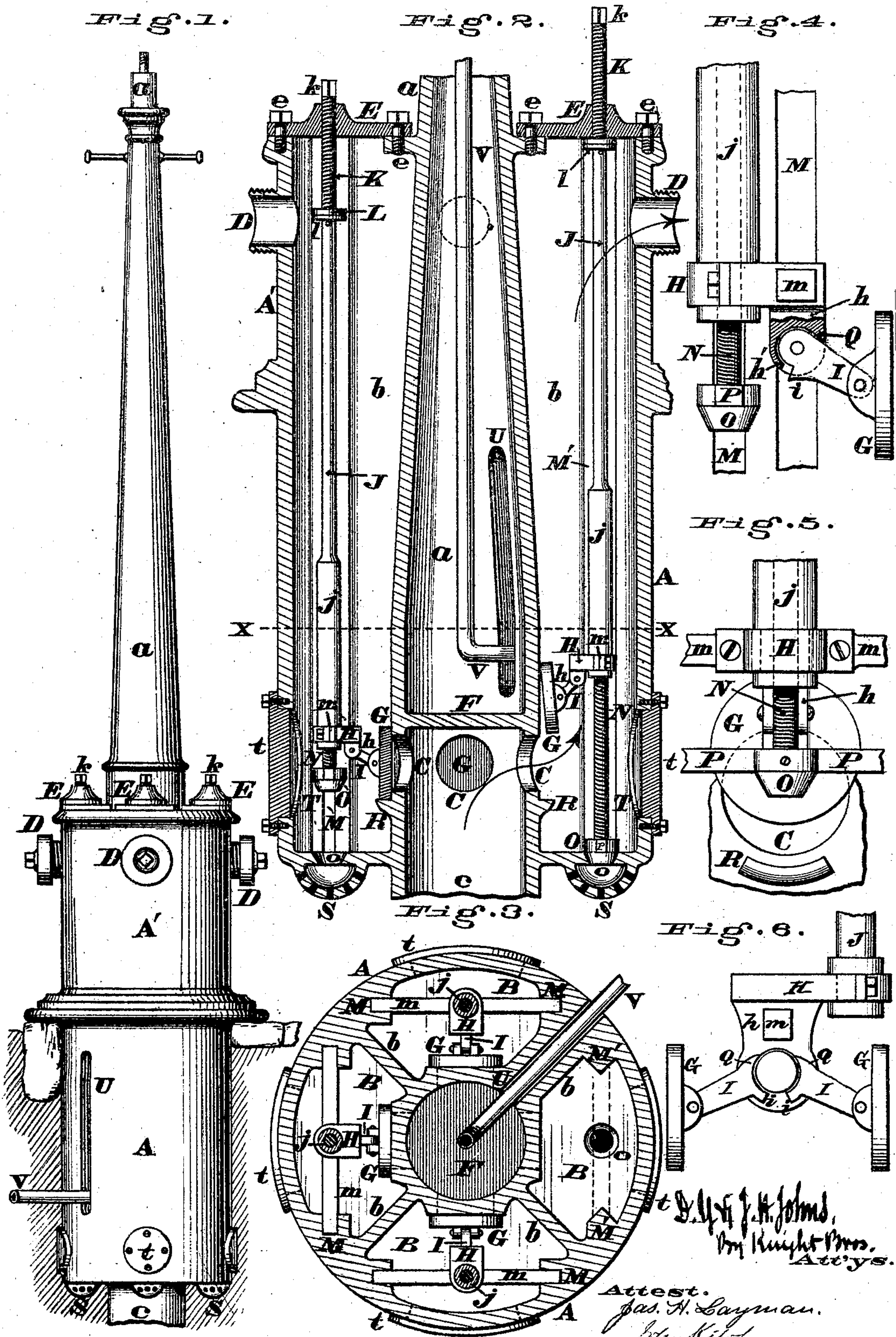


D. Y. & J. H. JOHNS.
Improvement in Combined Fire-Plug and Lamp-Post.
No. 133,230. Patented Nov. 19, 1872.



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UNITED STATES PATENT OFFICE.

DAVID Y. JOHNS AND JOHN H. JOHNS, OF CINCINNATI, OHIO, ASSIGNORS TO THEMSELVES AND WILLIAM H. JOHNS, OF SAME PLACE.

IMPROVEMENT IN COMBINED FIRE-PLUGS AND LAMP-POSTS.

