No. 613,695. Patented Nov. 8, 1898.

D. F. LUSE.

HYDRANT.

(Application filed Jan. 13, 1898.)

(No Model.) 3 Sheets—Sheet I.

Fig. 1.

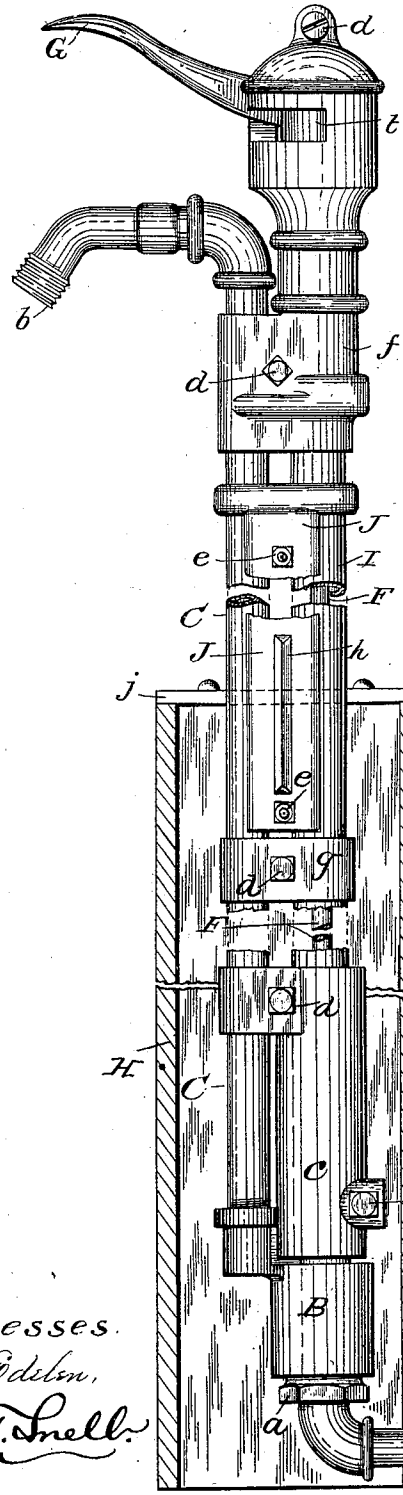
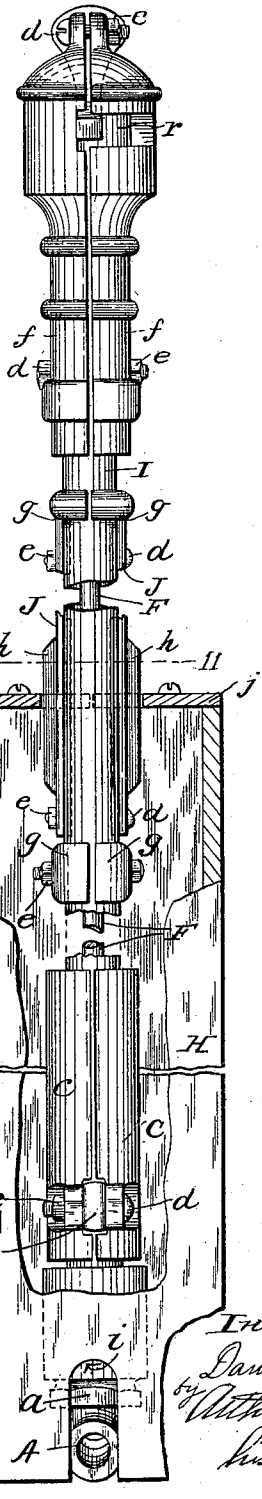


Fig. 2.



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Inventor
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(No Model.) 3 Sheets—Sheet 2.

Fig. 3.

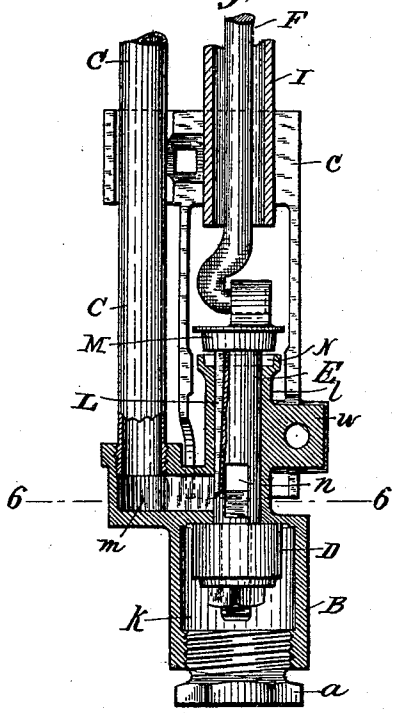


Fig. 4.

