

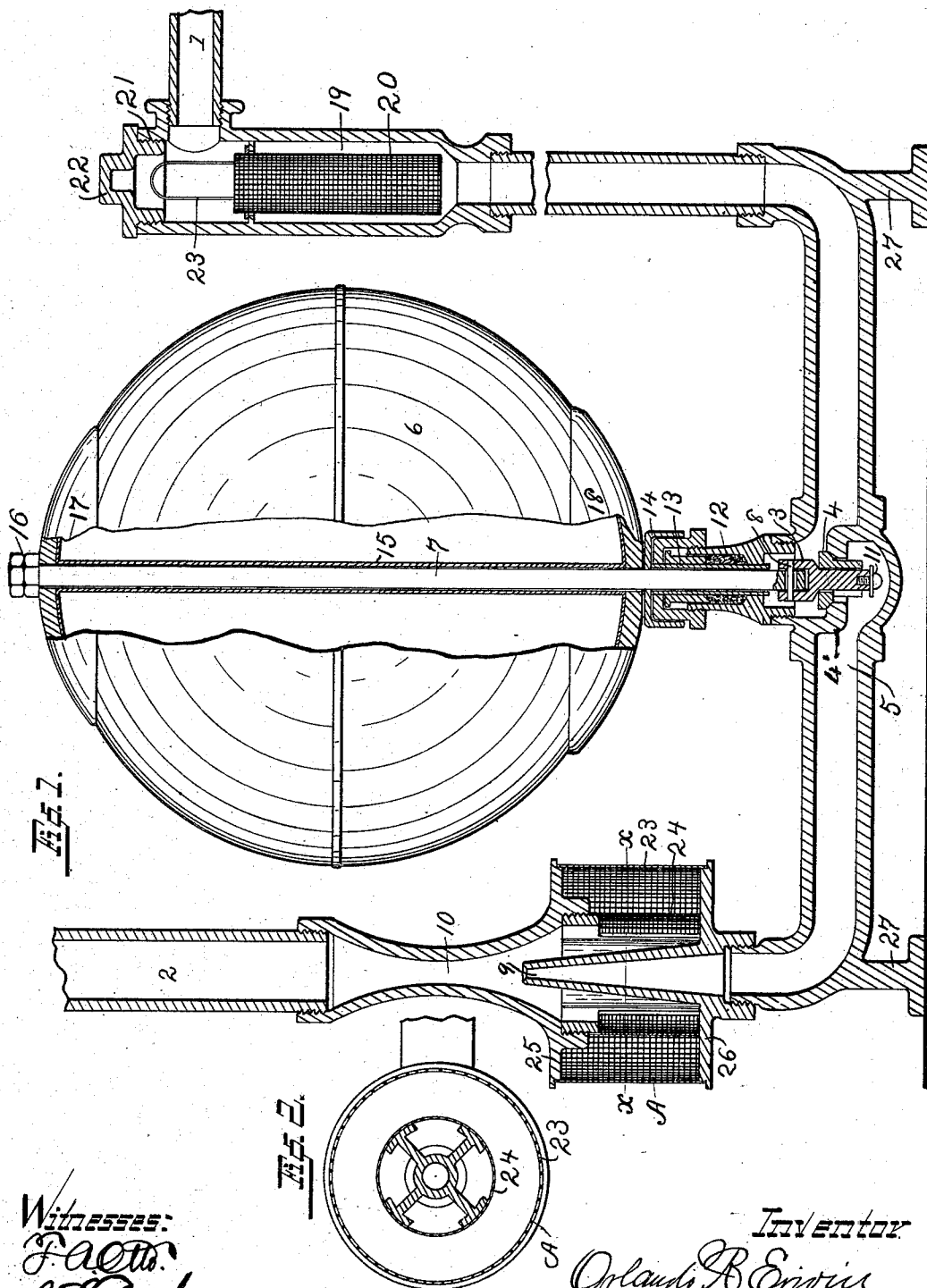
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O. R. ERWIN.
CELLAR DRAINER.

(Application filed Oct. 22, 1902.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

ORLANDO R. ERWIN, OF CHICAGO, ILLINOIS.

CELLAR-DRAINER.

SPECIFICATION forming part of Letters Patent No. 714,682, dated December 2, 1902.

Application filed October 22, 1902. Serial No. 128,298. (No model.)

