

(No Model.)

G. P. VINCENT.
HYDRANT.

No. 463,015.

Patented Nov. 10, 1891.

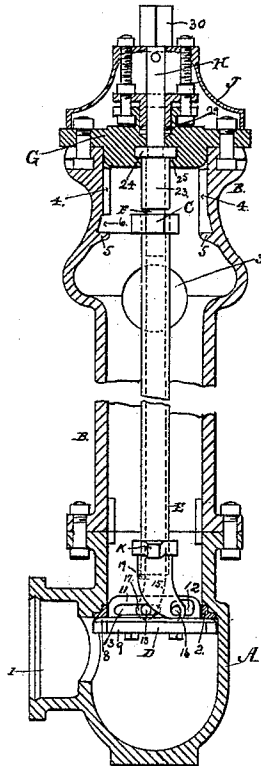


FIG. 1.

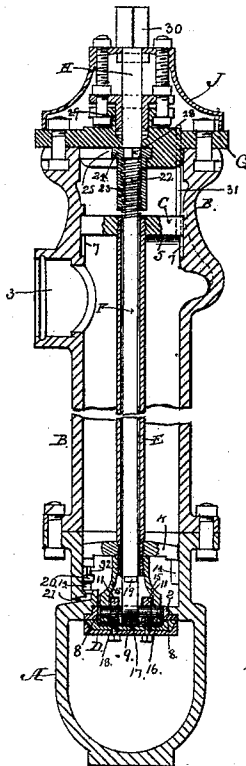


FIG. 2.

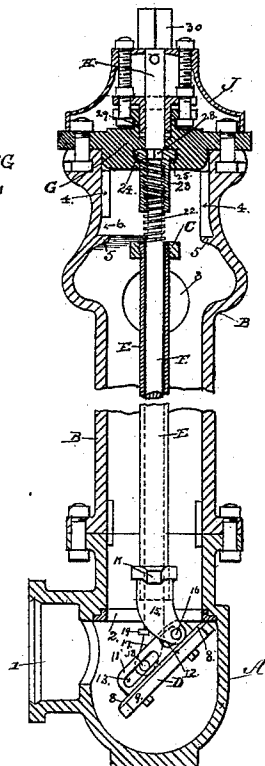


FIG. 3.

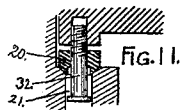


FIG. 11.

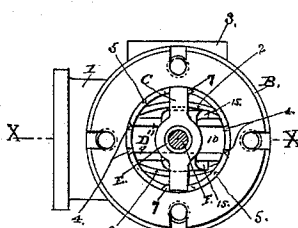


FIG. 4.

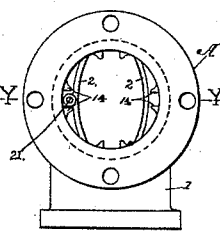


FIG. 5.

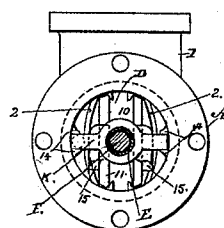


FIG. 6.

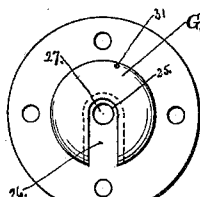


FIG. 10.

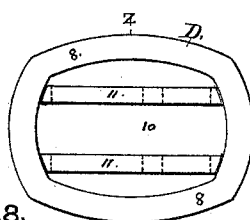


FIG. 8.

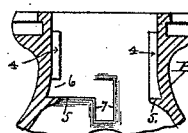


FIG. 7.

WITNESSES:

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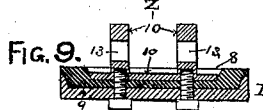


FIG. 9.

by

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GEORGE P. VINCENT,

UNITED STATES PATENT OFFICE.

GEORGE P. VINCENT, OF LANSINGBURG, NEW YORK, ASSIGNOR OF TWO-THIRDS TO FRANK SHELDON, OF SAME PLACE, AND FRANK W. HORROBIN, OF COHOES, NEW YORK.

HYDRANT.

SPECIFICATION forming part of Letters Patent No. 463,015, dated November 10, 1891.

Application filed January 9, 1891. Serial No. 377,259. (No model.)

To all whom it may concern:

Be it known that I, GEORGE P. VINCENT, of Lansingburg, in the county of Rensselaer and State of New York, have invented new and useful Improvements in Hydrants, of which the following is a specification.

