(No Model.) 2 Sheets—Sheet 1.

G. E. MARTIN.

FIRE HYDRANT.

No. 590,269. Patented Sept. 21, 1897.

Fig. 2

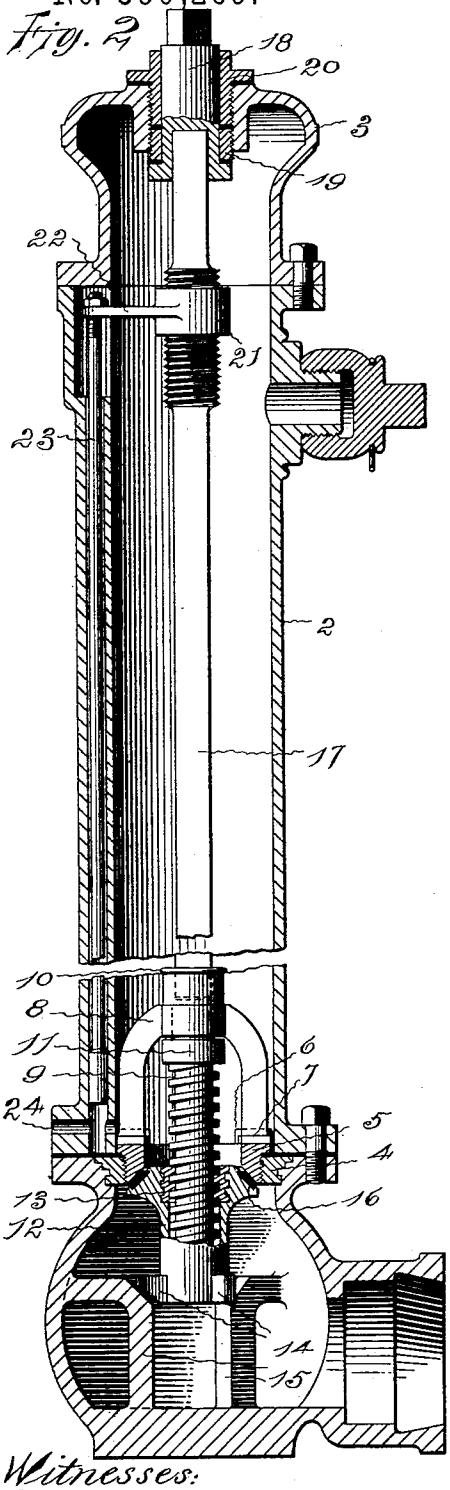
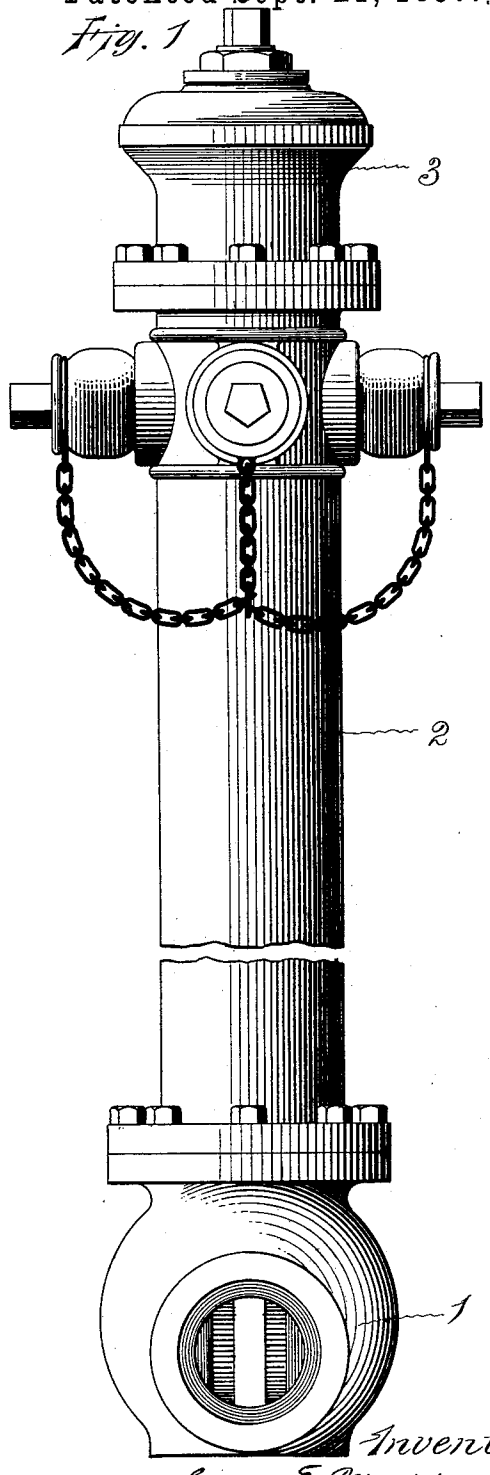