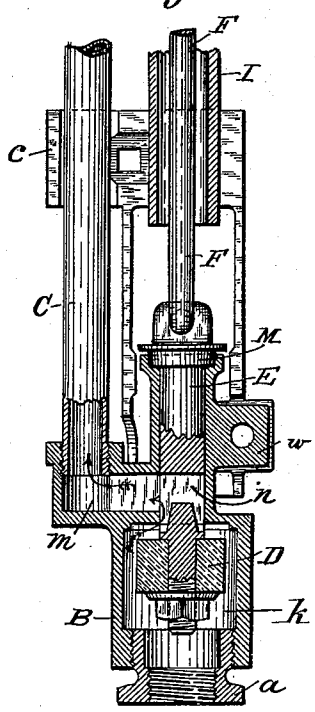


Fig. 5.

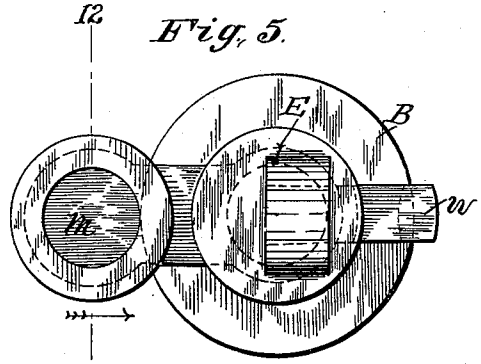


Fig. 6.

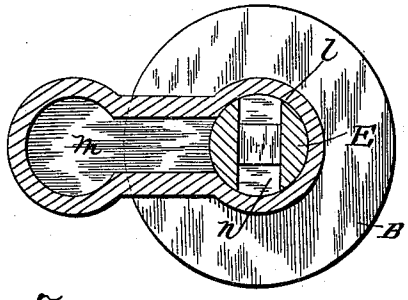


Fig. 7a.

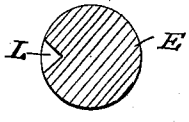
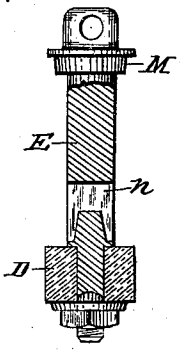


Fig. 7.



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HYDRANT.

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(No Model.) 3 Sheets—Sheet 3.

Fig. 8.

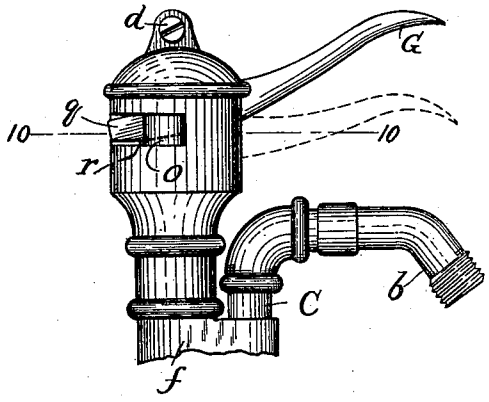


Fig. 9.

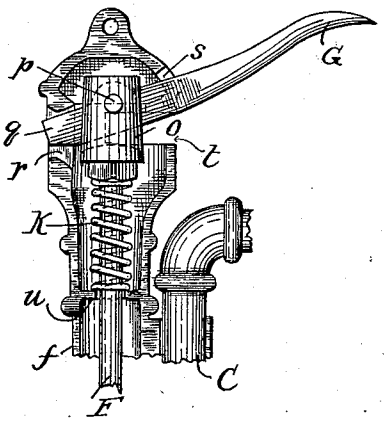


Fig. 10.

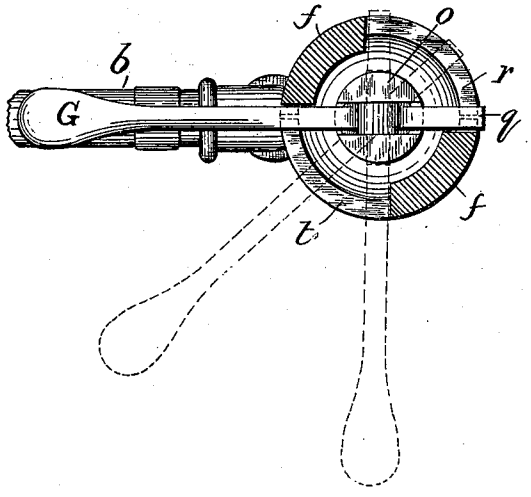


Fig. 11.

