

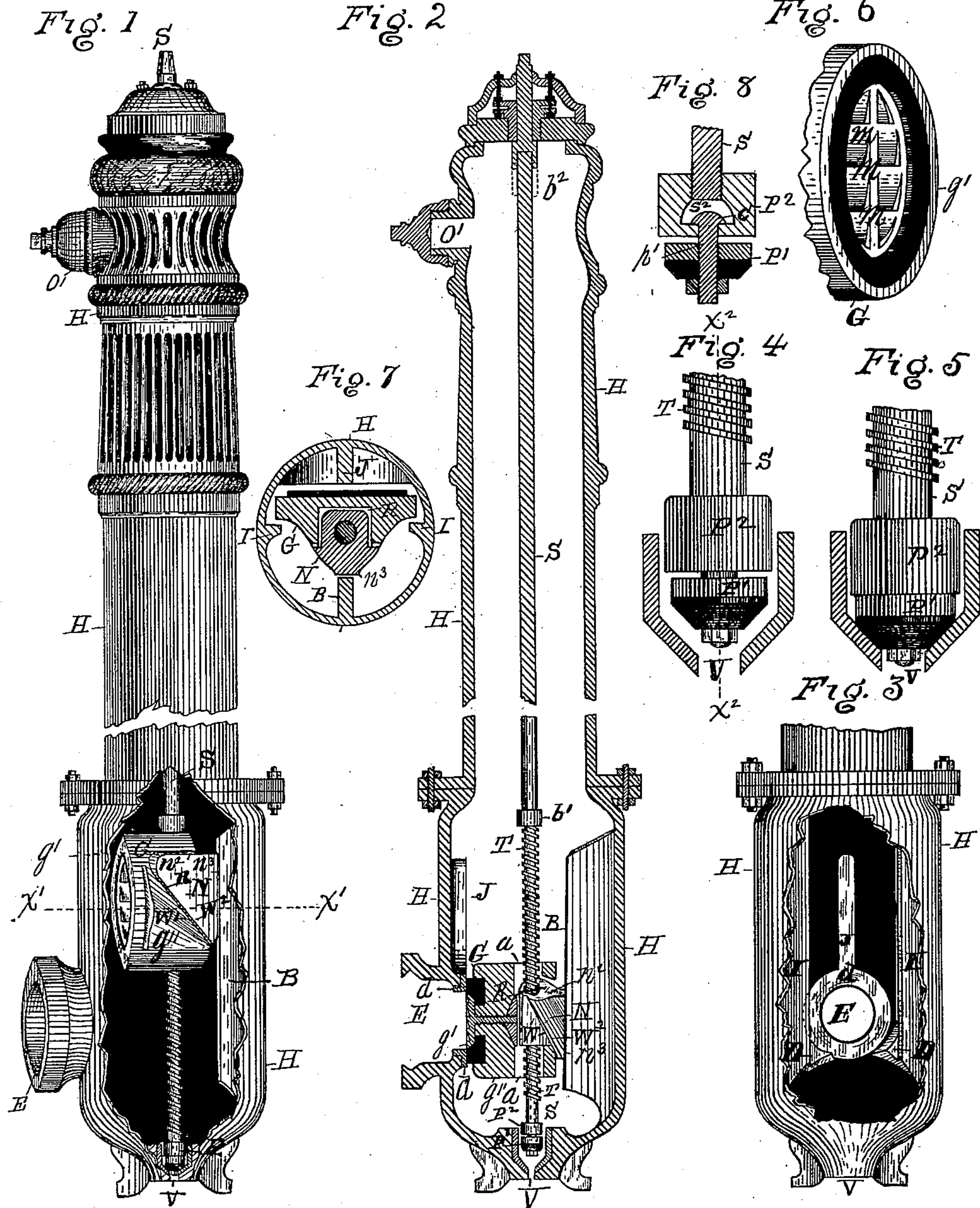
(No Model.)

2 Sheets—Sheet 1.

J. WARD.
HYDRANT.

No. 300,925.

Patented June 24, 1884.



