No. 789,940. PATENTED MAY 16, 1905.

R. SHANNON.

SEWER CLEANING DEVICE.

APPLICATION FILED SEPT. 16, 1904.

2 SHEETS—SHEET 1.

Fig. 1

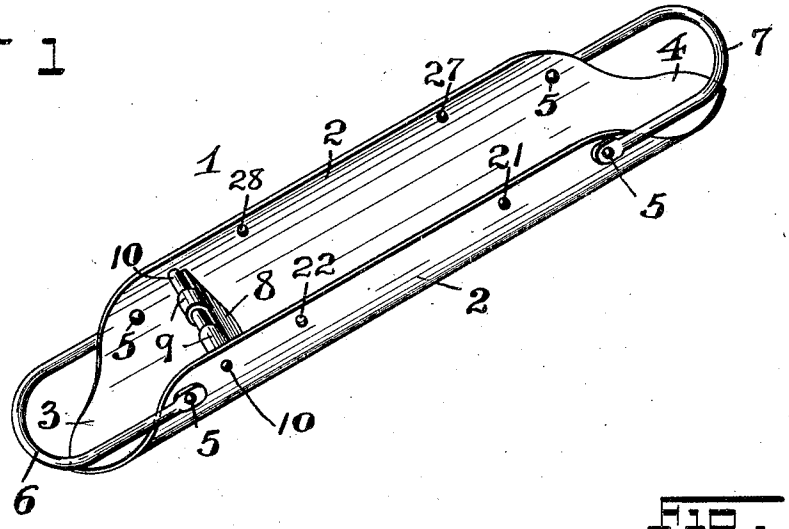
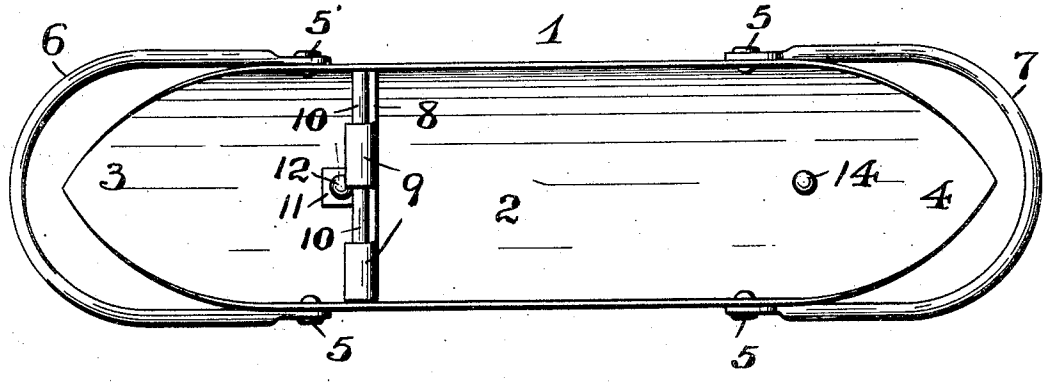
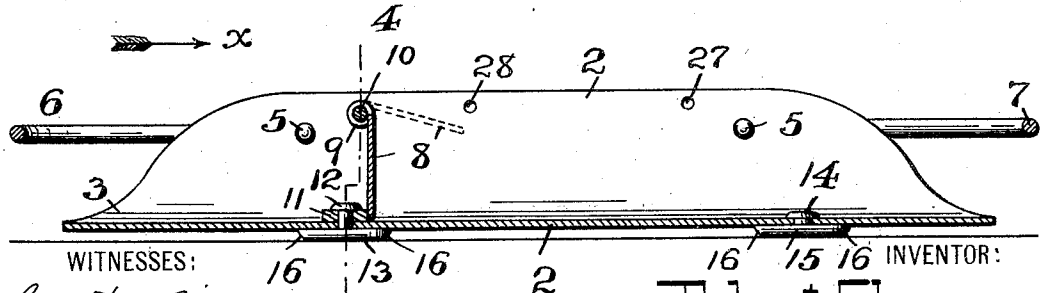