Specification forming part of Letters Patent No. 133,230, dated November 19, 1872.

To all whom it may concern:

Be it known that we, DAVID Y. JOHNS and JOHN H. JOHNS, both of Cincinnati, Hamilton county, Ohio, have invented certain Improvement in Combined Fire-Plugs and Lamp-Posts, of which the following is a specification:

Nature and Objects of the Invention.

The first part of our improvements consists in providing the base of a lamp-post with a series of separate and distinct chambers, having apertures near their lower ends, which apertures communicate with a common inlet-pipe that is attached to the water-main in the street, and each of said chambers is furnished with a screw-threaded nozzle for attachment of the leading-hose or suction-pipes of the fire-engines. The second part of our improvements relates to a peculiar arrangement of toggle-jointed valves for admitting water to or shutting it off from the aforesaid chambers; the details of construction and manner of operating these valves being hereinafter fully described. The third part of our invention relates to a duplex toggle-jointed valve, which is to be employed whenever the inlet and discharge orifices of the water-chamber are directly in line with one another. The fourth part of our improvements consists in casting a slot in one of the vertical partitions which separates two of the water-chambers, said slot being designed for the reception of the service-pipe which conducts gas into the post and thence up to the lamp.

Description of the Accompanying Drawing.

Figure 1 is an elevation of a combined fire-plug and lamp-post embodying our improvements; Fig. 2 is an enlarged axial section of the base of the same, showing two of the toggle-jointed valves closed and another one opened; Fig. 3 is a horizontal section of the base at the line X X with one of the valves removed; Fig. 4 is a side elevation, showing a modification of devices for operating the inlet-valves; Fig. 5 is a front elevation of the same with the valve partially opened; and

Fig. 6 is a diagram, showing our duplex toggle-jointed valves.

General Description.

Our lamp-post consists essentially of three members, A A' a, of which the portion A of the base is sunk in the ground in the usual manner, while the other part, A', of said base, together with the column or shaft a, project above the ground, it being understood that the above-described members A A' a are all cast together. The base A A' is furnished with a series of vertical webs or partitions, b, which serve to divide the base into a number of segmental water-chambers, B, as more fully shown in Fig. 3. A greater or less number of these chambers may be employed, according to the diameter of the base of the post, but in the accompanying drawing four are shown. The lower portions of these chambers are pierced with apertures C, which communicate with a common inlet-pipe, c, the latter being attached to the street-main by any suitable connection. Projecting from the upper portions of chambers B are screw-threaded nozzles D, for attachment of the leading-hose or suction-pipes of the fire-engines. Located above these nozzles are caps E, of the same segmental shape as the chambers B, and by simply disengaging the screws e said caps can be detached so as to withdraw the valves and their operating stems, &c., without digging up the street or removing any part of the post. Placed athwart the inlet-pipe c, and above the apertures C, is a horizontal diaphragm or head, F, which prevents water flowing into the column a of the lamp-post. The orifices C are closed by disk-valves G, which are attached to lugs h by toggles I. These lugs h depend from collars H, which are fitted around the enlargement j of valve-stems J, whose upper ends project through the caps E, and are provided with right-hand screws K and non-circular heads k, for the reception of suitable spanners or wrenches. Washers L, resting upon disks l, prevent the escape of water through the caps, when the stems J are elevated so as to open the ports C. Projecting

horizontally from the collars H are arms *m*, whose ends play within grooves M, and consequently confine the valve-stems J to a vertical path, it being understood that said grooves M are cast within the chambers B, and extend from top to bottom of the same. Instead of the grooves M, V-shaped guides may be employed, as shown at M' in Figs. 2 and 3. Engaging with the enlargements *j* of valve-stems J are rods N, which have left-hand threads cut upon them, and the lower ends of said rods carry conical valves O, which are seated within the waste-ways *o*, whenever the disk-valves G are opened. Projecting horizontally from the heads of these valves are arms P, which, like the ones *m*, traverse the vertical grooves M when both sets of arms are in the same plane, as shown in Figs. 2 and 3; but when said arms are in different planes, independent guiding-grooves must be provided for them, as seen in Figs. 4 and 5. The object of these arms and grooves is to prevent the turning of collars H and valves O when the stems J are rotated, and said arms sustain all the stress which is brought to bear upon the stems J whenever the valves G are forced down upon their seats. The toggles I have projections *i*, which bear against the shoulders *h'* of the lugs *h* when the valves G are elevated; but when said valves are depressed said toggles impinge against the shoulders Q, as more clearly shown in Fig. 4. Projecting into the chambers, below the orifices C, are stops R, which limit the downward stroke of the valves G. The ways *o* are guarded by strainers S, which allow the waste water to escape, and at the same time prevent sand or other obstructions entering the chambers B. Orifices T in the sides of the base enable the grinding of the seats for the valves G when the post is first manufactured, after which said openings are closed by the plates *t*. Cast in either of the partitions *b* is a slot, U, for the reception of the service-pipe V, which conducts gas from the street-main up to the lamp, in the usual manner. This slot must be located so that its lower end will not extend below the diaphragm F, otherwise water will enter said slot from the inlet-pipe *c*.