Witnesses

Stanley M. Holden

Charles S. Brintnall

Inventor

John Ward

by W. E. Hagan his atty.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 10

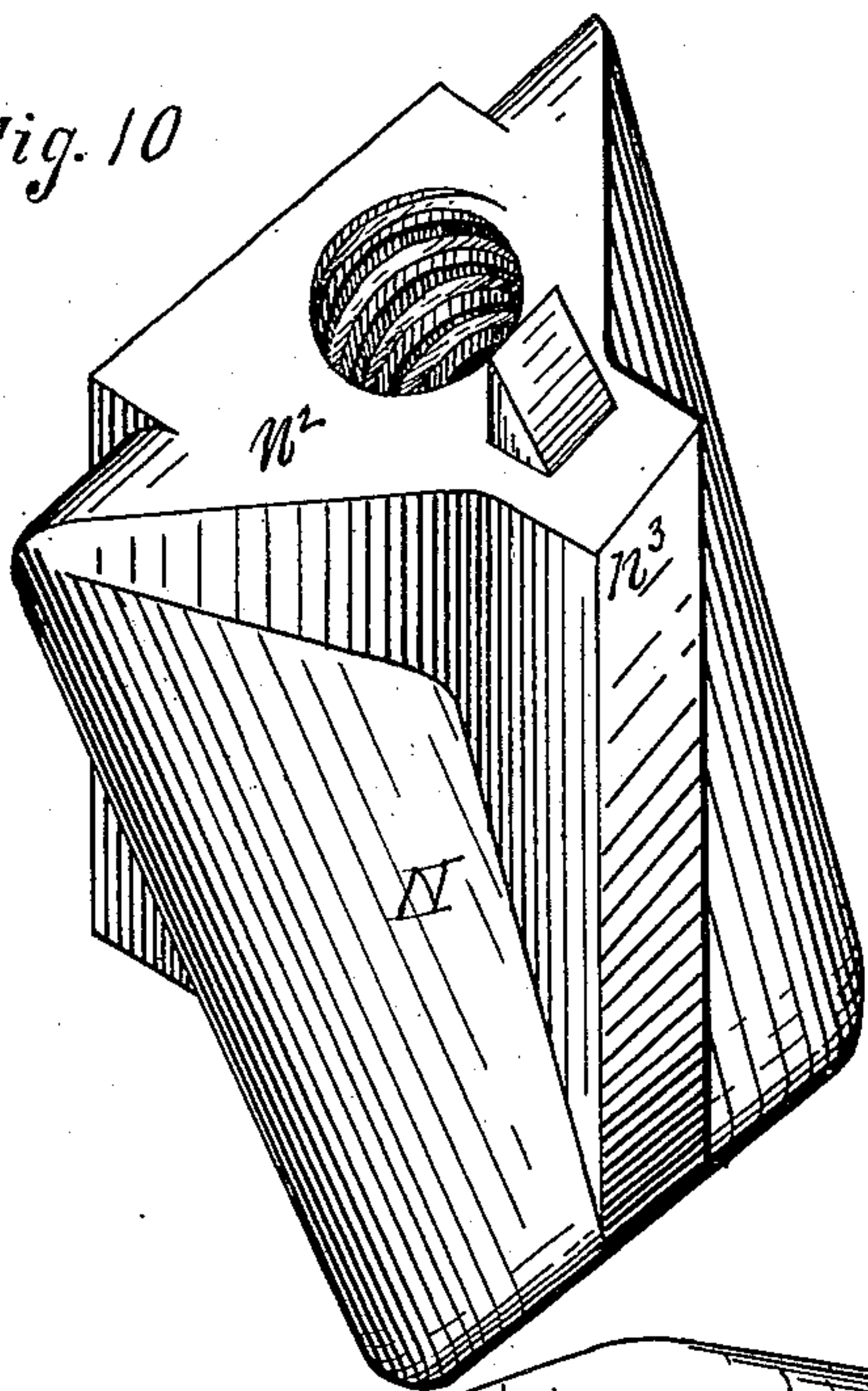


Fig. 11

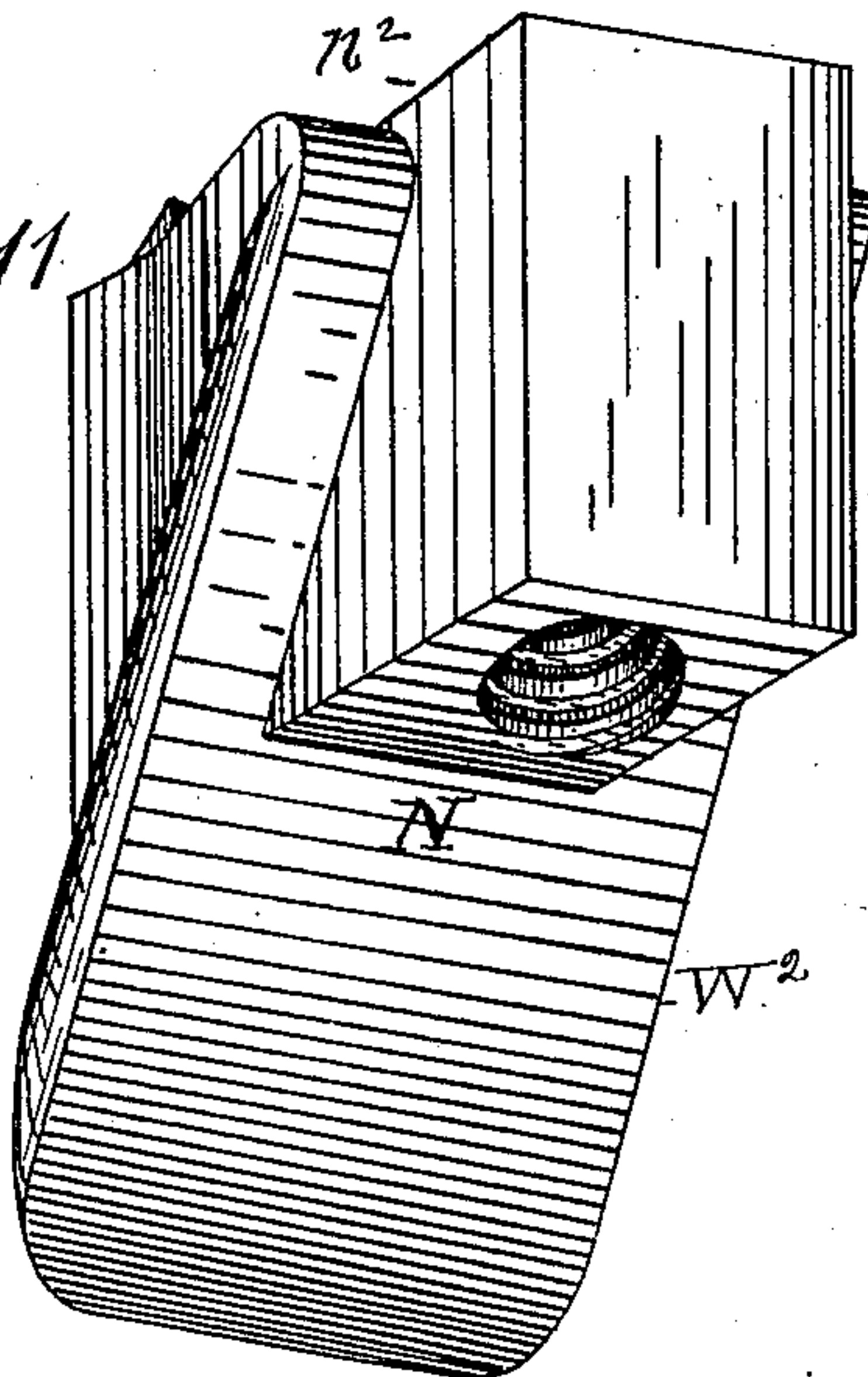
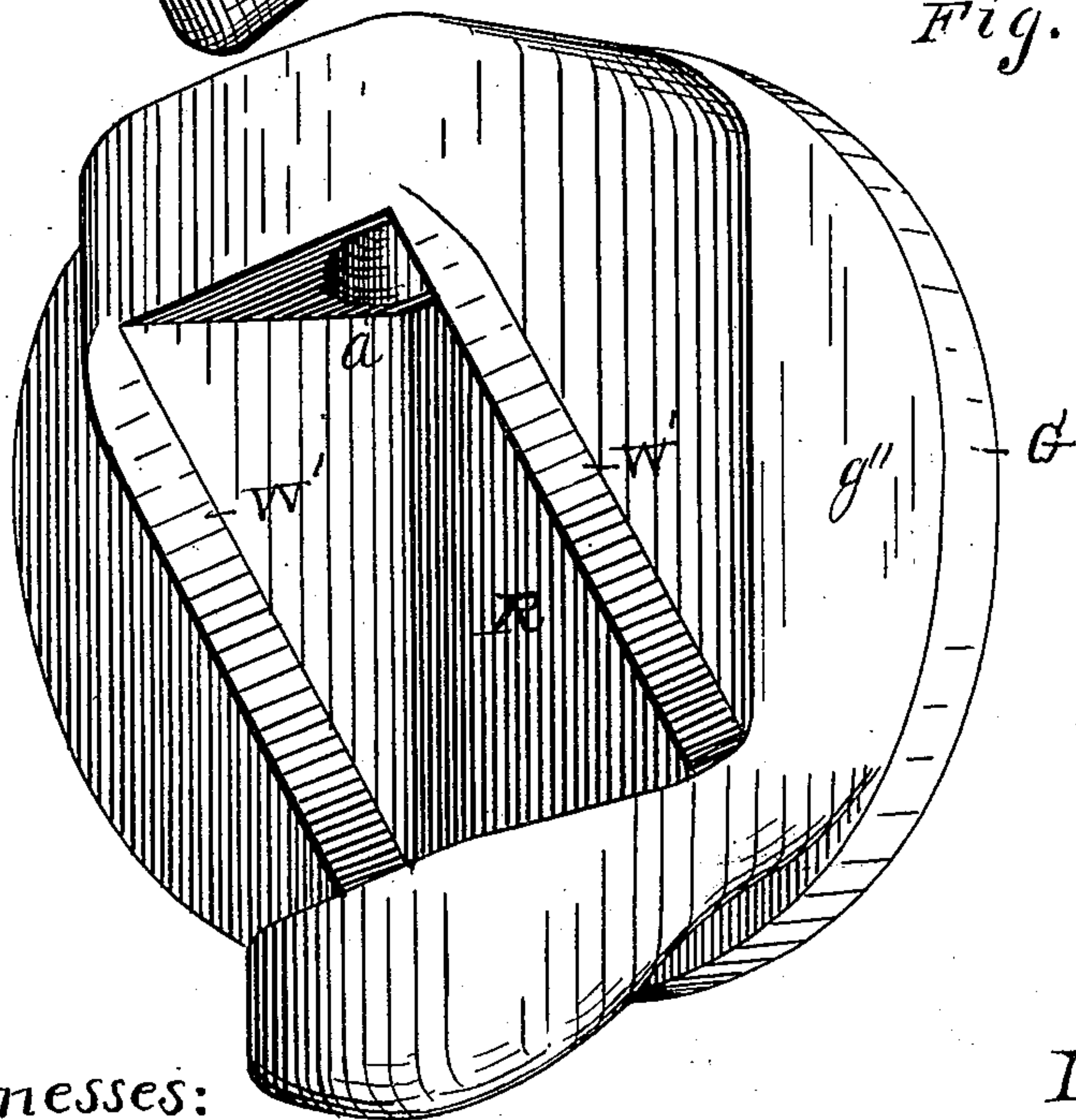