My invention relates to improvements in hydrants, but especially to that class of the latter designed for the extinguishment of fires, and the object of my invention is to provide a simple, effective and durable hydrant of the character above referred to. This object I attain by the mechanism illustrated in the accompanying drawings, which is herein referred to and forms part of this specification, and in which—

Figure 1 is a vertical section of my hydrant with the valve in its closed position at the line X X, on Fig. 4, said valve and other internal parts being shown in elevation. Fig. 2 is a vertical section of the hydrant at the line Y Y on Fig. 5, the valve being closed and the screw and spindle being shown in elevation. Fig. 3 is a vertical section similar to Fig. 1, excepting that the valve is shown in an open position. Fig. 4 is a plan view of my hydrant with the upper internal and external parts removed therefrom. Fig. 5 is a plan view of the valve-casing with the valve removed therefrom. Fig. 6 is a like view showing the valve and its guiding mechanism in place. Fig. 7 is a vertical section of the upper portion of the hydrant-body. Fig. 8 is a detached and enlarged plan view of the hydrant-valve. Fig. 9 is a transverse section of Fig. 8 at the line Z Z. Fig. 10 is an inverted plan view of the bonnet; and Fig. 11 is an enlarged and detached detail of the drainage-opening and valve for closing the same.

As represented in the drawings, A designates the valve-casing of my hydrant, the same being provided with an inlet-nozzle 1 for receiving a branch pipe of the water-mains by which water is supplied to the hydrant, and with a valve-seat 2, which is preferably made of incorrodible metal, but which may be made of the same metal that the valve-casing is made of, and it may either be a separate piece or integral with said valve-casing.

B is the body of the hydrant, fitted to be

secured to the valve-casing A by means of bolts or other suitable fastenings. Said body has near its upper extremity a discharge-nozzle 3, which is provided with the usual means (not shown in the drawings) for attaching leading-hose to the hydrant when occasion may require. The upper part of the bore of said body is provided with a series of guide-strips 4, which are arranged in pairs to form vertical grooves at two opposite sides of said body. One of each pair of said guide-strips at corresponding sides of said groove is extended downward to a greater distance than its mate and abuts upon a horizontal quadrant-flange 5. Between the lower end of each shorter guide-strip and the corresponding quadrant-flange an opening 6 is formed. Each of said quadrant-flanges is joined to the upper end of the shorter member of a second pair of guide-strips 7, which are arranged to form vertical grooves which will stand transversely in respect to the grooves formed by the guide-strips 4. The guide-strips 4 and 7 and the quadrant-flanges 5 are arranged in such manner that when a cross-head C is entered in the groove between the guide-strips 4 and carried to the bottom of said groove a quarter-revolution of said cross-head on its central axis will carry the opposite extremities of said cross-head out through the openings 6 and, guided by the quadrant-flanges 5, into the grooves formed by the guide-strips 7, so as to receive a reciprocating motion in the last-named grooves.

D is the hydrant-valve, which is preferably made by clamping an elastic face 8 between a lower plate 9 and an upper plate 10, the latter being provided with a pair of parallel ribs 11, each of which has a short slotted opening 12 and a long slotted opening 13. The valve D is fitted to close upwardly against the lower face of the valve-seat 2. The opening and closing movements of said valve are of a mixed character, combining a swinging motion with a rising and falling one, and to effect said motions said valve is carried by a tubular carrier E and a screw-rod F, the latter being fitted to slide loosely in the bore of the first. Said tubular carrier has at its upper extremity the cross-head C, above referred to

as being fitted to slide between the guide-strips 7 when entered in the manner above described. Said tubular carrier is also provided with a cross-tail K near its lower extremity. Said cross-tail is fitted to move in grooves formed by guide-strips 14, fixed at opposite sides of the bore of the neck of the valve-casing A. The guide-strips 14 range in line with the guide-strips 7, so as to allow the tubular carrier E to always move in a direct line. A fork 15, secured to the lower extremity of said tubular carrier, spans over to the outer sides of the ribs 11 on the valve D. Said fork is provided with a cross-pin 16, which passes through the slotted openings 12 in said ribs and forms a hinge-pin on which the valve D has its swinging movement. The carrier E, by means of its fork 15, carries one end of the valve D, the latter being hinged to said fork by the cross-pin 16. The screw-rod F is fitted to receive a movement that is independent of the carrier E, and it is provided with a curved terminal 17 at its lower extremity. Said terminal is fitted loosely between the ribs 11, and is provided with a pivot 18, which engages in the slotted openings 13 for the purpose of imparting motion to the valve D. The screw-rod F has near its lower extremity a lug 19, which is so arranged that it will engage with the lower end of the tubular carrier E just before said screw-rod has completed its ascending movement, whereby said tubular carrier will be raised to carry the valve D into close contact with the valve-seat 2. The initial downward movement of the screw-rod F will permit the carrier E to descend until the cross-head C reaches the lower end of the groove formed by the guide-strips 7, whereby said carrier will be retained in the position shown in Fig. 3. The continued downward movement of the screw-rod F will depress the valve D into the open position shown in Fig. 3. The cross-tail K has near one extremity a small valve 20, which is fitted to slide loosely on a stud 32, fixed in said cross-tail. Said stud is made of sufficient length to allow the valve 20 to have lost motion thereon, so that said valve will be seated before said cross-tail has completed its downward movement, and so that said valve will not be raised from its seat until just before said cross-tail has completed its upward movement. The valve 20 is fitted to close a drainage-opening 21, formed in the valve-casing A. Said opening has sufficient diameter to allow the head of the stud 32 to enter loosely therein when the valve 20 has become seated to close said opening, and it will be seen that the valve 20 will be seated to close the opening 21 when the tubular carrier E has made a slight part of its downward movement to effect the opening movement of the valve D, and that the valve 20 will remain seated to cover the opening 21 until just before the valve D has completed its closing movement. The screw-rod F, which is retained in a non-revoluble con-

