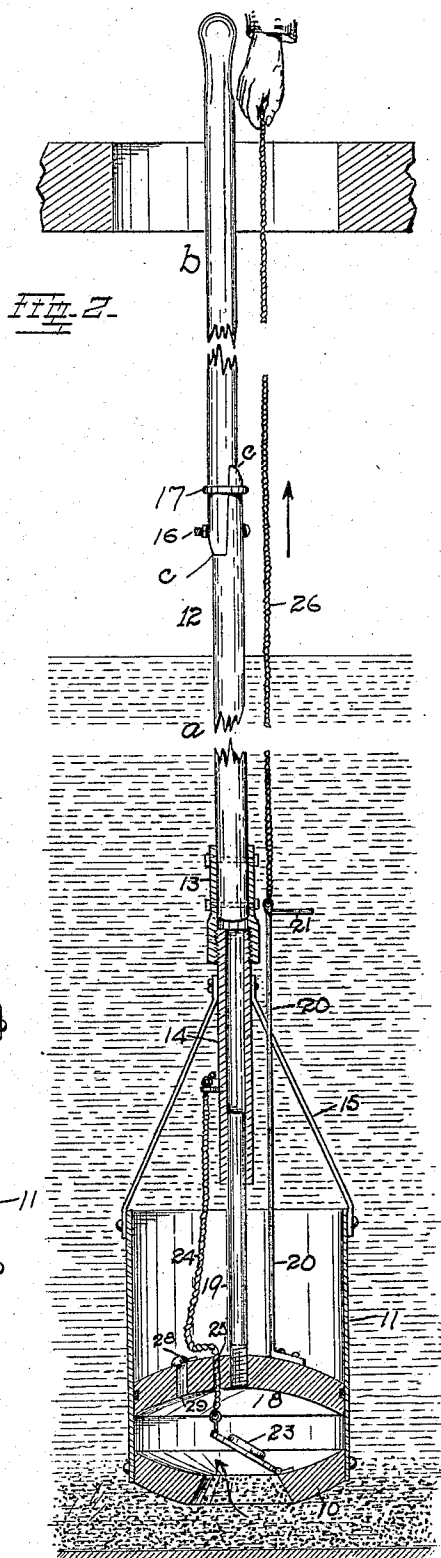


942,254.

Fig. 1. A schematic diagram of a mechanical device, likely a pump or valve assembly. The diagram is divided into three main sections. The top section shows a vertical rod (12) with a handle (17) and a valve (16). The middle section shows a vertical rod (12) with a handle (17) and a valve (16). The bottom section shows a vertical rod (12) with a handle (17) and a valve (16). The diagram is labeled 'Fig. 1.' and includes various numbered components: 1, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27.

R. R. Whiting
T. LeBeau.



Inventor
John H. Fox
by C. Spengel

UNITED STATES PATENT OFFICE.

JOHN H. FOX, OF TACOMA, WASHINGTON.

CISTERN-CLEANER.

942,254.

Specification of Letters Patent.

Patented Dec. 7, 1909.

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To all whom it may concern:

Be it known that I, JOHN H. Fox, a citizen of the United States, and residing at Tacoma, Pierce county, State of Washington, have invented certain new and useful Improvements in Cistern-Cleaners; and I do declare the following to be a clear, full, and exact description of the invention, attention being called to the accompanying drawing, with the reference characters marked thereon, which form also a part of this specification.

This invention relates to devices for removing matter precipitated upon the bottoms of storage vessels, tanks etc. without rendering it necessary to remove first the liquid above such sediment, also for removing mud, sand etc. settled upon the bottom of cisterns, wells, without disturbing the water contained therein. These devices are more generally used in this latter connection and are therefore appropriately called cistern-cleaners. They consist substantially of a bucket-shaped receiver, of means operating to fill this receiver, while lowered upon the bottom of the particular vessel or cistern, with matter to be removed from such bottom and of means operating to discharge the contents of this receiver. They are arranged and fitted to permit this receiver to be lowered to the bottom of a vessel or cistern and to be lifted out again with its charge.

My invention relates to improvements in the construction of the various parts and operating-means connected with such devices as hereinafter described and claimed and as illustrated in the accompanying drawing, in which:—

Figure 1 shows the device in side-elevation with its lower part in section and ready for use, the various parts of the handle being in position ready for connection. Fig. 2 in vertical section shows the device lowered on a layer of sediment upon the bottom of a cistern and manipulated from above, for the purpose of removing this sediment. Fig. 3 in a similar view shows the device after this operation and manipulated to discharge matter contained therein and removed from the bottom of the cistern above mentioned, it having first been lifted out from the cistern.

