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E. VON BON HORST ET AL

2,279,769

PIPE CLEANER CLAMP

Filed Sept. 27, 1940

Fig. 1.

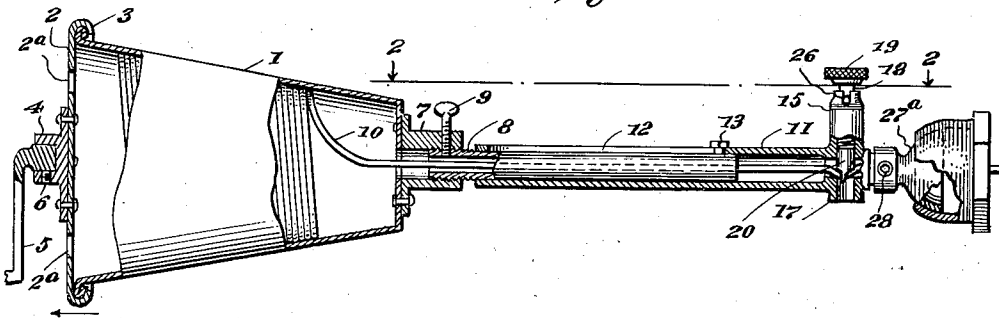


Fig. 2.

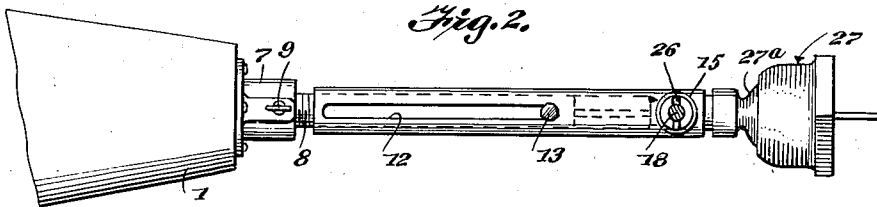


Fig. 3.

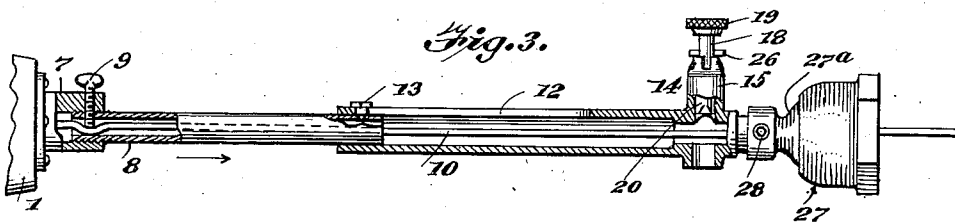


Fig. 4.

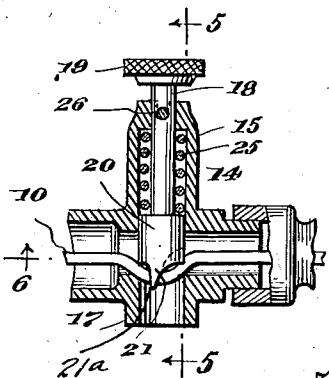


Fig. 5.

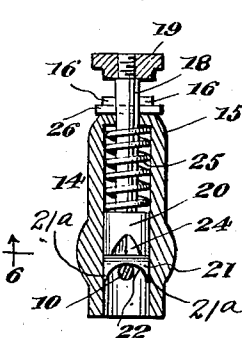


Fig. 6.

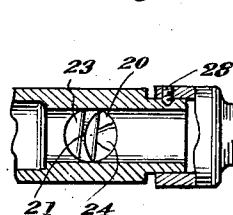
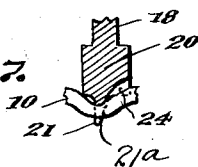


Fig. 7.



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UNITED STATES PATENT OFFICE

2,279,769

PIPE CLEANER CLAMP

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Application September 27, 1940, Serial No. 358,718

2 Claims. (Cl. 24—263)

This invention relates to a sanitary drain pipe cleaner.

An object of the invention is the provision of simple and efficient means for cleaning a drain pipe.