dition, has its upper portion provided with a screw-thread 22, which engages in the corresponding thread of a revoluble nut 23, whose upper extremity is provided with a circumferential flange 24, which is fitted to enter a groove 25 in a slotted opening 26, formed in the lower side of the bonnet G. Said nut is fitted to rotate in said groove in such manner that it will impart an endwise movement to said screw-rod. The bonnet G, which forms a closure for the upper end of the hydrant-body B, is provided with a central opening 27, whose center coincides with the central point of the inner end of the slotted opening 26. An operating-spindle H is fitted to rotate in the opening 27, and has at its lower extremity a square 28 or other means of coupling with the upper end of the nut 23, so as to afford the means for externally rotating said nut. A stuffing-box 29 is formed on the upper side of the bonnet G for the purpose of forming a water-tight joint around said spindle, and the latter is provided with a head 30 for receiving a wrench or other implement for rotating said spindle and the nut 23 from the exterior of the hydrant. The bonnet G has dependent from its lower face a stud or pin 31, which extends down closely to one side of the cross-head C in such manner that said pin will form a stop for preventing said cross-head from being turned in a direction that will carry the extremities of the latter out of the grooves formed by the guide-strips 7. Preferably a cap J is provided as a covering for the bonnet G and stuffing-box 29, and in such cases said cap may be secured in place by means of the gland-bolts of the stuffing-box 29, said bolts being made of sufficient length to serve that purpose.

For the purpose of inserting the valve D, carrier E, and screw-rod F into the hydrant, it is necessary that said parts should be turned a quarter-revolution in respect to the positions they will hold when the hydrant is in an operative condition, said valve being in a drooping position, with its minor diameter turned to enter the opening in the valve-seat 2 in the direction of the greater length of said opening. Said parts are then inserted in the hydrant and pushed down until the cross-head C has reached the bottom of the grooves formed by the guide-strips 4, and is resting on the quadrant-flanges 5. Said cross-head is then turned a quarter-revolution, in respect to its first position, so as to allow its opposite extremities to enter the grooves formed by the guide-strips 7. When said cross-head has reached the inner end of said groove, and the bonnet G is fixed in place, the hydrant will be in a condition to be erected for use.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a hydrant, the combination of a valve-casing provided with a main-valve seat, a main valve fitted to swing on a vertically-

shiftable hinge-pin, a carrier having a vertically-reciprocating movement and provided with a hinge-pin for said valve, a screw-rod jointed to said valve, and means, substantially as described, for imparting a vertical movement to said screw-rod, as and for the purpose herein specified.

2. In a hydrant, the combination of a valve-casing provided with a main-valve seat and a waste-water drainage-opening, an upwardly-closing main valve fitted to swing on a vertically-shiftable hinge-pin, a carrier having a vertical movement and provided with a hinge-pin for said valve and with an auxiliary valve fitted to automatically close said drainage-opening, and a screw-rod jointed to said main valve and provided with means for imparting a vertical movement thereto, as and for the purpose herein specified.

3. In a hydrant, the combination of a valve-casing, a hydrant-body provided with guide-strips, which form grooves that are arranged transversely in respect to each other in the bore of said hydrant-body, and a valve-carrier provided with a cross-head whose opposite terminals are fitted to move in said grooves in such manner that a partial revolution will be imparted to said carrier in pass-

ing from one of said grooves to the next lower one, as and for the purpose herein specified. 30

4. In a hydrant, the combination of a valve-casing provided with a valve-seat for an upwardly-closing valve, a hydrant-body provided with guide-strips, which form two sets of vertical grooves at different planes at opposite sides of the bore of said body, the upper set of said grooves being arranged transversely in respect to the lower set, a tubular valve-carrier provided with a cross-head fitted to move in said grooves, said carrier being also provided with a forked lower terminal having a hinge-pin for the main valve, a screw-rod having at its lower extremity a pivot-pin which engages with the main valve, a revoluble nut fitted to engage with the threaded portion of said screw-rod, and a main valve which is fitted to close upwardly and is hinged to the lower terminal of said carrier, said valve being connected to the lower extremity of said screw-rod, as and for the purpose herein specified. 40 45 50

GEORGE P. VINCENT.

Witnesses:

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