In the drawing, 10 indicates the bottom, concave on its upper-side and convex on the underside, of a suitable, bucket-shaped receiver, or vessel arranged to permit it to be lowered to the bottom of a cistern for in-

stance and to be lifted out again after having received a charge of sediment resting upon the bottom. The object of the convex underside of this bottom is to limit contact with the bottom of the cistern, respectively with the sediment thereon.

The bucket is of any suitable size and shape, cylindrical preferred as shown, 11 being the side thereof. The top is open. A handle 12 is provided whereby it may be lowered into a cistern and lifted out again. This handle has at its lower end a socket 13 screw-threaded to receive the threaded end of a tube 14. A number of braces 15 connect this tube to the upper edges of side 11 of the bucket.

The handle is in two sections, *a* and *b*, connected to each other by a separable joint, so that it may be taken apart when not used, the lower section *a* being also un-screwed from tube 14, at that time if desired. These handle-sections near their ends, where they come together, are cut slantingly and fitted to overlap and each is provided with a shoulder *c* which is fitted against the extreme end of the other section. A bolt 16 passes through the lower portion of this joint and a ring 17, closely fitted is forced over the upper portion so as to encircle the handle-sections where they overlap. For removal, this ring is simply loosened and the nut is taken off of bolt 16. A piston 18 is fitted into this bucket and suitably packed at its periphery. This piston is concaved on its underside and oppositely to the bottom, so as to increase the capacity of the space between the two. A rod 19 is secured to this piston and fitted to tube 14 which forms a guide for it. An upwardly extending rod 20 is also secured to the upper side of the piston and provided with a handle 21 at its upper end. An opening 22 is provided in the central and lowest part of bottom 10 and a foot or flap-valve 23 is fitted to this opening and secured to the upper side of the bottom. Opposite from the point of its connection a rope 24 is secured to this valve and arranged to pass upwardly through an opening 25 in the piston. This opening is very small and merely permits the rope to pass.

The device is made ready for use by connecting the handle-sections and by attaching the handle to the bucket. Piston 18 is pushed down against bottom 10, as shown in Fig. 1, rod 20 by means of its handle 21 be-

ing used for the purpose. The device is now lowered down into the cistern and upon the sediment deposited upon the bottom of the same as shown in Fig. 2. Piston 18 is then raised within the bucket by means of a rope 26 attached to it, either directly, or to the upper end of rod 20, this rope being manipulated from above as shown in Fig. 2. The suction caused by this movement opens valve 23 and draws sediment below opening 22 into the bucket. The piston, by reason of its concave shape, does not retard the lifting of this valve at the beginning of its upward movement and said valve may therefore lift at once. The upward movement of the piston is limited by the lower end of tube 14, which is accordingly located and forms a stop for it, as best shown in Fig. 3, preventing also the piston from being pulled out of the bucket. The bucket with its contents is now lifted out of the cistern and emptied. For such purpose valves 23, which obviously drops shut when the motion of the piston ceases, is lifted by means of rope 24 and held open as shown in Fig. 3, until the bucket is emptied. The concave shape of the bottom facilitates this procedure very much so that the bucket clears itself very quickly. This valve thereafter is permitted to drop, piston 18 is pushed down again as before by means of rod 20 to a position as shown in Fig. 1, and the bucket is ready to be lowered to lift another charge.

The upper part of rope 24 should be kept out of the bucket for which purpose an eye 27 is provided in a suitable position above the bucket through which the end of the

rope is passed after which it is knotted. 28 is a relief-valve in the piston and when this latter is lowered, resistance of the air is prevented by permitting escape of the same through a vent opening 29 which is controlled by said valve in the other direction.

Having described my invention, I claim as new:

In a cistern-cleaner, the combination of a bucket having a bottom concave on its upper-side and convex on its under-side and provided with an opening in its deepest part, a valve for this opening, means to manipulate it, a piston fitted to this bucket which is concave on its under-side to clear this valve in the bottom and is provided with a relief-valve, a stem on the upper-side of the piston, a tubular member adapted to receive this stem in its lower part to guide the same and fitted at its upper end to permit attachment of a handle, braces whereby this tubular member is rigidly connected in a permanent position above the bucket, and means to raise and to lower the piston in the bucket, these means consisting of a rod connected to the upper-side of the piston close to the stem thereof and provided with a handle at its upper-end, and of a rope connected to this end, the same serving to raise the piston while the handled rod is used to lower the same.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

JOHN H. FOX.

Witnesses:

HAVELOCK C. BOYLE,
C. B. HAYWARD.