Fig. 1



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 7

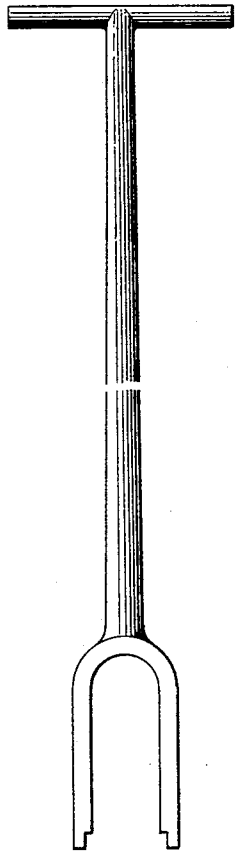


Fig. 6

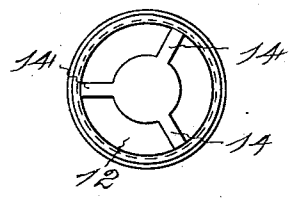


Fig. 5

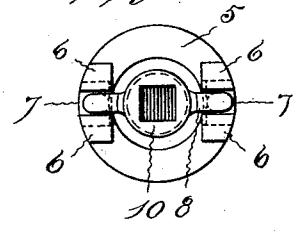


Fig. 3

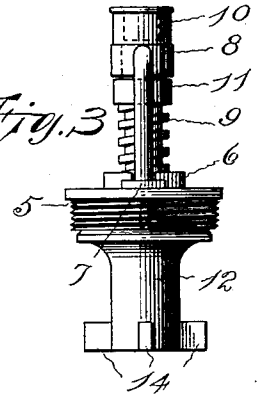
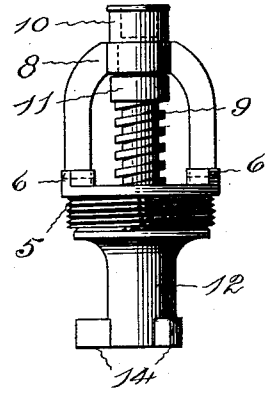


Fig. 4



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UNITED STATES PATENT OFFICE.

GEORGE E. MARTIN, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE PRATT & CADY COMPANY, OF SAME PLACE.

FIRE-HYDRANT.

SPECIFICATION forming part of Letters Patent No. 590,269, dated September 21, 1897.

Application filed March 9, 1897. Serial No. 626,584. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. MARTIN, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Fire-Hydrants, of which the following is a specification.

The invention relates to a fire-hydrant which has its working parts so arranged that they can be taken out and renewed when necessary without removing the post or disturbing the connections with the water-pipe.

The object of the invention is the production of a hydrant of this nature having a very simple and inexpensive construction that will permit the ready removal of the valve and valve-seat when the cap of the post is removed, that will always shut tightly and remain shut should the post by accident become damaged or broken off, and that will drain itself, so as to obviate all liability of freezing.

On the accompanying sheets of drawings, Figure 1 shows a side elevation of a fire-hydrant embodying the invention. Fig. 2 shows a vertical section of the same. Fig. 3 shows an edge view of the valve and valve-seat removed from the hydrant. Fig. 4 shows a side view of the removed valve and valve-seat. Fig. 5 shows a plan of the valve-seat. Fig. 6 shows a bottom view of the valve, and Fig. 7 shows a view of the tool employed to remove the valve and valve-seat from the hydrant.

The inlet end of the valve-casing 1 may be formed in any common manner for attachment to the water-pipe, and the outlet end of the casing may be flanged for connection with the flanged end of the tubular hydrant-post 2. On the upper end of the post is secured the ordinary crown-cap 3, and projecting from the post near the upper end are any number of the usual hose-nozzles provided with common nozzle-caps.

The valve-casing is usually cast to shape of a base metal, as iron, and around the outlet-opening through the casing is located a bushing 4, of finer metal, as brass. This bushing, which is preferably cast securely in position so that it will not move, is threaded on its inner face, and into this thread is screwed a threaded ring 5, that has its lower edge shaped to form the valve-seat. On the upper face of this seat-ring are lugs 6, and it is by means of the engagement of the arms of the tool shown in Fig. 7 with these lugs that the seat-ring may be screwed into or out of its position in the retaining-bushing. These lugs 6 are shown as mortised to receive the tenons 7 on the lower ends of the yoke 8, which is perforated at its center for the passage of the shank of the valve-screw. It is preferred that the ends of the yoke should be loose in the mortises in the lugs on the upper face of the seat-ring in order that the yoke may adjust itself to any irregularity of alinement and not cause the parts to bind should they for any reason become bent; but of course the ends of the yoke may be secured firmly to the seat-ring, if desired, without departing from the invention. The shank of the valve-screw 9 extends through the perforation in the yoke and is loosely held to the yoke by the collars 10 and 11.

Supported by the screw is the valve-block 12. This block may be formed of hard metal, and a bushing 13, of soft metal, as brass, may be provided with screw-threads and secured in the central perforation of the block. The lower end of the valve-block may be provided with lugs 14, that are adapted to engage the guides 15 on the interior walls of the casing for preventing the block from rotating when the screw is turned. The upper end of the valve-block, which is shaped to correspond with the valve-seat on the lower edge of the seat-ring, may be provided with a groove for the packing 16, which packing may be formed of asbestos composition or of any suitable metal. Turning the screw in one direction causes the valve-block to be lowered away from the seat-ring and turning the screw in the opposite direction causes the valve-block to be raised toward the seat-ring, so that the packing will make a tight joint against the seat.

