(No Model.) 2 Sheets—Sheet 1.

H. THOMSON.

STREET HYDRANT.

No. 523,492. Patented July 24, 1894.

Fig. 1.

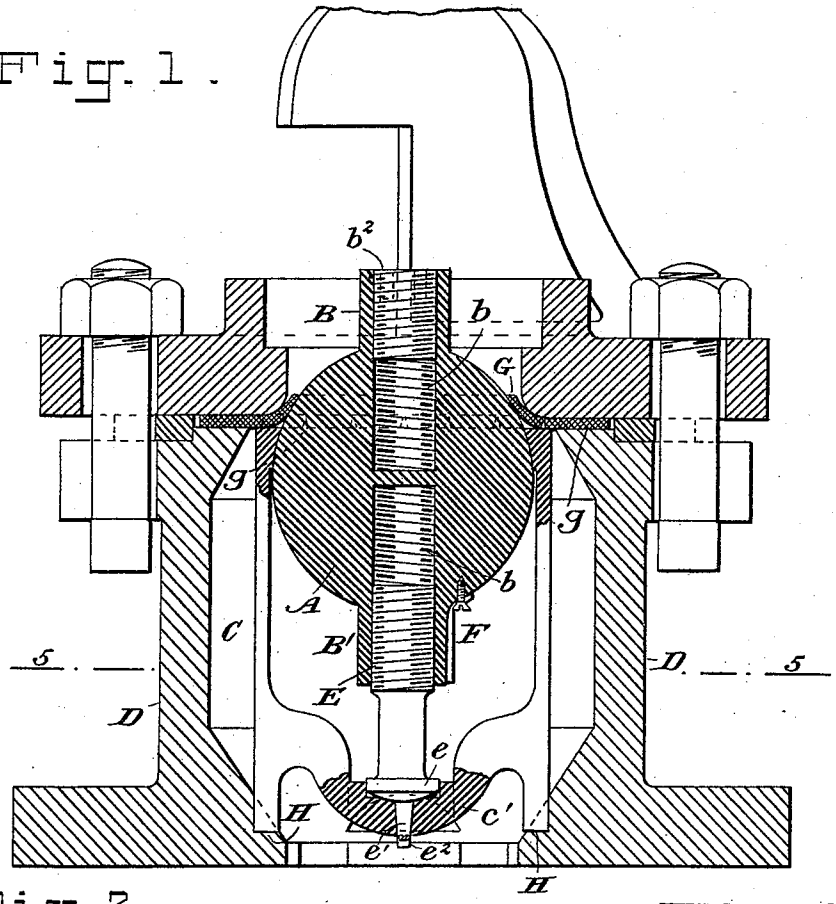


Fig. 2.

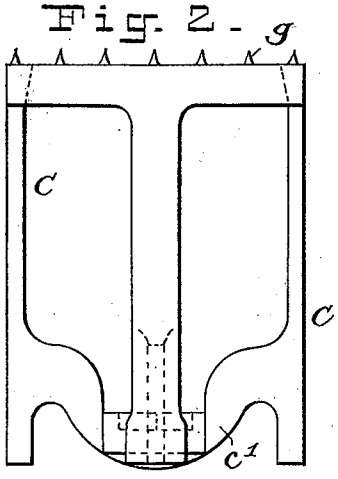


Fig. 3.

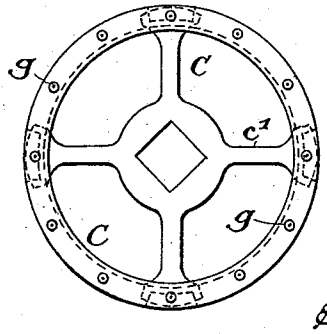
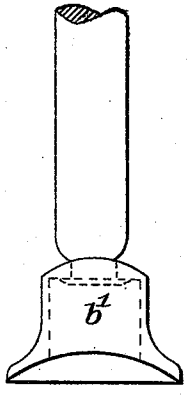


Fig. 4.



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(No Model.) 2 Sheets—Sheet 2.

H. THOMSON.

STREET HYDRANT.

No. 523,492. Patented July 24, 1894.

Fig. 6.