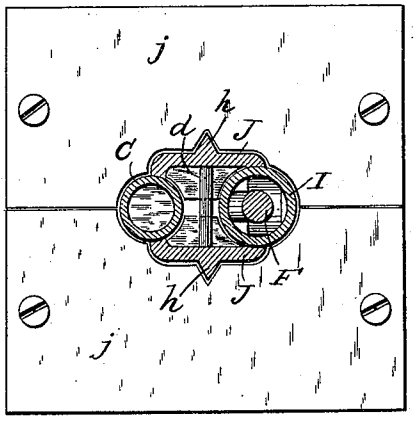
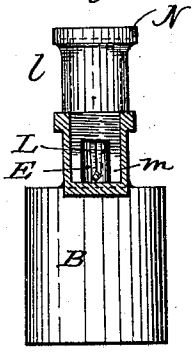


Fig. 12.



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UNITED STATES PATENT OFFICE.

DANIEL F. LUSE, OF CENTRE HALL, PENNSYLVANIA.

HYDRANT.

SPECIFICATION forming part of Letters Patent No. 613,695, dated November 8, 1898.

Application filed January 13, 1898. Serial No. 666,498. (No model.)

To all whom it may concern:

Be it known that I, DANIEL F. LUSE, of Centre Hall, in the county of Centre and State of Pennsylvania, have invented certain new and useful Improvements in Hydrants, of which the following is a specification.

My present improvements are illustrated in the accompanying drawings, wherein—

Figure 1 is a side view of the improved hydrant, the casing therefor being shown in vertical section and the length of the hydrant being foreshortened to permit of its illustration on a larger scale than would otherwise be possible. Fig. 2 is a foreshortened rear view of the hydrant, portions of the casing being broken away and in vertical section. Figs. 3 and 4 are longitudinal vertical sections of the valve mechanism of the hydrant, the valve being shown closed in Fig. 3 and open in Fig. 4. Fig. 5 is a plan view of the valve mechanism and the valve-casing detached from the rest of the hydrant. Fig. 6 is a horizontal section in a plane indicated by the line 6 6 in Fig. 3. Fig. 7 is a vertical section of the valve. Fig. 7^a is a horizontal section of the valve-plunger. Fig. 8 is a side view of the upper end of the hydrant, looking at the same in the opposite direction from that in which Fig. 1 is viewed. Fig. 9 is a vertical longitudinal section of the top of the hydrant. Fig. 10 is a horizontal section in a plane indicated by the line 10 10 in Fig. 8. Fig. 11 is a horizontal section in a plane indicated by the line 11 11 in Fig. 2. Fig. 12 is a vertical section in a plane indicated by the line 12 12 in Fig. 5.

The figures of the drawings are made to scale. Figs. 5, 6, and 7^a are drawn to a standard scale. Figs. 3, 4, 7, 10, 11, and 12 are drawn to a scale one-half that of the standard. Figs. 1, 2, 8, and 9 are drawn to a scale one-third that of the standard.

This invention is an improvement upon the hydrant illustrated in United States Letters Patent No. 235,790, granted December 21, 1880, to myself, and upon the hydrant illustrated in United States Letters Patent No. 48,504, granted July 4, 1865, to William Bailey.

A is the permanently-buried water-supply pipe. B is the water-box of the hydrant, which is secured to the water-supply pipe by coupling *a*. C is the water-discharge pipe, extending upwardly from the water-box B and terminating in the outlet-nozzle *b*. D is the cut-off valve, located in the water-box and having a stem or plunger E, which is connected by operating-rod F with an operator G, located above the discharge-nozzle *b*, and H is the frost-casing, which is permanently buried in the ground and extends from the water-supply pipe up to the surface of the ground, where it terminates. These several features, as thus far referred to, are similar in their general organization to corresponding parts in known hydrants.

