J. Y. PATTERSON.

CAP CLOSURE FOR PIPES AND THE LIKE.

APPLICATION FILED MAR. 12, 1912.

1,044,235. Patented Nov. 12, 1912.

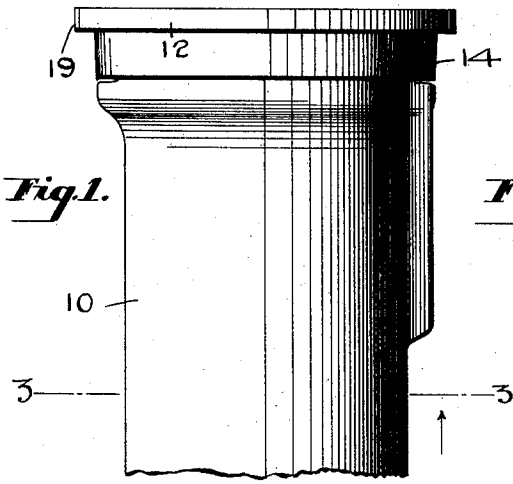

Fig. 1.

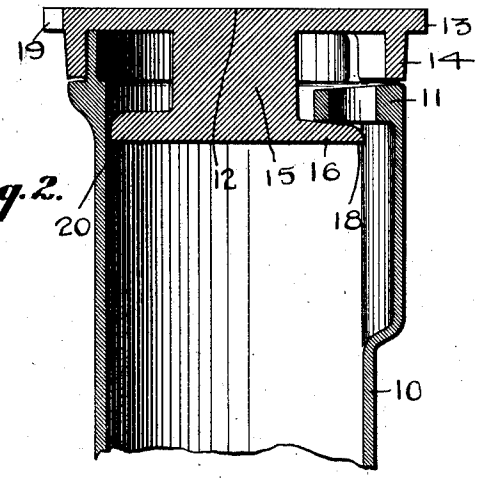

Fig. 2.

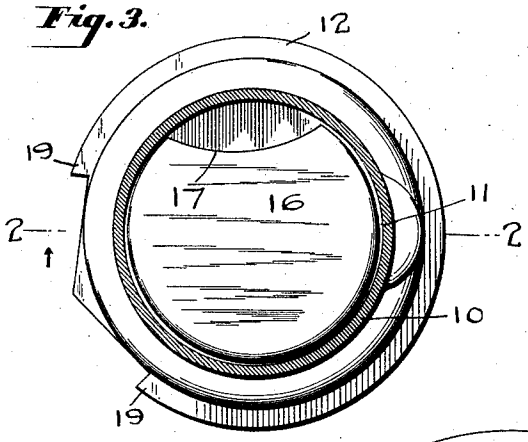

Fig. 3.

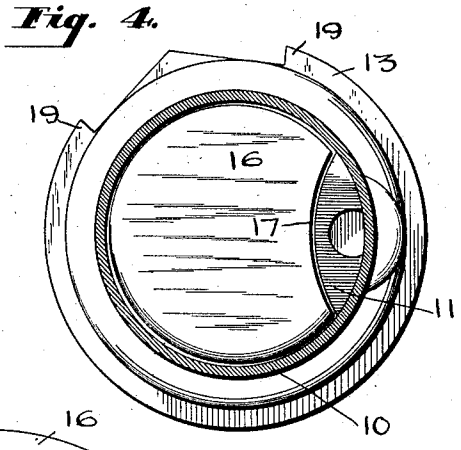

Fig. 4.

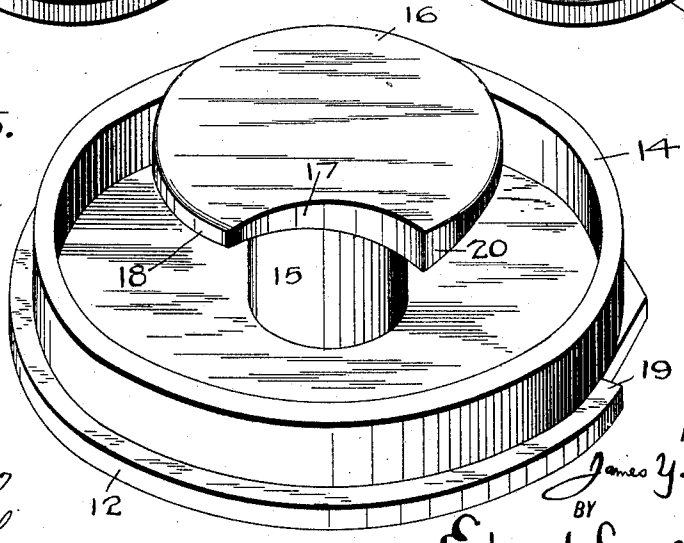

Fig. 5.

WITNESSES

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CAP-CLOSURE FOR PIPES AND THE LIKE.

1,044,235. Specification of Letters Patent. Patented Nov. 12, 1912.

Application filed March 12, 1912. Serial No. 683,252.

