

No. 680,974.

Patented Aug. 20, 1901.

P. J. HEALEY.

AUTOMATIC FLUSHER FOR SEWERS OR DRAINS.

(Application filed Jan. 30, 1900.)

(No Model.)

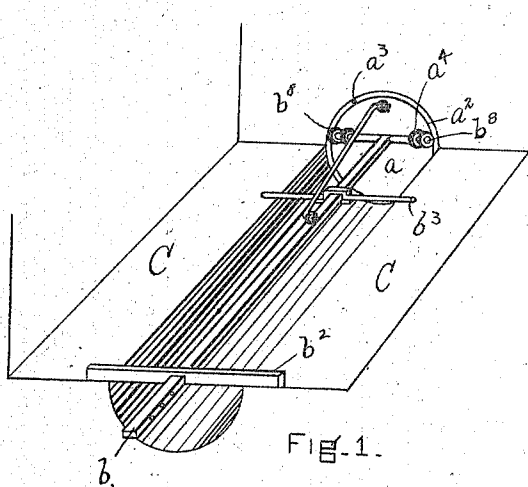


FIG. 1.

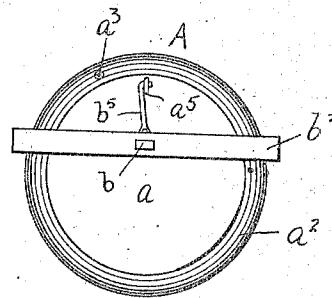


FIG. 2.

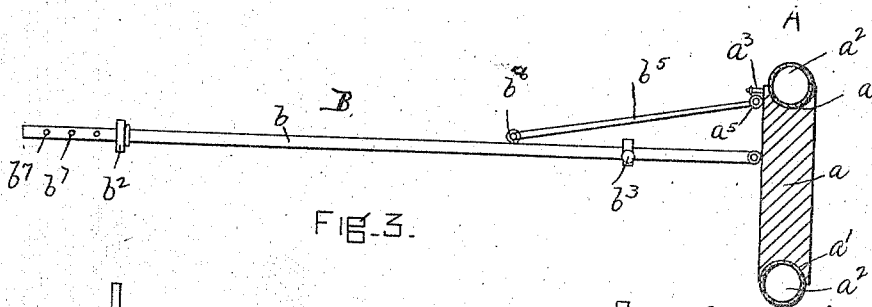


FIG. 3.

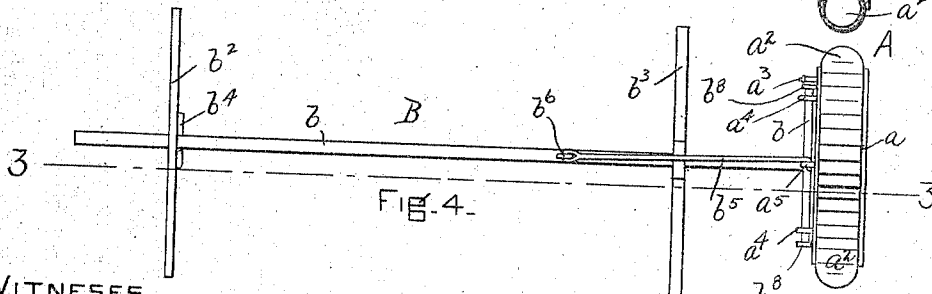


FIG. 4.

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AUTOMATIC FLUSHER FOR SEWERS OR DRAINS.

SPECIFICATION forming part of Letters Patent No. 680,974, dated August 20, 1901.

Application filed January 30, 1900. Serial No. 3,307. (No model.)

To all whom it may concern:

Be it known that I, PATRICK J. HEALEY, a citizen of the United States, residing at Hyde- park, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Automatic Flushers for Sewers or Drains, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in automatic flushers for flushing out sewers or drain-pipes in which a bulkhead surrounded by an air-tight tube operates in conjunction with a device for holding the bulkhead in position when being used; and the object of my invention is the removal of sand, dirt, and other obstacles in sewers or drains by flushing.

The following is a clear description of the machine, reference being made to the accompanying drawings, in which—

Figure 1 is a view in perspective of the machine as used in a manhole of a sewer. Fig. 2 is a front end view. Fig. 3 is a vertical longitudinal section of the machine on the line 3 3 in Fig. 4. Fig. 4 is a plan view of my machine.

Similar letters refer to similar parts throughout the several views.

The machine is composed of two parts—a bulkhead A and a handle or holding device B. The bulkhead A comprises a core made of a circular piece of wood or plank *a*, having a groove *a'*, semicircular in section, on its circumference, into which sets or fits a large circular hollow rubber tube *a²*. This tube *a²* is so adjusted as to be air-tight and may be inflated by pumping air into it through a valve *a³*. Any ordinary form of valve may be used.

The handle or holding device B consists of a long T-shaped metal bar *b*, with two cross-bars *b²* and *b³*, which can be moved back and forth on the long arm of the bar *b*. The bar *b* is connected to the bulkhead A by the short arms being loosely inserted through eyelets *a⁴ a⁴*, which are fastened to *a* in the bulkhead. This mode of attaching A and B allows B to move up and down freely around *a⁴ a⁴* as centers when A is stationary. In order to prevent *b* slipping out of the eyelets *a⁴ a⁴*, the ends of the short arms of *b* are covered by caps *b⁵ b⁵*. The end of the long arm

of B is perforated by small circular holes *b⁷ b⁷*, into which may be inserted a metal pin *b⁴*. The object of this pin *b⁴* is to prevent the cross-piece *b²* from sliding when the machine is being used.