Throughout the greater part of the length thereof the connecting operating-rod F is inclosed in a tubular sheath I, which, in connection with the discharge-pipe C, constitutes the frame of the hydrant. The pipes C and I are connected together at their bottoms just above the water-box B by means of a two-part inclosing bottom casing consisting of two plates *c c*, which are clamped together and to a lug *w* on the water-box by means of bolts *d* and nuts *e*. This two-part bottom casing constitutes a protective casing for the connection between the connecting-rod F and the valve stem or plunger E and firmly holds the lower end of the sheath I in proper relation to the water-box and to the discharge-pipe. At their upper ends the two pipes C and I are embraced by plates *f f*, which are clamped together by bolts *d* and nuts *e* and which form a protective casing for the upper end of the connecting-rod F and for the connection between the same and the handle G and which constitute the hydrant-top. The pipes C and I may be further connected together at points intermediate of their ends by clamps *g g*, which are secured together by bolts *d* and nuts *e*.

The pipes C and I are further connected together by longitudinally-extending plates J J on opposite sides, which are secured by bolts *d* and nuts *e*. Each of these plates J has a longitudinally-extending outwardly-projecting rib *h*, which is located in the vicinity of the surface of the ground and which should extend a little distance below and considerably above the surface of the ground. The

plates J J can be adjustably fixed lengthwise of the pipes C I, so as to bring the guide-ribs *h* in proper relation to the surface of the ground. The vertical length of these ribs *h* should be somewhat greater than the maximum distance to which the ground may be heaved by the frost.

The frost-casing H is preferably composed of wood thoroughly saturated with a suitable preservative, such as coal-tar. This frost-casing is permanently buried in the ground and has at its bottom an open-mouthed slot *i*, which passes over and straddles the water-supply pipe A. The upper open end of the frost-casing is covered by two removable plates *j j*, constituting a cover therefor, the contiguous edges of which are shaped to fit the pipes C and I, the plates J, and the guide-ribs *h*, as shown in Fig. 11. By virtue of this construction and arrangement the frost-casing is free to rise and fall under the influence of the frost without interfering with or disarranging either the water-supply pipe or the hydrant. The open-mouthed slot *i*, which straddles the water-supply pipe, permits the rise and fall of the frost-casing without interfering with the water-supply pipe, and the sliding connection between the cover of the frost-casing and the hydrant insures the proper relative position between the hydrant and the casing, while permitting the free rise and fall of the casing. At the same time this construction enables the hydrant to be removed and reset for repairs and otherwise without any digging up or any removal or disturbance of the frost-casing. The two-part cover *j j* is attached to the frost-casing by screws or other similar readily-manipulated devices, and when this cover is removed the interior of the frost-casing is accessible for all purposes.

The water-box B is located below the frost-line and contains the valve mechanism. The valve-chamber *k* of the water-box B communicates with the discharge-pipe C through a vertical tubular chamber *l* and horizontal water-channel *m*. The valve-stem E fits substantially water-tight in the vertical tubular chamber *l*, the two being ground to fit each other, so as to be as nearly water-tight as can be made without undue expense and without interfering with the free movement of the plunger E within the tubular chamber *l*. The cut-off valve D is a substantial body of rubber or other elastic material appropriately secured to the lower end of the plunger E and located in the valve-chamber of the water-box, and is substantially similar to the valve in my said Patent No. 235,790. When the cut-off valve D is closed, as shown in Fig. 3, it seats against the top of the valve-chamber *k*, thus cutting off communication between the said valve-chamber *k* and the water-discharge pipe C. To open the valve, it is pushed downwardly against the water-pressure, as shown in Fig. 4. The valve is closed and kept closed by the water-pressure within the water system, to which the supply-pipe A is connected, so that a secure water-tight joint is always obtained.

