

G. W. HAYDEN.  
HYDRANT.  
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983,279.

Patented Feb. 7, 1911.

Fig. 1

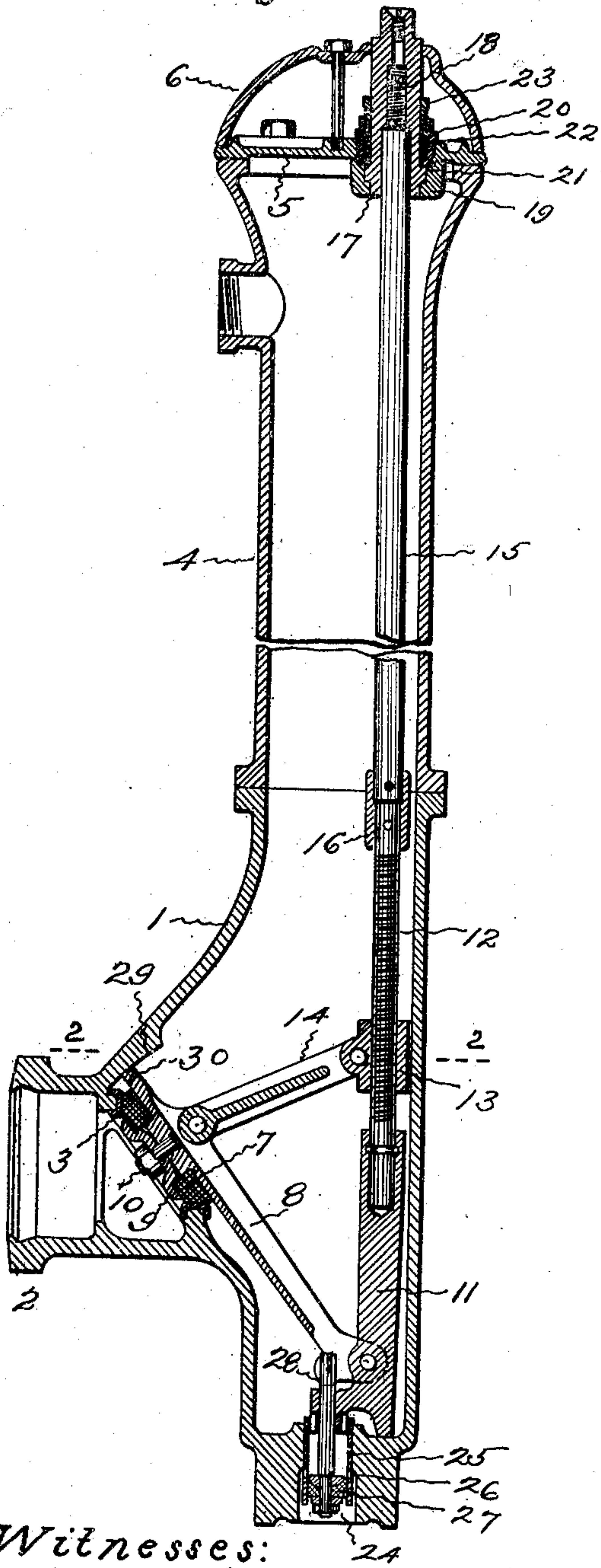


Fig. 2

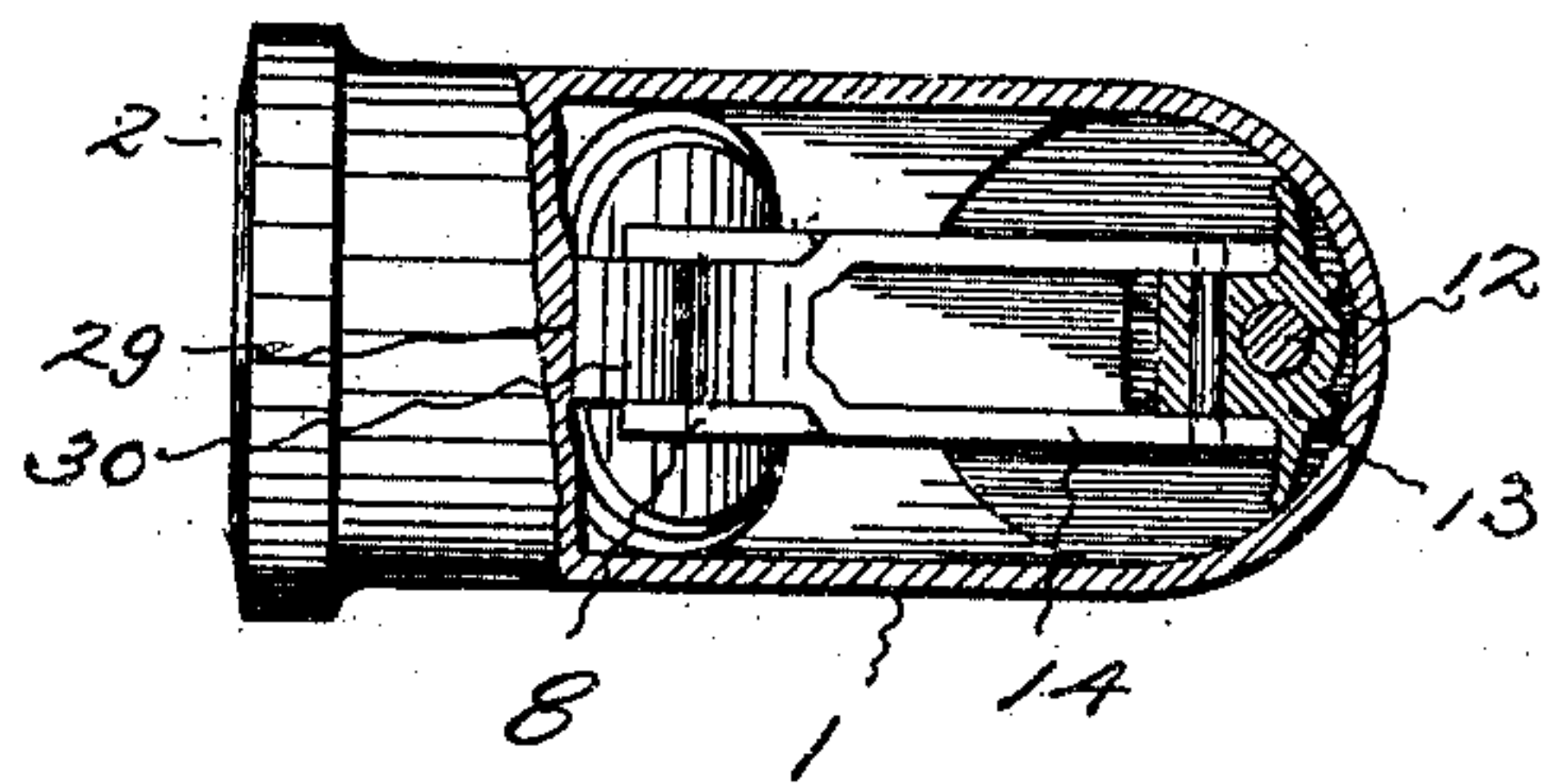
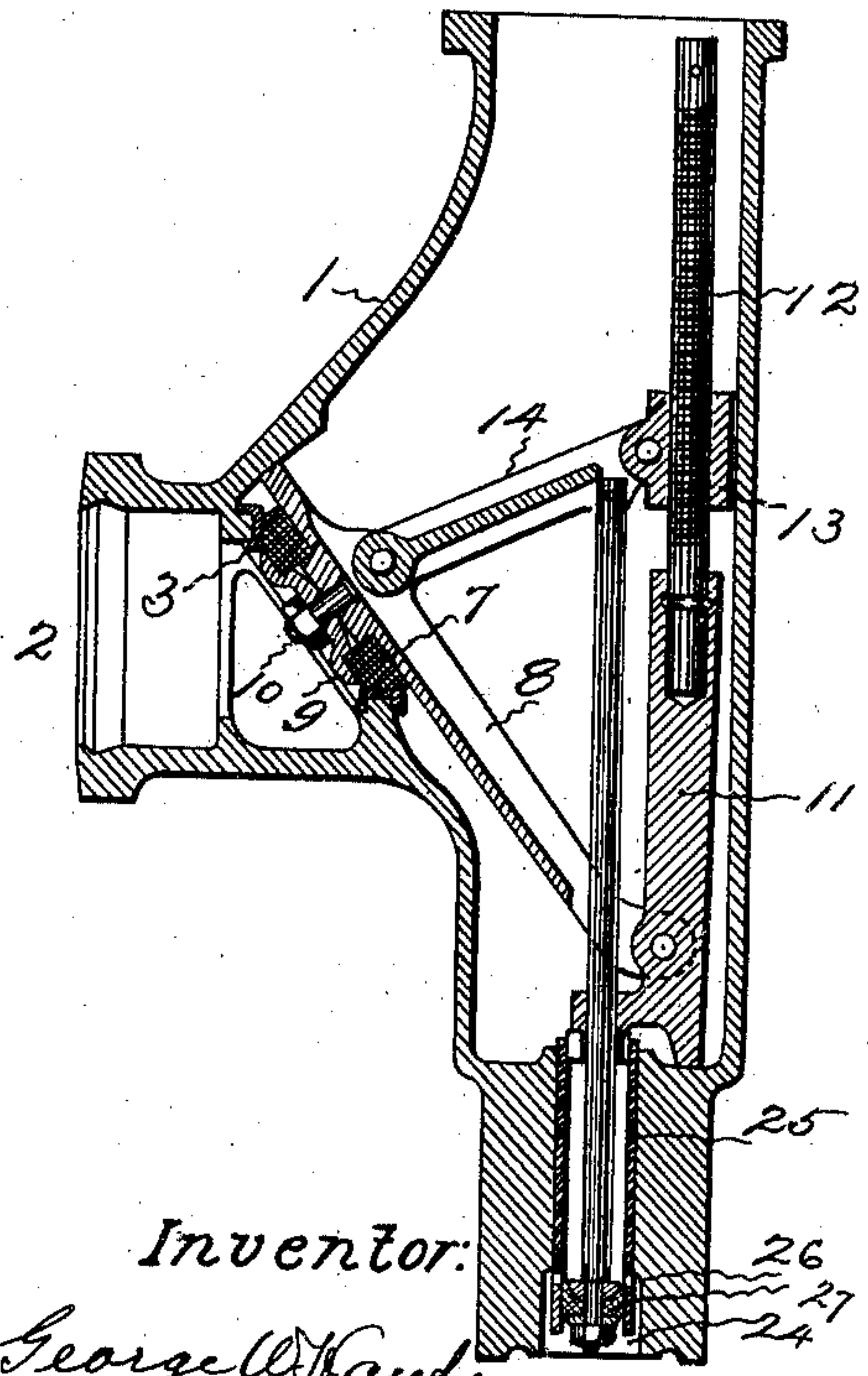