Another object of the invention is the construction of novel means for feeding a flexible element through the apparatus, either when the operator is starting to remove the obstruction in the drain pipe, or when he wishes to remove the flexible element from the drain pipe and store it in the container of the apparatus.

A still further object of the invention is the construction of a novel gripping device for operating upon the flexible element, in an apparatus constructed in accordance with our invention.

This application discloses improvements upon the apparatus illustrated and described in our prior co-pending application, Serial Number 323,483, filed March 11, 1940, now Patent No. 2,237,880, granted April 8, 1941.

With the foregoing and other objects in view, the invention comprises certain novel constructions, combinations, and arrangements of parts as will be hereinafter fully described, illustrated in the accompanying drawing and more particularly pointed out in the appended claims.

In the drawing:

Figure 1 is a view partly in side elevation and partly in longitudinal section of an apparatus constructed in accordance with the present invention.

Figure 2 is a plan view taken on line 2—2 Figure 1, and looking in the direction of the arrows.

Figure 3 is a view partly in elevation and partly in longitudinal section of the apparatus, showing the primary and auxiliary tubes in an extended position.

Figure 4 is an enlarged fragmentary sectional view of the apparatus, showing particularly the flexible-element gripping-device.

Figure 5 is a sectional view taken on line 5—5, Figure 4, and looking in the direction of the arrows.

Figure 6 is a sectional view taken on line 6—6, Figure 4, and looking in the direction of the arrows.

Figure 7 is a fragmentary view of the gripping device and the flexible element, showing particularly the head of the bolt of the gripping device.

Referring to the drawing, in which the preferred embodiment of the invention is shown, 1 designates a container on which a cap 2 is secured by crimping said cap at 3 upon the con-

tainer; this produces an inexpensive manner of securing, as well as a very secure fastening. A socket plate 4 is suitably secured to cap 2 and a handle 5 is secured at one end in said socket plate 4 by means of a set screw 6, Fig. 1.

Secured to the inner end of container 1 is a sleeve 7. A primary tube 8 is preferably threaded into sleeve 7, and is secured against accidental displacement by means of set screw 9. This set screw 9 extends at its inner end into the primary tube 8, whereby the inner end of set screw 9 can clamp upon the flexible element 10. This flexible element 10 is commonly called by the trade, "a snake." It is to be understood that we use the term "tube" in this specification and the following claims, in a broad sense, meaning any kind of a suitable pipe or hollow unit. The flexible element 10 is usually coiled within the container 1.

An auxiliary tube or pipe 11 is slidably mounted upon the primary tube 8. The tube 11 is provided with an elongated slot 12, and a pin or screw 13 travels in slot 12 and is secured to the primary tube 8; this pin 13 limits the sliding movement of the auxiliary tube 11 upon the primary tube 8.

On the auxiliary tube 11 is a flexible-element gripping device 14. This gripping device 14 comprises an integral outstanding casing 15 which is partly closed at its outer end, and on this end are two notches 16. On the auxiliary tube 11, and extending from the opposite side to the casing 15, is an outwardly-extending sleeve 17; this sleeve 17 registers transversely with the casing 15. A sliding bolt 18 is mounted in casing 15, and on its outer end is threaded a grip 19; the bolt 18 is also provided on its inner end with a cylindrical-like head 20. Head 20 is provided on its outer end with an integral socket element 21 which element 21 is provided in its outer face with a socket 22 that is adapted to receive the flexible element 10; socket 22 constitutes straddling means (Figs. 4, 5 and 7). To enable the flexible element 10 to fit the socket element 21, cut-away portions 23 and 24 are provided on the head, at opposite side of the socket element. A coil spring 25 is in casing 15, around the bolt 18. One end of coil spring 25 bears against the partly closed outer end of casing 15 and its other end bears against the head 20, Figs. 4 and 5. This spring 25 normally holds the bolt 18 and its head 20 in an extended position. A pin 26 extends through bolt 18 and it normally is seated in the notches 16. When the operator pulls outwardly upon the grip 19, the spring 25 will be

compressed and the pin 26 will be permitted to move out of the notches 16 and rest upon the extreme outer end of the casing 15 as clearly shown in Figure 3. The sleeve 17 permits the bolt 18 and its head 20 to be removed from the apparatus, or placed therein, as the operator desires. To remove the bolt from the apparatus all that is necessary is to first remove grip 19 and pin 26, whereupon the bolt is free to slide out of the casing and the registering sleeve.