The vertical depression of the cut-off valve D to the position shown in Fig. 4 does not, however, establish communication between the water-supply and water-discharge pipes, for to establish such communication it is necessary to rotate the valve and its plunger E after opening the cut-off valve. The plunger E is constructed with a laterally-extending port or passage *n*, (see Figs. 3, 4, 6, and 7,) which, when the cut-off valve D is closed, as shown in Figs. 3 and 6, stands at right angles to the horizontal water-channel *m*. Likewise when the valve is closed this port or passage *n* is wholly above the valve-chamber *k*, as shown in Fig. 3. When, however, the valve is moved vertically downward, this port *n* is brought into communication with the water-chamber *k*, but is still out of register with the water-channel *m*. In order, therefore, that water may flow into the discharge-pipe C, it is necessary, after the downward movement of the valve C, to then rotate the plunger E, so as to bring the port *n* into register (more or less) with the water-channel *m*. The outflow of the water from the hydrant can be nicely regulated by the degree of rotation of the plunger E, which determines the extent of registration between the port *n* and the channel *m*. It is thus seen that to open and close communication between the water supply and discharge pipes it is necessary to move the valve both vertically and rotatively. The mechanism for effecting these two movements is shown in Figs. 1, 2, 8, 9, and 10. The connecting-rod F has at its upper end a head *o*, to which the operator G, consisting of an operating-lever, is pivoted at *p*. When the valve is closed, the operating-lever G occupies the position shown in Figs. 1, 2, and 9 and in full lines in Figs. 8 and 10. The rear end *q* of the operating-lever extends into a horizontal slot *r*, formed in the hydrant-top, (composed of the plates *f f*,) as shown in Figs. 2, 8, 9, and 10. The front end of the operating-lever G plays vertically in a vertical slot *s*, formed in said hydrant-top, as best seen in Fig. 9. In order to depress the cut-off valve D to open the same, the handle end of the operating-lever G is depressed, and said lever, acting at its rear end upon the upper margin of the slot *r* as a fulcrum, depresses the connecting-rod F, and with it the valve, a powerful leverage being thus secured, thus enabling the valve to be readily opened against a considerable water-pressure. The depression of the lever G brings the body of the same into registration with a horizontal slot *t* (see Figs. 1, 9, and 10) in the hydrant-top, which permits the lever to be turned, thereby turning the valve and valve-plunger to bring the water supply and discharge pipes into communication, the horizontal slot *r* permitting the rear end of the lever G to swing correspondingly. Since the vertical height of the slot *t* is only just suffi-

cient to permit the free lateral swinging movement of the lever G, the lever will remain depressed in any position in which it may be left on being turned, as indicated in dotted lines in Fig. 10, so that the port *n* remains open in any position in which it may be set, thus permitting the continuous flow from the discharge-pipe of any stream of water within the capacity of the hydrant without necessitating the holding on to the lever G. To close the valve, it is merely necessary to swing the lever G back to registration with the vertical slot *s* and let go the lever, whereupon the water-pressure automatically closes the cut-off valve D. To facilitate the starting of the valve in its closing movement, a spring K is employed, which is interposed between a flange *u* on the hydrant-top and the head *o* of the connecting-rod F.

Each slot *r* and *t* extends through a quadrant, and their ends constitute stops (see Fig. 10) coöperating with the operator to limit its rotary movement in each direction, the operator when moved to its limit in one direction holding the lateral water-port wide open and when at its opposite limit of movement being in registration with the vertical slot *s*.

In order to empty the discharge-pipe C of water when the valve is closed, and hence prevent freezing of the same, the plunger E is provided with a longitudinal waste-channel L, as shown in Figs. 3, 7ª, and 12. When the valve is closed, the lower end of this channel L communicates with the channel *n* and its outer end extends above the top of the tubular chamber *l*, in which the plunger fits, as best shown in Fig. 3, thus providing for the free outflow of the water from the discharge-pipe C when the valve is closed. In order to prevent the escape of water through this waste-outlet when the valve is open, the plunger E carries a compressible waste-valve M, of rubber or other elastic material, which when the cut-off valve D is open, as shown in Fig. 3, is wholly above the top edge of the water-box B. When, however, the plunger is depressed to open the valve, the waste-valve M seats tightly within the countersunk seat upon the top of the water-box, thereby closing the waste-outlet, so that no water can escape when the cut-off valve is open. The waste-valve when the plunger is depressed seats into a countersunk seat N in the top of the water-box, as shown in Fig. 4, being compressed therein, thus forming a water-tight joint both on its bottom and around its periphery, so that all waste of water is prevented when the cut-off valve D is open.

It will be observed that when the handle-lever G is depressed the cut-off valve D is opened, and at the same time the waste-valve M seats tightly into the countersunk seat N, thereby closing the waste-outlet, and this occurs in advance of the rotary movement which brings the water-discharge pipe into communication with the water-supply. The waste-outlet valve remains firmly seated during the rotary movement of the plunger E and during the entire outflow of water from the hydrant. In closing, the waste-valve M remains in its seat until communication between the water supply and discharge pipes has been closed by the rotation of the plunger, and then the same vertical movement which closes the cut-off valve D opens the waste-outlet. The hydrant is hence very economical in the use of water.

