

(No Model.)

W. S. HENSON.
CLEANING CISTERNS.

No. 277,486.

Patented May 15, 1883.

Fig. 1.

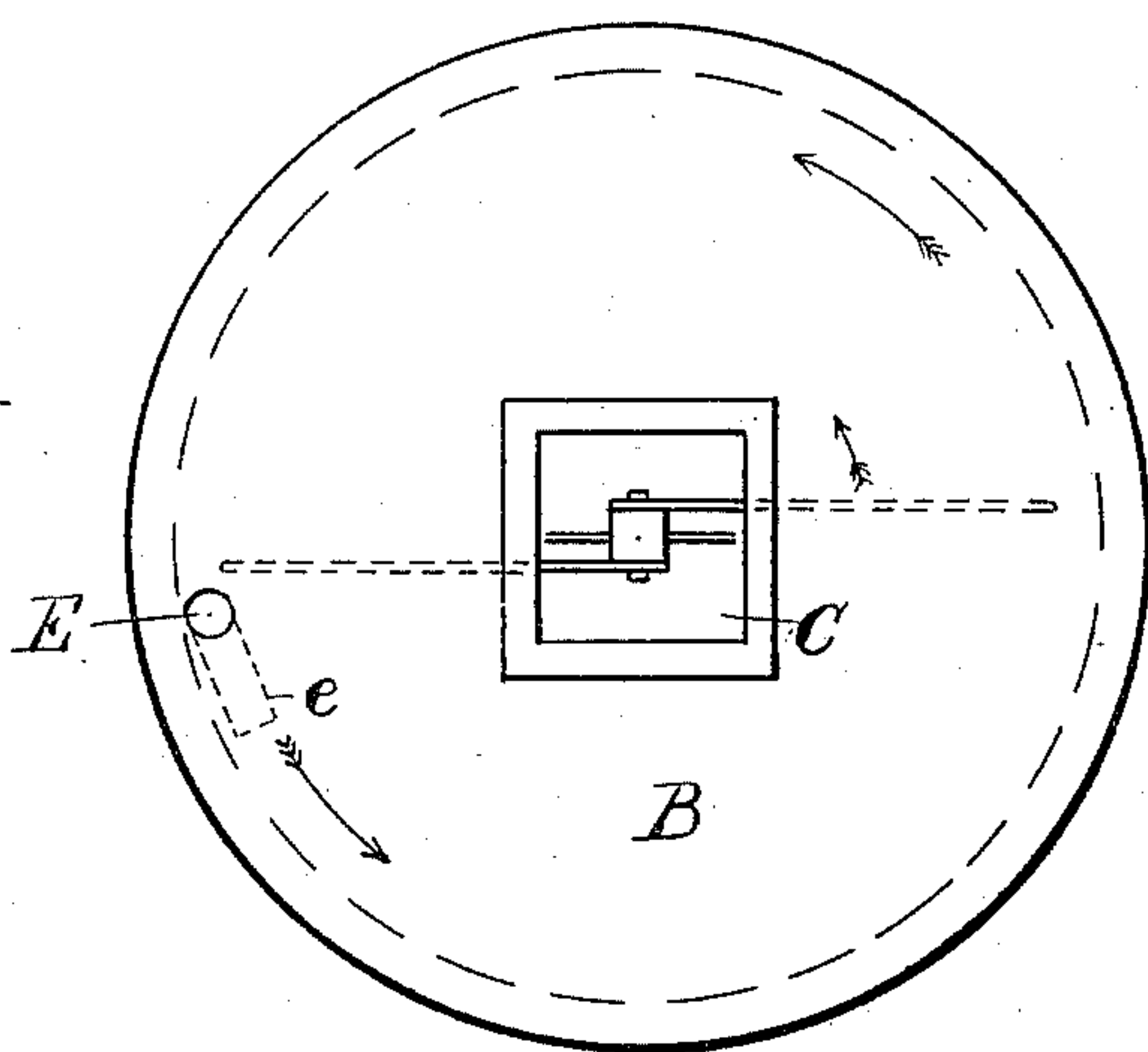


Fig. 3.

