

H. A. GREENAN & F. O. REDFORD.
 CLEANER FOR MAINS AND PIPES.
 APPLICATION FILED MAY 20, 1909.

957,051.

Patented May 3, 1910.

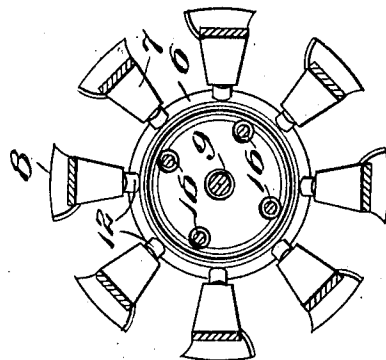
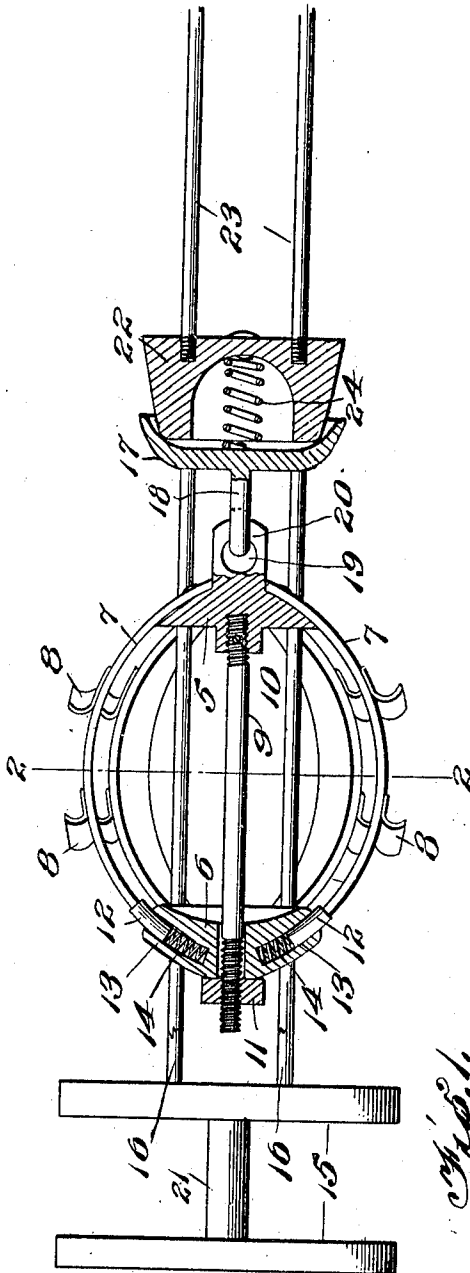


Fig. 2.

Fig. 1.

Witnesses
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UNITED STATES PATENT OFFICE.

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TO AMERICAN WATER MAIN CLEANING AND CONTRACTING CO., OF LOUISVILLE,
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CLEANER FOR MAINS AND PIPES.

957,051.

Specification of Letters Patent.

Patented May 3, 1910.

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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 water and other mains or pipes which may have become foul or obstructed by incrustations, sediment, or other substances; and more particularly an appliance of this kind which is operated by the pressure within the main or pipe against a piston to which a scraper member is connected.

It is the object of the present invention to connect the scraper member to the propelling piston in such a manner that said member is pulled through the main or pipe, instead of being pushed therethrough, thus avoiding the tendency of the appliance to buckle or double up.

Another object is to provide an improved scraper member, constructed so as to readily pass rigid obstructions without danger of being injured.

With the foregoing objects in view, the invention consists in a novel construction and arrangement of parts to be hereinafter described and claimed, reference being had to the drawing hereto annexed forming a part of this specification, in which drawing,

Figure 1 is a longitudinal sectional view of the appliance. Fig. 2 is a transverse section on the line 2—2 of Fig. 1.

In the drawing, 5 and 6 denote respectively front and rear end blocks, to which are connected, at their ends, longitudinal resilient strips 7 carrying scraper blades 8. The end blocks are connected by a spindle 9 which screws into the block 5, and is rigidly secured thereto by a pin 10. The spindle passes loosely through a central longitudinal bore made in the block 6, and is screw threaded to receive a nut 11 which screws against the rear end of the block 6. The block 6 is thus free to be slid back and forth on the spindle, whereby the strips 7 are bowed outwardly more or less, and thereby adjusted to properly fit in the main or pipe. The nut 11 holds the block 6 at adjustment.

The parts herein described form the scraper member. The end blocks are conoidal in shape, whereby a structure is had

which is tapered at its ends. The scraper blades 8 have their scraping edges curved to conform to the inner surface of the main or pipe. The blades are also presented in opposite directions, and are set on the strips to extend obliquely with respect to the axis of the main or pipe.

