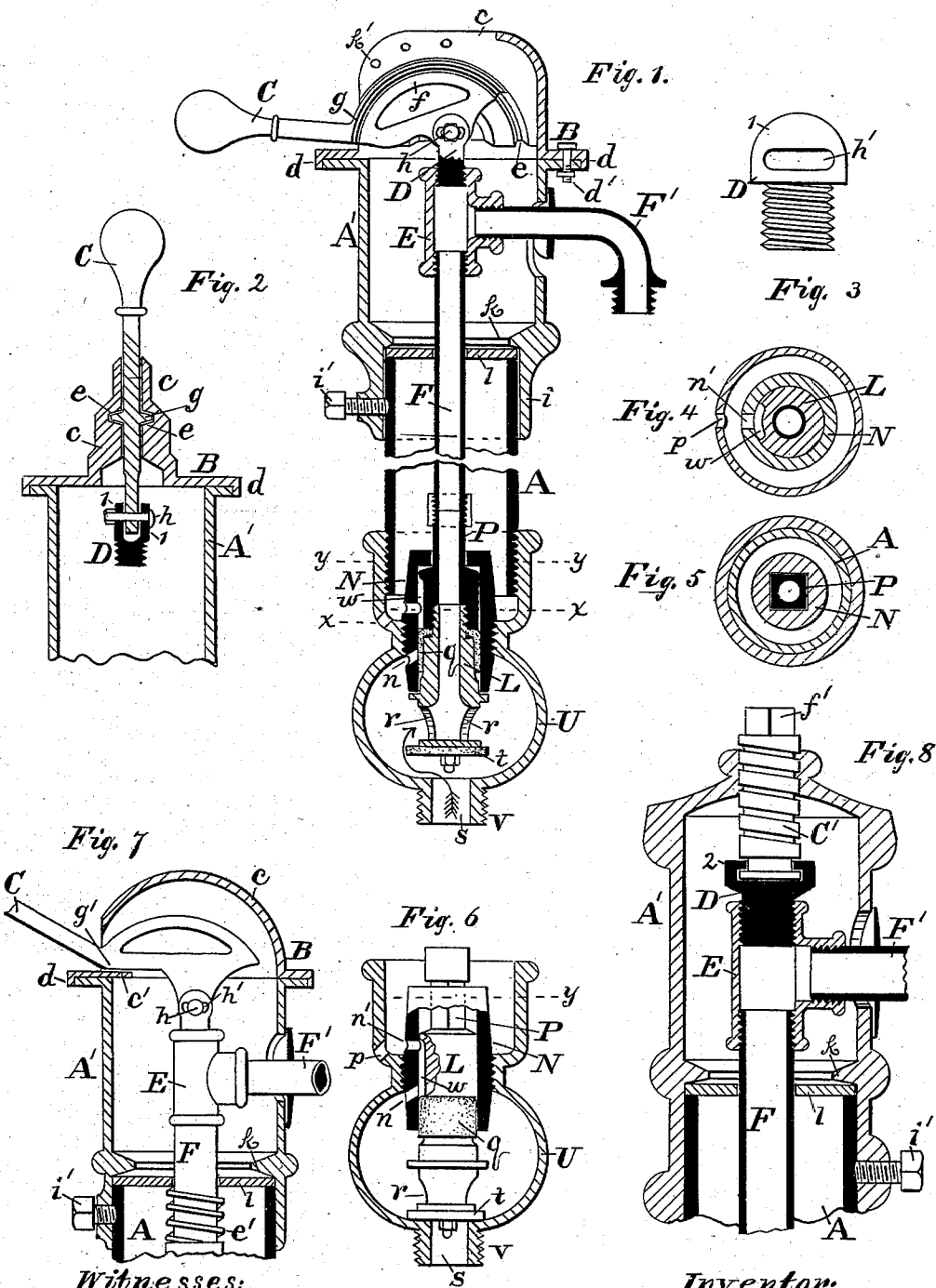


W. KAISER.

HYDRANT.

No. 278,435.

Patented May 29, 1883.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM KAISER, OF WILKES-BARRÉ, PENNSYLVANIA.

HYDRANT.

SPECIFICATION forming part of Letters Patent No. 278,435, dated May 29, 1883.

Application filed June 30, 1879.

To all whom it may concern:

Be it known that I, WILLIAM KAISER, of Wilkes-Barré, in the county of Luzerne and State of Pennsylvania, have invented a new and useful Improvement in Hydrants, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

This invention relates to hydrants having stocks consisting of a cast or wrought iron tube of such construction as to admit of repairing without digging up the stock.