Fig. 2





WITNESSES:

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Mary Cooper

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Fig. 3

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Fig. 4

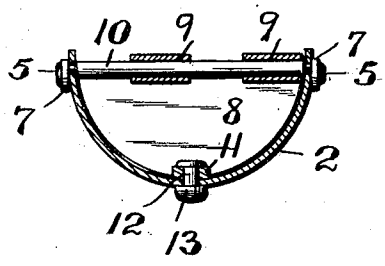
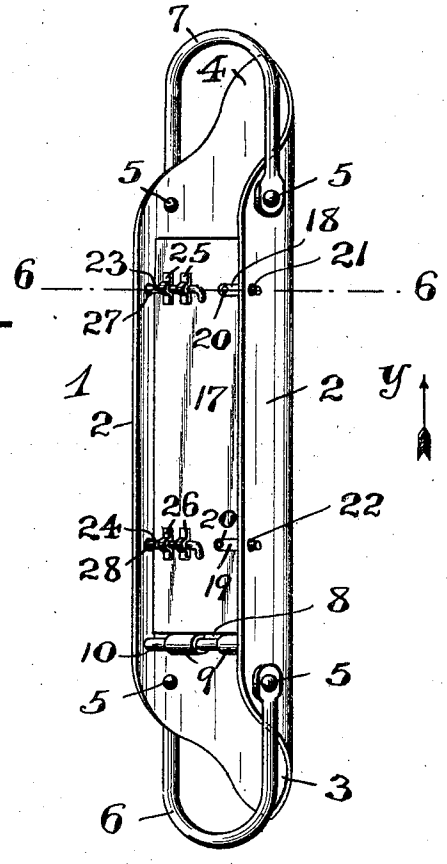


Fig. 5



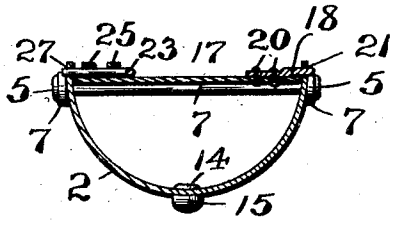


Fig. 6

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No. 789,940. Patented May 16, 1905.

UNITED STATES PATENT OFFICE.

ROBERT SHANNON, OF JERSEY CITY, NEW JERSEY.

SEWER-CLEANING DEVICE.

SPECIFICATION forming part of Letters Patent No. 789,940, dated May 16, 1905.

Application filed September 16, 1904. Serial No. 224,641.

To all whom it may concern:

Be it known that I, ROBERT SHANNON, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Sewer-Cleaning Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The present invention relates to that class of devices used for the purpose of cleaning sewers, conduits, and work of a similar character; and the invention has for its principal object to provide a device which will effectually remove from sewers, conduits, and the like all kinds of accumulation, whether it be mud, sand, stones, or other debris.

A further object of this invention is to provide a device of the character hereinafter set forth which after collecting the accumulation of soil and other obstructions within the sewer, conduit, or the like may be turned into a bucket to be hoisted up through a manhole and emptied, thus doing away with the necessity of using other receptacles to raise the mud, sand, and other debris to the surface of the street, whereby much time and labor is saved in the operation of sewer-cleaning.

To accomplish the various objects of my invention and hereinabove more particularly mentioned, I have devised a trough-shaped bucket or scoop, preferably in the form of a half-cylinder, having an open top and provided at one or both of its ends with a scoop-shaped charging or cutting end to enable the device to collect the debris when pulled through the sewer or conduit preferably in either direction.

A still further object of this invention is to provide a sewer-cleaning device of the character hereinafter set forth having one or more forwardly-projecting and sharp scoop-shaped charging or cutting ends pointed at their lowest portions, so as to be capable of readily forcing or cutting its way through the mud and dirt in the sewer or conduit and to more readily scoop up the same and deposit it in the receiving-body of the cleaning device.

