

H. SIEBEN & W. J. STEVENSON.

SEWER CLEANER.

APPLICATION FILED DEC. 31, 1910.

1,065,735.

Patented June 24, 1913

3 SHEETS—SHEET 1.

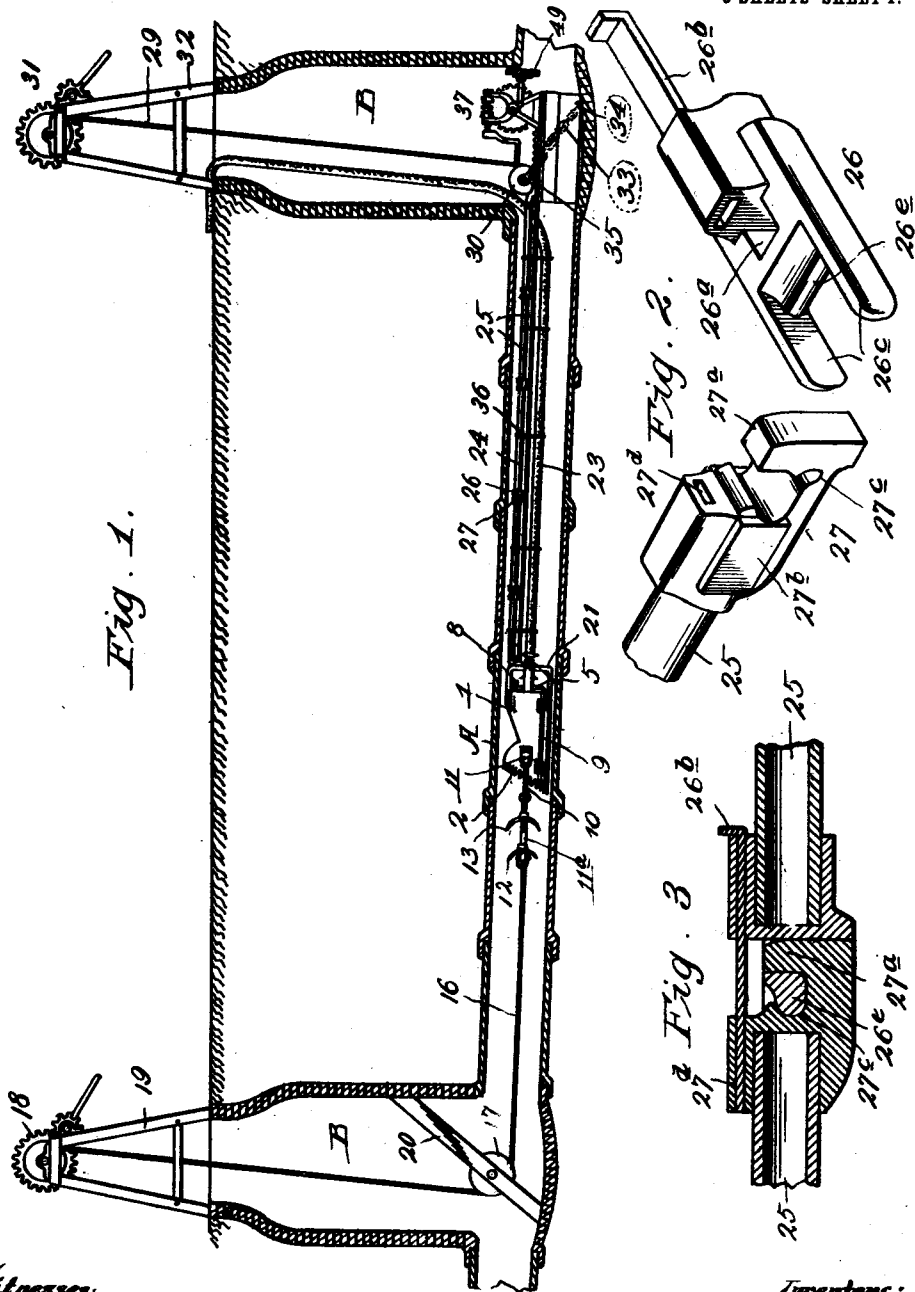


Fig. 1.

