

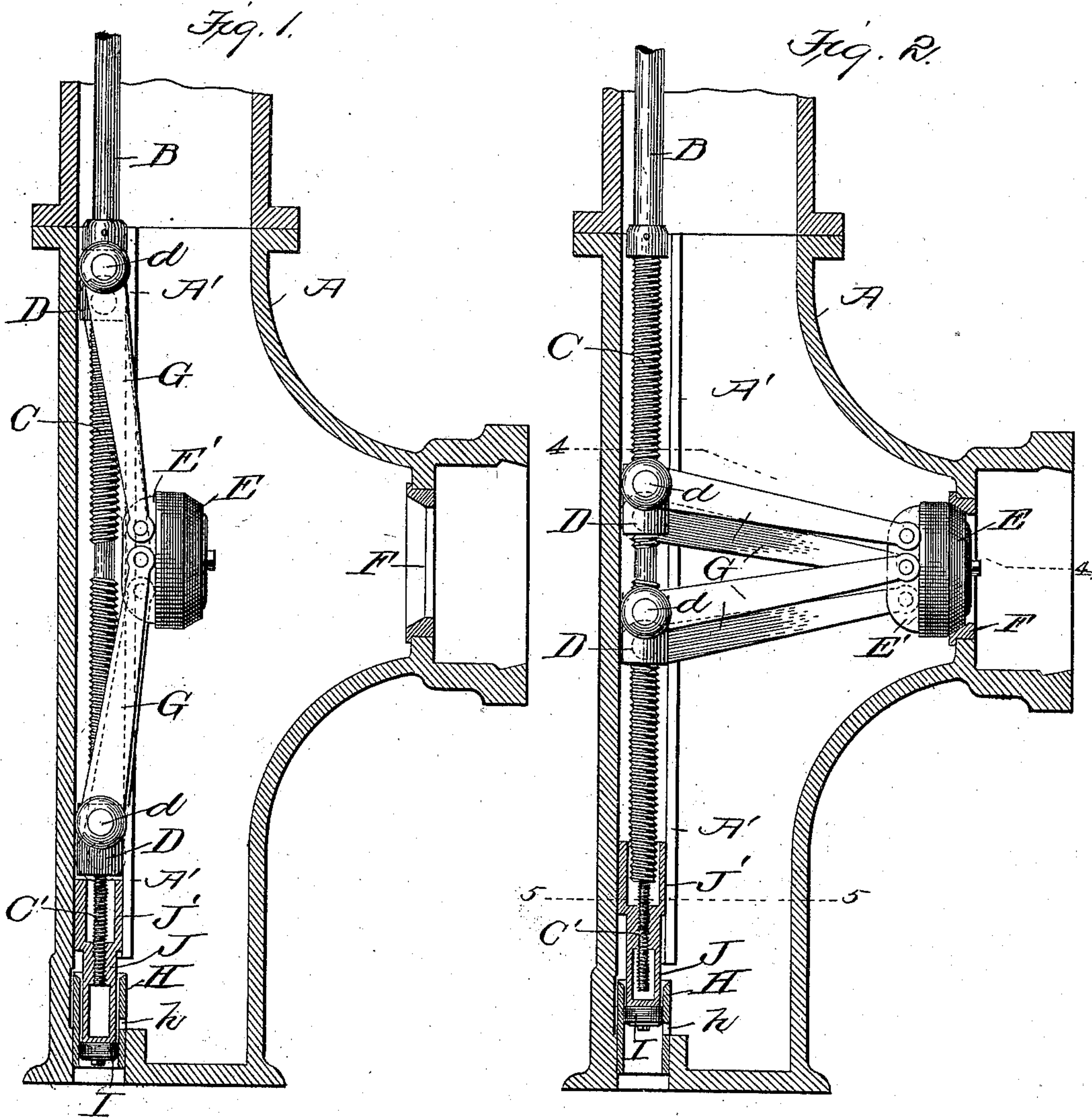
(No Model.)

2 Sheets—Sheet 1.

W. W. COREY, Jr.
FIRE HYDRANT.

No. 550,595.

Patented Dec. 3, 1895.



Witnesses:
F. R. Cornwall
Hugh H. Wagner

Inventor
Wm. W. Corey, Jr.
by Paul Bakewell
his atty.