A further object of this invention is to provide with the sewer-cleaning device an inwardly-swinging gate or door at one end of the device which acts as a bucket-bottom and together with a detachably-arranged cover converts the said device when filled with debris into a bucket for removing said debris to the surface of the street and by quickly removing the said cover which forms the side of the bucket being enabled to readily dump the sticky mud and dirt from the cleaning device.

A still further object of this invention is to provide a reciprocable cleaning device having two sharp and scoop-shaped ends, one of which I will term the "forward" end and the other the "rear" end of the device, the said device being provided with an inwardly-swinging gate or door located at a point some distance back of the said rear scoop-shaped end, said door and rear end being arranged to provide an auxiliary and smaller scoop than the main scoop or body of the device with a view of permitting a reciprocatory movement of the main device in opposite directions and for short distances when it is desired to loosen a hardened deposit, that any matter that may be deposited upon said auxiliary scoop will not affect the relatively closed position of the said gate or door.

With these various objects of my present invention in view the said invention consists, primarily, in the novel construction of sewer-cleaning device hereinafter set forth; and, furthermore, this invention consists in the various arrangements and combinations of parts, as well as in the details of the construction of the same, all of which will be fully described in the accompanying specification and then finally embodied in the clauses of the claim which are appended to and form an essential part of this specification.

The invention is clearly illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the sewer-cleaning device with the detachable cover removed when used in the operation of collect-

ing the debris while being drawn through the sewer or conduit. Fig. 2 is a plan view of the same, and Fig. 3 is a longitudinal vertical section taken on line 3 3 in said Fig. 2. Fig. 4 is a transverse vertical section taken on line 4 4 in said Fig. 3 looking in the direction of the arrow *x*. Fig. 5 is a perspective view of the sewer-cleaning device with the detachable cover in its position as used when converting the device into a bucket for removing the debris to the surface of the street. Fig. 6 is a vertical cross-section taken on line 6 6 in said Fig. 5 looking in the direction of the arrow *y*.

Similar characters of reference are employed in all of the said above-described views to indicate corresponding parts.

Referring now to the said drawings, the reference character 1 indicates the complete novel construction of sewer-cleaning device involving the principles of my present invention having a trough-shaped or other similarly-shaped receiving body portion 2, made, preferably, of sheet metal, the same being provided at its forward end with a scoop-shaped charging or cutting end or member 4, at its rear end being preferably provided with a similar scoop-shaped charging or cutting end or member 3, each end or ends being made, preferably, to project forwardly and having a sharp cutting-point at the lowest point of each cutting end or member adapted to cut and scoop or scrape up the mud, sand, stones, and other obstructions or debris usually found in sewers and conduits when the device is drawn through the said sewer or conduit. Secured at each end of the said trough-shaped body 2 by means of pivotal bolts or pins 5 are suitably-constructed draft-links 6 and 7, to which ropes or cables, by means of which the device may be drawn through the sewer or conduit, are attached. Situated at or near one end of the said body portion 2 and some distance back of said rear charging or cutting end 3 is a swinging gate or door 8, provided with hinge members or eyes 9, said gate or door 8 swinging on a pintle or cross-bar 10, secured between the walls of the said trough-shaped body 2, said rear end 3 and the gate or door 8 providing a small auxiliary scoop to the larger scoop formed by the main body 2, as will be clearly evident from an inspection of the drawings. To prevent the gate or door 8 from swinging in an outward direction and to support the weight of the debris when the cleaning device is converted into a bucket or receptacle for removing the scooped-up debris to the surface of the street, a stop member or nut 11 is provided, the same being secured at the bottom of the body portion 2 by means of a rivet member 12 or other suitable means of fastening. There may also be secured to the outer bottom of the said trough-shaped body portion 2 a pair of shoes or skates 13 and 15, respectively, provided with rivet members 12 and 14 or other suitable fastening means by means of which said shoes or skates 13 and 15 are fastened in their operative positions upon the said bottom of the trough-shaped body portion 2. The purpose of the said shoes or skates 13 and 15 is to raise the scoop-shaped charging or cutting ends 3 and 4 sufficiently above the inner bottom surface of the sewer so as to clear laps or joints of the pipe-sections comprising the sewer or conduit when the sewer-cleaning device 1 is drawn through the sewer or conduit. The said shoes or skates 13 and 15 are provided with rounded or chamfered ends 16, thus permitting the sewer-cleaning device to easily ride over the laps or joints of the sewer-pipe sections without causing injury to the said pipe-sections, as will be clearly evident.