Fig. 2.

Fig. 3.

Witnesses:
R. Hamilton
E. C. Lillian.

Inventors:
H. Sieben,
and W. J. Stevenson,
By F. G. Fischer, atty.

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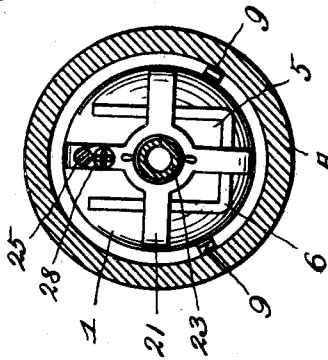
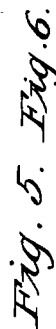
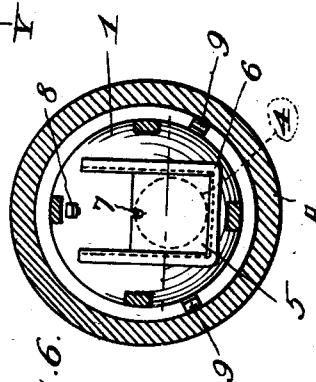
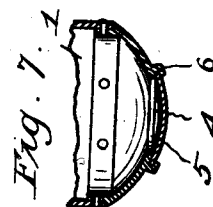
Patented June 24, 1913.

3 SHEETS—SHEET 2.



R. Hamilton.

E. C. Lillian



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3 SHEETS—SHEET 3.

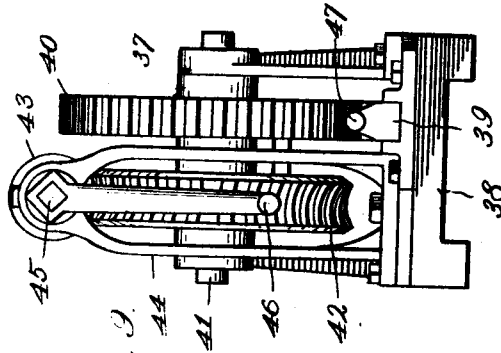


Fig. 9.

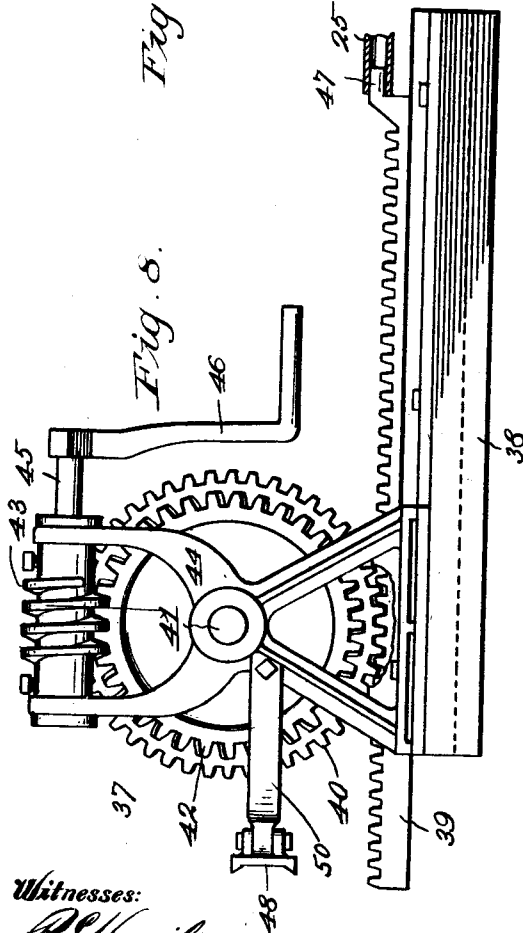


Fig. 8.