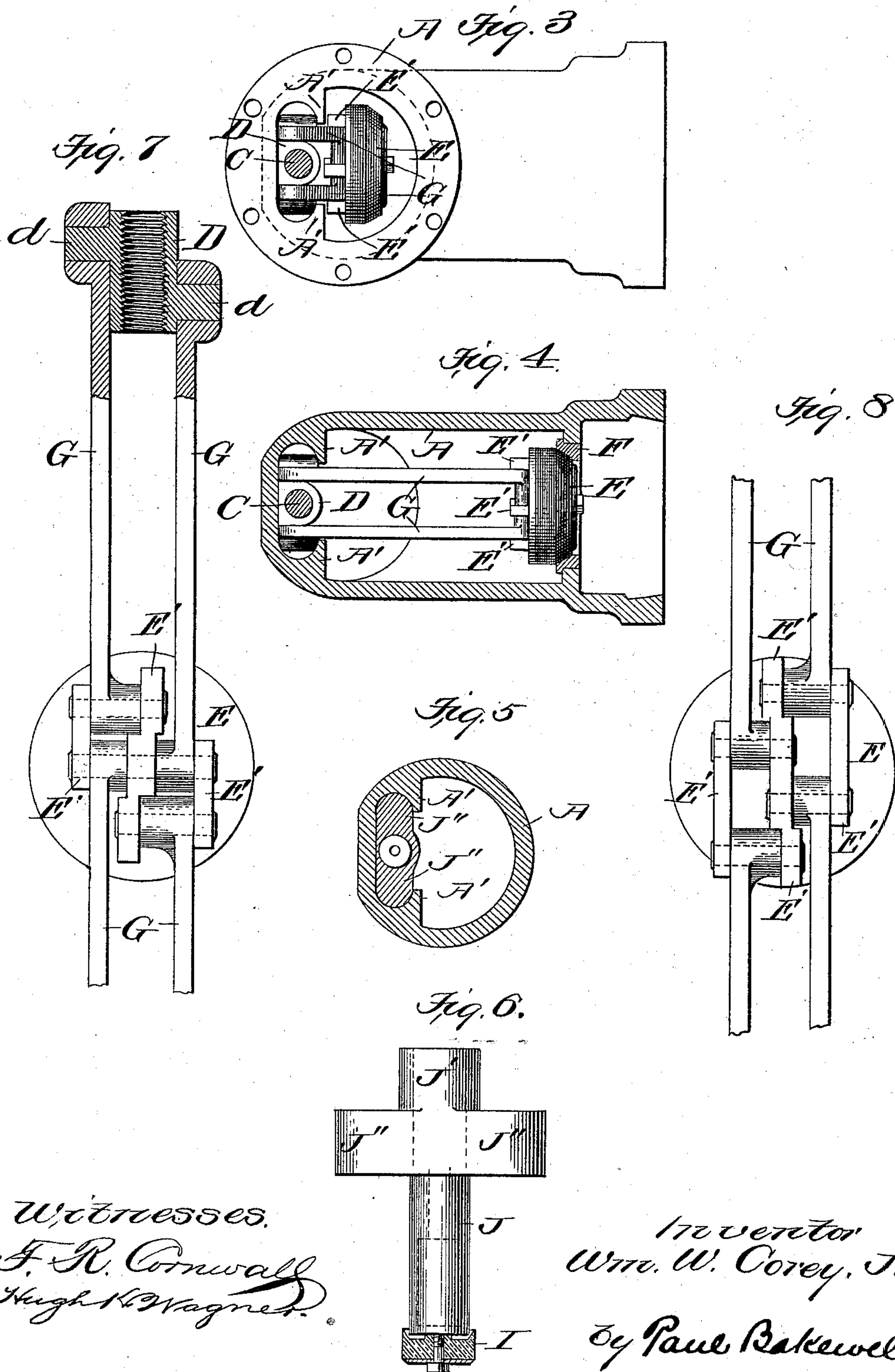
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UNITED STATES PATENT OFFICE.

WILLIAM W. COREY, JR., OF ST. LOUIS, MISSOURI.

FIRE-HYDRANT.

SPECIFICATION forming part of Letters Patent No. 550,595, dated December 3, 1895.

Application filed March 1, 1895. Serial No. 540,165. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. COREY, JR., a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Fire-Hydrants, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, wherein—

10 Figure 1 is a sectional view of my improved hydrant, showing the valve unseated. Fig. 2 is a similar view showing the valve seated. Fig. 3 is a top plan view taken through the joint of the stand-pipes. Fig. 4 is a sectional
15 view taken on line 4 4, Fig. 2. Fig. 5 is a sectional view taken on line 5 5, Fig. 2. Fig. 6 is a front elevational view of the drip-valve. Fig. 7 is a back elevational view of the valve and its operating-links, and Fig. 8 is a modi-
20 fication of the link connection to the valve.

This invention relates to a new and useful improvement in fire-hydrants; and it consists in the construction, arrangement, and combination of the several parts comprising my
25 invention, all as will hereinafter be described, and more fully pointed out in the claims.

The objects of the invention are to so combine and arrange the valve-operating mechanism that the valve when seated is closed
30 against the pressure of the water, and when the valve is unseated it is withdrawn from the path of the active or live water and submerged in a bank of "dead water."

