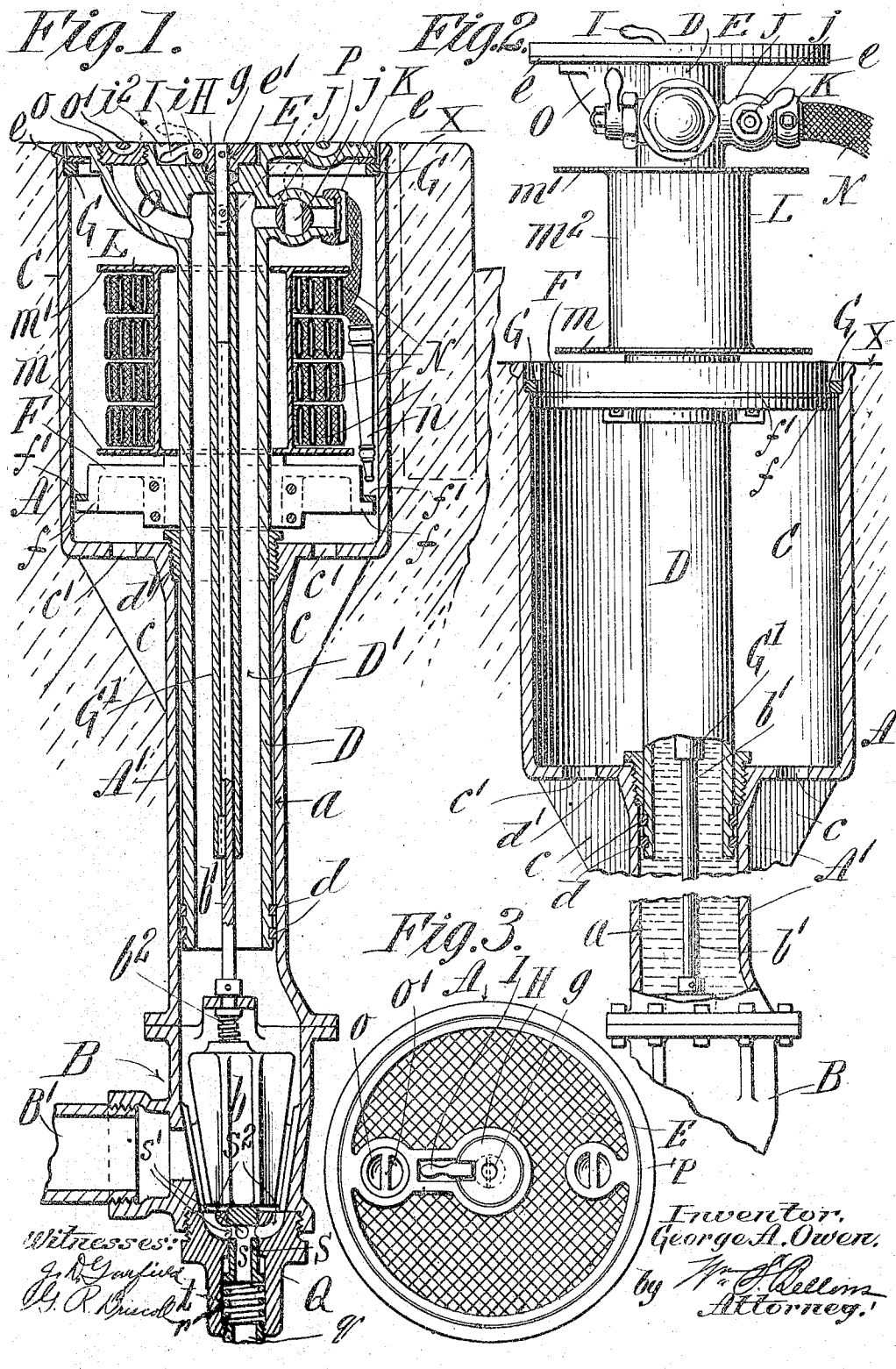
No. 894,898. PATENTED AUG. 4, 1908.

G. A. OWEN.

HYDRANT.

APPLICATION FILED FEB. 26, 1906.

2 SHEETS—SHEET 1.



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Fig. 4.

