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APPARATUS FOR CLEANING SEWERS AND DRAINS.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR CLEANING SEWERS AND DRAINS.

No. 795,971

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM F. HANAFORD, a citizen of the United States, and a resident of Mansfield, county of Bristol, State of Massachusetts, have invented an Improvement in Apparatus for Cleaning Sewers and Drains, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

This invention has for its object the production of a simple, readily-operated, and efficient apparatus for removing silt, dirt, or other solid matter from sewers or drains in an expeditious manner.

In accordance with my invention an elongated scoop-like body closed at its rear end and having an open mouth is propelled along the bottom of the sewer, supporting means attached to the body traveling along the surface of the sewer or drain and sustaining the body with its rear end elevated and its open mouth adjacent the sewer-bottom. As the device is moved forward the inclined position of the body causes the lip formed by the lower portion and sides of the mouth to cut into and scrape up the silt or other solid matter and it is forced into the body.

The manner of using the device and the novel features of construction thereof will be fully described in the subjoined specification, and particularly pointed out in the following claims.

Figure 1 is a side elevation of apparatus embodying one form of my invention shown in operative position in a sewer or drain, the latter being illustrated in longitudinal vertical section on the line 1 1, Fig. 2. Fig. 2 is a transverse sectional view on the line 2 2, Fig. 1, looking toward the right; and Fig. 3 is a perspective view of the cleaning device.

In accordance with my invention the cleaning device comprises an elongated scoop-like body 1, preferably made of sheet metal of sufficient thickness to give rigidity, having its rear end closed at 2, and supporting means attached to the body to be described. The body is transversely curved, having its front end or mouth open, as at 3, the bottom and side portions of the mouth forming a species of shovel-like lip, as at 4. At its rear end the walls are carried up and over the top at 5 and flattened at 6, the flattened portion 6 being inclined toward the closed end 2 for a purpose to be described.

As shown in Figs. 2 and 3, the top of the

body is open from the front edge of the part 5 to the mouth, the body in actual practice being made about three and one-half feet long, and as herein shown it is adapted for use in sewers and drains substantially circular in cross-section. If the cross-section is square, elliptical, or otherwise shaped, the cross-section of the body of the cleaning device will be varied correspondingly.

Supporting means are connected with the body and adapted to travel upon the inner surface of the sewer or drain, such means being so arranged that when the device is in use its rear closed end will be elevated with the lip of its open mouth adjacent the sewer-bottom. Herein I have shown brackets 7 and 8 secured to the sides of the body and arranged in pairs near its opposite ends, each bracket comprising parallel ears, between which truck-wheels 9 and 10 are rotatably mounted on axles 11. The brackets are similar in construction; but the brackets 7 are larger to accommodate the wheels 9, which are of considerably greater diameter than the wheels 10. By reference to the drawings it will be seen that the wheels lie in planes substantially at right angles to the curved sides of the body and that said planes are inclined or non-vertical. Preferably the brackets 7 are located slightly higher on the sides than are the brackets 8. (See Fig. 1.)

When the device is inserted in a sewer or drain 12, Figs. 1 and 2, the supporting means rest upon the interior surface thereof at each side of the bottom of the body, and by virtue of the construction and arrangement of the supporting means the wheels 9 travel along the sewer-walls in paths higher up than the paths traversed by the front truck-wheels 10. This is shown clearly in Fig. 2, and as a result the whole body is tipped or tilted longitudinally with its rear closed end elevated and the lip 4 of its open mouth adjacent or against the bottom of the sewer.

An eye 13 is secured to the end 2 and hooks 14 to the open front end of the body, and ropes or other flexible connections 15 16, Fig. 1, are attached to the eye 13 and hooks 14, respectively, to propel the cleaning device along the bottom of the sewer between two manholes.

In using the device it is introduced into the sewer at the lower manhole and is drawn backward by the rope 15 to the accumulated silt or other solid matter, the raised rear end causing the body to slide over such matter to

the desired point. The body is then drawn forward by rope 16, and the lip of the open mouth cuts downward into the silt, scooping the same up into the body and gradually filling the same, and then the device is drawn forward to the manhole and emptied. It is then reinserted in the sewer, drawn back far enough to collect a fresh load, and again drawn forward and emptied, and the operation is continued till the solid matter is removed. The lip 4 scrapes over the sewer or drain bottom, and thus collects and scrapes up the material to be removed, the supporting means for the body maintaining its bottom in proper inclined position.

Sometimes it is more convenient to use sewer-rods, which are short rods four or five feet long adapted to be screwed together at their ends, and when such rods are used the first one is screwed into an internally-threaded boss 17 on the closed or covered part 5 of the body, and the latter is pushed forward to collect a load and then drawn back to empty it. In Fig. 1 I have shown such a rod in dotted lines at 18. As such rods when used are substantially horizontal, the part 6 of the body is inclined, as described, to clear the adjacent rod, the rear end of the body being elevated. The inclination of the body greatly facilitates the collection of sediment or silt, and the hood formed by inclosing the rear end of the body collects and retains the material, which otherwise would be forced over the end of the body.

My invention is not restricted to the precise construction and arrangement herein shown and described, as the same may be modified or changed in various particulars by those skilled in the art without departing from the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A device for cleaning sewers, comprising an elongated scoop-like body closed at its rear end and having an open mouth and top, adapted to be propelled along the bottom of the sewer, and truck-wheels connected directly with and supporting the body with its rear end elevated and its mouth adjacent the sewer-bottom.

2. A device for cleaning sewers, comprising an elongated scoop-like body closed at its rear end and having an open mouth, adapted

to be propelled along the bottom of the sewer, and truck-wheels arranged in pairs and connected therewith near its front and rear ends, respectively, the rear wheels being of greater diameter to thereby elevate the closed rear end of and tilt the body.

3. A device for cleaning sewers, comprising an elongated scoop-like body closed at its rear end and having an open mouth, adapted to be propelled along the bottom of the sewer, brackets rigidly secured to the opposite sides of the body and projecting therefrom near its front and rear ends, and truck-wheels rotatably mounted on said brackets, the rear wheels being of greater diameter to elevate the rear end of the body.

4. A device for cleaning sewers, comprising an elongated metallic scoop-like body closed at its rear end and having an open mouth, adapted to be propelled along the bottom of the sewer, outwardly-inclined supports connected with and extended from the body near its front and rear ends, the supports at the rear end projecting a greater distance from the body, to elevate its rear end, and means on the body for attachment to a propelling instrumentality.

5. A device for cleaning sewers, comprising an elongated, scoop-like body closed at its rear end and having an open mouth, adapted to be propelled along the bottom of the sewer, and supporting means connected with the body to travel upon the inner surface of the sewer and maintain the rear end of the body elevated and its mouth adjacent the sewer-bottom.

6. A device for cleaning sewers, comprising an elongated, scoop-like body having its rear end closed and provided with a hood, to retain the collected material in the body, the latter being adapted to be propelled along the bottom of the sewer, and supporting means connected with the body to travel upon the inner surface of the sewer and maintain the rear end of the body elevated and its open mouth adjacent the sewer-bottom.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WM. F. HANAFORD.

Witnesses:

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