May 5, 1931. J. A. CUNNINGHAM 1,803,425

NOZZLE

Filed Jan. 16, 1930

Fig. 1.

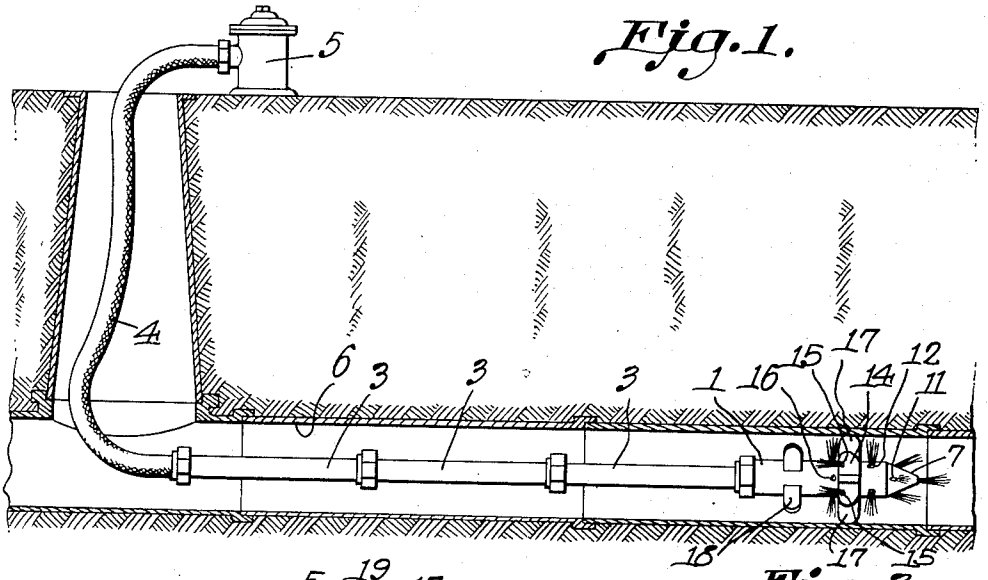


Fig. 2.

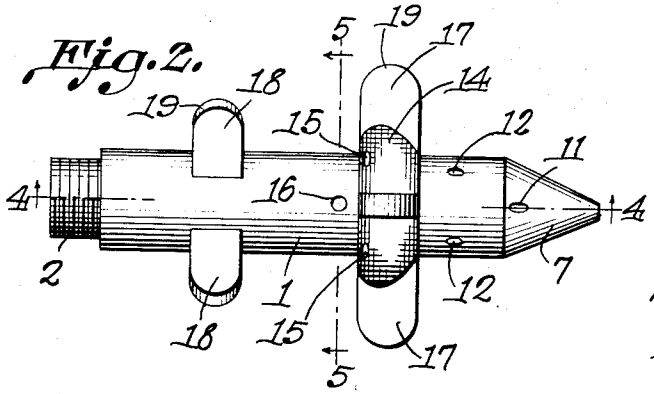


Fig. 3.

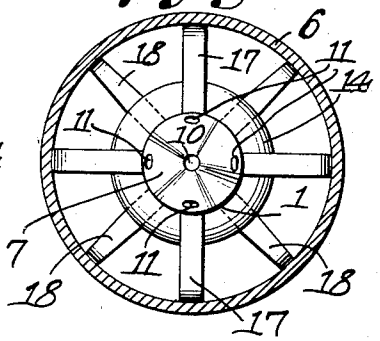


Fig. 4.

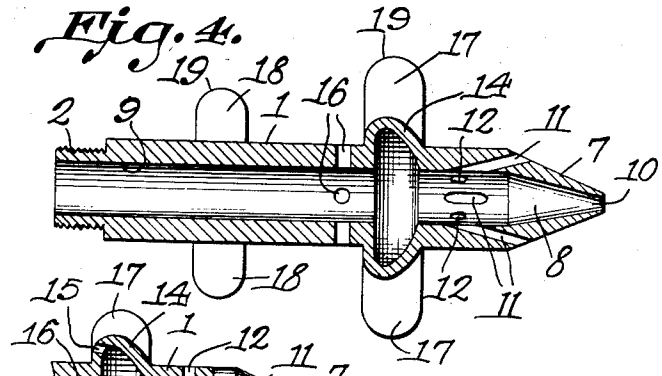


Fig. 5.