Fig. 9



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UNITED STATES PATENT OFFICE.

JOHN WARD, OF LANSINGBURG, NEW YORK, ASSIGNOR TO THE LUDLOW VALVE MANUFACTURING COMPANY.

HYDRANT.

SPECIFICATION forming part of Letters Patent No. 300,925, dated June 24, 1884.

Application filed December 17, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN WARD, of the village of Lansingburg, county of Rensselaer, and State of New York, have invented a new and useful Improvement in Hydrants, of which the following is a specification.

My invention relates to hydrants, and, in some of its features, to improvements upon the hydrant shown and described in Letters Patent No. 224,061, granted to me as inventor and assignor February 3, 1880. The hydrant illustrated and described in said patent was constructed with a waste-vent which was opened and closed by the combined action of the stem-rod, its threaded connection with a nut that was recessed within the back of the gate, and the wedging engagement of the back of said nut with the hydrant interior, said stem-rod being actuated, when turning on its threaded connection with the nut in the gate, to enter and close the vent-opening when the gate was open, and to disclose it when the gate was closed.

To improve the operation of the means constructed to wedge the hydrant-gate to its seat, to prevent the gate from sliding over its seat, to close or open, and to make the means which closes and discloses the waste-vent automatically adjustable, are the main objects of my invention.

One feature of my invention consists, as will be fully detailed hereinafter, in the construction upon the end of the hydrant-stem rod of an adjustable plug that is pivoted thereto, so that the stem-rod turns in the plug as it forces the latter into or draws it from the vent-opening, and the plug enters and comes from out of the latter without turning within it.

Another feature of my invention consists, the details of which will be fully given hereinafter, in the combination, with a hydrant-gate, of an angular-form recess having a wedge-form incline or bevel constructed on its inner face, an angular wedge-form nut adapted to fit loosely in said recess and threaded to the stem-rod of the hydrant; openings in the said gate above and below said angular-form recess for the free passage of the stem-rod to and through its threaded connection made with the wedge-

form nut, said vertical openings made in the gate being large enough to admit of the free lateral passage of the gate when thus moved toward the entry-port; stops in the hydrant interior to arrest the descent of the gate when opposite the entry-port, and a vertical guideway within the hydrant interior, along and over which the outer face of the wedge-nut moves when actuated by the stem-rod and its threaded connection made therewith.