I claim as my invention—

1. A hydrant having, in combination, a water-box having a valve-chamber communicating with the water-supply, a tubular chamber communicating with said valve-chamber, a water-channel leading from said tubular chamber and communicating with the water-discharge, and a countersunk valve-seat at the end of said tubular chamber remote from said valve-chamber; a valve-plunger located in said tubular chamber having a cut-off valve located within said valve-chamber, a lateral port, a longitudinal waste-channel, and a waste-valve coöperating with said countersunk valve-seat, said plunger normally occupying such position that the cut-off valve is closed, the waste-valve is open, the lateral port is out of registration both with the valve-chamber and water-channel, and the waste-channel is open and in communication with the water-channel; the hydrant-top having at its front a horizontal slot and a vertical slot communicating therewith, and at its rear a horizontal slot; a connecting-rod connected with the valve-plunger and extending therefrom into the hydrant-top; an operating-lever pivotally connected to the head of said connecting-rod, the rear end of said operating-lever extending into said rear slot, the upper margin of which serves as a fulcrum for said lever, and the front or handle end of said lever normally occupying said vertical slot, but when depressed registering with said front horizontal slot, whereby said lever is capable both of a vertical and rotary movement, the vertical movement of said lever opening said cut-off valve, moving said waste-valve into said countersunk seat thereby closing the waste-outlet and establishing communication between said lateral port and the valve-chamber, and the rotary movement of said lever imparting rotation to said plunger whereby communication between the waste and water channels is destroyed and the lateral port and water-channel are brought into registration; the relation between the operating-lever and said front horizontal slot being such that the handle-lever when located therein is maintained in position to keep the cut-off valve open; and a closing-spring interposed between the head of the connecting-rod and a flange on the hydrant-top for facilitating the closing of the cut-off valve, substantially as set forth.

2. A hydrant having, in combination, a water-box having a valve-chamber communicating with the water-supply, a tubular cham-

ber communicating with said valve-chamber, a water-channel leading from said tubular chamber and communicating with the water-discharge, and a countersunk valve-seat at the end of said tubular chamber remote from said valve-chamber; a valve-plunger located in said tubular chamber having a cut-off valve located within said valve-chamber, a lateral port, a longitudinal waste-channel, and a waste-valve coöperating with said countersunk valve-seat, said plunger normally occupying such position that the cut-off valve is closed, the waste-valve is open, the lateral port is out of registration both with the valve-chamber and water-channel, and the waste-channel is open and in communication with the water-channel; the hydrant-top having at its front a horizontal slot and a vertical slot communicating therewith, and at its rear a horizontal slot; a connecting-rod connected with the valve-plunger and extending therefrom into the hydrant-top; an operating-lever pivotally connected to the head of said connecting-rod, the rear end of said operating-lever extending into said rear slot, the upper margin of which serves as a fulcrum for said lever, and the front or handle end of said lever normally occupying said vertical slot, but when depressed registering with said front horizontal slot, whereby said lever is capable both of a vertical and rotary movement, the vertical movement of said lever opening said cut-off valve, moving said waste-valve into said countersunk seat thereby closing the waste-outlet and establishing communication between said lateral port and the valve-chamber, and the rotary movement of said lever imparting rotation to said plunger whereby communication between the waste and water channels is destroyed and the lateral port and water-channel are brought into registration, and the relation between the operating-lever and said front horizontal slot being such that the handle-lever, when located therein, is maintained in position to keep the cut-off valve open, substantially as set forth.

3. A hydrant having, in combination, a water-box having a valve-chamber communicating with the water-supply, a tubular chamber communicating with said valve-chamber, a water-channel leading from said tubular chamber and communicating with the water-discharge, and a countersunk valve-seat at the end of said tubular chamber remote from said valve-chamber; a valve-plunger located in said tubular chamber having a cut-off valve located within said valve-chamber, a lateral port, a longitudinal waste-channel, and a waste-valve coöperating with said countersunk valve-seat, said plunger normally occupying such position that the cut-off valve is closed, the waste-valve is open, the lateral port is out of registration both with the valve-chamber and water-channel, and the waste-channel is open and in communication with the water-channel; the hydrant-top having a fulcrum; a connecting-rod connected with the valve-plunger and extending therefrom to the hydrant-top; and an operating-lever pivotally connected to the head of said connecting-rod, the rear end of said operating-lever coöperating with said fulcrum, said lever being capable both of a vertical and rotary movement, the vertical movement of said lever opening said cut-off valve, moving said waste-valve into said countersunk seat thereby closing the waste-outlet and establishing communication between said lateral port and the valve-chamber, and the rotary movement of said lever imparting rotation to said plunger whereby communication between the waste and water channels is destroyed and the lateral port and water-channel are brought into registration, substantially as set forth.