The collar 10 has a square recess in its upper end, and in this recess loosely rests the lower end of the square spindle 17. The upper end of this spindle extends into a square recess in the inner end of the spindle-arbor 18, the outer end of which bears the nut to which the handle-wrench is applied for opening and closing the valve. The spindle-arbor passes through the usual check-nut 19 and the packing-bushing 20 in the top of the post-cap.

The spindle near the upper end of the post

is provided with a screw-thread, and upon this is fitted a threaded sleeve 21, having an arm 22, that is connected near the wall of the post with a rod 23, that extends down the side of the post into a small chamber. At the lower end this rod terminates near the drip-outlet 24, made through the side of the post adjacent to the junction of the post with the valve-casing.

When the spindle-arbor and spindle are rotated in a direction to move the valve downward from the seat and open the passage to permit the flow of water, the upper screw moves the sleeve, arm, and rod downward, so that the lower end of the rod is caused to close the drip-outlet and prevent the outflow through it of any water, but when the spindle-arbor and spindle are rotated in the reverse direction, so as to cause the valve to move upward against its seat and close the passage, the sleeve, arm, and rod are moved upward, so that the drip-outlet is opened for the escape of the water that is in the hydrant-post after the valve is shut. The drip-outlet is of course drained or piped in the usual manner.

After the hydrant-post is set in the ground and the valve-casing is connected with the water-main the valve and valve-seat may be located in position or removed from position from the surface without in any manner disturbing the post or the connections. The valve and valve-seat, as illustrated in Figs. 3 and 4, may be lowered into the casing, and then by means of the tool shown in Fig. 7 the seat, with the valve, can be screwed into the threaded retaining-ring in the outlet of the casing. The spindle is placed in position with its lower end loosely resting in the square recess in the collar on the shank of the valve-screw, and after the spindle-arbor is loosely placed on the upper end of the spindle the cap may be secured in place on the post. To remove the valve and seat, it is only necessary to take off the cap, lift out the spindle, and unscrew the valve-seat by means of the tool mentioned. Then the seat and valve which it supports can be lifted out of the post.

This construction is very simple and inexpensive to manufacture and put together. It is exceedingly easy and convenient to remove from and place in position the valve and valve-seat, so that either or both of these parts can be renewed or replaced when necessary.

With the construction set forth the heavy parts of the hydrant can be formed of a cheap base metal and the working parts, which have a particular construction, may be formed of a finer metal that will not rust or corrode and get into such condition that the functions of the constructions cannot be carried out.

If the post of this hydrant becomes damaged or broken off by accident, the spindle will draw out of its socket without damaging or jamming the valve and without loosening the valve, so as to allow the escape of water. A new spindle can be readily substituted for one that is broken or bent, and any slight irregularity of alinement will be no detriment on account of the lateral movement of the supporting-yoke that is connected to the seat-ring.

The post of this hydrant will readily drain itself, and the draining-valve can be easily removed or adjusted when necessary.

I claim as my invention—

1. In a hydrant, in combination with a casing, post and cap cast to shape of a base metal, a bushing of finer metal cast in the outlet end of the casing and provided with threads in its inner wall, a removable seat-ring with threads on its periphery screwed into the threads in the bushing, a yoke projecting upwardly from the seat-ring, a valve-screw loosely supported by the yoke, a valve mounted upon the screw, and a spindle for rotating the screw, substantially as specified.

2. In a hydrant, in combination with the casing, post and cap, a removable seat-ring having screw-threads on its periphery and lugs projecting from its upper face, a yoke loosely held by the lugs, a valve-screw loosely supported by the yoke, a valve mounted upon the screw, and a spindle for rotating the screw, substantially as specified.

3. In a hydrant, in combination with the casing, post and cap, a removable seat-ring, a yoke loosely connected with the seat-ring, a valve-screw loosely supported by the yoke, a valve mounted upon the screw, and a spindle for rotating the screw, substantially as specified.

4. In a hydrant, in combination with the casing, post and cap, a removable seat-ring, a valve-screw loosely supported by a part connected with the seat-ring, a valve mounted upon the screw, a spindle for rotating the screw, a sleeve borne by a threaded part of the spindle, and a rod connected with the sleeve and adapted to close the drip-outlet as the spindle is rotated to open the valve and adapted to open the drip-outlet as the spindle is rotated to close the valve, substantially as specified.

5. In a hydrant, in combination with the casing, post and cap, a removable seat-ring, a valve-screw loosely supported by a part connected with the seat-ring, a valve mounted upon the screw, a spindle for rotating the screw, a sleeve borne by a threaded part of the spindle, a rod connected with the sleeve and adapted to close the drip-outlet as the spindle is rotated to open the valve and adapted to open the drip-outlet as the spindle is rotated to close the valve, and a spindle-arbor loosely connected with the upper end of the spindle and projecting through the cap, substantially as specified.

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HARRY R. WILLIAMS.