

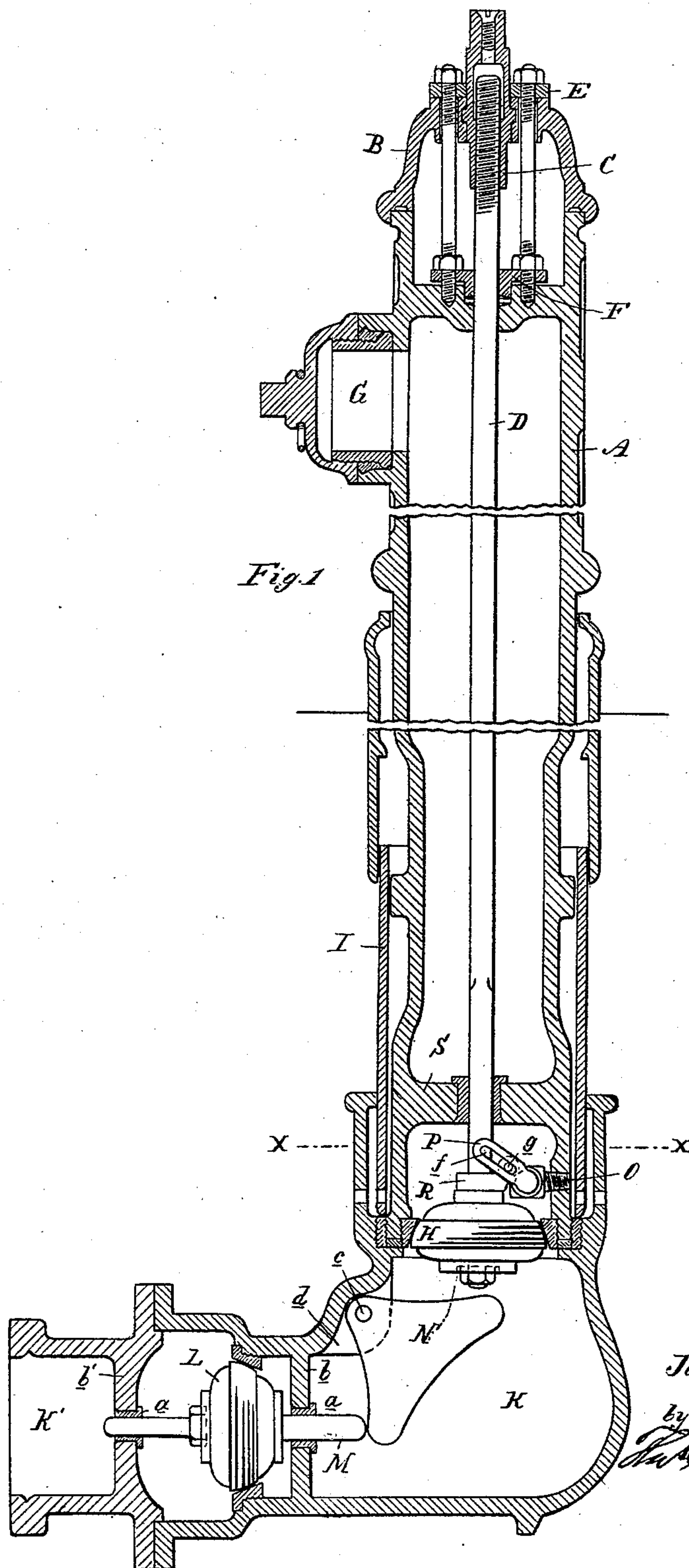
(No Model.)

2 Sheets—Sheet 1.

J. MEAD.
HYDRANT.

No. 349,230.

Patented Sept. 14, 1886.