Another object is to so construct and arrange the parts that the main valve and drip-valve can be withdrawn from the stand-pipe without disturbing the stand-pipe and without the necessity of removing the same from its buried position.

40 Another object is to arrange the links which operate the main valve in such manner that the links guide the valve in its movement in the absence of any guideway.

In the drawings, A indicates the stand-pipe, which may be composed of two or more sections, the upper part of which is not shown, but which is of any ordinary or approved construction—that is, is provided with a cap and squared shank on the valve-operating rod,
45 whereby the latter may be turned to operate the valve.

B indicates the valve-operating rod, which

is formed with or has attached to its lower end a threaded section C, cut with threads of the right and left hand order. 55

C' indicates a threaded section at the end of section C, which threaded section C' is preferably cut or formed with threads of less pitch than the section C.

D indicates threaded blocks, which are 60 mounted upon the rod C, which in rotating adjusts the blocks toward and from each other. Projecting from the sides of these blocks in different horizontal planes are pivot-studs *d*, upon which are mounted the 65 valve-operating links. These studs *d* project from opposite sides of the block, one stud being located near the upper edge of one side and the other being located near the lower edge of the other side, as shown at the top of Fig. 7. 70

E indicates the main valve, which is preferably formed with a conical face, which assists in centering it in its seat F, located at the entry of the main to the stand-pipe. This valve is formed with or provided at its back 75 with suitable means, preferably in the form of projecting ribs E', to which are pivotally connected the links G, whose other ends are pivoted on the studs *d* of the blocks D. Links G are pivoted to the ribs E' in such manner 80 that their pivot-points are on different horizontal planes, corresponding to the difference of the plane of their connection to the block D. In this manner the links are the same length; but the different points of connection 85 between the links, the blocks D, and the valve causes the valve to have a straight movement toward or from its seat, taking away the tendency of the valve to wobble.

The connection of the links to the valve is 90 shown in simplest form in Fig. 7, wherein the diametrically-opposite links are connected to a central pivot-pin, while the remaining links are mounted upon side pins diagonally opposite each other. In Fig. 8 I have illustrated 95 an obvious modification, in which the central link is disposed of and in its place are two links arranged on different planes. The result, however, in the operation of the valve is the same in both constructions. 100

Arranged in the lower end of the stand-pipe is a sleeve H, open at its top and bottom and formed with an opening or openings *h*, leading into the interior of the stand-pipe. Op-

erating in this sleeve is a valve I, preferably of that form known as a "cup-valve"—that is, the upper face of the valve is recessed, leaving an edge flange, which under pressure of the head of water exerts a tendency to spread and make a tight joint.

J indicates the stem of valve I, which stem extends upwardly and is formed with an interior screw-thread, which receives the threaded section C'. Above the interior threaded portion of the valve-stem I prefer to form an extension J', from the sides of which project wings J'', which are seated in a guideway formed in the stand-pipe to guide the drip-valve in its movement. This extension J', besides performing the function of guiding the valve, also acts as a spacer to insure the proper position of the valve before the parts are assembled, thus obviating the necessity of adjustment after the stand-pipe has been buried, which could not be easily done. This is accomplished in the following manner: When the blocks D are placed in position and the valve, with its links G, mounted on the blocks, is ready for insertion in the stand-pipe, the parts are in the position shown in Fig. 1. Valve I, with stem J, is screwed on section C' until the extension J' abuts against the lower block D. The parts are now inserted, and this predetermined adjustment obviates a second adjustment when the valves and their operating mechanism are in operative position.

In order to guide the parts mounted on rod B or its section C without subjecting said rod to a twisting strain, I prefer to form oppositely-extending lips A' in the lower section of the stand-pipe, which lips form a way, in which is located the section C. The blocks D are formed with squared faces at their backs, which faces, however, do not contact with the rear side of the way. The ends of links G, which are connected with blocks D, are formed or provided with projections in the form of bosses, which extend into the lateral pockets of the way. These bosses are of such dimensions that the ends of the links contact with the rear face of the way, while the front faces of the bosses rest upon the lips A'. The curved movement of the links in their operation partially rotates the bosses, and to accommodate this they are preferably formed circular.

In operation when the lower section of the stand-pipe is connected to the main and buried the main valve and drip-valve, adjusted as before stated, are inserted in position, when the hydrant is ready for operation. By rotating the rod B the right and left screw-threaded section C adjusts the blocks D longitudinally thereon, causing the links to force the valve E to its seat. If the hydrant had been running before and the water was left in the stand-pipe, valve I would be raised above the opening h by the threaded section C' and the water would leak through to pre-

vent freezing and accumulation. When the valve E is drawn back from its seat by rotating the rod B in the direction opposite to that before described, the valve I is forced below the opening h, thereby closing communication between the stand-pipe and the exterior and cutting off the drips. When the valve E is fully withdrawn, as shown in Fig. 1, it is removed bodily from the path of the live water and occupies a position substantially in a bank of "dead" or inactive fluid. By the long sweep from the valve-opening to the joint between the two sections of stand-pipe the live incoming water is permitted to follow closely this line, which carries it above the valve E. In this manner it will be seen that there are no obstructions in the path of the incoming fluid, and the valve E occupies a position where it is removed from the line of pressure of the incoming water, which thereby relieves it of any torsional or twisting strain.