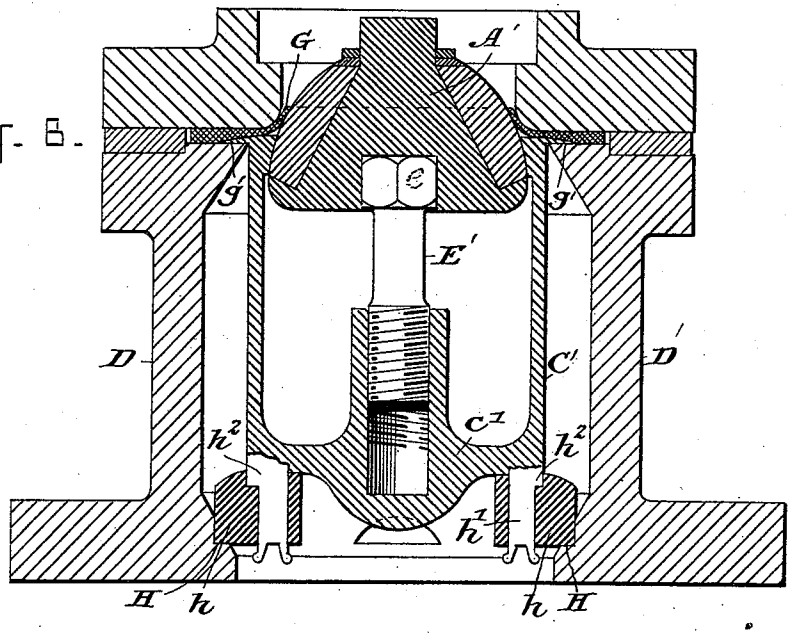
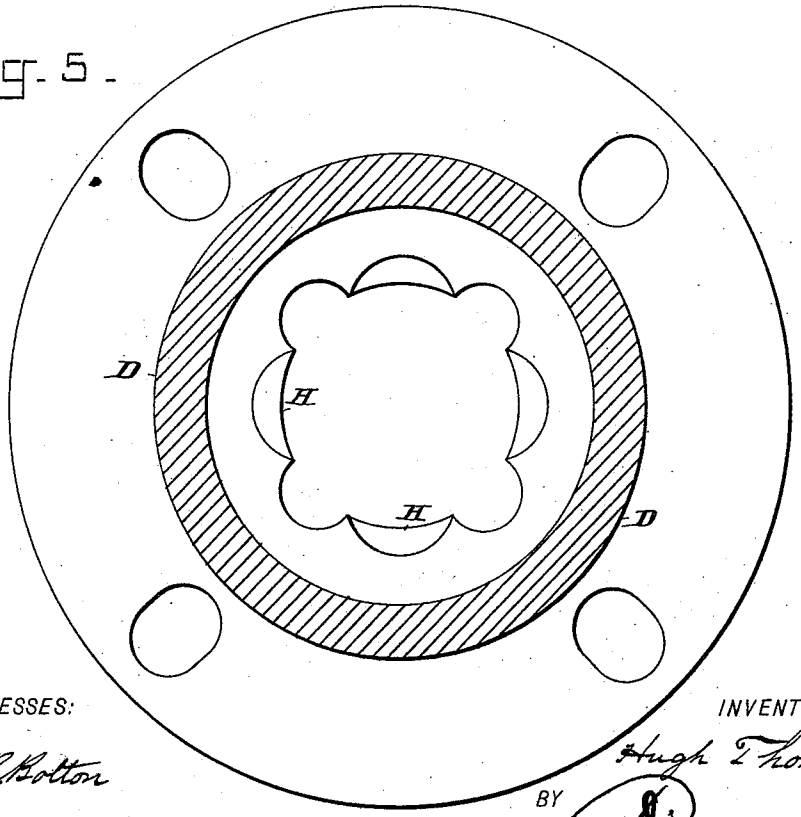


Fig. 5.



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UNITED STATES PATENT OFFICE.

HUGH THOMSON, OF KEW, VICTORIA.

STREET-HYDRANT.

SPECIFICATION forming part of Letters Patent No. 523,492, dated July 24, 1894.

Application filed March 9, 1894. Serial No. 503,058. (No model.)