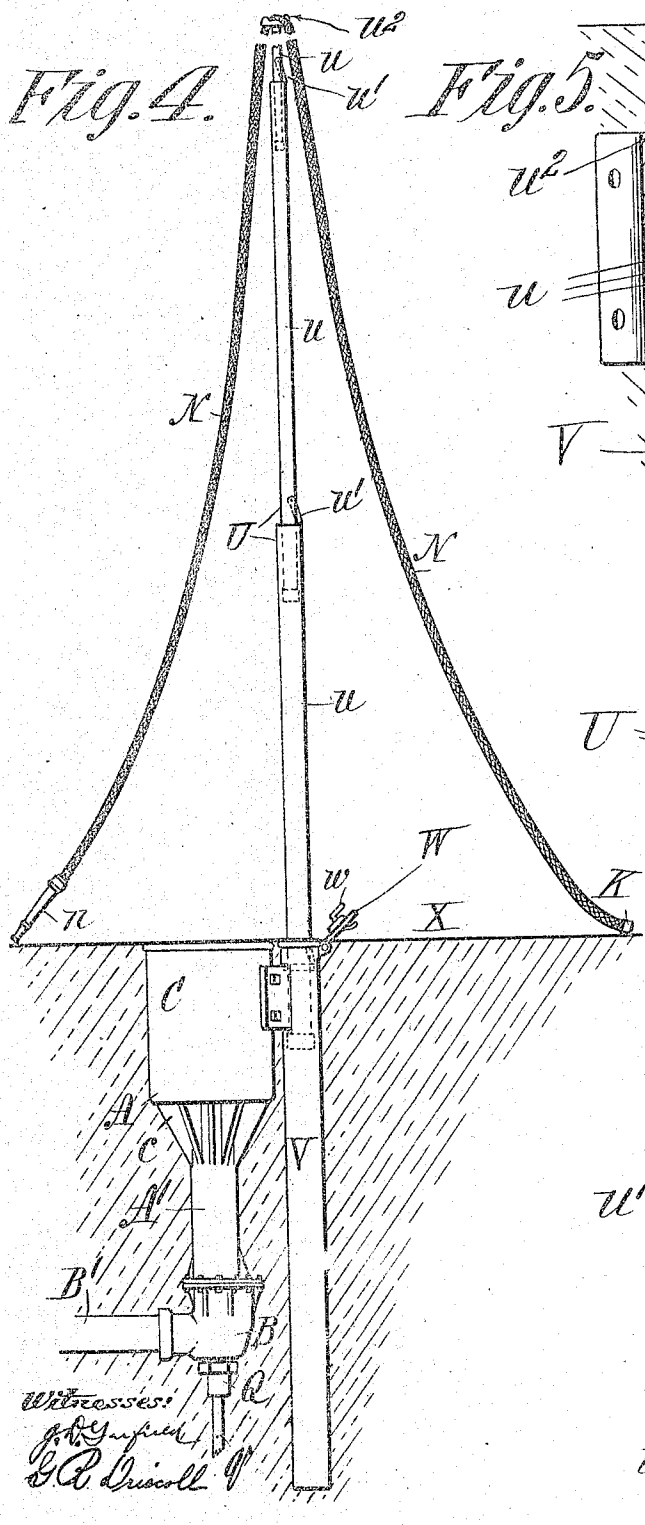
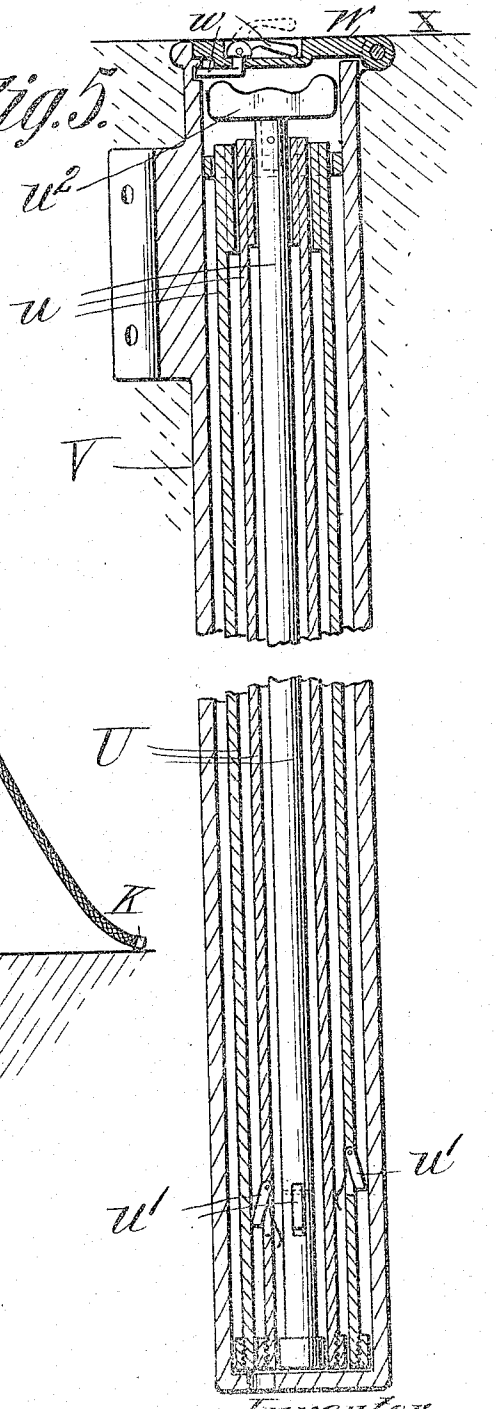


