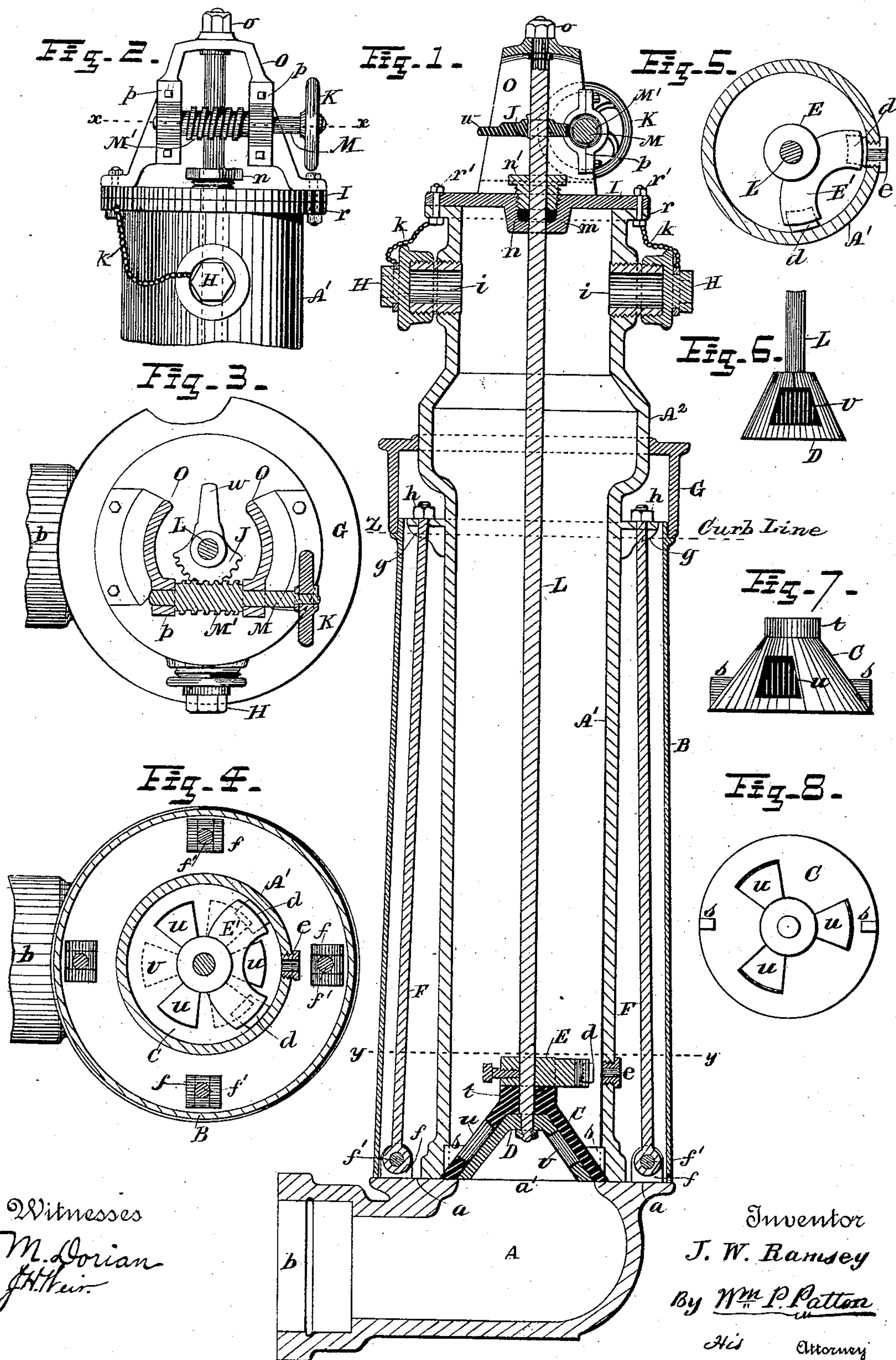


J. W. RAMSEY.
FIRE HYDRANT.

Patented July 23, 1889.



UNITED STATES PATENT OFFICE.

JOHN W. RAMSEY, OF BEAVER FALLS, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO M. M. GEORGE, OF SAME PLACE.

FIRE-HYDRANT.

SPECIFICATION forming part of Letters Patent No. 407,417, dated July 23, 1889.

