

UNITED STATES PATENT OFFICE.

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CAP FOR HYDRANTS.

969,905.

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To all whom it may concern:

Be it known that I, WILLIAM S. REED, a citizen of the United States, residing at Leominster, county of Worcester, State of Massachusetts, have invented an Improvement in Caps for Hydrants, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention relates to caps for the nipples of hydrants, and the object of the invention is to provide a novel construction of cap which permits it to be unlocked and removed from the nipple with only a slight movement of the wrench or other implement used for removing the cap.

The nipples of hydrants for connecting the fire hose thereto are always exteriorly screw-threaded to receive the interiorly screw-threaded coupling member on the end of the hose pipe, and so far as I am aware the caps which normally cover the nipples when the hydrant is not in use are provided with interior screw-threads and are screw-threaded to the nipple. The screw-threaded part of the nipple is usually of considerable length and the hydrant caps are made of sufficient length to cover the entire screw-threaded portion of the nipple. As a result the operation of removing any cap necessitates the unscrewing of the cap for the entire length of the nipple, which operation obviously consumes considerable time; and at a fire when every second counts it is a matter of great importance to be able to remove the cap from the hydrant without any delay. My invention aims to accomplish this object by providing a cap with a locking device which firmly holds the cap in place but which is adapted to be released by a slight movement of the wrench or other implement with which the cap is removed.

My invention also includes a cap provided with a portion to protect the screw-threads of the nipple from injury, and a guiding device to assist in guiding the cap as it is placed onto or removed from the nipple.

My improved locking device may be constructed in various ways without departing from the invention. In one form of the invention it is arranged to act on the ex-

terior of the nipple. In another form of the invention it is arranged to act on the interior of the nipple. Embodiments of both of these forms of the invention have been shown in the drawings.

Figure 1 is a view showing in vertical section a nipple and cap therefor embodying my invention; Fig. 2 is a section of the cap with the guiding device omitted; Fig. 3 is a view similar to Fig. 1 showing another embodiment of my invention; Fig. 4 is a view of the cap shown in Fig. 3 showing the body of the cap in section and the guiding member in elevation.

A portion of a hydrant is shown at 3, said hydrant having the usual nipple 4 extending therefrom which is provided with the exterior screw-threads 5.

6 is the cap which fits over the nipple, it being open at one end and closed at the other as at 8 as usual. The cap is also provided with a wrench-receiving portion 9 which is adapted to receive a wrench or any suitable implement for the purpose of locking the cap to or unlocking it from the nipple. In Fig. 1 I have shown the cap as provided with a locking device which is adapted to engage the exterior of the nipple. This device is in the form of a rib 10 which preferably has a shape to fit the screw-threads 5. This rib extends only part way around the interior wall of the cap, as seen in Fig. 2, and is so arranged that by a partial turn of the cap the rib will engage one of the screw-threads on the nipple and will thus firmly hold the nipple in place. The portion 12 of the cap between the rib and the open end thereof has an interior diameter substantially equal to or slightly greater than that of the screw-threaded portion of the nipple so that when the cap is in place this portion 12 covers the screw-threads 5 and thoroughly protects them from injury. A cap made in this manner can be applied to the nipple by inserting it over the screw-threaded portion until the rib 10 comes into engagement with the screw-threads 5, and then turning the cap sufficiently to cause the rib to interlock with the threads. The cap may be removed from the nipple by simply giving it a partial turn sufficient to withdraw the rib from the threads. In order that the cap may be applied to the nipple without any danger of

jamming the threads I have provided said cap with a guiding device 13 which enters the nipple and holds it in proper position so that the rib will enter the thread without binding or jamming the latter. This guiding device is preferably cylindrical and is of a size to fit freely within the nipple. It may be either integral with the cap or removable therefrom, and in the drawings I have shown it as being a separate piece from the cap and as being secured to the cap by a screw 31.