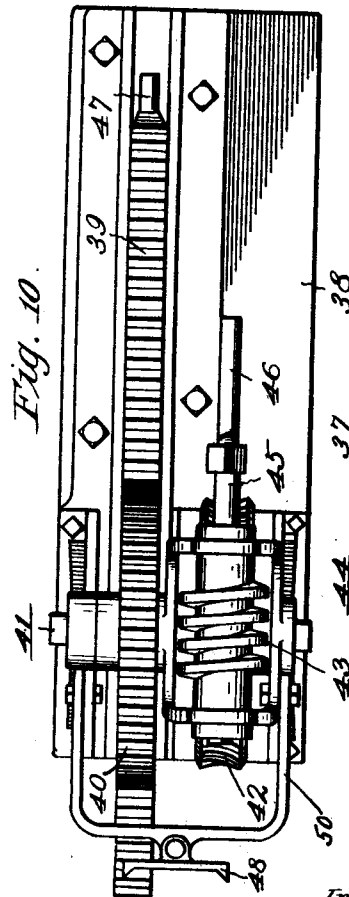


Fig. 10.

Witnesses:

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UNITED STATES PATENT OFFICE.

HENRY SIEBEN AND WILLIAM J. STEVENSON, OF KANSAS CITY, MISSOURI, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO THE TURBINE SEWER MACHINE RENOVATING COMPANY, OF MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN.

SEWER-CLEANER.

1,065,735.

Specification of Letters Patent.

Patented June 24, 1913.

Application filed December 31, 1910. Serial No. 600,294.

To all whom it may concern:

Be it known that we, HENRY SIEBEN and WILLIAM J. STEVENSON, citizens of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Sewer-Cleaners, of which the following is a specification.

Our invention relates to improvements in sewer cleaners and our object is to provide simple means which can be readily forced or drawn through a sewer clogged with sand, gravel, mud or vegetation.

In the accompanying drawings which illustrate the preferred form of our invention: Figure 1 shows our improved apparatus in position in a sewer, the latter being in vertical longitudinal section. Fig. 2 shows two members of a coupling, disconnected, employed in carrying out the invention. Fig. 3 is a central longitudinal section of said coupling connected. Fig. 4 is an enlarged longitudinal section of a portion of the apparatus in position in a sewer, the latter also being in longitudinal section. Fig. 5 is a cross section on line V—V of Fig. 4. Fig. 6 is a cross section on line VI—VI of Fig. 4. Fig. 7 is a broken cross section of the rear end of a scoop employed in carrying out the invention. Figs. 8, 9 and 10 are side, end and plan views, respectively, of a power device for forcing the scoop through a sewer.

A, designates a sewer having the customary manholes B, whereby access may be had thereto.

1 designates a scoop adapted to be drawn or pushed through the sewer to cleanse the same of any foreign matter lodged therein. Scoop 1 is armed at its forward open end with a circular row of serrations 2, to cut away foreign matter lodged within the sewer. Said scoop is also provided at its front upper portion with a spreader 3 and at its rear end with an inlet 4, normally closed by a door 5 mounted in grooved guides 6 on the back of the scoop. The upper central portion of door 5 has a slot 7 to receive a set screw 8, the head of which is adapted to engage said door and hold the same in open position.

9 designates a pair of runners secured to scoop 1 to space the same a slight distance from the bottom of the sewer to protect

said scoop from wear, and to allow water to flow between the exterior of the scoop and the interior of the sewer.

10 designates a bail pivotally-secured to a pair of ears 11 fixed to opposite sides of the scoop. Bail 10 is provided with a centrally-disposed link 11^a upon which are mounted two cutters 12 and 13 having radial blades 14 and 15.

Link 11^a has an eye 15^a at its front end to which one end of a cable 16 is attached. Said cable runs around a guide sheave 17 and up to a windlass 18 mounted upon a frame 19 adapted to be placed over one of the manholes B, as shown in Fig. 1. Sheave 17 is mounted in a portable brace 20, adapted when in position, to engage the bottom of the sewer and one side of the adjacent manhole.

21 designates a spider at the rear side of scoop 1 and provided with a flaring mouthed nozzle 22, adapted to be coupled at its rear end to a hose 23, running through one of the manholes and connected to a hydrant, not shown.

