Jan. 10, 1933. E. J. EDWORDS 1,894,031

MANHOLE CATCH BASIN SUMP

Filed June 3, 1931 2 Sheets-Sheet 1

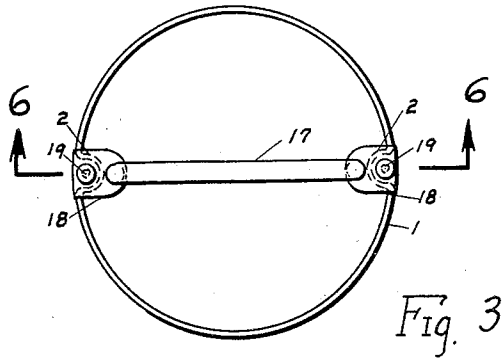


Fig. 3

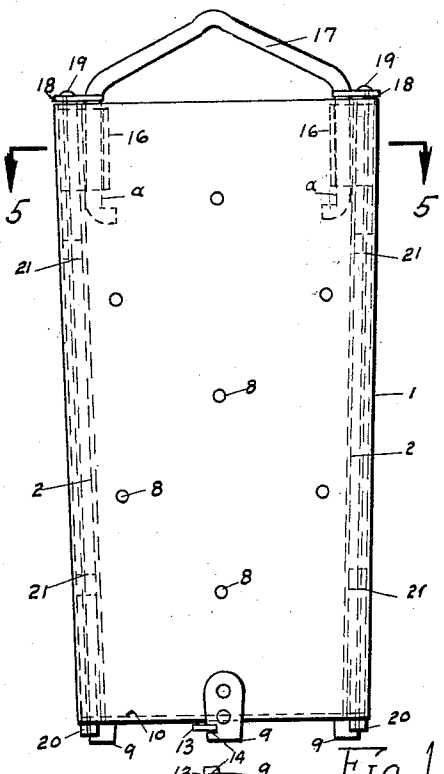


Fig. 1

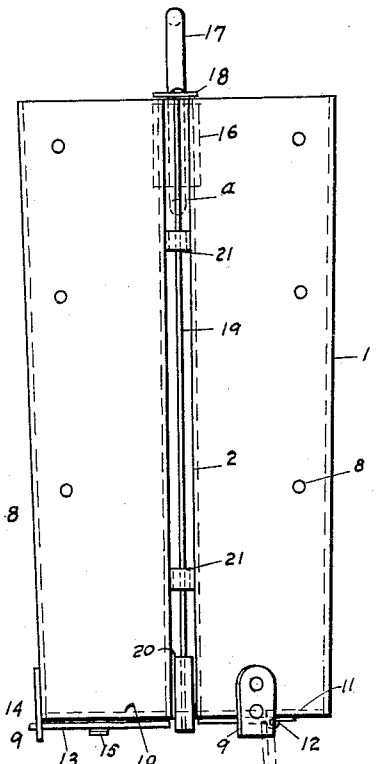


Fig. 2

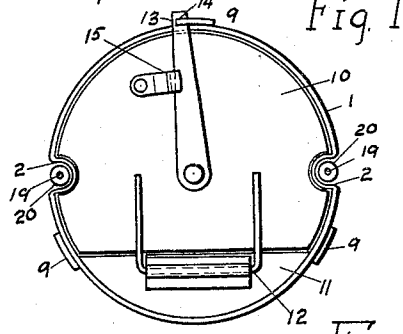


Fig. 4

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MANHOLE CATCH BASIN SUMP

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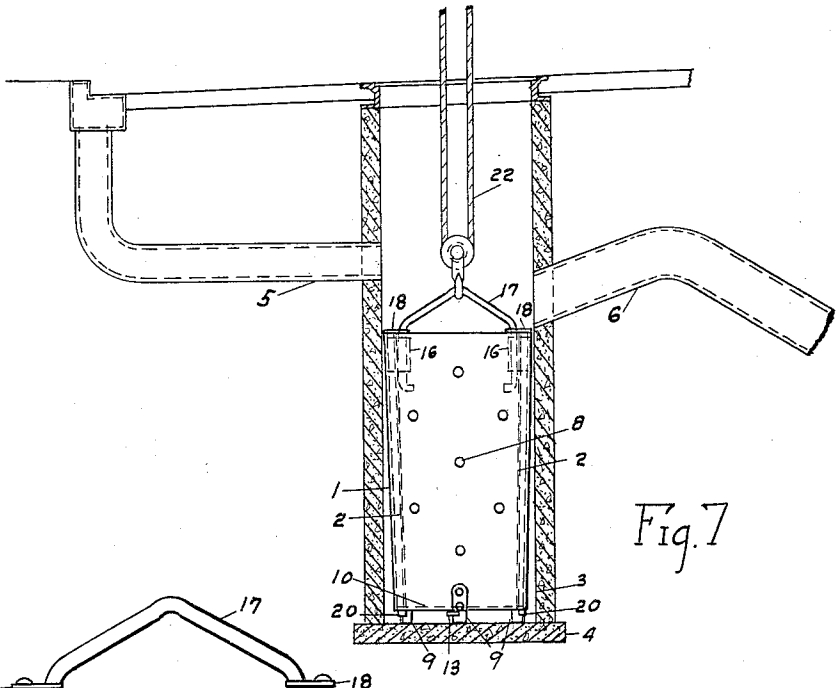


Fig. 7

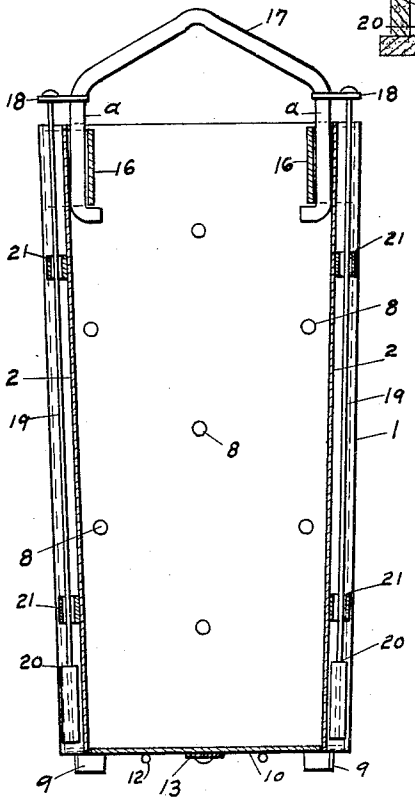


Fig. 6

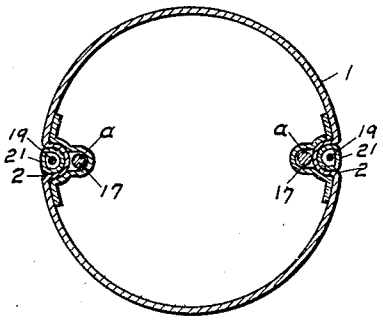


Fig. 5

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UNITED STATES PATENT OFFICE

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MANHOLE CATCH BASIN SUMP

Application filed June 3, 1931. Serial No. 541,861.

The object of my invention is to produce a catch basin sump that may be inserted within a street drainage manhole for receiving and retaining the silt as may be deposited therein, and for removing the same from the manhole.

Another object is to produce a manhole catch basin sump provided with means for breaking the suction with the manhole walls when the sump is filled with silt, for more readily allowing the catch basin to be removed therefrom.

A further object is to produce a catch basin that can be handled entirely by derrick means and dumped automatically into a truck as the sump is lifted from the manhole.

A still further object is to produce a removable catch basin sump that is simple in construction, easily and efficiently operated and can be manufactured at a very low cost.

These several objects are attained in the preferred form by the construction and arrangement of parts more fully hereinafter set forth.