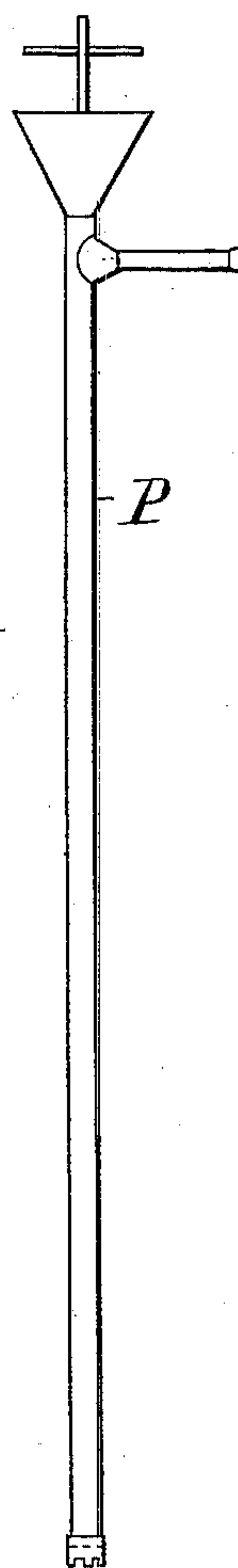
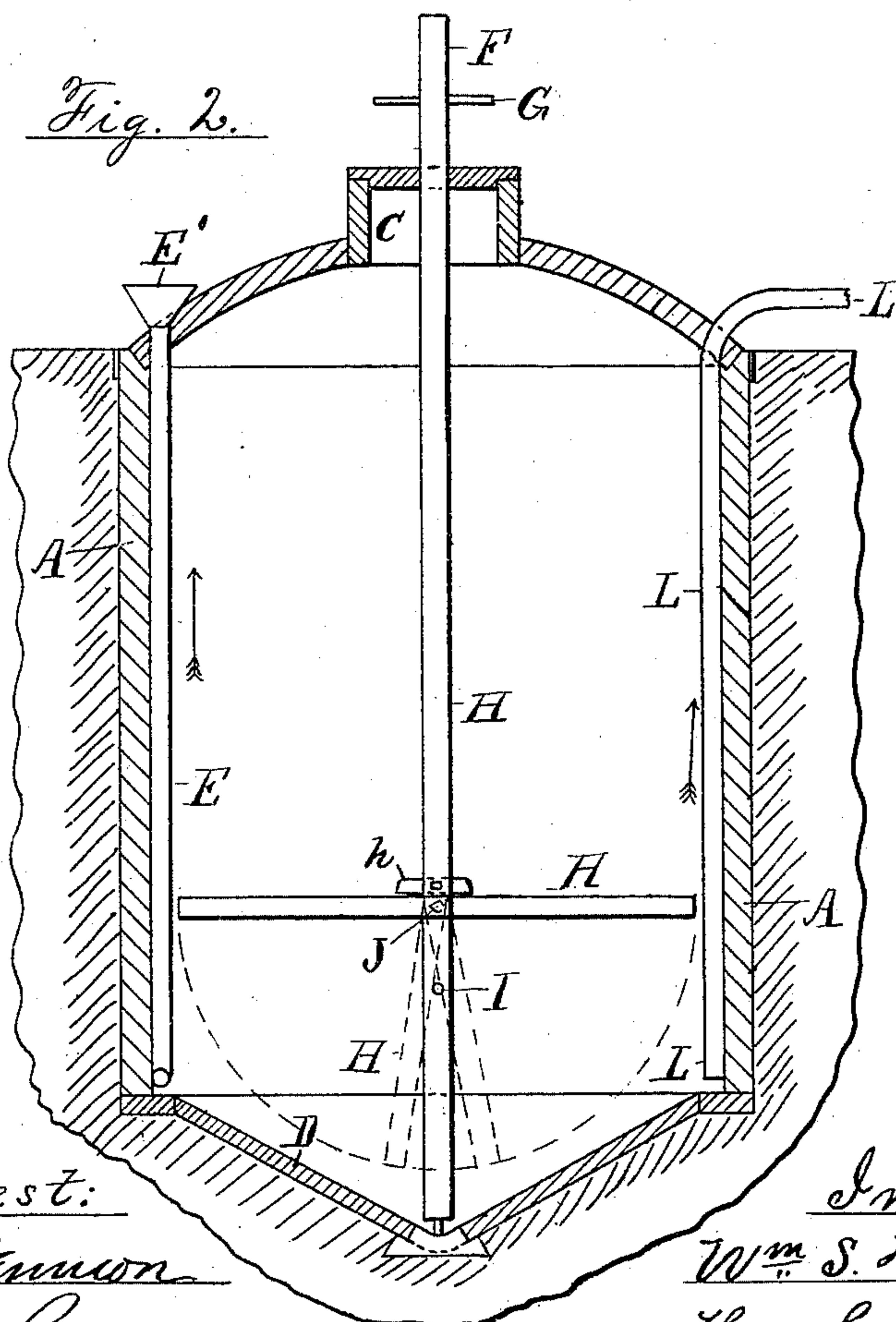


