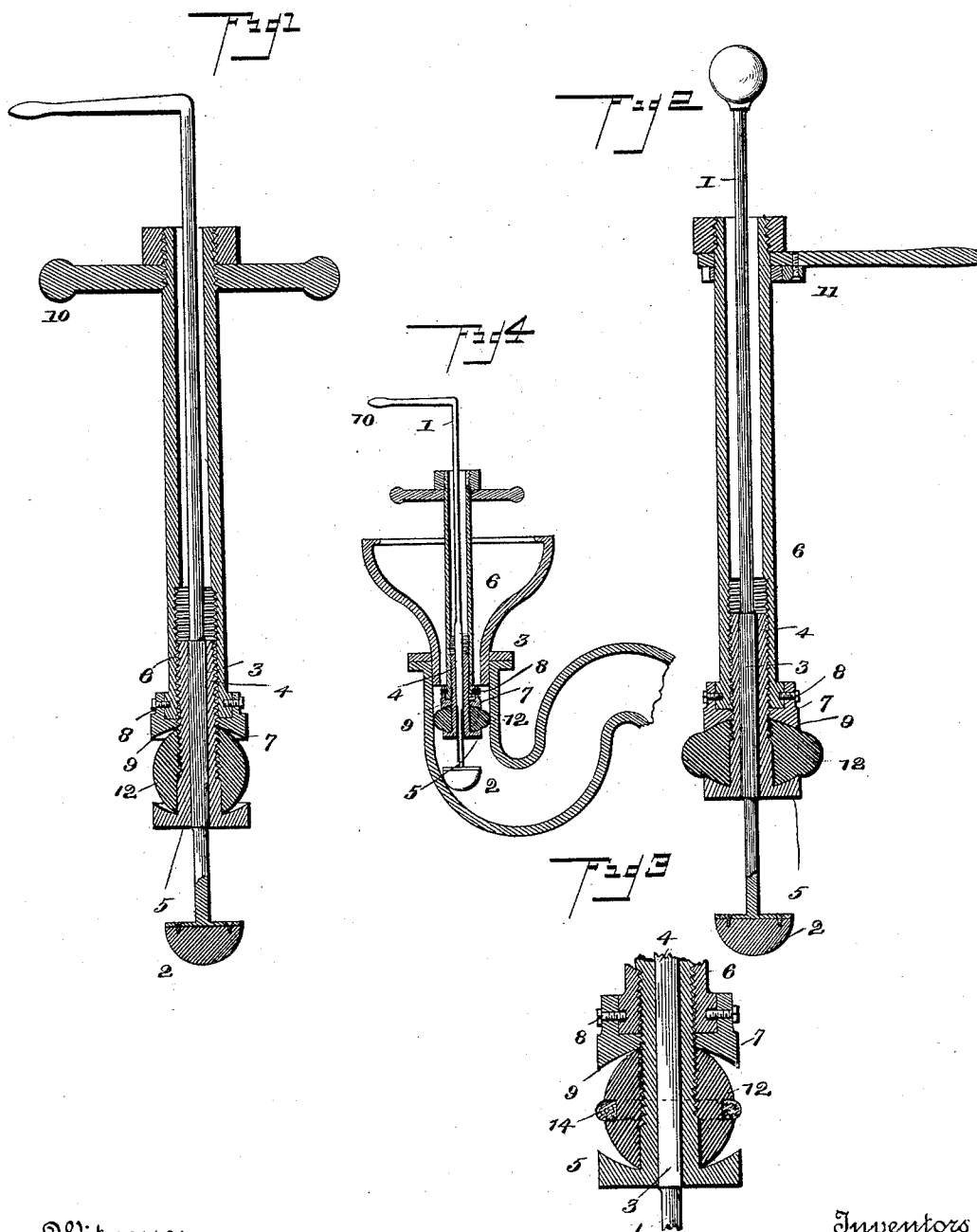


(No Model.)

J. A. & M. COLE.
DEVICE FOR CLEARING SEWER PIPES.

No. 460,350.

Patented Sept. 29, 1891.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN A. COLE, OF LAUREL, MARYLAND, AND MARCELLUS COLE, OF WASHINGTON, DISTRICT OF COLUMBIA.

DEVICE FOR CLEARING SEWER-PIPES.

SPECIFICATION forming part of Letters Patent No. 460,350, dated September 29, 1891.

Application filed October 13, 1890. Serial No. 367,985. (No model.)

To all whom it may concern:

Be it known that we, JOHN A. COLE, a citizen of the United States, residing at Laurel, Prince George's county, Maryland, and MARCELLUS COLE, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Plungers for Clearing Sewer-Pipes and Water-Closets and for other Purposes; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention is in the nature of a plunger with an expansible head, intended, primarily, for use in clearing the traps below the bowls of water-closets, but which may also be used for many other purposes, notably for cleaning guns and pipes of all sizes; and it has for its object to furnish such an instrument of improved construction and extended usefulness.

The invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described, and afterward specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical section through a structure made in accordance with our invention, the parts being in position for insertion into the device to be cleared. Fig. 2 is a similar view of such a structure with the ball extended by compression and provided with a ball instead of a handle and a ratchet-lever instead of a rigid handle. Fig. 3 is a sectional detail view showing our invention as adapted for use in cleaning gun-barrels, tubes, &c. Fig. 4 is a sectional view showing the application of our invention to the clearing of the trap of a closet.

Like numerals of reference mark the same parts wherever they occur in the various figures of the drawings.

Referring to the drawings by numerals, 1 is a central stem or bar provided at its upper end with a suitable handle or ball to be grasped by the hand and a padded or rubber-

cushioned lower end, as at 2. This stem has an angular portion 3 (the rest of it being round) of a size to loosely fit a similarly-shaped hole through the center of a sleeve 4, so that the sleeve may be moved readily up and down on the stem; but at the same time one cannot be turned on its axis without causing the other to turn also. This sleeve 4 is screw-threaded exteriorly, and has at its lower end a flange 5, which is cup-shaped on its upper side, as shown.

6 is a long sleeve centrally bored and having a head 7 swiveled to its lower end by means of a groove in the periphery of the sleeve and set-screws 8 passing through head 7. The head is provided with a cupped flange 9, corresponding with cupped flange 5 on sleeve 4, before described. This long sleeve is provided with an interior thread to engage the exterior thread of sleeve 4. Upon the upper end of the sleeve 6 is a handle for the purpose of turning it, which may be a rigid handle, as at 10 in Fig. 1, or a double ratchet-lever, as at 11 in Fig. 2. This latter construction is used when the plunger is in a position to prevent the use of a rigid handle, such as by the side of a wall, in a corner, &c.

12 is a ball of rubber bored centrally to permit it to be placed on the stem 1. It is to be clamped between the cupped flanges 5 and 9, so that when the sleeve 6 is turned on sleeve 4 the ball will be compressed and expanded laterally, so that it will project beyond the periphery of the flanges, as shown in Fig. 2.

To adapt our invention to the cleaning of gun-barrels or tubes, the ball may be circumferentially grooved, as in Fig. 3, and a ring of emery 14 inserted, as shown in both of said figures. This emery always projects beyond the periphery of the ball, whether compressed or not, and will be used when polishing or cleaning the interior of gun-barrels, tubes, &c.

The manner of operating our device for clearing a water-closet trap is shown in Fig. 4, in which 15 represents the bowl, and 16 the trap. The bottom of the bowl sets in the trap and is generally of a diameter of about three inches. Being generally made of a brittle substance and of a varying diameter, the plunger cannot be worked successfully in the stem of the bowl and must be put through it and

worked in the trap below. It is first passed down through the stem of the bowl, so that the head is in the trap, as shown, the cushion resting against the trap and serving to prevent fracture thereof, the trap being made of terra-cotta or porcelain. The operator then grasps the handle of stem 1 in one hand, which prevents the lower sleeve 4 from turning, and with his other hand turns the sleeve 6, using either the rigid handle or the double ratchet-lever, as the case may be, so that the cupped washer on sleeve 6 approaches that on sleeve 4, compressing and expanding the ball until it fits the trap-pipe, as shown. Then he presses down on stem 1 and moves the handle of sleeve 6 up and down, thus causing the head to act as a piston in the trap and loosen up and force out the matter with which it has become clogged or stopped, the cushion preventing the lower metallic sleeve from striking and fracturing the trap and the stem acting as a guide to the sleeves. The operation of cleaning a gun-barrel or tube is substantially the same.

The ball may be made of rubber or any other suitable elastic material.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. In combination with a stem having a suitable handle, a threaded sleeve mounted to move longitudinally thereon, a second sleeve threaded to engage the threads of the first and also mounted around the stem, and a ball of elastic material mounted around the stem between the two sleeves, as set forth.

2. In combination with a stem having a suit-

able handle and a padded or cushioned lower end, a threaded sleeve mounted to move longitudinally thereon, a second sleeve threaded to engage the threads of the first and also mounted around the stem, and a ball of elastic material mounted around the stem between the two sleeves, as set forth.

3. In combination with a stem having a suitable handle, exteriorly-threaded sleeve mounted to move longitudinally and held from turning thereon, a second sleeve mounted around the stem, having an interior thread to engage the aforesaid exterior thread and free to turn on the stem, and an elastic ball mounted around the stem between the sleeves, as set forth.

4. In combination, the stem having a suitable handle, the lower sleeve mounted to slide but held from turning on the stem, the upper sleeve threaded on the lower sleeve and provided with a swiveled head, and an elastic ball mounted between said sleeves, as set forth.

5. In combination, the stem having a handle at its upper end and its lower portion angular in cross-section, a threaded flanged sleeve having corresponding bore and mounted to slide on said lower portion, a second threaded sleeve mounted on the first sleeve, having a handle at its upper end, and an elastic ball between the flanges of the sleeves, as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JNO. A. COLE.
MARCELLUS COLE.

Witnesses:

SHIPLEY BRASHEARS,
A. W. BELL.