To all whom it may concern:

Be it known that I, HUGH THOMSON, tanner, a subject of the Queen of Great Britain and Ireland, and a resident of Thornton, Studley Park Road, Kew, near Melbourne, in the British Colony of Victoria, have invented a certain new and useful Improvement in Street-Hydrants or Fire-Plugs, of which the following is a specification.

This invention relates more particularly to the means employed for supporting and operating the valves of street hydrants or fire plugs. Its object is to provide some simple and efficient means whereby the valves may be raised or lowered with a positive motion instead of being left free inside the fire-plug casing, as has usually hitherto been the case.

According to my invention, I form the valves of these street hydrants or fire plugs with two sided bosses projecting one upward and the other downward, and I bore a hole through each of these bosses and continue it nearly to the center of the valve, and cut screw-threads in each hole. A cage is fitted inside the casing of the fire-plug and rests at its lower end in notches provided inside said casing for that purpose, while its upper end is held down by the pressure of the cover of said casing upon the ordinary leather or other washer which forms the seating of the valve. This upper end of said cage may either be fitted with a number of upwardly projecting studs or points adapted to project into such washer when the cover of the fire-plug is screwed down tightly or it may be provided around its upper edge with a few flat projecting lugs made sufficiently thin to fit between the upper part of the casing and the lower surface of the washer. If preferred, these studs or points and the flat lugs may be dispensed with. Projecting upward centrally from the bottom of this fixed cage is a screw threaded spindle adapted to fit into one or other of the screw-threaded holes in the valve, so that if said valve be rotated thereon it will be screwed up or down according to the direction of said rotation, and can therefore either be moved down clear away from its seating in order to open the hydrant or fire-plug, or it can be raised into close contact with the washer around the top thereof so as to close said hydrant or fire-plug, as will be well understood. It will be obvious that when thus closed the valve will effectually prevent the entrance of dust or dirt into the main, notwithstanding that the supply of water inside such main—and therefore the pressure therein—might be entirely drawn off. The rotation of the valve in order to raise and lower it is accomplished by fitting a key over the uppermost of the projecting screw-threaded bosses, two of which are provided in order that the valve may be reversed when worn, and thus be made more lasting.

The upwardly projecting screw-threaded spindle above referred to may either be made integral with the cage, or be fitted loosely therein, so as to leave a certain amount of play if required to enable the valve to adjust itself more perfectly to its seating.

In cases where the inner diameter of the bottom of the fire-plug casing is larger than the opening in its top, extension pieces may be mounted upon pins on the lower end of the cage above referred to, so that they can be turned outwardly to fit notches provided for them in the fire-plug casing after said cage has been fitted in position therein.

If preferred, the arrangement above described may be reversed, the screw-threaded spindle being fitted upon the valve and working within a screw-threaded hole in a bridge piece on the cage.

The notches in the fire-plug casing may be cut or formed in any convenient manner by means of the tool made the subject matter of an application filed by me on the 9th day of March, 1894, Serial No. 503,059.

Referring to the accompanying drawings,—Figure 1 is a vertical central section of an ordinary street hydrant or fire-plug casing to which my invention is applied, while, Fig. 2 is a side elevation, and Fig. 3 a plan of the cage, which I fit inside said casing. Fig. 4 is a front elevation of the key which I fit upon the lower end of the ordinary stand pipe spindle to enable my valve to be raised and lowered to and from its seating. Fig. 5 is a horizontal section through the ordinary street fire-plug or hydrant casing on line 5—5 Fig. 1, and Fig. 6 is a similar view to Fig. 1, showing a slight modification of the valve spindle and illustrating the arrangement of cage which I prefer to employ where

the lower end of the fire-plug casing is of larger diameter than the valve seating.

The same letters of reference indicate the same or corresponding parts in all the figures.

A represents the valve of the fire-plug, which is according to my invention, formed with a boss B—B′ at opposite points, while C represents the cage which is fitted inside the main casing D of the fire-plug, as shown. Holes are bored and tapped through these two bosses B—B′, and continued nearly to the center of the valve, as illustrated at *b*, a slight partition being left between the ends of the two screw-threaded holes to prevent any leakage through the valve. The bosses B—B′ are both sided on the outside, so that a correspondingly shaped key, such as is illustrated at *b′*, in Fig. 4, may be fitted over the uppermost of said bosses, and thereby enable the valve A to be turned round when it is desired to raise or lower it.