Similar parts on all drawings are marked by similar numerals or letters.

Fig. 1 is a side view of the catch basin sump showing the exterior view showing the general arrangement of the operating parts.

Fig. 2 is a side view of the same catch basin sump taken at right angles to the view shown in Fig. 1, showing one of the side plungers used for breaking the suction.

Fig. 3 is a top view of the catch basin showing the handle attaching means.

Fig. 4 is a bottom view of the catch basin sump showing the door means for dumping the sump when removed from a manhole.

Fig. 5 is a horizontal sectional view taken on the line 5—5 of the Fig. 1 showing the arrangement of the side grooves and plunger means mounted therein.

Fig. 6 is a vertical sectional view taken on the line 6—6 of the Fig. 3 showing the relative position of the operating parts.

Fig. 7 is an assembled view showing my catch basin sump as mounted within a street drainage catch basin.

I will now describe more fully the detailed construction of my device, referring to the drawings and the marks thereon.

In general my manhole catch basin sump comprises a tubular container provided with a trap door at the bottom and a lifting bail at the top, the tubular container walls being formed with side grooves having plunger sections mounted therein, connected to the lifting bail and operated therewith.

The container —1— is made of heavy sheet metal, preferably formed a slightly tapered cylindrical section, smaller at the bottom than at the top, and provided with two open, semi-cylindrical side grooves —2— extended the entire length of the casing walls and positioned diametrically opposite thereon. The top diameter of the container —1— is slightly smaller than the diameter of the cylindrical catch basin —3— within which it is to be installed, said container being of a height when supported on the catch basin bottom —4— to extend to the water drainage level as indicated by the inlet and outlet pipes —5— and —6— shown in the Fig. 7 of the drawings. The container side walls are provided with small drainage holes —8— at various positions therein to allow water to readily drain therefrom. At the bottom of the container —1— are mounted suitable support legs —9—, designed to raise the container walls clear from the catch basin bottom —4— and allow a slight circulation thereunder. Within the bottom end of the container —1— is mounted a trap door —10—, hingedly attached to a fixed wall —11— by a hinge —12—. A lock bar —13— is pivotally attached to the door —10— and positioned thereon to engage a lock notch —14— formed in the side of one of the support legs —9—, and is retained in its locking position by a connected spring member —15— mounted on the door wall. The trap door —10— is capable of being opened as illustrated by the dotted lines in the Fig. 2, when the lock bar —13— is disengaged, and provides means for instantly discharging dirt and silt as may have been collected therein. At the top of the container —1—, on the inside thereof, are mounted heavy bail sockets —16—, preferably fitted over the side

grooves —2— and in line therewith, said sockets being securely attached to the container walls, and carry slidably mounted therein a vertically positioned lifting bail —17—. The lifting bail —17— is preferably made of a heavy metal bar of strong material and formed with the lower ends bent at right angles to the side sections —*a*— for engaging the bail sockets —16— when lifted to its upper position, and provides means for raising and lowering the receptacle and removing the silt therefrom, said lifting bail —17— is designed to slide several inches within the bail sockets —16— before engaging therewith, when a lifting force is applied thereto. On either side of the bail —17— is mounted a groove cap —18—, fixedly connected to said bail, and positioned thereon to cover the upper ends of the open container side grooves —2—, and rest thereon when said bail is in its lower position, thus completely closing the groove end openings. Fixedly attached to each groove cap —18— is a plunger rod —19—, positioned lengthwise of the respective side grooves along the groove axis, and are extended the full length of the container walls. Each of the plunger rods —19— carries mounted at the bottom end a short plunger —20— fixedly attached thereto, said plungers —20— being of a slightly smaller diameter than the inclosing grooves —2—, and free to slide therein, the plungers —20— being extended beyond the casing bottom when the connected lifting bail is in its lower position. The plungers —20— and attached rods —19— are retained in a central position within their respective grooves by narrow loop bars —21— fixedly attached to the groove walls. The plungers —20— are automatically raised and lowered within the wall grooves —2— with the movements of the connected lifting bail —17—.