To all whom it may concern:

Be it known that I, ORLANDO R. ERWIN, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented new and useful Improvements in Cellar-Drainers, of which the following is a specification.

My invention relates to improvements in that class of cellar-drainers by which a small jet of water under high pressure is utilized to lift and eject a large stream to a comparatively slight elevation for draining cellars, basements of buildings, &c.

My invention pertains more especially, first, to a compound valve which closes with the water-pressure and is opened by a float, one of its valves only being opened at a time, whereby a comparatively large valve may be opened against high pressure by the direct action of a comparatively small float and whereby the necessity of using a balance-valve or employing a lever for opening the valve is avoided; second, to the device for pivotally connecting the valve-stem directly with the float-rod, whereby the valve is free to find its seat regardless of slight variations in the position of said rod; third, to the employment of a sleeve around the float-rod and between the float-rod and inclosing stuffing-box, whereby the valve-rod is reinforced by said sleeve and is less liable to become broken, while said sleeve serves as a support for the sand-guard and float; fourth, to the use of a sand guard or shield around the stuffing-box of the float-rod to prevent sediments from entering the same; fifth, to the means employed for connecting the float directly to and above the valve, whereby the latter is raised vertically from its seat; sixth, to the means employed for connecting the float-rod through a vertical sleeve which passes directly through the float from top to bottom and has an airtight connection with the walls of the float at its points of contact therewith, whereby the float-rod may be easily removed without opening communication with the interior of the float; seventh, to the peculiar construction and relative arrangement of the ejector and inlet ports, whereby the water is discharged from the nozzle of the ejector in a direct line toward the place of discharge and

the discharge-water is not impeded by bends in the pipe in its escape from the ejector; eighth, to the peculiar construction of the drum which incloses the discharge-nozzle, each of the walls of which form a separate screen or strainer, through which the seepage-water enters the ejector; ninth, to the construction and arrangement of the drum and removable screen therein, through which the power-water enters the ejector.

The construction of my invention is explained by reference to the accompanying drawings, in which—

Figure 1 represents a side view, part in section; and Fig. 2 represents a horizontal section drawn on line *x x* of Fig. 1.

Like parts are identified by the same reference characters in both views.

1 represents the inlet, and 2 the outlet, pipes or ducts of the cellar-drainer. The passage of water from the inlet to the discharge duct is controlled by the compound valves 3 and 4. The valve 4 has its seat in the partition 4' of the horizontal duct 5 of the cellar-drainer, while the valve 3 has its seat in the valve 4. Motion is communicated to the valves from the float 6 through the float-rod 7 and pivotal bolt 8.

It will be understood that in using the cellar-drainer the same is located in a tank below the surface of the floor of the cellar, in which the tank-water flows of its own gravity; that when the water has risen to a certain elevation in the tank the compound valve is opened by the buoyancy of the water acting through the float, whereby the city-water entering the pipe 1 is caused to escape with great force from the nozzle 9 of the ejector into the sleeve 10, whereby a partial vacuum is formed around said nozzle, which causes the seepage-water in the tank to be drawn into the sleeve 10, when it escapes with the city-water through the discharge-duct 2. The so-called "ejector" comprises the nozzle 9, sleeve 10, converging from both ends toward its center, and the drum A.

The lower end of the valve 3 extends a slight distance through the valve 4 and is provided with a collar 11, which as said valve 3 is raised a slight distance is brought in contact with the lower end of the valve 4, whereby said

valve 4 is raised. It will be obvious that by this arrangement a brief interval of time elapses between the raising of the valve 3 and the valve 4, whereby the power-water is permitted to pass beneath the valve 4 and equalize the pressure upon both sides of said valves, so that less power is required to raise them.

12 is a stuffing-box, which incloses the lower end of the float-rod.

13 is a sleeve interposed between the float-rod 7 and the stuffing-box, whereby said float-rod is relieved from the exterior pressure of the stuffing and stuffing-box.

14 is a sand-guard, which is supported on the upper end of the sleeve 13 and prevents refuse matter from entering the stuffing-box. It will be obvious that by this arrangement the sleeve 13 serves as a support for the sand-guard 14 and the float 6, which rests upon said sand-guard. The float-rod 7 is detachably connected with the float 6 through the sleeve or tube 15, which sleeve extends entirely across and through the walls of the float and is soldered or otherwise secured to the walls of the float by an air-tight joint, whereby the float may be removed from the float-rod at pleasure without opening communication with the interior of the same. The float is secured in place upon the rod 7 by the nuts 16.