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE ALFRED OWEN, OF SPRINGFIELD, MASSACHUSETTS.

HYDRANT.

No. 894,898. Specification of Letters Patent. Patented Aug. 4, 1908.

Application filed February 26, 1906. Serial No. 303,058.

To all whom it may concern:

Be it known that I, GEORGE ALFRED OWEN, a citizen of the United States of America, and resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Hydrants, of which the following is a full, clear, and exact description.

This invention relates to improvements in hydrants, especially to the class of fire hydrants such as are commonly located near the sidewalk curbing of streets, and have valve connections with pressure supplied water mains.

The principal object of the present invention is to provide a hydrant of the above described class in which the entire body portion is located beneath the surface of the sidewalk, or other ground level, the covered top of the hydrant being level therewith, thereby presenting no obstruction or impediment to the free passing of persons or vehicles thereabove, and with no liability of being struck by runaway or carelessly handled vehicles, and possibly broken, and having contained and guided within said body portion a hose provided tubular standard which, when occasion requires, may be quickly elevated into operative position above the ground by valve controlled hydraulic means.

Another object of the invention is attained by the combination with the hydrant standard of a rotatable reel mounted thereon, and carrying a length of hose, with a nozzle pipe, and all coupled in operative connection with the hydrant nozzle.

Another feature of the invention consists in the water excluding hydrant body cover which is normally level with the ground surface, and in a second water excluding body cover which closes the top of the reel compartment of the hydrant body when the nozzle standard is raised to its working position.

A still further feature of the invention consists in a telescopic hose drying tower or pole, and a sub-constructed receptacle therefor, having a closing cover, such drying device being attached to and constituting an adjunct of the above described improved hydrant. The necessity for an adequate means located adjacent the hydrant for draining and drying the hose connected thereto is obvious, owing to the generally isolated position of hydrants and their distance from fire department houses having hose towers.

Another object is to provide automatic means for the draining of the hydrant when closed after use.

Other objects of the invention are shown as capable of being carried out in the means and mechanisms shown and hereinafter more fully described. And the invention consists in the arrangements or combinations of parts and the constructions of certain of the parts all substantially as hereinafter fully described, and set forth in the claims.

Reference is to be had to the accompanying drawings, in which,—

Figure 1 is a sectional elevation as taken centrally vertically through the hydrant, in its closed position. Fig. 2 is a similar elevation and partial section showing the position assumed by the parts when the hydrant is in its raised or operative position. Fig. 3 is a plan view. Fig. 4 is a side elevation on a smaller scale of the hydrant with the attached hose drying device in its raised position for use,—a length of hose being shown as supported thereon. Fig. 5 is a vertical section, on a scale larger than that of Fig. 4, of the hose drying devices as in their closed or telescoped position within their underground receptacle.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings,—A is the cylindrical tubular hydrant casing, or "body", as it will be herein called, and comprises a tubular and flanged lower portion A′ which is extended downward below the ground surface X and is bolted at its lower end to the ordinary hydrant gate-valve B of a pressure carrying branch pipe B′ of a water main.