Attest:
John Schuman.
Edmond Scully

Inventor:
John Mead.

by his Atty
R. S. Sprague

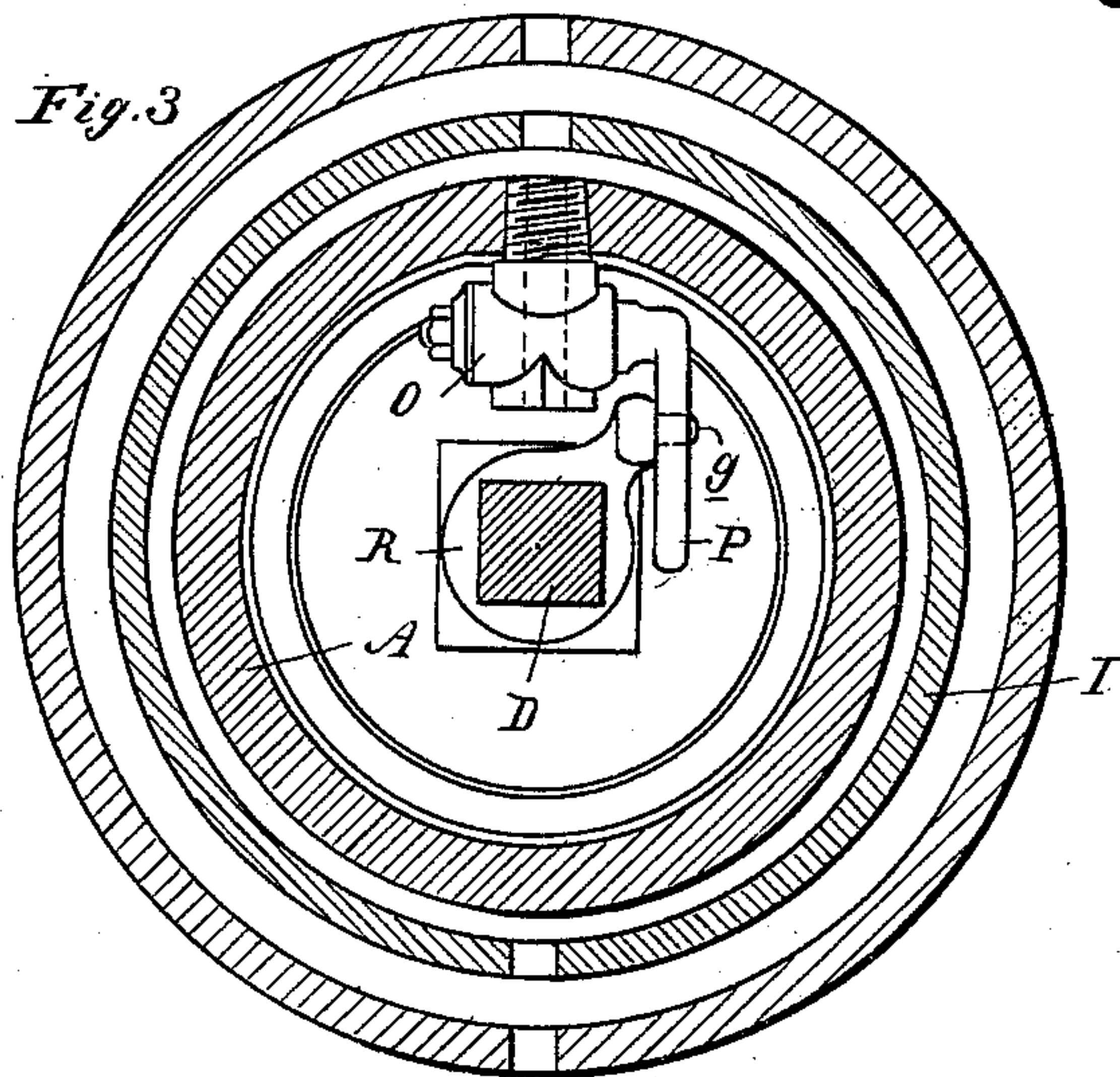