In constructing fire-plugs for warm climates, where the waste-ways *o* will not be needed, we prefer the employment of two valves, G, as shown in Fig. 6, which arrangement enables us to place the inlet and discharge openings directly in line with one another, so as to allow a free and unobstructed passage for the water without compelling it to pass through indirect and angular channels. This duplex valve involves merely a duplication of certain parts of the operating mechanism, as will be seen. A cam or other equivalent device may be substituted for the screw K.

Operation.

To open either of the fire-plugs it is only necessary to apply a suitable spanner to the non-circular head *k*, and rotate the stem J toward the right until the washer L strikes against the under side of cap E, when the valve G will be elevated completely above the orifice C, and consequently water will rush into the chamber B from pipe *c* and flow out through nozzle D, as indicated by arrows in Fig. 2. The elevation of stem J carries the collar H along with it, and the valve G drops down until the projection *i* of the toggle I bears against the shoulder *h'*, which prevents any further deflection of the valve. The arms *m* P prevent either the collar H or waste-valve O rotating, and the left-hand thread upon the rod N compels said valve to descend at the same time the one G ascends. By this arrangement the valve O is forced down upon its seat *o* when the valve G is opened, and consequently there can be no waste of water through said seat *o*. To shut off the water the stem J is turned toward the left, which act elevates the valve O and depresses the one G, the latter maintaining its inclined position until it impinges against the stop R, when it assumes a vertical position; and the pressure of the shoulder Q upon toggle I causes it to be seated firmly over the orifice C, and thereby effectually stops the flow of water. While the valve G is descending the one O is ascending, so that the waste-way *o* is opened as soon as the port C is closed, and all of the water contained in chamber B is drained through the strainer S.

In the drawing the base of the lamp-post is shown as of a cylindrical form and the chambers of a segmental shape; but we do not propose to confine ourselves to this arrangement, as it is evident that said base may be either triangular, square, hexagonal, octagonal, or any other desired shape, the chambers being of any conformable or convenient shape.

We claim as our invention—

1. The provision, in the base of a lamp-post, of a series of chambers, which communicate with a common inlet-pipe, each chamber being furnished with an independent discharging-orifice and eduction-valve, substantially as herein described.

2. We claim the combination of the base A A' *a*, partition *b*, water-chambers B, ports C, inlet-pipe *c*, nozzles D, caps E, diaphragm F, and eduction-valves G, which latter are capable of being opened and closed by any suitable appliance, substantially as explained.

3. We claim the combination of toggles I *i*, valve-stem J K, collar H, shouldered lug *h h'* Q, arms *m*, guiding-grooves M, and stops R or their mechanical equivalents, for opening and closing the eduction-valve G, in the manner herein illustrated and described.

4. In combination with the described elements I *i*, J *j* K, H *h* *h'* Q, M *m*, R, and G of the preceding claim, we also claim the left-hand screw-threaded rod N and arms P, for operating the waste-valve O, as herein set forth.

5. The duplex valve G G, Fig. 6, in combination with shouldered toggles I *i*, shouldered lug *h* Q, arms *m*, guiding-grooves M, and stops R, arranged and operating as described, for the purpose specified.

6. We claim the provision, in a combined fire-plug and lamp-post, of the slot U, when cast in either of the partitions *b*, for the object herein explained.

In testimony of which invention we hereunto set our hands.

DAVID Y. JOHNS.
JOHN H. JOHNS.

Witnesses:

GEO. H. KNIGHT,
JAMES H. LAYMAN.