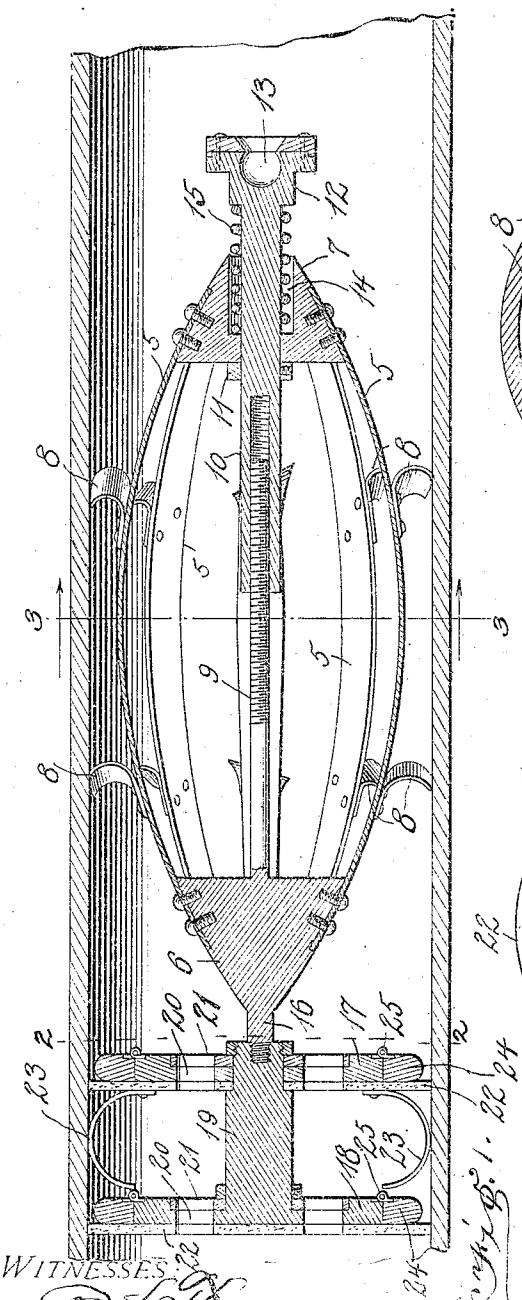
H. A. GREENAN & F. O. REDFORD.

CLEANER FOR MAINS AND PIPES.

APPLICATION FILED DEC. 19, 1908.

928,863. Patented July 20, 1909.



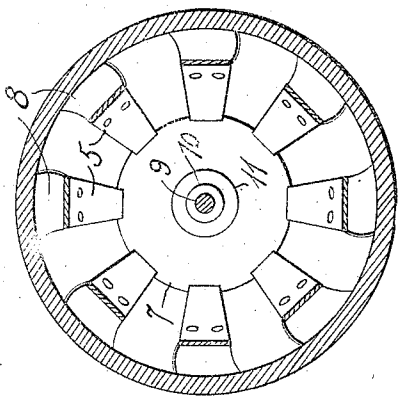


Fig. 3.

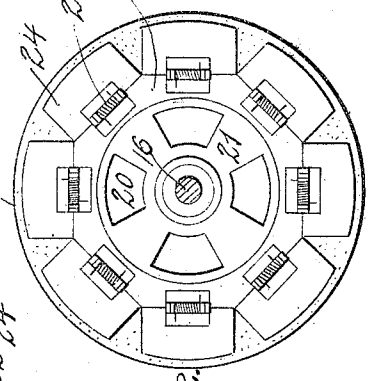


Fig. 2.

Fig. 1.

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HUGH A. GREENAN AND FRANK O. REDFORD, OF LOUISVILLE, KENTUCKY, ASSIGNORS TO AMERICAN WATER MAIN CLEANING AND CONTRACTING CO., OF LOUISVILLE, KENTUCKY.

CLEANER FOR MAINS AND PIPES.

No. 928,863. Specification of Letters Patent. Patented July 20, 1909.

Application filed December 19, 1908. Serial No. 468,274.

To all whom it may concern:

Be it known that we, HUGH A. GREENAN and FRANK O. REDFORD, citizens of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Cleaners for Mains and Pipes, of which the following is a specification.

This invention is an appliance for cleaning out water and other mains or pipes which may have become foul or obstructed by incrustations, sediment, or other substances; and more particularly in appliance of this kind which is operated by the pressure within the main or pipe.

The object of the present invention is to provide a cleaner of the kind stated which will readily adapt itself to bends or angles in the main or pipe, and also one which will pass openings in the main or pipe without danger of sticking or getting caught, and which will pass rigid obstructions without injury.