A spindle E projects up from the bottom of the cage C, and fits into one of the screw-threaded holes *b*. This spindle may either be made integral with said cage, or it may be fitted with a square or other shoulder *e* resting in a corresponding recess in the bridge piece *c′*, of the cage C, a stud or lug *e′*, projecting from the lower end of said screw-threaded spindle passing through said bridge piece, as shown, and being secured by a pin e^2, passing through its lower end. By adjustably connecting the spindle to the cage in this way, it will adjust itself to suit the position of the valve and thus lessen the wear and strain on the screw threads.

The screw-threaded holes in the bosses and valve are made sufficiently long to entirely inclose the screw-threaded part of such spindle at all times, thus the threads will be protected from injury, and the screws will not become choked.

F represents a small spring guard which may be fitted on the valve and be arranged to project into the screw-threads of the spindle E so as to prevent grit or dirt passing up same.

b^2, represents a plug which is screwed into the upper boss B′ in order to protect the screw-threads inside same by preventing the entrance of grit.

The cage C may be retained in position within the casing of the fire-plug by clamping it tightly between the ordinary washer G and notches or steps H formed for the purpose inside the casing D near the lower end thereof. Pins *g* projecting upwardly from said cage are forced into said washer, and thus serve to retain the whole in position when the ordinary fire-plug cover is bolted down upon said washer.

If preferred, the spindle E′ can be secured to the valve A′, as illustrated in Fig. 6, and be arranged to work within a screw-threaded hole in the bridge piece *c′*, of the cage C, instead of the other way about. The valve moreover can be made in various ways, that is, it can be either solid or hollow, and it need not be made spherical, especially if it is not required to be reversed, but can be of any suitable shape, as illustrated in said Fig. 6, and it may be constructed as therein shown with a conical rubber or other packing ring fitting on to a tapering metal valve body and held down by washers thereon. This construction dispenses with the necessity for turning the valve and at the same time enables a fresh wearing surface to be substituted for the old one whenever it becomes worn by simply renewing the packing ring. The spindle is adjustably secured to the valve by being formed with a sided head *e* fitting into a corresponding hole in said valve, thus enabling it to adjust itself to suit the various positions of the valve without straining or unduly wearing the threads.

The cage C′, instead of having pins projecting upwardly as illustrated at *g* in Fig. 1, may be provided with outwardly projecting thin lugs, as illustrated at *g′* in Fig. 6, said thin lugs resting between the usual washer G of the fire-plug and and the upper edge of its casing, or under some circumstances, as above mentioned, these pins and lugs may be dispensed with.

In the event of the inside diameter of the lower part of the fire-plug casing being larger than at its upper end, it is necessary to fit projecting feet *h* on pins *h′*, projecting from the bottom of the cage, said feet being fitted each with a projecting feather h^2, for locking said feet in their projecting positions.

Any suitable means may be employed for cutting out the notches H on the inside of the casing D, but as a matter of convenience I prefer to use the tool described in the specification accompanying an application for United States Letters Patent heretofore referred to.

With my invention a great saving of water from leakage will be effected, and the expense of replacing the ordinary floating balls at present in use will be avoided. The entrance of sewage into the water mains from the streets will be prevented, because the valve is screwed into its open and closed positions, and therefore moves with a positive motion. The rubber rings will not be damaged so much as is the case when replacing the ordinary valves, and the improvements can easily be applied to existing fire-plugs. Moreover, owing to the screw-threaded part of the spindle upon which the valve works being always inclosed, the screw cannot become choked, and the threads will not be liable to be injured by the action of grit or other substances.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a street hydrant or fire plug, the combination of a reversible valve A having oppositely projecting studs with screw threaded

holes passing through said bosses and valve to near the center thereof, a cage and an adjustable connection between said valve and cage, substantially as described.

2. In a street hydrant, the combination of a reversible valve A, a cage C, and a plug casing having notches or recesses, said cage having a base fitted to notches or recesses in the casing of the plug, substantially as described.

3. In a street hydrant, the combination of a valve, a cage, a washer and projecting pins on the upper end of said cage, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

HUGH THOMSON.

Witnesses:
EDWARD WATERS,
WALTER SMYTHE BAYSTON.