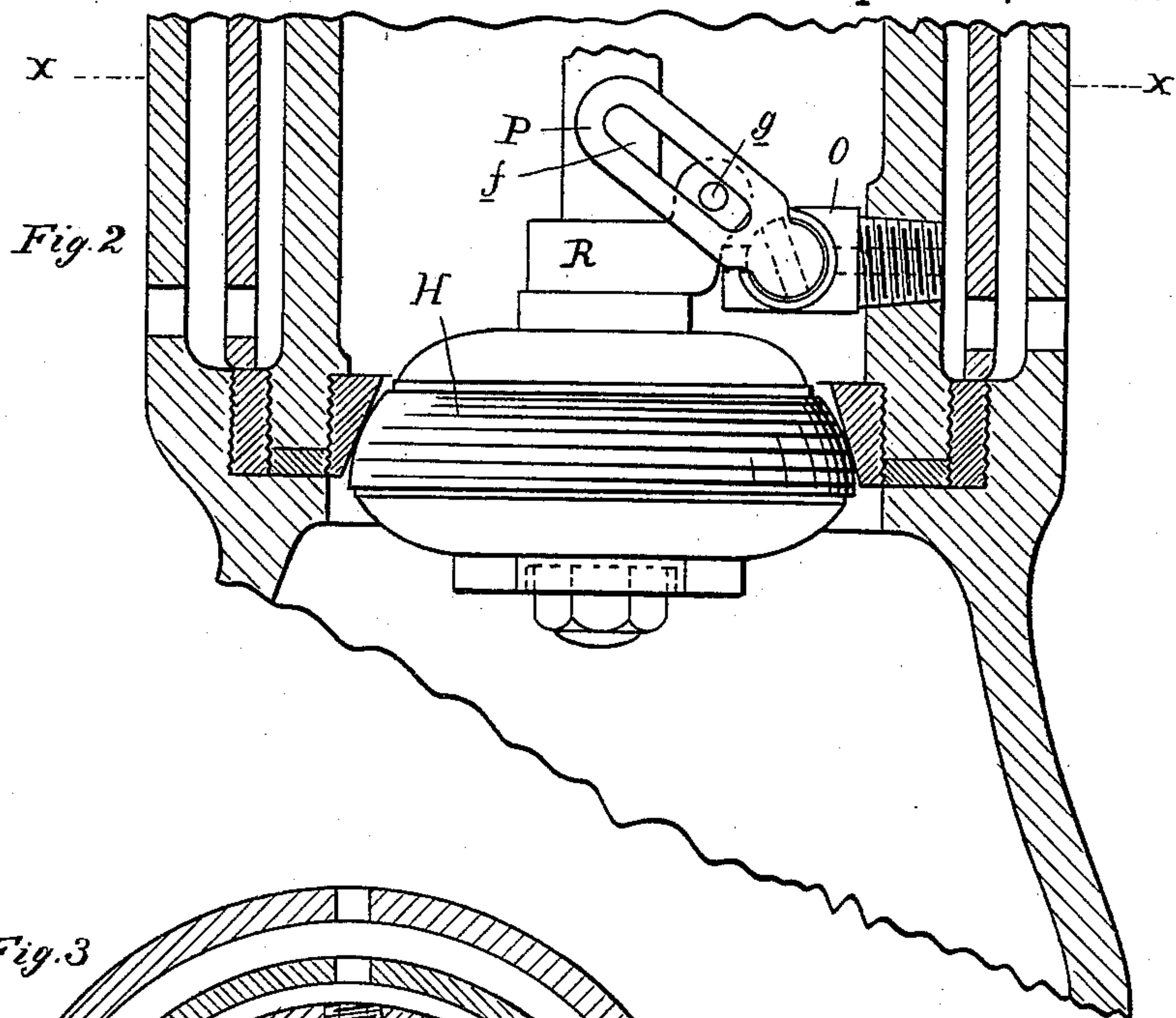
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UNITED STATES PATENT OFFICE.