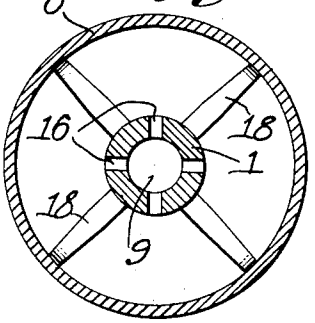


Fig. 6.

John A. Cunningham Inventor

By Cachow & Co.

Attorneys.

Patented May 5, 1931

1,803,425

UNITED STATES PATENT OFFICE

JOHN A. CUNNINGHAM, OF BETHLEHEM, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO MARY CUNNINGHAM, OF PHILADELPHIA, PENNSYLVANIA

NOZZLE

Application filed January 16, 1930. Serial No. 421,249.

This invention aims to provide a novel nozzle, adapted to be forced through a sewer or other pipe that has been clogged up, in order to effect a removal of the obstruction. The invention aims to provide novel means for supporting the nozzle, and to provide novel means for directing the water as it comes out of the nozzle, so that the obstruction will be dislodged, and carried backwardly or forwardly, depending upon whether the resistance is greater ahead or behind.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that sort to which the present invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes may be made in the precise embodiment of the invention herein disclosed, within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:

Figure 1 shows in side elevation, the device forming the subject matter of this application mounted in a sewer, the sewer and attendant parts being in section;

Figure 2 is an elevation of the nozzle;

Figure 3 is a front view of the nozzle;

Figure 4 is a longitudinal section of the nozzle;

Figure 5 is a cross section on the line 5—5 of Figure 2;

Figure 6 is a fragmental longitudinal section taken in a slightly different plane from the cutting plane of Figure 4.

The nozzle forming the subject matter of this application preferably is made of metal throughout. It includes a tubular body 1 which is threaded at its rear end, as shown at 2, or otherwise constructed, so that it can be joined to short sections 3 of pipe which, in their turn, are connected to a hose 4 receiving water from a hydrant 5, the nozzle being moved through a sewer 6 to remove an obstruction in the sewer.

Although the device, in Figure 1, has been shown as applied to a sewer, it will be understood that it may be used anywhere, in private houses, or at any other place, to wash out an obstruction in a pipe.

The main bore of the nozzle is marked by the numeral 9 and has a tapered axial extension 8 located in the tapered forward end 7 of the body 1 and forming a reduced outlet 10 at the extreme end of the part 7.

The body 1 is provided with outwardly inclined passages 11 opening through the side wall of the tapered end 7 of the body. Behind the passages 11, the body has openings 12 which are arranged in alternating order with respect to the passages 11, circumferentially of the body.

The body 1 has a hollow circumscribing bead 14, which, like the passages 11 and the openings 12, communicates with the bore 9. Openings 15 are formed in the rear wall of the bead 14 the openings 15 discharging rearwardly and outwardly.

There are radial openings 16 in the body 1, behind the bead 14. Arms 17 project radially from the bead 14, and arms 18 project radially from the body 1, at a point to the rear of the bead 14. The arms 18 alternate with the arms 17 circumferentially of the body.

The arms 17 and 18 are of the proper length, as shown in Figures 3, 2, 5, and 4, so that they will cause the nozzle to travel straight through the center of a round pipe. The ends of the arms are rounded, as shown at 19, so as to pass readily over minor irregularities that are found on the inner surface of the sewer.

Water is discharged through the bore 9 from the sections 3 of pipe, and from the hose 4, or otherwise, and shoots straight ahead, in a strong stream, out of the outlet 10. It is discharged sidewise and ahead through the passages 11, and sidewise through the openings 12. The water that flows rearwardly through the openings 15 in the bead 14 tends to keep the material loose, and may carry the material rearwardly, and the water that flows outwardly through the openings 16 loosens the material about the arms 17 and enables them to move freely and readily along the

sewer 6, as the nozzle is shoved forward. The nozzle is so made that it will wash the dirt ahead, if it is possible for the dirt to go ahead, and will wash the dirt back, if the pipe is so tightly clogged that the dirt has to be washed back to get rid of it.

What is claimed is:

In a device of the class described, a nozzle having a tapered forward end, the nozzle being provided with a bore which forms an outlet at the extremity of the tapered end, the nozzle having a hollow circumferential bead located to the rear of the tapered end, there being outwardly inclined passages in the tapered end, in front of the bead, outwardly discharging openings in the nozzle in front of the bead and behind said passages, and alternating with said passages, circumferentially of the nozzle, rearwardly-discharging openings in the bead, and outwardly discharging openings in the nozzle, behind the bead, the body having outwardly extended supporting arms, the passages and the openings communicating with the bore.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

JOHN A. CUNNINGHAM.