To all whom it may concern:

Be it known that I, JAMES Y. PATTERSON, a citizen of the United States, and a resident of the city of Pittsburgh and State of Pennsylvania, have invented certain new and useful Improvements in Cap-Closures for Pipes and the Like, of which the following is a specification.

This invention relates to closing devices for the ends of pipes, stop boxes and the like.

The principal object of the invention is to provide a closing cap for replacing damaged caps of a variety of different makes of stop boxes in common use.

I have illustrated one application and embodiment of my invention in the accompanying drawings, in which—

Figure 1 is a side elevation of a pipe or stop box end provided with my cap and locking device; Fig. 2 is a vertical section thereof; Fig. 3 is an interior view, taken on the line 3—3 of Fig. 1 and looking upward, showing the cap in its locked position; Fig. 4 is a similar view but showing the cap in its unlocked position; and Fig. 5 is a perspective view on an enlarged scale of the cap, showing the same turned bottom upward.

In the embodiment of my invention shown in the accompanying drawings, the same is shown in combination with an end of a pipe or stop box such as is commonly used in cities for inclosing the ends of gas and water pipes. It will be understood that while the invention is particularly adapted for use in connection with such stop boxes, it may also be used for closing any open pipe end or the like which is adapted to receive my improved cap.

In the accompanying drawings, the stop box end is indicated by 10, which shows such a device in the form that it is usually employed for the purpose above mentioned, and which is usually found provided at its upper end with a lug projecting laterally inward, which lug is designated in the drawings by the reference figure 11. In stop boxes as usually employed, this lug is provided with a perforation which is internally screw threaded, and when a cap is placed upon the end of the box, said cap having also a perforation, which is made to register with the perforation in the lug, a screw-threaded bolt may be passed through the perforation in the cap and screwed into the perforation in the lug, thus securing the cap in place. The objection to this means of closure is that after a short time the bolt and the lug rust together, and when the bolt is unscrewed in order to remove the cap, the screw threads in the lug are broken away and destroyed, so that the cap cannot again be secured with the bolt as before. The screw-threaded perforation in the lug and the bolt used in connection therewith form no part of my invention, but the lug itself (designated 11 in the drawings) I utilize as a part of the means for securing or locking my improved cap, as hereinafter described.

The cap or closure constituting this embodiment of my invention is shown enlarged in Fig. 5, in upside down position, and is shown *in situ* on the stop box in Figs. 1 and 2. It will be seen that this cap comprises a top 12 provided with a downwardly extending flange 14 which is adapted to embrace the upper end of the stop box as shown more particularly in Fig. 2. The cap is also provided with a peripheral flange 13 which may be formed by an extension of the top 12 beyond the dependent flange 14. The top 12 is provided with a dependent neck 15 which has at its lower end a cam disk 16. This cam disk has a peripheral recess 17 which enables it to clear the lug 11 of the stop box in applying or removing the cap. This disk is provided on its upper face at or near its outer edge with an elongated inclined cam surface which enables it to engage the lugs of different makes of the ordinary stop boxes, such lugs being usually of different heights where made by different manufacturers. To effect this elongated incline, the disk is preferably gradually increased in thickness.

The cap is provided with suitable means for turning it to tighten or loosen it in its application to or removal from the stop box or the like. The means shown for this purpose comprise an obtuse angled notch in the peripheral flange 13 forming a finishing shoulder 19 at one end facing in the direction of the locking turn of the cap and a releasing shoulder 19′ at the opposite end of said notch facing in the direction of the releasing turn of the cap. These shoulders

provide means for the engagement of a wrench and also afford a bearing for a percussive blow which is especially useful in starting the cap to release it in case of corrosion.

The operation of my invention is as follows: In order to close the stop box 10, the cap is turned into the position shown in Fig. 4, so that the concavity 17 in the disk 16 is contiguous to the internally projecting lug 11, and the cap is then lowered upon the top of the stop box, the disk 16 clearing the lug at the concavity 17 and passing down below the said lug. The cap is then rotated over the top of the stop box, the rotation being where the disk is of the form shown in the accompanying drawings, in a clockwise direction, so that the thin edge 18 of the disk 16 passes under the lug 11, and the rotation is continued until the disk 16 is wedged firmly under the lug 11. In applying the caps to stop boxes already in use a slight turn of the cap will be sufficient to permit a locking connection between the cam disk and the lug 11, the wedging action taking place near the thin edge of said disk. In other makes of such stop boxes where the lug 11 is higher, further turns are necessary, in some cases bringing the highest point of the cam surface in contact with the lug. I have found in practice that the application of a moderate rotational force to the cap is sufficient to so firmly wedge the same in place that it cannot be released without the application of a considerable force, and in most cases it will be found necessary to strike the releasing shoulder 19′ with a hammer or otherwise start the cap around in order to release the same. As soon as the cap has been turned in the reverse direction sufficiently to bring the concave segment 17 opposite to the lug 11, the cap can of course be lifted off from the stop box.