JOHN MEAD, OF DETROIT, MICHIGAN.

HYDRANT.

SPECIFICATION forming part of Letters Patent No. 349,230, dated September 14, 1886.

Application filed February 25, 1886. Serial No. 193,107. (No model.)

To all whom it may concern:

Be it known that I, JOHN MEAD, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Hydrants; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to a new and useful improvement in hydrants; and it has particular reference to that class of hydrants known as "fire-plugs" or "fire-hydrants."

The most improved fire-hydrants known in the state of the art at the present day are provided, in addition to the main valve, with what is called a "supplemental valve," the principal object of which is to permit the removal of a hydrant for the purpose of repair or otherwise without shutting off the water from the main, said supplemental valve being so arranged that it works automatically and without interfering with the function of the main valve.

In the following specification I describe as part of my invention a supplemental valve of an improved construction, which I consider to present decided advantages over the constructions now in use or known and of which I have any knowledge. Farther on I also describe an improved construction of the waste-valve, which forms an essential part of all fire-hydrants by permitting the water remaining in the stock of the hydrant after the water is shut off to leak into the ground, thus preventing the hydrant from freezing up in cold weather.

In the drawings which accompany this specification, Figure 1 is a vertical central section of my improved hydrant. Fig. 2 is a more enlarged vertical central section showing only the lower end of the hydrant, in which the waste-valve is located. Fig. 3 is a horizontal cross-section on the line $x x$ in Fig. 2.

A is the stand-pipe or stock of the hydrant. B is the cap, removably secured thereon. C is a loose spindle supported by the cap and provided with a female thread engaging with the male thread upon the upper end of the valve-rod D. E is a nut arranged to keep the spindle C in place. F is a stuffing-box, through which the valve-rod passes. G is the discharge-nozzle. H is the main valve, and I is

the frost-case, all these parts being of any known construction and forming no part of my invention.

K is the elbow connecting the hydrant with the water-main and forming the base upon which it is supported.

L is the supplemental valve. It is located in the horizontal arm of the elbow, and is secured upon a central valve-stem, M, which slides horizontally in bearings $a a$, which permit a sufficient movement of the valve to open and close the latter freely. These bearings are formed by brass bushings supported by suitable bridges, $b b'$. I construct the elbow preferably with a short removable section, K', which is bolted onto the main section of the elbow, and by locating the bridge b in one section of the elbow and the bridge b' in the other the supplemental valve can be readily removed by taking the two sections apart. Any other construction for this purpose may be used, however.

N is a bell-crank located within the bend of the elbow. It is secured by means of the pivot-pin c in a recess, d , formed in the angle of the elbow, all so arranged as to permit the bell-crank to turn freely in a vertical plane, for the purpose hereinafter described. The arms of the bell-crank are at right angles to each other, or nearly so. Its vertical arm is held in contact by gravity against the inner end of the valve-stem M, and its horizontal arm extends in proximity to the lower end of the main valve, but does not make contact therewith when the main valve is fully closed, as shown in Fig. 1. When, however, the main valve is slightly opened by turning the spindle with a suitable key, as in the usual manner, such contact is established and then the further operation of opening said main valve communicates motion to the bell-crank and transmits it to the valve-stem of the supplemental valve, thus forcing the latter from its seat and admitting water into the hydrant. In closing the main valve the pressure of the water forces the supplemental valve to close gradually with the main valve; but on account of the lost motion in the bell-crank the supplemental valve will first come to its seat before the main valve has fully closed.

It will be seen that the operation of opening and closing the supplemental valve is thus

made perfectly automatic, and the desired sub-
sequence in the opening and closing of the two
valves (which is intended to prevent the wast-
ing of water through the waste-orifice) is like-
wise accomplished, all as has been obtained
heretofore; but my improved construction,
while it does not change the *modus operandi*,
has some specific advantages over other con-
structions, which I will now proceed to explain.