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

1. In a hydrant, the combination with a standpipe, of a valve operating rod located therein, blocks arranged on said rod which are adapted to move toward and from each other, links which are pivoted on different horizontal planes on the blocks, and a valve to which the opposite ends of the links are pivoted on different horizontal planes; substantially as described.

2. In a hydrant, the combination with a valve operating rod, of blocks arranged on said rod, which blocks are adjustable toward and from each other, links which are pivoted on the blocks on different horizontal planes, and a valve to which the opposite ends of the links are pivoted, the pivotal points of connection of the links to the valve bearing the same relation to each other as the pivotal points of the links to the blocks, whereby when the rod is operated, the valve is caused to travel in a given path, maintaining its proper position by reason of such connections; substantially as described.

3. In a hydrant, the combination with a standpipe which is formed with oppositely extending guide-lips at one side, of a right and left threaded rod arranged between the lips, blocks on the threaded portions of the rod, a valve, links which are pivoted on the valve and blocks, and bosses or projections on the block-end of the links, which bosses extend behind the lips and guide the blocks in their movement; substantially as described.

4. In a hydrant, the combination with the standpipe formed with a guideway to one side, of a threaded rod located in said guideway, blocks which are threaded on said rod, a valve, links pivotally connected to the valve and to the blocks, the pivotal points of connection of the links to the valve and blocks being on different planes, and bosses or projections on

the links, which bosses or projections are seated in the guideway; substantially as described.

5 The combination of the valve operating rod, main valve and connections between the two, which connections include adjustable blocks on the valve operating rod, of a drip valve mounted upon a threaded extension on the lower end of the valve operating rod, said
10 drip valve being formed or provided with an upward extension which spaces the drip valve to its proper position on the rod when the parts are ready for insertion in the standpipe; substantially as described.

15 6. The combination with the valve operating rod, main valve, and connections between the two, which connections include adjustable blocks on the valve operating rod, of a drip valve mounted upon a threaded extension on the lower end of the valve operating rod, said drip-valve being formed or provided with an upward extension which is adapted to abut against the lower block, determining the proper position of the parts when they
20 are ready for insertion in the standpipe, and means for preventing the rotation of the drip valve when the valve operating rod is in position in the standpipe and being rotated; substantially as described.

30 7. In a hydrant, the combination with a standpipe, formed with a guide-way to one side, and provided with a drip valve chamber in its bottom, into which chamber leads an opening from the interior of the standpipe, to the exterior, of a threaded rod located in said guide-way, blocks threaded on said rod, the main valve, links pivotally connected to the main valve and to the blocks, the pivotal points of connection of the links to the valve
35 and blocks being on different horizontal planes, whereby the valve, by reason of such connections, is caused to move in a direct line of travel, and an expansible drip valve mounted on threaded extensions of said rod

and located in the drip valve chamber to control the drip opening, said drip valve being provided with wings or lateral extensions, which extend into the guide-way, to guide the drip valve in its movement and prevent rotation of the drip valve, and an upward extension on said drip-valve which is adapted to abut against the lower block, to limit the drip-valve in its vertical movement, and also to control the rotation of the rod by limiting the downward movement of said block; substantially as described. 45 50 55

8. In a hydrant, the combination with a standpipe which is formed with a long sweep from the main valve opening, of a valve operating rod located to one side of the standpipe opposite the opening to the main, blocks on the rod, links pivoted on different horizontal planes to the blocks respectively, and a valve, to which the opposite ends of the links from the blocks are pivoted on different horizontal planes, whereby the valve is caused to travel in a direct line across the standpipe to open or close the communication to the main; substantially as described. 60 65

9. In a hydrant, the combination with a standpipe, of a valve operating rod located to one side thereof, said rod being formed with right and left hand screw threads, blocks arranged on the threaded portions, links pivoted on different horizontal planes on the blocks, and a valve, to which the opposite ends of the links are pivoted on different horizontal planes, said valve being adapted to close an opening on the side of the standpipe opposite the rod; substantially as described. 70 75 80

In testimony whereof I hereunto affix my signature, in presence of two witnesses, this 23d day of February, 1895.

WILLIAM W. COREY, JR.

Witnesses:

F. W. CORNWALL,

HUGH K. WAGNER.