Application filed March 20, 1889. Serial No. 304,004. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. RAMSEY, a citizen of the United States, residing at Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Fire Hydrants or Plugs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to an improvement in fire hydrants or plugs, and has for its object to provide a plug which may be easily and speedily manipulated to open or close its valve.

A further object is to furnish a fire-plug which may be operated to open or close the same without a wrench.

A further object is to provide a fire-plug with a waste-valve which will be closed when the plug is in operation or discharging water, and that will be opened to relieve the stand-pipe of water when the main valve is closed, the movement of the waste-valve gate being effected simultaneously by the mechanism that controls the operations of the main valve of the plug.

A further object is to produce a fire-plug which is of simple form, cheap to manufacture, easy to construct and repair, at the same time being durable, not affected by frost, and convenient to put into service.

With these objects in view my invention consists in certain features of construction and combinations of parts, which will be hereinafter described, and pointed out in the claims.

Referring to the drawings making a part of this specification, Figure 1 is an elevation in section through the longitudinal center of the device. Fig. 2 is a side elevation in perspective of the upper portion of the fire-plug, taken at right angles to view Fig. 1. Fig. 3 is a top plan view in section of the fire-plug, taken on the line *x x*, Fig. 2. Fig. 4 is a plan view in section of the plug, taken about on

the line *y y*, Fig. 1. Fig. 5 is a transverse section of the stand-pipe of the plug and the valve-rod, the gate of the waste-orifice being also shown in position on the valve-rod. Fig. 6 is a side view in perspective of the main valve. Fig. 7 is a side perspective view of the removable valve-seat. Fig. 8 is a plan view of the main-valve seat.

A represents a sub-chamber, which is provided with a lateral outlet or bell end *b*, to which may be connected a branch pipe from a water-conduit. (Not shown.) An annular flange *a* is formed around the orifice *a'* in chamber A. Said flange, being faced true on its upper surface, forms a base for the support of the stand-pipe A'. (See Fig. 1.) A suitable number of ears *f* are integrally formed on or are secured to the flange *a* at spaced intervals, as shown in Fig. 4. These ears are perforated laterally for the insertion of bolts or rivets *f'*, that hold the eyebolts F in connection therewith. The eyebolts F extend upwardly and engage the laterally-projecting lugs *g*, which latter are formed on or are secured to the wall of the stand-pipe A', thus affording means for the secure holding of the stand-pipe upon the base-flange *a* by adjustment of the nuts *h*. (See Fig. 1.)

The diameter of the lower end of the stand-pipe A' is such relatively to that of the orifice *a'* in the chamber A as to permit a portion of the annular flange *a* to extend inwardly beyond the wall of the stand-pipe. This constitutes a base for the conical valve-seat C.

As indicated in the drawings, the valve-seat C is given the form of a cone-frustum, the lower edge as well as its interior surface being properly finished, so as to adapt the seat to form a tight joint with its base *a*, and also with the valve D, that will be further described. There are two oppositely-located ears *s* formed on or secured to the outer surface of the valve-seat C, these ears being located in neatly-fitting sockets or open slots produced in the body of the stand-pipe A', the engagement of said ears holding the valve-seat from revoluble movement, as will be readily understood.

The lower inner edge of the stand-pipe A' is cut to fit the outer face of the valve-seat C,

so that when these pieces are placed in position on the base-flange *a* and the nuts *h* on the eyebolts *F* drawn tight the seat *C* and stand-pipe *A'* will be held with water-tight joints against the base-flange *a*.

As previously mentioned, the main valve *D* is fitted against the inner face of the valve-seat *C*, and preferably ground thereon, so as to produce a water-tight joint.

The valve *D* and seat *C* are cut through their inclined walls to provide three orifices or ports *v u* for the passage of the water through them when the valve is properly adjusted. There are three ports shown in the valve and its seat; but it is evident the number may be increased or diminished, as may be preferred.

The valve-operating mechanism consists of a valve-rod *L*, which is secured to the valve *D*, as shown in Fig. 1. This rod extends upwardly through the cap-plate *I* of the stand-pipe *A'*, a stuffing-box *n* and follower *n'* providing means for forming a tight-joint where the rod projects through the cap-plate, said plate being secured to the stand-pipe by bolts, as shown. Upon the cap-plate *I* the bracket stand or frame *O* is mounted and secured firmly, and, as will be seen, the upper end of the valve-rod *L* is revolvably secured in the top of this frame, as at *o*, Figs. 1 and 2. On the side of the bracket-frame *O* two boxes *p* are formed. These, having removable caps, permit the shaft *M* to be placed and revolvably held therein, said shaft having a worm or coarse screw-thread *M'* formed thereon; or this worm may be made separate from the shaft and be secured on it. A hand-wheel *K* is affixed to the outer end of the shaft *M* to revolve it in either direction.