The invention will first be described, and then designated in the claims.

In the accompanying drawings, Figure 1 is a vertical section of the hydrant, the lever occupying the position as when the valve is open. Fig. 2 is a transverse vertical section of the hydrant cap and lever, the latter being raised, as when the valve is closed. Fig. 3 is a side view, large scale, of the screw-plug to which the lever is attached. Fig. 4 is a horizontal section through the line *xx* in Fig. 1. Fig. 5 is a horizontal section through the line *yy* in Fig. 1, and the same parts are shown on the same line in Fig. 6. Fig. 6 is a vertical section of the lower end of hydrant-stock embracing the valve-casing. Fig. 7 is a vertical section of the top part of stock, showing means for automatically closing the hydrant-valve. Fig. 8 is a vertical section of the top part of a wheel-operated valve, as when the valve is closed. This form is used for fire-hydrants.

The letter *A* designates the hydrant-stock, which may be an ordinary wrought pipe; *A'*, the cylindrical cast top of the hydrant; *B*, a cap surmounting the cast top, provided with two parallel walls, *c*, united at one of their ends and bases, the latter forming the horizontal circular cap. A rim or flange, *d*, projects downward from this cap and surrounds the cast top *A'*. Two or more holes are made in the cap, each for the insertion of a bolt, *d'*, which secures the cap to the top *A'*. The interior of the two vertical walls consists of two parallel faces with a space between them. Each face has a circular curved channel or groove, *e*, which are directly opposite each other, as seen in Figs. 1 and 2. The lever *C* has a segment-shaped inner end, *f*, the periphery of

which is provided on each side with a flange or bead, *g*, which curves to conform to the segment-shaped end of the lever. Each of these curved beads occupies one of the curved channels *e*, as seen in Fig. 2, wherein it may slide. It will thus be seen that the channels and beads which slide in them serve both as a pivot and bearing by which the lever, in order to open or close the valve, may be moved from a horizontal to a vertical position, or vice versa. I prefer to make this cap and the two vertical walls of one casting, as, if the walls are not integral—that is, of one piece—there will be great difficulty in securing them side by side with such rigidity as to prevent their soon working loose. The lever has a pivoting-hole for the pivot-bolt *h*. This hole is located eccentrically with respect to the curved flanges on the segment-shaped end. The effect of this arrangement is that when the lever is depressed so as to cause the segment-shaped end to turn in its bearings (the channels *e*) a quarter or less revolution the interior parts which connect with the valve mechanism are raised vertically, thereby opening the valve, as herein-after described, and permitting the water to flow.

A connecting-piece, which I term a "screw-plug," *D*, has two wings, *l*, with a space between, which the part of the lever having the pivoting-hole may occupy. Each of these wings has a horizontal slot, *h'*, as plainly seen in Fig. 3, through which the pivot-bolt *h* passes. This slot permits the pivot-bolt to move back and forth in a horizontal plane as its position is changed by the turning of the eccentric segment-shaped part, and thereby the discharge-pipe *F* and the parts connected with it maintain a true vertical position when they are raised, and thus there is an avoidance of all cramping or chafing of the parts of the valve mechanism at the lower end of the stock. The T-connection *E* is suspended by the screw-plug *D*, and connects the said plug and the discharge-pipe *F*. The nozzle *F'* also is attached to the T-connection. The lower end or base part, *i*, of the cylindrical cast top has an inside diameter which allows the stock *A* to enter and turn freely, for a purpose herein-after explained. An inward-projecting flange, *k*, is formed within the lower end of the cast

top, and serves as an abutment for the end of the stock. A metal washer, *l*, is employed between the flange and end of stock, the central hole in the washer serving as a guide or bearing for the vertically-movable discharge-pipe F. Thus the metal washer serves to keep these parts in true relation with respect to each other, and by holding the discharge-pipe to an exact axial position while it moves up and down the wear on the valve mechanism is reduced to a minimum. A set-screw, *v*', is provided in the base to secure the parts firmly.

Perforations *k*' in the two vertical walls of the cap are of such size as will permit the locking-bolt of a padlock or other locking device to pass through, the insertion of which effectually prevents the lever C passing the point of insertion, and thereby locks the hydrant. This is desirable where hydrants are placed in exposed positions or where they are liable to be tampered with by children.