Fig. 3



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# UNITED STATES PATENT OFFICE.

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## HYDRANT.

983,279.

Specification of Letters Patent.

Patented Feb. 7, 1911.

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*To all whom it may concern:*

Be it known that I, GEORGE W. HAYDEN, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Hydrants, of which the following is a specification.

This invention relates to those hydrants which have a main port that is opened and closed by a valve carried on an arm which is swung by a link attached to a nut that is fitted on a threaded section of the spindle, and which have a drain opening that is opened and closed by a valve connected with the main valve operating parts.

The object of this invention is to provide a simple and cheap, readily assembled and quickly removable organization in which the main valve is easily opened and tightly closed by powerful mechanism which is so arranged that there will be no leakage if the stand pipe or case become broken or damaged, or when the cap and cover are removed.

A further object is to simplify, cheapen and make more positive the connection between the drain valve and the main valve, whereby when the latter is closed, the former will be surely opened, allowing the case and stand pipe to drain, and when the latter is opened, the former will be tightly closed and prevent the escape of any water to the drain.

Figure 1 of the accompanying drawings shows a central vertical section of a hydrant which embodies this invention. Fig. 2 is a transverse section on the plane indicated by the dotted line 2—2 on Fig. 1. Fig. 3 shows a modified manner of connecting the main and drain valves.

The case 1 is usually cast to shape of iron, with an inlet end 2 adapted to be attached to a water main. Adjacent to the inlet is the main port and valve seat 3. A stand pipe 4 of any suitable length is bolted to the upper end of the case. Bolted to the top of the stand pipe is a cover 5, and secured over the cover is a cap 6.

The valve ring 7 is shown as secured to the arm 8 by a plate 9 and screw 10. This arm is pivoted to the lower end of a block 11 which rests upon the bottom of the case. The lower end of the threaded section 12 of the spindle turns in, but is held from removal from, a socket in the upper end of the

block. Fitting the thread on this section of the spindle is a nut 13, and connecting this nut with the arm, back of the valve, is a link 14. The top of the threaded section of the spindle is connected with the bottom of the square section 15 of the spindle by a coupling 16. The upper end of the square section of the spindle is fitted into a square socket in the sleeve 17. A screw 18 set into the end of the sleeve bears against the end of the spindle in order to hold it down. The sleeve fits and rests upon the flanged end of the hub 19 that projects downwardly from the cover. A bushing 20 is screwed into the upper side of the cover, against the collar 21, for holding the sleeve in position. Packing 22 is placed in this bushing and held by the nut 23.

In the drain opening 24 in the bottom of the case is a lining sleeve 25. The lower end of the block to which the valve arm is pivoted extends into this sleeve. The lining sleeve has perforations 26 through its side walls, and movable in the sleeve is a valve 27. The stem 28 of this drain valve extends upwardly through the sleeve, and lower end of the block, and preferably is pivotally connected with the arm which carries the main valve, as shown in Fig. 1. If desired the drain valve stem may be extended and connected with the link, as shown in Fig. 3.