The upper receptacle portion C of the body A which is preferably integral with the lower cylinder portion A′ is of increased diameter and is braced relatively to the portion A′ by the bracket webs *c*, and has provided in the bottom wall thereof, and between the webs *c* the drainage holes *c*′. The tubular section A′ is internally bored through its entire lengthwise extent, and receives within this bored, and finished, surface *a* the tubular hydraulic piston or standard D. The lower end portion of this standard, has provided thereon the packing rings *d*, *d*, which have a water-tight but sliding engagement with the tube surface *a* of the body portion A′ and guides the lower end of standard D therewithin during the elevation of the movable standard portion of the hydrant.

A threaded bushing or sleeve *d*′ at the

junction of the portions A′ and C of the body A, serves also as a guide for the standard D. The upper end portion of the tubular standard D has formed thereon the circular receptacle cover E, which cover also forms a closure for the upper end of the receptacle portion C and the chamber D′ of the standard D. The diameter of this cover E is about equal to the internal diameter of the receptacle C; and in the normal or closed position of the hydrant, as shown in Fig. 1, the cover enters the top portion of receptacle C and engages and rests upon the internally provided flange ring G, the annular packing ring *e* on the under marginal portion of cover E insuring a tight seat therefor, and also an adequate provision against the leakage of surface water into the receptacle C when the hydrant is closed. The flange ring G is made separately from the receptacle portion C, and is made with a driving fit for the position it occupies.

A second circular cover F for the closing of the receptacle against the entrance thereinto of surface water, snow, or dirt, on occasions when the hydrant standard D is raised to its operative position, as illustrated in Fig. 2, is constructed in half section and is attached to the standard at the proper distance thereon below the cover E. A flange *f* formed on the lower peripheral edge of this cover F contacts with the under side surface of the receptacle flange G on the raising of standard D, and constitutes an abutment or stop for the limitation of such upward movement of the standard.

For the purpose of insuring a water excluding contact between the cover flange *f* and the receptacle flange G, a rubber gasket or packing ring *f′* is provided on the upper surface of the cover flange *f*. (See Figs. 1 and 2.)

Referring now to Fig. 1, the gate-valve B, shown as closing the end of branch pipe B′ from a pressure-main, is of an ordinary and well known type, in which the gate *b* thereof is provided with a valve rod *b′* connected to a screw b^2 which has a screw threaded engagement with said gate *b* to the end that a rotational movement imparted to the said valve rod *b′* acts through the screw b^2 to raise or lower the gate *b*.

In the construction of the hydrant forming the subject of this invention, the valve rod *b* has a spline groove formed therein which is engaged by a spline-provided tubular extension G′ which extends downwardly from the cover E into the receptacle C and standard D, and which receives within and slides on the valve rod *b*, and thereby constitutes an extensible part of the same, and compensates for the vertical movements imparted to the standard D. The connection of the upper end of the tubular portion G′ of the valve rod *b* to the cover E is formed as follows: A short stud *g′* which is pinned or otherwise secured to the tube G, projects upwardly through a hole *e′* in the cover E, and also through a handle provided collar H, to which it is pinned.

A shouldered projection of the collar H extends downward into an enlarged upper portion of hole *e′* and compresses a suitable packing therewithin forming an efficient stuffing box for the prevention of leakage around the handle collar.

The handle I of the valve rod collar H is pivoted thereto at *i* and when the hydrant is in its closed position, as shown in Fig. 1, the said handle occupies a position within the cover recess i^2 and below the level of the surface X.

A nozzle J for the attachment of hose couplings, as K, is formed on the standard D, just beneath the cover E thereof, and a suitable valve *j* is provided thereon, whereby the water pressure from the main may be turned on or off in any extent desired.

The lower portion of the gate valve B has attached thereto an automatically operating drainage valve Q which communicates by the pipe *q* with a sewer pipe or delivers otherwise. This valve Q has a central, counterbored vertical hole *r* therein, in the lower end portion of which is attached the drain pipe *q*. A vertically movable valve plug S having a flanged lower end portion is fitted within this counterbored hole *r* and is upwardly pressed against the gate *b* by a spring *t*. This valve plug S has a centrally formed bore or hole *s* therein which extends vertically from its bottom or flanged end to a point adjacent the top or contact end thereof; transverse openings or ports *s′* at the upper end of this central hole *s* extend therefrom, and register with the drainage holes s^2 leading from the base of the valve B when the said valve gate is in its closed position, as illustrated in Fig. 1.