My invention also consists in the combination, with a hydrant-gate, and made on the outer face thereof, of sinks constructed with downwardly and inwardly beveled surfaces, as will be more fully detailed hereinafter.

My invention also consists, as will be detailed in the claims, of such subcombinations of the parts as perform specific functions.

In the accompanying two plates of drawings, forming a part of this specification, there are shown eleven figures, illustrating my invention and improvements, with the same designation of parts by letter-reference used in all of them, and of which—

Figure 1 shows a perspective of a hydrant with a part of the casing cut away to show the interior, said hydrant thus illustrated containing my invention and improvements. Fig. 2 illustrates a longitudinal vertical section of the hydrant shown in Fig. 1, and as taken at right angles to the vertical plane of the gate face. Fig. 3 illustrates in perspective the lower part of the hydrant, taken with that side of it which is opposite the entry-port turned toward the sight, and a part of the exterior casing removed, so as to show the face of the gate-seat, the gate and stem being omitted to illustrate the position of the stops by which the descent of the gate is arrested. Fig. 4 illustrates, as relatively enlarged when compared with the other parts, a perspective of the lower end of the stem-rod and the adjustable plug attached thereto, with the adjacent parts in the hydrant-base producing the vent opening and closing seat for the plug shown in section, and the vent illustrated as open. Fig. 5 shows the same parts as are shown in Fig. 4, with the vent closed by the plug on the end of the stem-rod. Fig. 6 is a perspective

of the gate-face and the downwardly-beveled
sinks formed therein. Fig. 7 is a transverse
section taken on the line $x' x'$ of Fig. 1, and
Fig. 8 is a vertical section taken through the
5 end of the stem-rod and plug on the line $x^2 x^2$ of
Fig. 4. Fig. 9 is a perspective of the hydrant-
gate with its back turned toward the sight,
and with the nut removed from the recess to
show the form of the latter. Fig. 10 is a per-
10 spective of the wedge-form nut and with what
is its outer face when the nut is inserted in
the recess shown as turned toward the sight
in the illustration. Fig. 11 is a perspective of
the nut with what is its interior face when in-
15 serted turned toward the sight in the figure,
all the illustrations shown at Figs. 9, 10, and
11 being drawn in an enlarged proportion as
compared with the size of the same parts
where shown in the other figures.

20 The several parts of the hydrant are desig-
nated by letter-reference and their function
explained as follows:

The letter H indicates the cylindrical form
exterior of the hydrant; O' its discharge-open-
25 ing, and E its entry-port.

The letter S designates the stem-rod, which
is shown as threaded at T; and G indicates the
gate, made with the closing face g' , and on
its inner side, g'' , the angular form cross-re-
30 cess R, constructed with the incline or wedg-
ing face W' .

The letters A A indicate vertical passages
or openings made through the back of the
gate above and below the said angular recess,
35 said openings being for the vertical passage of
the stem-rod.

The letter N designates a wedge-form nut con-
structed with the wedging-surface W^2 , the flat
top surface, n^2 , and the vertical side surface, n^3 .
40 This wedge-nut is adapted to fit loosely in the
recess R, and with the inclined surface W' of
the latter constructed to be parallel with the
wedging-face W^2 of the nut when the latter has
been placed within the recess and threaded
45 onto the stem-rod.

The letters I I indicate vertical guides ar-
ranged oppositely on the hydrant interior, so
as to subtend the edges of the gate back on its
inner face; and J designates another guideway
50 placed also on the hydrant interior over the
entry-port E, along the surface of which guide
J the outer closing face of the gate passes, so
that when the gate is moved vertically it trav-
els between the guides I I and the guide J,
55 there being room enough between these guides
for the free passage of the gate and its lateral
movement toward its seat d , when actuated to
close.

The letter B designates a guideway for the
60 nut-wedge N, along and over the vertical face
of which the vertical side n^3 of said nut loosely
passes when the gate is being moved up and
down, and with which guideway B said nut
engages on its vertical face n^3 when the de-
65 scent of the gate is arrested by the stops, and
it is being moved laterally toward its closing

seat by the combined action of the stem-rod,
the wedging incline W' on the back of the gate,
and the wedging-nut N. The guideway B is
preferably made to taper slightly downwardly 70
and inwardly, although it will operate in con-
junction with the wedge-nut N when made
straight.