4. A hydrant having, in combination, a water-box having a valve-chamber communicating with the water-supply, a tubular chamber communicating with said valve-chamber, a water-channel leading from said tubular chamber and communicating with the water-discharge, and a countersunk valve-seat at the end of said tubular chamber remote from said valve-chamber; a valve-plunger located in said tubular chamber having a cut-off valve located within said valve-chamber, a lateral port, a longitudinal waste-channel, and a waste-valve coöperating with said countersunk valve-seat, said plunger normally occupying such position that the cut-off valve is closed, the waste-valve is open, the lateral port is out of registration both with the valve-chamber and water-channel, and the waste-channel is open and in communication with the water-channel; a connecting-rod connected with the valve-plunger; and an operator connected to said connecting-rod and capable of both a linear and rotary movement, the linear movement opening said cut-off valve, moving said waste-valve into said countersunk seat thereby closing the waste-outlet and establishing communication between said lateral port and the valve-chamber, and the rotary movement imparting rotation to said plunger whereby communication between the waste and water channels is destroyed and the lateral port and water-channel are brought into registration, substantially as set forth.

5. A hydrant having, in combination, a water-box having a valve-chamber communicating with the water-supply, a tubular chamber communicating with said valve-chamber, a water-channel leading from said tubular chamber and communicating with the water-discharge, and a waste-valve seat at the end of said tubular chamber remote from said valve-chamber; a valve-plunger located in said tubular chamber having a cut-off valve located within said valve-chamber, a lateral port, a longitudinal waste-channel, and a waste-valve coöperating with said waste-valve seat, said plunger normally occupying such position that the cut-off valve is closed, the waste-valve is open, the lateral port is out of registration both with the valve-chamber and

water-channel, and the waste-channel is open and in communication with the water-channel; a connecting-rod connected with the valve-plunger and extending therefrom; and an operator connected to said connecting-rod and capable both of a linear and rotary movement, the linear movement opening said cut-off valve, moving said waste-valve onto said waste-valve seat thereby closing the waste-outlet and establishing communication between said lateral port and the valve-chamber, and the rotary movement imparting rotation to said plunger whereby communication between the waste and water channels is destroyed and the lateral port and water-channel are brought into registration, substantially as set forth.

6. A hydrant having, in combination, a water-box having a valve-chamber communicating with the water-supply, a tubular chamber communicating with said valve-chamber, and a water-channel leading from said tubular chamber and communicating with the water-discharge; a valve-plunger located in said tubular chamber having a cut-off valve located within said valve-chamber, a lateral port, and a longitudinal waste-channel, said plunger normally occupying such position that the cut-off valve is closed, the lateral port is out of registration both with the valve-chamber and water-channel, and the waste-channel is open and in communication with the water-channel; a connecting-rod connected with the valve-plunger and extending therefrom; and an operator connected to said connecting-rod and capable both of a linear and rotary movement, the linear movement opening said cut-off valve and establishing communication between said lateral port and the valve-chamber, and the rotary movement imparting rotation to said plunger whereby communication between the waste and water channels is destroyed and the lateral port and water-channel are brought into registration, substantially as set forth.

7. A hydrant having, in combination, a water-box having a valve-chamber communicating with the water-supply, a tubular chamber communicating with said valve-chamber, and a water-channel leading from said tubular chamber and communicating with the water-discharge; a valve-plunger located in said tubular chamber having a cut-off valve located within said valve-chamber and a lateral port, said plunger normally occupying such position that the cut-off valve is closed and the lateral port is out of registration both with the valve-chamber and water-channel; a connecting-rod connected with the valve-plunger; and an operator connected to said connecting-rod and capable both of a linear and rotary movement, the linear movement opening said cut-off valve and establishing communication between said lateral port and the valve-chamber, and the rotary movement of said lever imparting rotation to said plunger whereby communication between the lateral port and water-channel is established, substantially as set forth.