Owing to the fact that a certain amount of pressure is required to close the valves and overcome the friction of the packing in the stuffing-box, the float is provided at its upper and lower sides with weights 17 and 18, which are made to conform in shape to the walls of the floats and are held in place by the float-rod 7.

To prevent the liability of refuse matter entering the ejector with the water, I have preferably interposed between the ejector and the inlet-pipe 1 a chamber 19, in which is located a screen 20. The chamber 19 is provided with a hand-hole 21 and a screw-cap 22. The mouth of the screen 20 is located above the mouth or discharge-opening of the chamber 19, whereby all the water that passes through said chamber is compelled to first pass through said screen. 23 is a handle which extends up into close proximity with the hand-hole, whereby said screen may be readily removed as may be required for cleaning the same by first removing the cap 22.

To prevent refuse matter from being drawn into the ejector with the seepage-water as the same is being ejected from the cellar, I have located said nozzle 9 in the drum A, which drum comprises the cylindrical screens 23 and 24 and the heads 25 and 26. The head 25 is formed integrally with the sleeve 10, while the head 26 is formed integrally with the discharge-nozzle 9.

Heretofore it has been common to support the cellar-drainer from the inlet and discharge pipes. By my construction, however, the horizontal duct 5 is provided with supporting-legs 27 27, which are formed integrally there-

with and serve to support the drainer upon the bottom of the tank in which it is located. While the ejector is usually operated by water-pressure, it is equally adapted to be operated by steam or pneumatic pressure.

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

1. In a cellar-drainer of the class described, means for automatically starting and stopping the same, comprising the combination with the water-supply duct of the ejector; of a vertically-moving check-valve closing with the power-water pressure; a float centrally supported above said valve; a float-rod having a central tubular bearing in said float; and means for pivotally connecting said rod and valve together.

2. In a cellar-drainer, means for automatically actuating the same, comprising the combination with the water-supply duct of the ejector; of a vertically-moving compound check-valve closing with the power-water pressure, the larger of said valves having its seat in the partition-walls of said duct, and the smaller valve being seated within the larger valve; a float centrally supported above said valves; means for pivotally connecting said float to the upper or smaller valve; and means for communicating motion from the smaller to the larger valve, as set forth.

3. In a cellar-drainer, means for connecting the valve-actuating float and water-controlling valves together, comprising a water-tight sleeve extending centrally through the float and secured, near its respective ends, to the walls thereof; a float-rod removably connected to said float within said sleeve, and having its lower end pivotally secured to the stem of the water-controlling valve; a stuffing-box located above said valve and surrounding the lower end of said float-rod; a tubular sleeve interposed between the packing in said stuffing-box and the exterior surface of said float-rod, as set forth.

4. In a cellar-drainer, means for connecting the valve-actuating float and water-controlling valves together, comprising a water-tight sleeve extending centrally through the float and secured, near its respective ends, to the walls thereof; a float-rod removably connected to said float within said sleeve, and having its lower end pivotally secured to the stem of the water-controlling valve; a stuffing-box located above said valve and surrounding the lower end of said float-rod; a tubular sleeve interposed between the packing in the stuffing-box and the exterior surface of said float-rod, and having its upper end extending above said stuffing-box; and a sand guard or shield having a central aperture for the reception of said float-rod, centrally supported upon the upper end of said tubular sleeve, as set forth.

5. In a cellar-drainer of the class described, the combination with the inlet-duct leading to the ejector; of a screen-inclosing cham-

ber; a cylindrical screen located in said chamber, above the outlet-passage thereof; a bail attached to the upper end of said screen; a hand-hole located above said screen, in said
5 chamber; a screw-cap closing said hand-hole; and a side duct communicating from the supply through the vertical walls of said chamber, below said hand-hole, as set forth.

6. In a cellar-drainer of the class described,
10 the combination with the inlet and discharge ducts thereof; of an ejector comprising a vertically-arranged discharge-nozzle supported from said inlet-duct; an inclosing drum or

chamber supported from said nozzle; a tubular sleeve diverging from its center outwardly toward its respective ends, supported from said drum, the walls of said drum having minute openings, forming a screen, through which the seepage-water enters said drum, as set forth. 15 20

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

ORLANDO R. ERWIN.

Witnesses:

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