The letters $b' b^2$ indicate stops on the stem-
rod. 75

The letters $m m$ indicate recesses formed in
the outer disk-face of the gate, and these re-
cesses are beveled inwardly and downwardly
to intermediate partitions horizontally ar-
ranged. The object and purpose of these re- 80
cesses and partitions is to utilize the pressure
of the water-main to promptly force the gate
downwardly and inwardly from off its closing
seat, so soon as the wedging engagement at the
back of the gate has been released, and before 85
it commences to rise when being opened, to
thus prevent the grinding and cutting away of
the packing, which occurs when the gate slides
over the latter. The plug P' is made adjust-
able by means of a pin, p' , that is projected 90
upwardly therefrom, and which pin is pro-
vided with a cap or boss, C, which pivots in
a socket, S^2 , made in the stem-rod base P^2 .
When the stem-rod is actuated to raise the
gate by means of its threaded engagement with 95
the wedge-nut N, and the connection made be-
tween said nut and the gate by means of the
recess R, the stem-rod forces the plug P' into
the vent V to close the latter. When the stem-
rod is turned to close the gate, the latter de- 100
scends until it reaches the stops D D, and as
the turning of the stem-rod is continued the
wedging-surface W^2 of the wedge-nut engages
with the incline W' in the recess R at the back
of the gate, to force the latter toward its seat 105
 d , thus closing the entry-port, and as the turn-
ing of the stem-rod is proceeded with the plug
 P' is raised from out of the vent V to allow the
escape of the water remaining in the hydrant.

To enable the hydrant to be operated with 110
a stem-rod of ordinary size and diameter, and
so that the rod shall be relieved from the lateral
pressure against it from the water-main acting
on the gate-face, the guide B is used, and with
which the vertical face n^3 of the wedge-nut en- 115
gages while forcing the gate to its seat; but
by using a heavy stem-rod, which is strong
enough to resist the lateral pressure against
it, the guide B may be omitted.

In my patent before alluded to the hydrant 120
is shown and described as forced to its closing
seat by the engagement of an inclined surface
produced on the outer face of a nut that is
located in a rectangular recess in the back of
the gate, and an inclined surface on the wall 125
of the hydrant interior, but without coinci-
dently-arranged inclined surfaces produced
where the nut and the back of the gate are in
contact. As a sequence, when the gate of this
older device commenced to close, it was from 130
necessity compelled to slide over and along
the packing upon its closing seat. In the de-

vice shown herein the wedging of the gate to its seat is wholly accomplished after the descent of the gate has been arrested, and as a sequence the latter is forced laterally to its seat, and it does not slide across the face of the seat to cut and wear away its packing.

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

10 1. In a hydrant, the combination of a stem-rod constructed to descend to open the entry-port gate, and to rise in closing it, a vent-opening arranged in the hydrant bottom or base, connecting directly with the interior of
15 said hydrant, and a pivoted plug on the end of said stem-rod, with said parts constructed and arranged to operate substantially in the manner as and for the purposes set forth.

2. In a hydrant, the combination of the
20 stem-rod S, the gate G, made with the transverse wedge-form recess R, and the vertically coincident stem-rod passages *a* above and below said recess, the threaded wedge-form nut N, adapted to loosely enter said recess and be
25 therein threaded to the stem-rod, and the stops D, with the said parts constructed and arranged to operate substantially in the manner as and for the purposes set forth.

3. In a hydrant, the combination of the stem-

rod S, the gate G, made with the wedge-form
30 recess R in its back and the openings *a* at the top and bottom of said recess, the wedge-form nut N, constructed to loosely enter said recess and be therein threaded to the stem-rod, and
35 the guide J, with said parts constructed and arranged to operate in the manner as and for the purposes set forth.

4. In a hydrant, the combination of the stem-rod S, the gate G, constructed with the wedge-
40 form recess R on its inner face and the stem-rod passages *a* above and below said recess, the wedge-form nut N, adapted to loosely enter said recess and be therein threaded to the stem-rod, the guides I I, and the stops D D,
45 with said parts arranged to operate substantially in the manner as and for the purposes set forth.

5. In combination with a hydrant, the entry-port gate G, made with the recesses *m* on its outer face inside of its closing rim-seat, as
50 and for the purposes set forth.

Signed at the city of Troy this 1st day of December, 1883.

JOHN WARD.

Witnesses:

CHARLES S. BRINTNALL,
JAMES R. TORRANCE.