Upon the vertical valve-rod *L* a toothed sector *J* is secured, (see Fig. 1,) the teeth of which mesh with the thread *M'* of the worm-shaft *M*, thus providing a means for turning the rod *L* with its attached valve *D*. The sector *J* is prolonged to produce an arm *w*, which is of such relative length that it will strike against the edges of the bracket-frame *O* when the valve-rod has been sufficiently rotated to align the ports *u v*, and thus open a free water-passage from the chamber *A* into the stand-pipe *A'*, and it is evident from inspection of Figs. 3 and 4 that a rotation of the valve-rod *L* in either direction will open the ports or cause the ports in the valve to align with those in the seat.

When the sector-arm *w* is located as shown in Fig. 3, the valve *D* should have its ports *v* covered by the surface of the seat *C*, as indicated in dotted lines in Fig. 4, so that the plug will be closed when the sector-arm is in the position just named.

The usual water-outlets *i* are provided, these being covered by the caps *H*, held from detachment by the chains *k*. Any suitable number of these outlets which are adapted

for connection of hose may be furnished to suit the capacity of the plug and water-supply.

On the valve-rod *L*, preferably above the seat *C* and close to it, the arm *E* is secured. This arm is bifurcated to produce two limbs *E'*, which diverge so that their terminal ends will be removed from each other a distance equal to the space between the three ports *u* and *v* of the valve-seat *C* and the valve *D*.

A perforated threaded plug *e* is introduced through the wall of the stand-pipe *A'* at a proper point, so as to have its inner end covered by one of the limbs of the arm *E* when the valve *D* has its ports aligned with the ports of the seat *C* and uncovered when the valve-ports are closed.

As will be understood, the plug *e* provides an escape or drip orifice for water that remains in the stand-pipe *A'* after the plug is shut off, so that when the valve *D* is opened by turning the rod *L* in either direction one of the limbs *E'* of the drip-gate arm *E* will cover the orifice of the drip valve or plug *e* and prevent any escape of water from the stand-pipe while the plug is in use.

To facilitate the proper closure of the drip-valve *e* by the limbs *E'* of the drip-gate arm *E*, there are sockets formed in the ends of said limbs, in which is embedded suitable material—such as leather or gum—which, being slightly yielding or elastic, will fit tightly against the inner end of the drip valve or plug, and thus seal it when either of these limbs is made to cover the same.

There is a swell or diametrical enlargement *A²* of the stand-pipe *A'* produced at a proper distance below the outlet-orifices *i* and above the lugs *g* for the reception of the centrally-perforated cover *G*, which cover is intended to form a finish for the upper end of the frost-case *B*, closing the annular space that intervenes between said case and the stand-pipe *A'*, as shown in Fig. 1.

It will be apparent that from its manner of construction the valve of this fire-plug will be held stably in either an open or closed position, or at any point between these extremes.

If preferred, the wheel *K* may be dispensed with and the end of the worm-shaft *M* be squared to receive a suitable crank or wrench.

Other slight changes might be made within the scope of my invention; hence I do not desire to restrict its construction to the exact forms of the parts as shown; but,

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

1. In a fire-plug, the combination, with a sub-chamber, a stand-pipe, a conical valve, a conical removable valve-seat, a valve-rod, and gearing to revolve the valve-rod, of a drip-orifice formed in the stand-pipe wall and a bifurcated drip-gate arm attached to the

valve-rod, which is adapted to close the drip-orifice when the main valve is opened, substantially as set forth.

2. In a fire-plug, the combination, with a
5 sub-chamber having a lateral and vertical outlet, a stand - pipe, bolts to connect the stand-pipe and sub-chamber, a hollow conical valve, a hollow conical valve-seat, both
10 valve and seat having ports which are adapted to align with each other, a valve-rod, and worm-gearing which will revolubly move the valve-rod and attached valve, of a drip-ori-

fice and a drip-closing gate attached to the valve-rod which has two limbs, either of which will close the drip-orifice when the plug 15 is discharging water, and uncover said orifice when the plug-valve is closed, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN W. RAMSEY.

Witnesses:

J. F. MERRIMAN,

WILLIAM C. GALLOR.