After the sewer-cleaning device 1 has been drawn through a portion of the sewer or conduit and has collected the debris lying in its path I have provided a detachable cover 17, which is to be fitted upon the trough-shaped body portion 2 for the purpose of converting the said sewer-cleaning device into a bucket or receptacle, as clearly indicated in said Fig. 5 of the drawings, for raising the debris so collected to the surface of the street. The said detachable cover 17 is provided, preferably, with a pair of fixed bolts or pins 18 and 19, secured thereto by means of rivets 20 or in any other suitable manner. The said bolts or pins 18 and 19 are inserted in receiving openings or holes 21 and 22, formed in the one side of the body portion 2. Upon the opposite side of the said detachable cover 17 are a pair of movable bolts 23 and 24, slidably arranged in suitably-disposed holding or retaining loops 25 and 26, substantially as illustrated. When the cover is brought in its attached relation with the sewer-cleaning device 1, the said movable bolts 23 and 24 are shot into their respective receiving openings or holes 27 and 28, formed in the opposite side of the said trough-shaped body portion 2 of the sewer-cleaning device 1, thereby completely locking and holding the said cover 17 detachably in its attached relation with the said trough-shaped body of the sewer-cleaning device. It will thus be readily understood that the said sewer-cleaning device 1 with the load of collected dirt and other debris may be drawn up through the manhole of the sewer or conduit to the level of the street and there quickly emptied by the easy removal of the said cover 17 from the trough-shaped body 2 to more readily permit of the usually sticky mass being dumped from the body of the said sewer-cleaning device. The said sewer-cleaning device may again be lowered into the sewer or conduit with the detachable cover removed and again drawn through the sewer to collect the debris, which is then removed from the sewer in the

manner above stated, this operation being repeated until the section of sewer is thoroughly cleaned of all dirt, stones, and other obstructions, whereupon the operators proceed to the next section and repeat the cleaning operations.

From the foregoing description of my present invention it will be clearly seen that I have devised a simple and effective construction of sewer-cleaning device which will thoroughly cleanse the sewer of mud, sand, stones, and other obstructions which from time to time accumulate therein. The scoop-shaped charging or cutting end or ends of the device are of such marginal configuration that all mud, stone, and the like are quickly dislodged and deposited into the receiving-body of the device. Furthermore, when the detachable cover is placed upon the device the debris may be readily brought to the surface of the street and quickly removed from the device, thus saving time and labor, and consequently expense, in the cleaning operations of sewers and other conduits.

Although I have described and illustrated the device with two scoop-shaped charging or cutting ends, this is not an absolute necessity, and the sharp charging or cutting end near the valve-gate 8 may be omitted, if desired; but two of such cutting edges or ends are preferable, because it is very often necessary to work the device in a reciprocatory manner for short distances through the obstructions within the sewer, especially where such obstructions have become hardened or are of considerable quantity and depth or when the obstruction contains stones.

I am aware that changes may be made in the details of the arrangements and constructions of the parts of the device without departing from the scope of my present invention. Hence I do not limit my invention to the exact arrangements and combinations of the parts as described in the foregoing specification and as illustrated in the accompanying drawings, nor do I confine myself to the exact details of construction of the various parts of the same.