The ends of the strips 7 which are connected to the rear end block 6, are fitted with stems 12 which extend loosely into sockets 13 in said block. In these sockets are mounted coiled springs 14 bearing on the stems 12. This arrangement provides an independent yielding connection between each strip and the rear end block, which enables the scraper member to pass rigid obstructions with the greatest facility, as only the strip carrying the scraper blade which encounters the obstruction yields, the other strips not being affected.

At 15 are indicated the pistons for propelling the scraper member through the main or pipe. Two pistons, suitably spaced apart, are provided in order to prevent the appliance from getting caught when passing side openings in the main or pipe. To the piston nearest the scraper member are rigidly secured stems 16 which project forwardly from the piston in the direction of the scraper member and past the same to a point a short distance in advance thereof. The stems pass loosely through openings in the blocks 5 and 6, and extend between the strips 7 so as not to interfere with the herein described operation thereof. In front of the scraper member, the stems 16 carry a cross head 17, having a rearwardly extending hook 18 which is engageable with an eye 19 in a stem 20 projecting forwardly from the block 5.

By the herein described connection between the piston and the scraper member, it will be evident that the scraper member is pulled through the main or pipe, instead of being pushed therethrough, which effectually prevents the member from buckling or doubling up, and as the connection between the piston and the member is a loose one, the latter is free to shift as a whole, and thus follow bends or curves in the pipe. The two pistons are connected by a stem 21, or any other suitable means.

In order that a number of the herein described appliances may be coupled in series, there is provided a block 22 which is con-

nected to the cross head 17. To this block
 are fastened stems 23 adapted to be connect-
 ed to one of the pistons of the other ap-
 pliance, or to the scraper member thereof
 5 in the same manner as the connection al-
 ready described. The cross head is cup-
 shaped, and the block 22 is shaped to fit in
 the concavity thereof, whereby a flexible
 joint between said parts is had, which per-
 10 mits the several appliances to readily pass
 bends or curves in the main or pipe. The
 connection between the cross head 17 and the
 block 22 is made by means of a coiled spring
 24 secured at its ends to said parts. The
 15 end of the block 22 opposite the cross head
 has a recess to receive the spring.

By the structure herein described a simple
 and efficient cleaning appliance is had, and
 although the preferred form of appliance
 20 has been shown, it will be understood that
 various changes in the structure and in the
 arrangement of the several parts may be
 resorted to without departing from the spirit
 or scope of the invention, as for instance, a
 25 flexible joint can be placed between the pis-
 ton and the first scraper member.

We claim:

1. A cleaner for mains and pipes com-
 prising resilient strips, scraper blades
 30 mounted on the strips, a block to which one
 of the ends of the strips are fastened, a stem
 on the other ends of the strips, a block hav-
 ing sockets into which the stems loosely ex-
 tend, springs seating in the sockets and bear-
 35 ing on the stems, and a connection between
 the blocks.

2. A cleaner for mains and pipes com-
 prising resilient strips, scraper blades
 40 mounted on the strips, a block to which the
 strips are fastened at one of their ends, a
 block for securing the other ends of the
 strips, and means for independently and
 yieldingly connecting said ends of the strips
 to the last-mentioned block.

45 3. A cleaner for mains and pipes com-

prising a scraper member, a piston for pro-
 pelling the same, said piston being located
 to the rear of said member, stems project-
 ing from the piston in advance of the mem-
 ber, and a connection between the outer ends 50
 of the stems and the member.

4. A cleaner for mains and pipes com-
 prising a scraper member, a piston for pro-
 pelling the same, said piston being located
 to the rear of said member, stems project- 55
 ing from the piston in advance of the mem-
 ber, a cross head carried by the stems in
 front of the member, and a connection be-
 tween the cross head and the member.

5. A cleaner for mains and pipes com- 60
 prising a scraper member, a piston for pro-
 pelling the same, said piston being located
 to the rear of said member, stems project-
 ing from the piston in advance of the mem-
 ber, a cross head carried by the stems in 65
 front of the member, and a hook on the
 cross head connected to the front end of the
 member.

6. A cleaner for mains and pipes com-
 prising a scraper member, propelling means 70
 therefor, a cup-shaped member carried by
 the propelling means, a block seating in the
 cup-shaped member, a flexible connection be-
 tween said block and cup-shaped member,
 and means for connecting a second scraper 75
 member to the block.

7. A cleaner for mains and pipes com-
 prising a scraper member, a piston for pro-
 pelling the same, said piston being located
 to the rear of said member, and a loose con- 80
 nection between the piston and the front end
 of the member.

In testimony whereof we affix our signa-
 tures in presence of two witnesses.

HUGH A. GREENAN.
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Witnesses:

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 F. AXTON.