The vertical channel *w* on the outer periphery of the movable water-way L constitutes the wasteway of the hydrant when the same is in a closed condition, as shown in Fig. 6. Said channel extends from the lower perforation, *n*, to and communicates with the perforation *n*', both in valve-hood N, the latter being opposite the outlet *p* in the case, thereby allowing all the water remaining in pipe F free egress or escape. After having finished the respective round portions of, to wit, the exterior of movable water-way L, and the interior of valve-hood N to as close a fit with each other as is consistent with easy vertical movement of the water-way, a horizontal depression is cut or turned around the circumference of moving water-way L of such depth and width as will allow of a ring, *g*, of leather or other material, to rest therein immediately below the vertical channel *w*. Said ring or washer must be of such thickness as to closely fill the inside diameter of the circular portion of valve-hood N, thus serving as a packing between them, and prevents the escape of any water in that direction when the hydrant is in process of opening or open, as shown in Fig. 1.

The lowermost part of the valve-case U is provided with a nipple, V, having an outside screw-thread for attachment to the service-pipe or other source of supply. The inlet S for the water passes through this nipple, and its upper side constitutes a seat, against which the washer *t* at the lower extremity of the movable water-way rests, as seen in Fig. 6, to close the inlet. Side openings, *r*, above the washer communicate through the movable water-way directly with the discharge-pipe F.

Fig. 7 illustrates a modification in which the channels or grooves in the two walls of the cap are dispensed with. The angular part *g*' of the lever, by resting on the plate *e*' of the top, serves as a fulcrum by which the movable water-way is raised and the valve opened. This compresses the spring *e*', the lower end of which abuts against a pipe coupling or

sleeve on the pipe F below, and which bears up against the metal washer *l*. Upon releasing the handle the said spring will automatically close the valve. The same valve mechanism may have for an actuating device a screw-plug with a yoke, 2, instead of wings, connected to a screw-threaded bolt, C', actuated by a hand-wheel, crank, or spanner applied to the head *f*'. (See Fig. 8.) If it is desired to make needed repairs of the interior working parts, the operation necessary is simply and only to loosen the set-screw *v*' from its hold on stock A, and then turn the top A'. This revolves horizontally the moving water-way L, which, being squared at P, will turn the valve-hood N from the interior of casing U. The entire valve mechanism may then be drawn from the stock.

I will now proceed to describe the mode of operating my hydrant. When the hydrant is properly attached to a water-supply and has been closed, as shown in Figs. 2 and 6, the water remaining in pipe F will flow out the two openings into the casing U, thence will flow through perforation *n*, channel *w*, and then through perforation *n*' in valve-hood N, and finally escape through outlet *p* in the valve-casing. The valve mechanism being now closed to prevent water from entering the inlet S, by drawing the lever C from the position shown in Fig. 2 to that shown in Fig. 1 the discharge-pipe F and movable water-way L will be raised vertically, lifting the valve-washer *t* from its seat, and at the same instant the movement of water-way L closes the wasteway *n w n*' by the leather ring or washer *g* sliding over and covering the lower perforation, *n*, thus preventing the escape of any water when the valve is open or while it is being opened, and allowing free ingress of water into the casing U, and thence through water-way L, pipe F, and discharge-nozzle. The reverse motion of lever C by hand-power applied thereto, or by the action of spring *e*' in the case of an automatic-closing top, again closes the working parts, which are cleared of water, as before described, and thus prevents freezing.

I do not here lay claim to the valve mechanism shown and described, as the features of novelty comprised in these parts will constitute the subject-matter of claims in another application for Letters Patent which I shall make.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. A cap to cover the top of a hydrant-stock, provided with two parallel vertical walls, arranged to leave a space between to admit the movement of a lever, as set forth.

2. The combination, in a hydrant, of a stock-cap having two parallel vertical walls, and a lever having a movement between the walls, as set forth.

3. The combination, in a hydrant, of a stock-

- cap having two parallel vertical walls with a space between them, and each provided with a circular curved channel, and a lever having a segment-shaped end provided on each side with a curved flange which slides in one of the channels, and also having a pivoting-hole located eccentrically with respect to the curved flange, as set forth.
4. The combination, in a hydrant, of a stock cap having two parallel vertical walls, provided with perforations, through which may be passed the bolt of a locking device, and a lever having a movement between the walls, as set forth.
5. The combination, in a hydrant, of a stock cap having two parallel vertical walls with a space between them, a lever to move between the walls, a vertically-moving discharge-pipe, and a connecting-piece, one end of which is rigidly attached to the discharge-pipe, and the other end of which is provided with a horizontal slot, through which a bolt passes to attach to the lever, as set forth.
6. In a hydrant, the combination of the cylindrical cast top Δ' , having within its lower end an inward-projecting flange, k , the stock Δ , fitted within the said lower end, the metal washer l between the inward-projecting flange and the end of the stock, and a set-screw, i , to secure the parts together, as set forth.

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Witnesses:

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