Fig. 2.



Attest:

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UNITED STATES PATENT OFFICE.

WILLIAM S. HENSON, OF NEWARK, NEW JERSEY.

CLEANING CISTERNS.

SPECIFICATION forming part of Letters Patent No. 277,483, dated May 15, 1883.

Application filed May 16, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. HENSON, a citizen of the United States, residing in the city of Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Cleaning Cisterns, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The object of my invention is to collect and remove from cisterns the sediment and matters foreign to the water contained therein which are not held in solution by the water.

My invention consists in devices for imparting a rotary movement to the water in the cistern to cause the impurities to settle in the center, and in drawing such impurities out of the cistern by a pipe inserted in the center, at or near the bottom, thus removing everything that is separable from the body of the water and leaving the remainder clean and free from matters liable to contaminate it. As my process is dependent upon the use of means substantially as described herein, I have not claimed it apart therefrom.

The form of apparatus shown in the drawings consists in a stirring-shaft provided with jointed blades or arms or other means for creating a rotary movement of the water, and in a pump connected with a pipe for drawing off the sediment at the center, near the bottom.

It also consists in a concave or conical shape for the bottom of the cistern to facilitate the collection of the sediment at the center, and in the arrangement of the inlet-pipe tangential to the side of the cistern for producing a rotary movement of the contents automatically.

In the drawings, Figure 1 is a plan of a cistern; and Fig. 2, a central vertical section of the same, having my jointed stirring device in location for rotating the mass of water. Fig. 3 is a detached view of a portable lift-pump, for use as hereinafter described.

A A are the side walls of the cistern, represented as circular, to support the arched roof B.

C is the ordinary man-hole at the top, and D the bottom, of conical shape, with the center at the lowest point.

E is the inlet-pipe, which may be inserted at

the side, as shown, or through the man-hole. In either case the lower end would be bent, as at *e*, tangential to the side of the cistern, that the influx of the water may cause a rotary movement in the contents of the cistern. Such movement necessarily sweeps off the bottom of the cistern at all points except the center, when a deposit is gradually formed in the only quiet place. Such effects are constantly produced when stirring dirty water in a wash basin or tub, as well as in eddies in rivers, and needs no further explanation.

F is the pole or shaft of the stirring device, extending from the top of the cistern through the man-hole to the center of the bottom, and provided with a cross-handle, G, at the top for turning it around.

H H are two blades pivoted by one end to the shaft, and arranged upon opposite sides of the same at such a distance from its lower end that they may hang down, as shown in dotted lines H' H', with their free ends near the foot of the shaft.