24 designates a jointed push-bar for shoving the scoop through the sewer. Said push-bar comprises a series of sections 25, each of which has a coupling-member 26 at one end and a coupling-member 27 at its opposite end, so that sections may be quickly added as the scoop is advanced through the sewer. Coupling 26 has an opening 26^a, a sliding bolt 26^b, a pair of jaws 26^c, and a tongue 26^e between said jaws. Coupling 27 has a head 27^a to enter opening 26^a, a pair of cheeks 27^b for abutment against jaws 26^c, a recess 27^c to receive tongue 26^e and an opening 27^d to receive bolt 26^b, whereby the two coupling-members are held in bolted position.

The foremost section 25 is fixed to the rear end of spider 2, by an eye-bolt 28 to which the forward end of the cable 29 is attached, said cable running rearward around a guide sheave 30 to a windlass 31, mounted upon a frame 32, adapted to be placed over the adjacent manhole B, as shown in Fig. 1. Sheave 30 is held in position by a chain 33 attached at its ends to an eye-bolt 34 in the bottom of the sewer, and a clevis 35 on the axle of sheave 30.

36 designates a plurality of hangers whereby the horizontal portion of hose 23

is suspended from the push-bar 24 to prevent said hose from sagging down into contact with the bottom of the sewer.

37 designates a power device for shoving the push-bar 24 and scoop 1 through the sewer. Said power device comprises a base 38 adapted to rest upon the bottom of the sewer, a rack-bar 39 slidably-mounted upon said base, a cog-wheel 40 intermeshing with the rack-bar 39 and fixed to a shaft 41, a worm-wheel 42 fixed to shaft 41, a worm 43 intermeshing with worm-wheel 42, standards 44 fixed to base 38, in which a shaft 45 carrying worm 43 is journaled, and a crank 46 to rotate shaft 45. The forward terminal of rack-bar 39 is provided with a lug 47 on which the rear ends of sections 25 can be quickly placed as they are added one at a time to the push-bar 24. The power device 37 is prevented from being pushed backward by the resistance offered to the advance of scoop 1 through the intermediacy of a dog 48 bearing against a plank 49 placed transversely in the sewer. Dog 48 is pivotally-connected to a clevis 50 secured to standards 44.

Whenever it is possible to float a cable through the sewer from one manhole to another, we prefer to do this, as a cable, such as 16, affords the most convenient means of conducting the scoop 1 through the sewer. However, should the sewer be clogged so that it is impossible to float a cable there-through, we employ the push-bar 24, adding sections 25 thereto as the scoop is advanced. In either case we prefer to employ the cable 29, so that should the scoop become filled with rocks or other insoluble substances, said scoop can be drawn backward and dumped at the manhole over which windlass 31 is placed. To avoid unnecessary return trips of scoop 1, door 5 is opened and a stream of water is discharged into the scoop to wash sand, mud and the like, therefrom. A portion of the water discharged from nozzle 22, impinges against the rear curved end of the scoop and is deflected thereby against the top of the sewer, to cleanse the same. The

greater portion of the water striking the top of the sewer is deflected against the spreader 3, which again deflects it against the upper portion of the sewer to initially cleanse the same. When the push-bar 24 is employed to force the scoop through the sewer, cutters 12 and 13 are removed, but when cable 16 is used to draw the scoop through the sewer, the cutters are utilized to loosen the foreign matter so that the same can be washed away by the water discharged around the scoop from nozzle 22.

Having thus described our invention what we claim and desire to secure by Letters Patent, is:

1. In an apparatus of the character described, a receptacle adapted to traverse a sewer and having an opening at its rear end, a nozzle adapted to discharge water through the said opening, and provided with a hose connection, a door to normally close the opening in the rear of the receptacle, runners on the receptacle to carry the same, and means to conduct the receptacle through the sewer.

2. In an apparatus of the character described, a receptacle adapted to traverse a sewer and provided at its forward end with a spreader, means for discharging water around said receptacle and against the spreader thereof, and means to conduct said receptacle through the sewer.

3. In an apparatus of the character described, a receptacle adapted to traverse a sewer and having an opening at its rear end, means to conduct said receptacle through the sewer, a door to close the opening at the rear of the receptacle, a spider at the rear end of the receptacle, and a nozzle carried by said spider and having a hose connection at its rear end.

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

HENRY SIEBEN.

WILLIAM J. STEVENSON.

Witnesses:

F. G. FISCHER,

E. C. LILLIAN.