In Figs. 3 and 4 I have shown a form of my invention wherein the locking device is designed to act on the interior of the nipple. In this embodiment the cap is provided with the protecting portion 12, as above described, and is also provided with suitable means, as the wrench-receiving projection 9, to receive the wrench or other tool for applying the cap to the nipple. The cap is provided with the centering or guiding device 13 as in the first-described embodiment, and either the centering or guiding device or the nipple has the grooves therein which are adapted to receive projections extending from the other part. In the specific embodiment herein shown the grooves are in the centering or guiding device and are designated 14, while the projections are formed on the nipple and are designated 15; this location of the grooves and projections might be reversed without departing from the invention. The grooves extend longitudinally of said centering or guiding device and terminate at their inner end in a groove 16 which extends circumferentially of the centering or guiding device. This groove 16 may have inclined walls 20 adjacent the grooves 14. In applying a cap of this construction to the nipple the cap is positioned so that the grooves 14 are alined with the projections 15, and said cap is then inserted over the nipple until the projections are in line with the groove 16 when the cap is given a partial turn to lock it to the nipple. The inclined walls 20 serve as a cam to tighten the cap against the end of the nipple. The cap may be removed by merely giving the wrench-receiving portion 9 a partial turn in the opposite direction sufficient to bring the projections 15 into alinement with the grooves 14 and then withdrawing the cap longitudinally.

In both forms of the invention I have provided the cap with a locking device which engages the nipple and which can be disengaged therefrom by a partial turn of the wrench-receiving portion of the cap. The cap also includes the protecting portion to protect the screw threads and the centering or guiding device to properly center the cap, and guide it in its movements onto or off from the nipple. In the embodiment shown in Fig. 3 the guiding or centering device is locked to the cap body so as to turn

therewith, this being necessary because the locking of the cap to the nipple involves turning the centering device. The centering device may be locked to the cap body by a pin or projection 32. In both forms of my invention herein shown the cap is tightened by a screw cam action.

Although the invention has been described as it would be used in connection with a hydrant nipple, yet it will be obvious that the invention might be embodied in other nipples that require a cap for closing them.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. The combination with a screw-threaded nipple, of a cap therefor having adjacent the open end thereof a cylindrical portion separated from but overlying and protecting the screw-threads of the nipple, and also having on its interior adjacent its closed end locking means to hold said cap in place, said locking means being constructed to be released from the nipple by a partial turn of the cap.
2. The combination with a screw-threaded nipple, of a cap therefor having on its interior locking means to interlock with the nipple for holding said cap in place, said locking means being constructed to be released from the nipple by a partial turn of the cap, said cap also having a centering device of a size to fit the interior of the nipple and situated to center the nipple when the cap is applied thereto.
3. The combination with a screw-threaded nipple, of a cap therefor having adjacent the open end thereof a cylindrical portion separated from but overlying and protecting the screw-threads of the nipple, and also having on its interior locking means to engage the nipple for holding said cap in place, said cap being provided with a portion to receive a wrench, and said locking means being constructed to be released from the nipple by a partial turn of the wrench-receiving portion of the cap.
4. A hydrant cap having an annular flange to set over the nipple of a hydrant and protect the screw threads thereof, and also having an inner longitudinally-extending portion adapted to enter the nipple when the cap is in place, and a lock for locking the cap to the nipple, said lock being sustained by the cap and situated between said flange and the inner longitudinally-extending portion.
5. The combination with a nipple having exterior screw threads, of a cap therefor provided with an exterior flange to set over the nipple and protect the screw threads, and also provided with an inner centering portion to enter the nipple when the cap is placed thereon, said centering portion being detachable from the cap.

6. The combination with a screw-threaded nipple, of a cap therefor having a flange to overlie the screw threads of the nipple and protect the same, locking means to hold the
5 cap in place, and means to guide the cap in its movement onto and off from the nipple.

In testimony whereof, I have signed my

name to this specification, in the presence of two subscribing witnesses.

WILLIAM S. REED.

Witnesses:

LOUIS C. SMITH,

THOMAS J. DRUMMOND.