First. Heretofore the supplemental valve
was placed in the vertical arm of the elbow,
(just where I place the main valve,) and the
main valve was placed above it. This brought
the main valve much nearer the frost-line than
in my construction; therefore my construction
presents a decided advantage in this respect.

Second. Heretofore the supplemental valve
operated in a vertical position, and a spring
was placed underneath it to counterbalance its
weight and assist in closing it. This arrange-
ment necessitated a complication of parts, al-
ways liable to get out of order, for reasons well
understood, and as the supplemental valve
cannot be taken out and repaired with the same
facility as the main valve, it made the benefits
sought to be derived from the use of a supple-
mentary valve more or less illusory. In my
construction the valve is balanced without a
spring simply by supporting it in a horizon-
tal position, and therefore the valve is of the
simplest description, with little or no liability
to get out of order.

Third. Heretofore the supplemental valve
was never supported at all times in two sta-
tionary bearings. It was therefore liable to
be displaced. In my improvement the valve-
stem has two stationary bearings upon oppo-
site sides of the valve, which always guide
the valve and prevent it from being displaced
in any of its positions.

My improved waste-valve is arranged and
constructed as follows: O is a waste-cock se-
cured in the lower end of the hydrant-stock, so
as to afford a waste-passage for the water from
the hydrant-stock to the exterior in the usual
manner. The handle P, controlling this waste-
cock, is provided with a slot, *f*, which engages
with a pin, *g*, carried by a collar, R. The col-
lar R being secured upon the valve-stem of
the main valve, the operation of opening or
closing said main valve will therefore operate
the handle of the waste-cock, all the parts be-
ing so arranged that the waste-cock will effect
the same results obtained heretofore by other
devices—that is, the waste-orifice is kept open
as long as no water is admitted to the hy-

drant, but is closed as soon as water is admit-
ted by opening the valves. Heretofore a ring-
valve secured to the valve-stem and arranged
to close and disclose a waste-orifice in the wall
of the hydrant was used as a waste-valve, and
this ring-valve was also used as a means for
guiding the stem of the main valve. Instead
of this I provide the lower end of the hydrant-
stock with a bridge, S, supporting a brass
bushing with a square opening, through which
the valve-stem, which is made square at this
end, passes, and prevents the valve-stem from
turning.

A perfect operation of the ring-valve for ac-
complishing the double duty of guiding the
main-valve stem and operating as a waste-
valve cannot be safely relied on under all cir-
cumstances, and therefore I consider my con-
struction an improvement in this particular.

What I claim as my invention is—

1. In a fire-hydrant having a main valve and
a supplemental valve, a supplemental valve
located in the horizontal arm of the elbow, in-
dependent of the main valve and at right an-
gles thereto, substantially as described.

2. In a fire-hydrant having a main valve and
a supplemental valve, a supplemental valve
supported and operating horizontally in the
horizontal arm of the elbow at right angles to
the main valve, substantially as described.

3. In a fire-hydrant, the combination of a
main valve operating in the vertical axis of
the elbow, a supplemental valve operating in
the horizontal axis of the elbow, and a bell
crank or lever in the angle of the elbow, all
arranged to operate as described.

4. In a fire-hydrant, the combination of a
main valve operating on a vertical valve-stem
in the vertical axis of the elbow, a supple-
mentary valve operating on a horizontal valve-
stem in the horizontal axis of the elbow, and
a bell-crank in the angle of the elbow and pro-
vided with the lost motion described, all sub-
stantially as specified.

5. In a hydrant, the combination, with the
main-valve stem provided with collar R, car-
rying pin *g*, of the waste-cock O, working in
an aperture in the lower end of the hydrant,
and the handle P to said cock provided with
slot *f*, substantially as and for the purpose
specified.

JOHN MEAD.

Witnesses:

H. S. SPRAGUE,
EDMOND SCULLY.