When the spindle is turned, the nut on the threaded section is raised or lowered according to the direction of rotation. If the thread raises the nut the valve arm is swung upwardly, and the main valve opened from its seat. If the nut is lowered, the valve arm is swung downwardly and the valve closes against its seat. When the valve arm is swung upwardly for opening the main valve, the drain valve, connected with the arm or with the link is raised so as to close the ports through the lining sleeve in the drain opening. When the arm is swung downwardly for closing the main valve, the drain valve is moved downward so as to open the ports through the lining sleeve in the drain opening. The arm which carries the main valve swings on an arc, the axis of which is the center of the pivot stud which connects the arm with the block. A section, 29, of the case above the valve seat has its inner wall formed on an arc, the axis of which is the center of the pivot stud, and the arm is extended in the form of a



finger 30, which travels along this curved inner wall of the case. As a result of this the pressure tending to raise the valve and its mounting 11 will be resisted by the contact of the end of the arm or finger 30 and the wall at 29, so that the valve cannot rise from its seat unless it is swung back on a circle, the center of which is the axis of its supporting arm, and the arm cannot move on this axis unless the nut is moved. Consequently, when the valve is closed, if the spindle should become fractured or bent, or the stand pipe should be broken off or damaged, the valve would not be forced, by the pressure of the water, away from its seat so as to permit the hydrant to leak. Even the cap and cover can be removed without relieving the valve so that the water pressure will force it open and allow leakage.

If it is desired to remove the parts for repairs or renewing the valve, the cap is unfastened and taken off, and then after the valve has been opened by properly turning the spindle, the spindle-block, arm, link, main valve and drain valve may be lifted out with the cover. The threaded section of the spindle is relatively short, and when the valve is closing and the pressure against it increases, the link is in a position to exert its greatest force. At this time the moving nut is close to the end of the spindle-block so that there is no chance for the spindle to bend and allow the nut to bind against the case.

The invention claimed is:

1. A hydrant having a case with an inlet port and a drain opening, a block resting on the case in the interior near the bottom, an arm pivoted to said block, a valve attached to the free end of said arm and adapted to open and close the inlet port, a spindle having a threaded section rotarily attached to said block, a nut fitting said threaded section of the spindle, a link connecting the nut and the valve arm, a stem hinged to said arm near the block, and a drain valve attached to the free end of said stem, whereby the drain valve is opened and closed by the swinging of said arm.

2. A hydrant having a case with an inlet port, a valve arranged to open and close said port, a swinging arm carrying said valve, said arm at one end turning on a relatively fixed pivot and having its other end movable in contact with a section of the case, a spindle having a threaded section, a nut movable on the threaded section of the spindle, and a link connecting the nut and the arm.

3. A hydrant having a case with an inlet port and a drain opening, a valve arranged to open and close said port, a swinging arm carrying said valve, said arm at one end turning on a relatively fixed pivot and having its other end movable in contact with a section of the case, a spindle having a

threaded section, a nut movable on the threaded section of the spindle, a link connecting the nut and the arm, a drain valve, and a stem connecting the drain valve and the arm carrying the main valve.

4. A hydrant having a case with an inlet port and a drain opening, a stand pipe connected with the upper end of the case, a valve adapted to open and close the inlet port, a swinging arm carrying said valve, a block to which said arm is pivoted, a spindle with a threaded section, a nut fitting said threaded section, a link connecting said nut and said arm, a drain valve movable with the main valve and adapted to open and close the drain opening, a cover closing the upper end of the stand pipe, a sleeve rotatably supported by the cover and rotatably engaging the upper end of the spindle, a screw turning in said sleeve and abutting against the upper end of the spindle, and a cap inclosing said sleeve and the cover.

5. A hydrant having a case with an inlet port and a drain opening, a swinging arm, a valve adapted to open and close the inlet port, a valve adapted to open and close the drain opening, said valves being connected with the swinging arm, a stationary block to which said arm is pivoted, a threaded spindle section rotarily supported by said block, a nut fitting said threaded spindle section, a link connecting the nut and the arm back of the main valve, an angular spindle section coupled to the threaded section, a cover, a sleeve rotatably supported by the cover and connected with the upper end of the spindle, and a screw turning in the sleeve and engaging the end of the spindle.

6. A hydrant having a case with an inlet port, a stationary block, an oscillatory arm with one end pivotally connected with said block and its other end engaging a wall of the case that is formed on a circle the center of which is the axis of the arm, a valve adapted to open and close the port, carried by said arm, a spindle with a threaded section, a nut fitting said threaded section, and a link connecting said nut and the free end of the swinging arm.

7. A hydrant having a case with an inlet port and a drain opening, a block removably supported by the case in the interior near the bottom, an arm pivoted to said block, means for swinging the arm, a valve carried by the free end of said arm and adapted to open and close the inlet port, a valve stem hinged to said arm between the pivot of said arm and the valve carried by the arm, and a valve attached to the free end of said stem and adapted to open and close the drain opening.

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Witnesses:

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