Having thus described my invention, what I claim is—

1. A sewer-cleaning device comprising an open-topped and trough-shaped body portion having a sharp charging or cutting end formed by a pair of segmental edges of the body meeting in a sharp point, said point lying in the plane of the base of said body, and a swinging gate or door back of said charging or cutting end in one end of said trough-shaped body portion adapted to open inwardly into said trough-shaped body portion, the said gate or door and charging end forming an auxiliary scoop, substantially as and for the purposes set forth.

2. A sewer-cleaning device comprising an open-topped and trough-shaped body portion having forwardly and rearwardly projecting and sharp scoop-shaped charging or cutting ends formed by segmental marginal edges meeting in sharp points at the opposite ends of the body, said points lying in the plane of the base of said body, and a swinging gate or door back of said rear charging or cutting end in one end of said trough-shaped body portion adapted to open inwardly into said trough-shaped body portion, said gate or door and rear charging or cutting end forming an auxiliary scoop, substantially as and for the purposes set forth.

3. A sewer-cleaning device comprising an open-topped and trough-shaped body portion having a sharp scoop-shaped charging or cutting end formed by a pair of segmental marginal edges of the body meeting in a sharp point, said point lying in the plane of the base of said body, a swinging gate or door back of said charging or cutting end in one end of said trough-shaped body portion adapted to open inwardly into said trough-shaped body portion, the said gate or door and charging end forming an auxiliary scoop, and means to prevent said gate or door from swinging in an outward direction, substantially as and for the purposes set forth.

4. A sewer-cleaning device comprising an open-topped and trough-shaped body portion having forwardly and rearwardly projecting and sharp scoop-shaped charging or cutting ends formed by segmental marginal edges meeting in sharp points at the opposite ends of the body, said points lying in the plane of the base of said body, a swinging gate or door back of the said rear charging or cutting end in one end of said trough-shaped body portion adapted to open inwardly into said trough-shaped body portion, said gate or door and rear charging or cutting end forming an auxiliary scoop, and means to prevent said gate or door from swinging in an outward direction, substantially as and for the purposes set forth.

5. A sewer-cleaning device comprising an open-topped and trough-shaped body portion having a sharp charging or cutting end formed by a pair of segmental edges of the body meeting in a sharp point, said point lying in the plane of the base of said body, a swinging gate or door back of said charging or cutting end in one end of said trough-shaped body portion, the said gate or door and charging end forming an auxiliary scoop, means to prevent said gate or door from swinging in an outward direction, and shoes secured upon the bottom of said trough-shaped body portion, substantially as and for the purposes set forth.

6. A sewer-cleaning device comprising a trough-shaped body having a forwardly-projecting and sharp scoop-shaped charging or cutting end pointed at its lowest portion, a closure near one end of the said device, and a detachable cover, and means for securing said

detachable cover to said trough-shaped body, substantially as and for the purposes set forth.

7. A sewer-cleaning device comprising a trough-shaped body having forwardly and outwardly projecting and sharp scoop-shaped charging or cutting ends pointed at their lowest portions, a closure near one end of the said device, a detachable cover, and means for securing said detachable cover to said trough-shaped body, substantially as and for the purposes set forth.

8. A sewer-cleaning device comprising a trough-shaped body portion having a forwardly-projecting and sharp charging or cutting end pointed at its lowest portion, a swinging gate or door in one end of said trough-shaped body portion adapted to open inwardly into said trough-shaped body portion, a detachable cover, and means for securing said detachable cover to said trough-shaped body portion, substantially as and for the purposes set forth.

9. A sewer-cleaning device comprising a trough-shaped body portion having forwardly and outwardly projecting and sharp scoop-shaped charging or cutting ends pointed at their lowest portions, a swinging gate or door in one end of said trough-shaped body portion adapted to open inwardly into said trough-shaped body portion, a detachable cover, and means for securing said detachable cover to said trough-shaped body portion, substantially as and for the purposes set forth.