A pin, I, being inserted in the shaft below their pivot J, the blades are kept slightly apart during their insertion into the cistern, and are thus floated by the water into horizontal positions, as shown in full lines in Figs. 1 and 2. By this construction the water may be readily turned around until it is in general rotary movement, and the stirring-shaft then removed and the water allowed to settle for twenty to thirty minutes. The pump P may then be inserted in its place, and as much of the water pumped from the cistern as contains any foreign matters. By repeating this operation at occasional intervals the formation of any slimy deposit adherent to the interior of the cistern may be entirely prevented and the water entirely preserved from the contamination which results from the decomposition of leaves, insects, and other impurities, which are often left for one or two years in the bottom of cisterns to avoid the loss of water and the expense incurred by cleaning in the usual way.

In many districts the supply of drinking-water is obtained entirely from cisterns, and the preservation of the water clean would obviate much disease resulting from the use of foul water.

With the pump and stirring device shown, a man can without assistance clean eight or ten cisterns in a single day, whereas it takes two persons to clean one cistern in the common manner where the dirt is lifted out with a rope and bucket, and consumes from five to fifteen hours of time.

If the cistern is provided with a conical bottom and tangential inlet-pipe, as shown, the sediment will naturally collect at the apex of the cone, and may be pumped out at intervals, especially after rains causing a large influx into the cistern, and the use of any other straining device be made only in case of need. To avoid wear at the bottom of the shaft an earthenware step, S, may be inserted in the floor D.

The advantages of my invention having been plainly shown, it will be seen that it is adapted to cisterns having a suction-pipe, as L, extended into the cistern toward the bottom, or to those from which the water is dipped out or removed by other means.

It is also obvious that a part of my devices may be employed without the rest, as the stirring device and pump may be used in cases where neither the conical bottom nor tangential inlet exists, the latter being an advantage but not a necessity to the operation of my process.

The stirring device may also be modified in any desired manner, as the blades, instead of opening from the bottom upward and being checked when horizontal by a collar, as shown at h, may be furnished, like the ribs of an umbrella, with jointed braces connected to a slide at the upper part of the shaft. With such a construction the blades can be opened when inside the cistern and closed for withdrawal by moving the slide up and down upon the shaft F.

Other means may be used for rotating the water in the cistern when a long pole or shaft cannot be conveniently inserted in the top, or when the man-hole is not over the center. Thus a small paddle-wheel can be secured at the end of a jointed frame adapted to be bent and inserted gradually through a man-hole, where covered by an obstructing roof or floor,

and the wheel turned by a pulley or chain-wheel after it is lowered into the water.

A wheel of galvanized iron may be permanently secured in the cistern at one side and operated for a similar purpose when required; or the pump P may be arranged in the center and connected by a water-leader to the funnel E', and operated for a sufficient length of time to create a rotary motion in the water by the continued flow of the fluid from the pump back into the tangential pipe e. When such motion is established and the water allowed to settle, the connection to E' can be removed and the foul water pumped out into any proper receptacle.

If preferred, the suction-pipe L may be bent from the side of the cistern and led to a point near the center in cases when the water is habitually drawn from the cistern by a pump connected with such pipe. The water may by such pipe be drawn off, after a rotary agitation and settling, until the desired cleanliness is reached and the sediment all discharged. Such a plan obviates the need of another pump, but subjects the one in daily use to the grit and other substances deposited.

Having thus shown the operation of my invention, I claim the same, as follows:

1. The combination, with a cistern, of means, substantially as described, for producing a rotary motion in the water for collecting the sediment about the center of the bottom of the cistern, substantially as and for the purpose set forth.

2. The combination, with a cistern having a conical or concave bottom, of an inlet-pipe terminating tangentially to the side of the cistern, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WM. S. HENSON.

Witnesses:

THOS. S. CRANE,
WM. F. D. CRANE.