8. A hydrant having, in combination, a water-box having a valve-chamber communicating with the water-supply, a tubular chamber communicating with said valve-chamber, and a water-channel leading from said tubular chamber and communicating with the water-discharge; a valve-plunger located in said tubular chamber having a cut-off valve located within said valve-chamber and a lateral port, said plunger normally occupying such position that the cut-off valve is closed and the lateral port is out of registration both with the valve-chamber and water-channel; the hydrant-top; a connecting-rod connected with the valve-plunger and extending therefrom to the hydrant-top; an operator connected to said connecting-rod and capable both of a linear and rotary movement, the linear movement opening said cut-off valve and establishing communication between said lateral port and the valve-chamber, and the rotary movement imparting rotation to said plunger whereby the lateral port and water-channel are brought into registration; and means on said hydrant-top coöperating with said operator so as to maintain it in position to keep the cut-off valve open, substantially as set forth.

9. A hydrant having, in combination, a water-box having a valve-chamber communicating with the water-supply, a tubular chamber communicating with said valve-chamber, a water-channel leading from said tubular chamber and communicating with the water-discharge, and a countersunk valve-seat at the end of said tubular chamber remote from said valve-chamber; a valve-plunger located in said tubular chamber having a cut-off valve located within said valve-chamber, a longitudinal waste-channel, and a compressible waste-valve coöperating with said countersunk valve-seat, said plunger normally occupying such position that the cut-off valve is closed, the waste-valve is open, and the waste-channel is open and in communication with the water-channel; a connecting-rod connected with the valve-plunger and extending therefrom; and an operator connected to said connecting-rod and capable of a linear movement thereby opening said cut-off valve, moving said waste-valve into said countersunk seat and compressing it therein so as to close the waste-outlet, substantially as set forth.

10. A hydrant having, in combination, a water-box with a water-supply, a water-discharge, a cut-off-valve seat, and a waste-valve seat; a vertically-movable and rotary plunger having a cut-off valve, a waste-valve, a lateral water-port, and a waste-channel; and means for moving said plunger vertically whereby the cut-off valve is opened, the waste-valve is closed, and the water-port is put into communication with the water-supply, and for then rotating said plunger, whereby the water-port is put into communication with

the water-discharge and the communication between the waste-channel and the water-discharge is destroyed, substantially as set forth.

11. A hydrant having, in combination, a water-box with a water-supply, a water-discharge, a cut-off-valve seat, and a waste-valve seat; a vertically-movable and rotary plunger having a cut-off valve, a lateral water-port, and a waste-channel; and means for moving said plunger vertically whereby the cut-off valve is opened, and the water-port is put into communication with the water-supply, and for then rotating said plunger, whereby the water-port is put into communication with the water-discharge and the communication between the waste-channel and the water-discharge is destroyed, substantially as set forth.

12. A hydrant having, in combination, a water-box with a water-supply, a water-discharge, and a cut-off-valve seat; a vertically-movable and rotary plunger having a cut-off valve, and a lateral water-port; and means for moving said plunger vertically whereby the cut-off valve is opened, and the water-port is put into communication with the water-supply, and for then rotating said plunger, whereby the water-port is put into communication with the water-discharge, substantially as set forth.

13. A buried water-supply pipe, and a hydrant connected therewith, said hydrant having longitudinally-extending and longitudinally-adjustable guide-plates with longitudinal guide-ribs thereon, in combination with a buried frost-casing surrounding said hydrant, having at its bottom an open-mouthed slot straddling said water-supply pipe, and a two-part removable cover embracing the hydrant and slidingly connected with said guide-ribs, substantially as set forth.

14. A buried water-supply pipe, and a hydrant connected therewith, in combination with a buried frost-casing surrounding said hydrant, having at its bottom an open-mouthed slot straddling said water-supply pipe, and a two-part removable cover embracing the hydrant and slidingly connected therewith, substantially as set forth.

15. A hydrant having, in combination, a water-box; a valve therein; a discharge-pipe leading from said water-box; a connecting-rod connected with the stem of said valve; a longitudinal sheath surrounding said connecting-rod; a two-part hydrant-top clamping the top of said sheath to said discharge-pipe; and a two-part bottom casing connected with the water-box and clamping the lower end of said sheath to said discharge-pipe, substantially as set forth.

16. A hydrant having, in combination, a water-box; a valve therein; a discharge-pipe leading from said water-box; a connecting-rod connected with the stem of said valve; a longitudinal sheath surrounding said connecting-rod; a two-part hydrant-top clamping the top of said sheath to said discharge-pipe; and a two-part bottom casing clamping the lower end of said sheath to said discharge-pipe, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

DANIEL F. LUSE.

Witnesses:
W. GROSS MINGLE,
C. F. DEINNIGER.