The peculiar construction of the head 20 and the socket element 21 enables the apparatus to efficiently grip the flexible element 10. When gripping the flexible element, as shown in Figures 1 and 4, the extreme end of the socket element 21 will extend partly down into the sleeve 17. This causes a slight crimp on the flexible element, which more securely binds the element temporarily in a fixed position upon the auxiliary tube 11.

A swivel unit 27 is fastened by a set screw 28 upon the outer end of the auxiliary tube 1. The application and operation of this swivel unit is specifically disclosed in our prior application, Serial Number 323,483, hereinbefore mentioned.

When it is desired to force the flexible element 10 into a waste pipe or a sewer or the like, the set screw 9 is screwed inwardly, causing its inner end to clamp the flexible element 10, as shown in Figure 3. Then the flexible element can be pushed forward into the sewer or waste pipe, the length of the primary 8. When the pin 13 strikes the inner end of slot 12, the "stroke" of the apparatus is completed, then the gripping device is released, permitting the head and its socket element to clamp the flexible element (Fig. 1), to hold the flexible element in its extended position within the waste pipe. Then the container 1 is drawn outwardly, to cause the primary tube 8 to move to the position shown in Figure 3. Then set screw 8 is turned inwardly to clamp the flexible element, whereupon the bolt 8 is drawn outwardly to release the flexible element, and then the container and primary tube is shoved inwardly to the position shown in Figure 1. This procedure is followed until sufficient amount of the flexible element is extended into the waste pipe to enable the operator to remove the obstruction.

The flexible element 10 can be rotated or twisted within the waste pipe by the operator, turning the handle 5, whereby the container and its tubes 8 and 11, as well as swivel section 27a, rotate at the will of the operator. In other words, the whole apparatus can be revolved bodily, for the working efficiently of flexible element or wire in order to clean the drain pipe or waste pipe. Further, it is to be understood that by means of the swivel unit 27, the apparatus can be worked at an angle, with respect to the waste pipe or drain pipe to which the swivel unit is fastened.

Our apparatus is very sanitary, in that the hands of the operator do not come at any time in contact with the soiled flexible element 10. By reason of the construction it is of a safety nature, in that the operator does not become infected, which often times happens as a result of handling soiled pipe cleaners.

The socket or straddling means 21 has legs 21a that extend down beyond opposite sides of the flexible element 10; said legs 21a extend into the sleeve 17 efficiently holding the flexible element 10 in a clamped position.

While we have described the preferred embodiment of our invention and illustrated same in accompanying drawing, certain changes or alterations may appear to one skilled in the art to which this invention relates, during the extensive manufacture of same, and we, therefore, reserve the right to make such changes or alterations as shall fairly fall within the scope of the appended claims.

The cap 2 is provided with ventilating apertures 2a, Fig. 1.

What we claim is:

1. In an apparatus of the class described, the combination of a tube provided with an up-standing casing and a depending sleeve on said tube registering with and below said casing, a plunger-bolt extending into said casing and provided on its inner end with a head, said head provided with means including the legs straddling a flexible element, cut-away portions on said head for receiving portions of a flexible element, and said legs being adapted to extend into said sleeve, when said head is pressing upon a flexible element.

2. In a sanitary drain pipe cleaner, the combination of a tube provided with an outwardly-extending casing and with an outwardly-extending sleeve registering with said outwardly-extending casing, a bolt partly in said casing and partly extending beyond the outer end, said casing being partly closed at its outer end and provided with notches on its outer end, said bolt being provided with a transversely-extending pin adapted to be seated in said notches, said bolt provided with a head on its inner end, a coil spring around said bolt within said casing, one end of said spring bearing upon said head and its other end bearing against a portion of the outer end of said casing, said head being provided on its outer end with a transverse flexible element receiving socket, said head being cut away on opposite sides contiguous to said socket and at right angles to said socket, said cut-away portions registering with said socket, and said socketed portion of said head being adapted to extend into said sleeve when said pin is in said notches.

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