With the foregoing objects in view, as well as others which will be apparent when the invention is better understood, the same consists in the construction and arrangement of parts hereinafter described and claimed, reference being had to the drawing hereto annexed, in which:—

Figure 1 is a longitudinal sectional view of the appliance in position within a main or pipe. Fig. 2 is a transverse section on the line 2—2 of Fig. 1. Fig. 3 is a transverse section on the line 3—3 of Fig. 1.

In the drawing, 5 denotes a series of longitudinal resilient strips which are secured at their ends to conoidal blocks 6 and 7, respectively, whereby a structure is had which is tapered at its ends. To the outer surface of each strip is secured a pair of scraper blades 8 having their scraping edges curved to conform to the inner surface of the main or pipe to be cleaned. The blades are presented in opposite directions, and are set on the strips to extend obliquely with respect to the axis of the main or pipe.

An adjustable connection for the blocks 6 and 7 is provided, said connection comprising a screw-threaded spindle 9 extending rearwardly from the center of the inner end of the block 6, in the direction of the block 7, in which latter block is a central longitudinal bore, in which is mounted a stem 10 having a threaded bore into which the spindle screws. The stem projects from both ends of the block 7, the threaded bore being in that end of the stem which projects from the inner end of the block, said end extending in the direction of the block 6, and also being provided with a collar 11 which abuts against the inner end of the block 7. The stem fits loosely in the bore of the block 7 so that the latter is free to slide back and forth thereon, and said stem is also rotatable in the bore of the block. The other end of the stem is provided with a head 12 having a socket 13 for a purpose to be presently described. The outer end of the block 7 has a central recess 14 through which the stem 10 passes, and coiled around the stem, between the head 12 and the inner end of the recess, is a spring 15 which normally holds the block 7 pressed against the collar 11, said spring opposing the movement of the block in a direction away from the block 6.

By reason of the herein-described connection between the blocks 6 and 7, it will be seen that when the stem 10 is rotated, the blocks will approach each other, or recede, according to the direction in which the stem is rotated, and as the strips 5 are resilient, they will be spread or contracted, thus moving the scraper blades 8 outwardly or inwardly, whereby they are adjusted to the diameter of the main or pipe to be cleaned, and by these means we are also able to regulate the degree of pressure the scraper blades exert on the inner surface of the main or pipe. By making the block 7 slidable on the stem 10, the scraper blades are permitted to yield when they encounter a rigid obstruction, so that they may pass over the same without injury, and when the obstruction is passed, the spring 15 restores the parts to their normal position.

From the front end or apex of the block 6 projects a short stem 16 which is threaded to screw into a disk 17. In front of this disk, and spaced a suitable distance therefrom, is a second disk 18, the two disks being connected by a stem 19. Each disk has a series of openings 20, which are controlled by a rotatable damper 21. To the back of the disks are secured leather or other flexible packing washers 22 to render the same water-tight, said washers having a greater diameter than the disks, so as to project beyond

the peripheries thereof. The washers also have openings which register with the openings of the disks. It will be understood that the pressure of the water or other fluid in the main or pipe against the disks forces the appliance therethrough, the disks operating as the pistons of an engine. By the dampers 21 the area of the openings 20 may be varied according to the pressure in the main or pipe. With a high pressure the dampers are set to uncover a large area of the openings, and with a low pressure the openings are partly or entirely covered.

Two disks are employed to prevent the appliance from getting caught in passing side openings in the main or pipe. To further guard against this, we mount spring strips 23 on the disk 17, said strips extending in an outward curve in the direction of the disk 18. The periphery of each disk is made up of hinged sections 24, in order that the disks may pass rigid obstructions. A spring hinge 25 is provided for said sections in order that they may be restored to their normal position after the obstruction is passed.

The socketed head 12 is for the purpose of enabling two or more of the appliances to be coupled together.

The appliance herein described is simple in structure, has no complicated parts to get out of order, and it effectually serves the purpose for which it is intended.

We do not limit ourselves to details of operation or construction as shown, as these may be modified in many particulars without departing from the spirit of our invention.

We claim:—

In a cleaner for mains and pipes, a scraping member; a pair of pistons connected thereto for propelling the same, said pistons being located in close proximity to each other; and outwardly bowed springs fastened at one end to one of the pistons, and having their free ends in engagement with the other piston.

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

HUGH A. GREENAN.
FRANK O. REDFORD.

Witnesses:
H. MENEBROKER,
E. SANDERS.