When the gate *b* of the valve B is raised to admit water pressure to the hydrant the valve plug S is caused to rise with it by the upward pressure of the spring *t* thereon, at which time the valve plug openings *s′* are carried above and out of registry with the drainage holes s^2, thereby effectually closing the drainage outlet, said closure being maintained automatically by the upwardly spring pressed valve plug S.

A drainage outlet from the valve B is automatically established by the lowering and closing of gate *b*, which, by its downward thrust on the valve plug S against the pressure of spring *t*, returns the above described valve parts to the positions shown in Fig. 1.

A hose reel L is rotatably mounted on the standard D, its lower flange *m* resting on a hub-like portion of the cover F, and its upper flange *m′* which is united to the flange *m* by a cylindrical portion m^2 rotates slightly below

the hydrant-nozzle J. When the hydrant is in its closed position, the hose N is wound on the reel L in a manner to leave the hose nozzle-pipe *n* on the outside, as illustrated in Fig. 1.

A passage or conduit leads from the standard D to an opening in the cover E for the introduction of steam or hot water for thawing out the hydrant on occasions, during freezing weather which may require it. The steam or hot water used for thawing may all pass off through the drainage pipe *q*, or a way for some thereof may be through one of the hydrant nozzles J, of which in Fig. 2 three are provided, the larger one being for the engine hose connection. A screw cap *o* fitted in the cover E closes this conduit O, and as a convenient provision thereof for the purpose of unscrewing the cap *o*, or for lifting the standard D, manually, a handle *o'* is provided in the recessed top of the screw engaged top, see Figs. 1 and 3.

A second handle P, to be used in connection with handle *o'* for lifting the cover E and standard D, is provided in the top side of the cover E at a point diametrically opposite that of the screw cap handle *o'*.

In operation:—Assuming the hydrant to be in its normal or closed position, the valve-rod handle I is lifted to the position shown in dotted lines in Fig. 1, and in full lines in Fig. 2, and is then turned a part of a rotation or sufficiently far to admit a small portion of the pressure of the water main to pass from the gate valve B and to enter the chamber D' of the standard D, and fill the same, immediately following which the standard D, carrying thereon the covers E and F and the reel L is caused to rise by the continued ingress of water through the gate valve B until the flange *f* of the lower cover F contacts with the underside of the flange or stop ring G of the receptacle C. The upward pressure at this time of the cover flange *f* with its interposed packing ring *f''* against the stop-ring G insures an exclusion of any water or other substance from the now empty receptacle C. The hydrant is now ready for service and in case a stream of water is required therefrom, it is only necessary to open any one of the nozzle valves *j* to the desired extent whereby in connection with an increased, or diminished, opening of the gate valve B, by means of handle I, a stream of water may be delivered of any desired volume or force up to the full capacity of the pressure main.

It is to be understood that the main purpose for which a hydrant of this class would be provided, would be for fire extinguishing, in which case the turning on of the stream through the valve *j*, as above described, would be preceded by the unreeling of the hose N, which is kept in coupled connection with one of the hydrant nozzles J.

After the hose has been unreeled and laid as desired, and the nozzle pipe *n* is in the hands of an operator who in emergencies need not be a professional fireman, the valve *j* and valve handle I may be operated by a person stationed at the hydrant in response to signals or orders, or as occasion requires.

The celerity with which connected hose appliances in a hydrant of this construction may be brought into positions for use, and the ready and simple control of the water pressure therefor, is believed to be unexcelled in hydrants as heretofore constructed, and the advantage of the retiring of the entire operative mechanism into a sub-surface receptacle comprised in the hydrant body, thereby removing from the streets an obstruction to travel thereon that has heretofore been a nuisance and a source of danger, is manifestly important.

The closing of the hydrant is accomplished by the shutting of valves B and J. The automatic drainage valve Q provides an outlet for the water contained in the chamber D' of the standard. It is to be understood, however, that previous to the closing of the hydrant as above described, the hose N is uncoupled from the nozzle J and is drained and dried before being wound onto the reel L.

The provisions for the drying of the hose after use, which may properly form an important adjunct of the before described hydrant constructions, consists, as a reference to Figs. 4 and 5 of the drawings illustrates, in a sectional hose supporting pole U which is composed of tubular "telescoping" sections *u* adapted to slide one within the other; and pivoted latches *u'*, on the lower end portion of each tube section, which are adapted to engage the top portions of the next larger section, as seen in Fig. 1, thereby providing a supporting means for one section on the other.