In operating my device the sump may be readily installed within any drainage catch basin —3— by means of a suitable lifting crane cable —22— connected to the bail as indicated in the Fig. 7 of the drawings, and the catch basin sump may be readily inserted or removed in such catch basin as desired, and when removed to a desired location the dirt and silt may be easily discharged from the sump by releasing the lock bar —13— and allowing the trap door to swing clear from the container side walls.

When the sump is installed within any manhole catch basin —3—, and the lifting bail released, both the bail and attached plungers —20— are lowered by their own weight to a position as indicated in the Figs. 1 and 2, but when a lifting force is applied to the bail —17—, both the bail and connected plungers are raised to a position as indicated in Fig. 6, before any lifting power is applied to the container walls —1—. The lifting of the plungers —20—, when the sump is inclosed in silt and water around the bottom, and which is always the condition, will operate to break the suction of the inclosing manhole walls, and allow the catch basin sump to be readily removed therefrom. This suction, if not broken, is often sufficiently great to require a destroying force to be applied to the sump before it can be removed, and often tearing the bail connections therefrom. However, this suction is readily broken by the plunger movement.

While I have described the preferred construction of my catch basin sump, it is apparent that various modifications in both design and details may be readily made without departing from the spirit of my invention, and I claim the device as herein shown and any modification thereof that is substantially a substitution of parts therein shown.

Having fully described my catch basin sump, what I claim as my invention and desire to secure by Letters Patent is:

1. A catch basin sump adapted for inserting within a drainage catch basin for receiving and removing dirt and silt therefrom and used in combination therewith, comprising a receptacle suitable for inserting within a drainage catch basin and practically filling the same below the drainage water level, a lifting bail movably mounted on the receptacle walls, movable stirring sections also mounted on the receptacle side walls near the bottom thereof, and means mounted thereon for operatively connecting said stirring sections with the said lifting bail for causing both members to move simultaneously.

2. A catch basin sump adapted for inserting within a drainage catch basin for receiving and removing dirt and silt therefrom and used in combination therewith, comprising a receptacle suitable for inserting within a catch basin and practically filling same below the drainage water level, a lifting bail slidably mounted along the receptacle walls, plunger sections slidably mounted along the receptacle walls and so connected to the lifting bail as to be actuated thereby for raising and lowering said plungers.

3. A catch basin sump adapted for inserting within a drainage catch basin for receiving and removing the dirt and silt therefrom and used in combination therewith, comprising a receptacle suitable for inserting within a drainage catch basin and practically filling said catch basin below the drainage water level, said receptacle being formed with longitudinal side grooves along the receptacle walls, a lifting bail slidably mounted on the receptacle walls, a plunger stirring means slidably mounted in the receptacle wall grooves and connected to the lifting bail, said plungers being positioned near the bottom of said receptacle and capable of being raised and lowered as the sliding lifting bail is raised and lowered, and a trap door mounted within

the receptacle bottom.

4. A catch basin sump adapted for inserting within a drainage catch basin for receiving and removing the dirt and silt therefrom and used in combination therewith, comprising a receptacle suitable for inserting within said catch basin and practically filling same below the drainage water level said receptacle being formed with longitudinal side wall grooves positioned diametrically opposite each other, a lifting bail slidably mounted along said wall grooves and capable of a sliding movement therein in a direction lengthwise the receptacle axis, stirring plungers slidably mounted within the wall side grooves and fixedly attached to the lifting bail and capable of being moved therewith, said stirring plungers being positioned at the receptacle bottom, means mounted on the receptacle walls for retaining said stirring plungers in position within their respective grooves, a trap door hingedly mounted within the receptacle bottom and means mounted thereon for releasing said trap door from the receptacle walls.

In witness whereof I sign these specifications.

ELDON J. EDWORDS.