One of the advantages of my invention is that it is not rendered inoperative by rust and the like. Even if the disk 16 and the lug 11 should become rusted together after some time, they are easily broken apart by a hammer blow as above described. Should the disk 16 or the lug 11 or both be eaten away by rust even to a considerable extent, the cap may still be secured, as it is only necessary to rotate the same farther around than would otherwise be the case; and should the disk 16 or the lug 11 become thickened by any deposit thereon or should either of said devices be bent out of place in either direction, the cap may still be locked in place, the only difference being that a greater or less degree of rotation as the case may be is required in order to arrive at the locking position.

Other advantages of my invention will be obvious from what has been above said.

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

1. The combination with a stop-box or the like, provided with a single internal laterally projecting lug, the lower surface of which is in a plane at right angles to the axis of the stop box; of a cap adapted to close said stop box provided with a neck integral with said cap and extending downwardly from the central portion of the same, said neck bearing at its lower end a wedge-shaped disk provided with a recess adapted to clear said lug when the cap is placed upon the stop box, said disk being adapted to pass under said lug when the cap is rotated and thereby to secure the cap to the stop box.

2. The combination of a stop box or the like provided with an internal lateral lug, and a closing cap comprising a top plate, a tubular flange united therewith adapted to engage the stop box, a dependent neck integral with said top plate and a cam disk on said neck adapted to engage said lug and provided with a recess adapted to clear said lug in applying and removing the cap, said cap being provided with a peripheral flange having a shoulder facing the locking turn of the cap and adapted to receive a percussive blow for imparting a finishing turn for the locking action of the cap.

3. The combination of a stop box or the like provided with an internal lateral lug, and a closing cap comprising a top plate, a tubular flange united therewith adapted to engage the stop box, a dependent neck integral with said top plate and a cam disk adapted to engage said lug and provided with a recess adapted to clear said lug in applying and removing the cap, said cap being provided with a peripheral flange having a notch facing the releasing turn of the cap and forming a shoulder adapted to receive a percussive blow for releasing the cap.

4. The combination of a stop box or the like provided with an internal lateral lug, and a closing cap comprising a top plate, a tubular flange united therewith adapted to engage the stop box, a central dependent neck integral with said top plate and a cam disk adapted to engage said lug and provided with a notch adapted to clear said lug in applying and removing the cap, said cap being provided with a peripheral flange having a notch forming oppositely faced shoulders adapted to receive percussive blows for locking and releasing the cap.

5. A stop box closing cap for replacing damaged caps of ordinary stop boxes provided with lugs comprising a top plate, a tubular flange united therewith adapted to engage the stop box, a central neck dependent from said plate, and a cam disk at the end of said neck adapted to engage the lug

of the ordinary stop box and provided with a peripheral notch to clear said lug, substantially as and for the purpose set forth.

6. A stop box closing cap for replacing damaged caps of a variety of ordinary stop boxes provided with lugs, comprising a top plate, a neck dependent from said plate, and a cam disk on said neck having an elongated inclined cam surface on its upper edge adapted to engage lugs of different heights on stop boxes and provided with a peripheral notch to clear such lugs in applying and removing the closing cap from the stop box.

7. A stop box closing cap for replacing damaged caps of a variety of ordinary stop boxes provided with lugs, comprising a top plate provided with means dependent therefrom for engaging the stop box, a neck dependent from said plate, and a cam disk on said neck having an elongated inclined cam surface on its upper face adapted to engage lugs of different heights on such stop boxes and provided with a peripheral notch to clear such lugs in applying and removing the closing cap from the stop box.

8. A stop box closing cap for replacing damaged caps of a variety of ordinary stop boxes provided with lugs, comprising a top plate provided with a shoulder for a percussive blow, a neck dependent from said plate, and a cam disk on said neck having an elongated inclined cam surface on its upper face adapted to engage lugs of different heights on such stop boxes and provided with a peripheral notch to clear such lugs in applying and removing the closing cap from the stop box.

9. A stop box closing cap for replacing damaged caps of a variety of ordinary stop boxes provided with lugs, comprising a top plate provided with shoulders facing in opposite directions for percussive blows, a neck dependent from said plate, and a cam disk on said neck having an elongated inclined cam surface on its upper face adapted to engage lugs of different heights on such stop boxes and provided with a peripheral notch to clear such lugs in applying and removing the closing cap from the stop box.

10. A stop box closing cap for replacing damaged caps of a variety of makes of ordinary stop boxes provided with lugs, comprising a top plate, a neck dependent from said plate, and a cam adapted to clear the lug of the stop box in capping and uncapping such stop box and provided with an elongated curved cam surface adapted to engage the underside of such lug whether it be located somewhat higher or lower in the box.

11. A stop box closing cap for replacing damaged caps of a variety of makes of ordinary stop boxes provided with lateral lugs, comprising a top plate provided with means dependent therefrom for engaging the stop box, a neck dependent from said plate, and a cam adapted to clear the lug of the stop box in capping and uncapping such stop box and provided with an elongated curved cam surface adapted to engage the underside of such lug whether it be located somewhat higher or lower in the box.

In witness whereof I have hereunto signed my name this 8th day of March 1912, in the presence of two subscribing witnesses.

JAMES Y. PATTERSON.

Witnesses:
EDMOND CONGAR BROWN,
AGNES L. CLUNE.