The section forming the uppermost portion of the pole, when in operative or raised position, has provided on the top end thereof a cross bar or yoke u^2 on which the central portion of a line of hose is supported and thereby elevated. (See Fig. 4.)

A receptacle V which may be secured to the hydrant, as shown in Fig. 4, by the bolt plates *c*, and which extends down underground in a position vertically parallel and adjacent to the hydrant, receives the telescoped sections *u* in a manner shown in Fig. 5

A suitable hinged cover W having a locking handle *w* thereon serves to protect the receptacle V from the entrance thereinto of water or dirt.

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

1. In a hydrant, a hydrant casing having an enlarged upwardly open chamber portion at its top, a hydrant body vertically movable in said casing having near its upper portion a

hose reel rotatable thereabout, and having above and below the reel the covers E and F adapted for closing the mouth of the enlarged chambered portion of the casing, in both the lowered and elevated positions of the hydrant body, means for elevating the hydrant body,—and the reel therewith,—relatively to the casing, and means for opening and closing the water way through the hydrant.

2. In a hydrant, a hydrant casing having an enlarged upwardly open chambered portion at its top, constructed with an internal flange near the mouth of said chamber, a hydrant body vertically movable in said casing and having at its upper portion a hose reel rotatable thereabout, and adapted, when the hydrant body is lowered, to be disposed within said enlarged chambered portion of the casing, and said hydrant having a cover at its upper portion to close at the top of said enlarged chamber against said flange and also having a cover below the reel to close on the elevation of the body against the under side of said flange, means for elevating the hydrant body and reel relatively to the casing, and means for opening and closing the water way through the hydrant.

3. In a hydrant, a hydrant casing adapted at its lower portion to be sidewise connected with a water supply main, and at its lower portion provided with a drainage outlet, a hydrant body vertically movable therein, having a valved hose connection nozzle, and having a branching conduit O provided with a closing means, and hydraulic means for elevating the hydrant body within said casing.

4. In a hydrant, a hydrant casing having a top chambered enlargement adapted at its lower portion to be sidewise connected with a water supply main, and at its lower portion provided with a drainage outlet, a hydrant body vertically movable in said casing having a valved hose connection nozzle, and a reel, and a closing cover E at upper portions thereof, having a branching conduit O opening through said cover E, and provided with a closing cap *o*, and hydraulic means for elevating the hydrant body within said casing.

5. A hydrant comprising a hydrant casing, and a tubular hydrant body vertically movable in the casing, having a water way therethrough, terminating in a sidewise located valved hose connection nozzle, and closed at its upper end, a valve at the lower portion of the hydrant, a rotatable valve operating rod comprising telescoping and spline-engaged sections located within the tubular hydrant body, and a rod extension projecting upwardly through the closed upper end of the hydrant body, and having means for turning it.

6. A hydrant comprising a hydrant casing, and a tubular hydrant body vertically movable in the casing, having a water way therethrough, terminating in a sidewise located valved hosed connection nozzle, and closed at its upper end, a hydrant valve for opening and closing the water supply inlet at the lower portion of the hydrant casing provided with an operating screw b^2 having the vertical rod extension b', the valve rod section G′ telescoping and spline-engaging said part b', the stud or rod extension g connected with the upper portion of said section G′ and extending through and rotatable within the upper closed end of the hydrant body and having the disk-like part H provided with the swinging operating lever I, substantially as and for the purposes set forth.

7. A casing adapted to be located below the ground surface adjacent a hydrant and having a plurality of telescopic sections adapted to have distended relations and the uppermost one having a hose support and means for detachably insuring the engagement of one section in its distended relation in another.

8. A casing adapted to be located below the ground surface adjacent a hydrant and having a plurality of telescopic sections adapted to have distended relations, the uppermost one having a hose support, and each distending section having near its lower portion a recess, and a latch or pawl pivoted therein.

9. A casing adapted to be located below the ground surface adjacent a hydrant and having a plurality of telescopic sections adapted to have distended relations, the uppermost one having a hose support, and each distending section having near its lower portion a recess, and a latch or pawl pivoted therein, and springs for swinging the lower portions of said latches outwardly.

Signed by me at Springfield, Mass., in presence of two subscribing witnesses.

GEORGE ALFRED OWEN.

Witnesses:
G. R. DRISCOLL,
WM. S. BELLOWS.