10. A sewer-cleaning device comprising a trough-shaped body having a forwardly-projecting and sharp scoop-shaped charging or cutting end pointed at its lowest portion, a detachable cover, and means for securing said detachable cover to said trough-shaped body, consisting, essentially, of fixed bolts secured upon one end of said detachable cover, and movable bolts slidably arranged at the opposite end of said detachable cover, said trough-shaped body portion being provided with holes for the reception of said bolts, substantially as and for the purposes set forth.

11. A sewer-cleaning device comprising a trough-shaped body having forwardly and outwardly projecting and sharp scoop-shaped charging or cutting ends pointed at their lowest portions, a detachable cover, and means for securing said detachable cover to said trough-shaped body, consisting, essentially, of fixed bolts secured upon one end of said detachable cover, and movable bolts slidably arranged at the opposite end of said detachable cover, said trough-shaped body portion being provided with holes for the reception of said bolts, substantially as and for the purposes set forth.

12. A sewer-cleaning device comprising a trough-shaped body portion having a forwardly-projecting and sharp charging or cutting end pointed at its lowest portion, a swinging gate or door in one end of said trough-shaped body portion adapted to open inwardly into said trough-shaped body portion, a detachable cover, and means for securing said detachable cover to said trough-shaped body portion, consisting, essentially, of fixed bolts secured upon one end of said detachable cover, and movable bolts slidably arranged at the opposite end of said detachable cover, said trough-shaped body portion being provided with holes for the reception of said bolts, substantially as and for the purposes set forth.

13. A sewer-cleaning device comprising a trough-shaped body portion having forwardly and outwardly projecting and sharp scoop-shaped charging or cutting ends pointed at their lowest portions, a swinging gate or door in one end of said trough-shaped body portion adapted to open inwardly into said trough-shaped body portion, a detachable cover, and means for securing said detachable cover to said trough-shaped body portion, consisting, essentially, of fixed bolts secured upon one end of said detachable cover, and movable bolts slidably arranged at the opposite end of said detachable cover, said trough-shaped body portion being provided with holes for the reception of said bolts, substantially as and for the purposes set forth.

14. A sewer-cleaning device comprising a scoop-shaped body adapted to be drawn through a sewer to collect obstructions, a closure near one end of the said device, and a cover detachably connected with said scoop-shaped body to produce a bucket, substantially as and for the purposes set forth.

15. A sewer-cleaning device comprising a scoop-shaped body, draft-links pivotally connected with each end of said body for drawing said body through a sewer to collect obstructions, a closure near one end of the said device, and a cover detachably connected with said scoop-shaped body to produce a bucket, substantially as and for the purposes set forth.

16. A sewer-cleaning device comprising a scoop-shaped body adapted to be drawn through a sewer to collect obstructions, a closure near one end of the said device, a cover detachably connected with said scoop-shaped body to produce a bucket, and means for securing said cover in position, consisting, essentially, of fixed bolts secured upon one end of said detachable cover, and movable bolts slidably arranged at the opposite end of said detachable cover, said scoop-shaped body being provided with holes for the reception of said bolts, substantially as and for the purposes set forth.

17. A sewer-cleaning device comprising a scoop-shaped body, draft-links pivotally connected with each end of said body for drawing said body through a sewer to collect obstructions, a closure near one end of the said device, a cover detachably connected with said scoop-shaped body to produce a bucket, and means for securing said cover in position, consisting, essentially, of fixed bolts secured upon

one end of said detachable cover, and movable bolts slidably arranged at the opposite end of said detachable cover, said scoop-shaped body being provided with holes for the reception of said bolts, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 14th day of September, 1904.

ROBERT SHANNON.

Witnesses:
FREDK. C. FRAENTZEL,
GEO. D. RICHARDS.