It will be noticed that B is attached to A in a horizontal line which is just above the center of A—that is, if a straight line is drawn through the eyelets *a⁴ a⁴* it will be horizontal (when the machine is being used) and will be a short distance above the center of A. The effect of this construction is that when the machine is lifted from the ground with *b* held horizontal the bulkhead A will hang with the lower part inclined slightly upward toward the handle B. When the machine is in use with B fixed and A left free to swing, an equal pressure on the surface of A opposite B will cause A to move in such a way that the lower part will swing up toward the handle B. In order to keep A in a fixed vertical position when the machine is being used, I provide a rod *b⁶*, fastened to *b* by means of an eyelet *b⁶*. The free end of the rod *b⁶* is turned to form a hook, which can be engaged with an eyelet *a⁵*, set in *a* vertically above the center. When the rod *b⁶* is hooked into *a⁵*, the bulkhead A will be fixed perpendicu- larly to the handle B.

The primary object of my machine is to clean out pipe sewers or drains by flushing; but it will also be found particularly effective and useful in stopping the flow of water in one section of a sewer or drain, so that the next section will dry out and may be examined to discover leaks and defects in the bottom of the pipe which the running water would otherwise conceal.

The general method of cleaning sewers by flushing is to direct a stream of water from a hose into the sewer-pipe and wash the dirt, sand, and other accumulations in the bottom of the pipe toward the next manhole, where they can be taken out. This method is very unsatisfactory, because, as a general rule, the stream from the hose moves the accumulations but a short distance down the pipe, and it is almost impossible to clean out a sewer where the manholes are three hundred feet or more apart, as is generally the case. Another way to clean sewers by flushing is that of building special manholes provided

with flush-gates of iron or wood. These are stationary and permanent and are built in the sewer about two thousand feet apart. The cost is generally not less than three hundred dollars each. Owing to the great distance between the flush-gates it is impossible to accomplish very much, and this method is open to the two objections of great cost and ineffectiveness.

10 My machine can be built at a small cost, is easily handled, and can be used in one manhole after another. In order to use my automatic flusher, I place it in a manhole as shown in Fig. 1. Manholes are generally built four
15 by six feet, and the sewer runs through them in a semicircular depression in the bottom.

The level spaces in the bottom of the manhole (shown in Fig. 1 as C C) are known as the "water-tables." I place the bulkhead A of
20 my machine just inside the mouth of the sewer-pipe in the section to be flushed out, with its axis or diameter perpendicular to the sides of the pipe. The long handle *b* is laid parallel to the course of the sewer, and
25 the cross-bars are adjusted so that one is a short distance from the bulkhead and the other is placed against the opposite wall of the manhole, and the pin is inserted in the hole nearest the bar, so as to prevent it sliding toward the bulkhead. The two cross-bars
30 are long enough so that their ends will rest upon the water-tables and keep the handle in a horizontal position. Then the iron rod *b*⁵ is hooked into the bulkhead to keep it perpendicular. Having thus adjusted the machine,
35 I next proceed to inflate the rubber tube by pumping air into it. Inflating the tube of the bulkhead causes it to swell and to press tightly against the sides of the sewer-pipe. This
40 closes the pipe up effectually, and it is impossible for any water to pass the bulkhead. The sewer-pipe in consequence fills up with water, which presses against the bulkhead; but the cross-bar at the other side of the man-
45 hole, aided by the pin, prevents the bulkhead

being forced out of the pipe by the water-pressure. When the section of the sewer becomes filled with water, which will be shown by the amount of water in the manhole next
50 above, I unhook the bar *b*⁵ and open the air-valve in the tube. The water-pressure will cause the bottom of the bulkhead to swing out and up, and the water, rushing out with great rapidity, will carry with it the dirt, sand,
55 and other obstructions present in that section of the sewer.

What I claim is—

1. In a machine for flushing sewers and drains, the combination of a bulkhead, consisting of a solid core having on its outer periphery an air tight hollow tube provided with a valve for the purpose of inflating the tube with air and a holding device comprising a T-shaped bar with one or more cross-bars, said
60 bar being attached to the core of the bulkhead at a point above the center of the core in such a manner as to allow the bulkhead to swing in one direction and having a hook which engages with an eyelet in the core and
65 which when engaged holds the bulkhead stationary in a position perpendicular to the said bar, substantially as described.

2. In a machine for flushing sewers and drains, the combination of a bulkhead, A, consisting of a solid core, *a*, surrounded by a
75 hollow tube, *a*², with a valve *a*³; and a holding device comprising a T-shaped bar, B, with sliding cross-bars, *b*², and *b*³, said bar, B, being attached to the core, *a*, by eyelets *a*⁴ *a*⁴, which are placed in a horizontal line above the
80 center of *a*, and having a hook, *b*⁵, adapted to engage with the eyelet *a*⁵ and hold the bulkhead in a fixed position perpendicular to the bar B, substantially as described.

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

PATRICK J. HEALEY.

Witnesses:

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