

E. S. Dickinson and J. S. Peake,
117156
Draining Means,

PATENTED JUL 18 1871

Fig. 1,

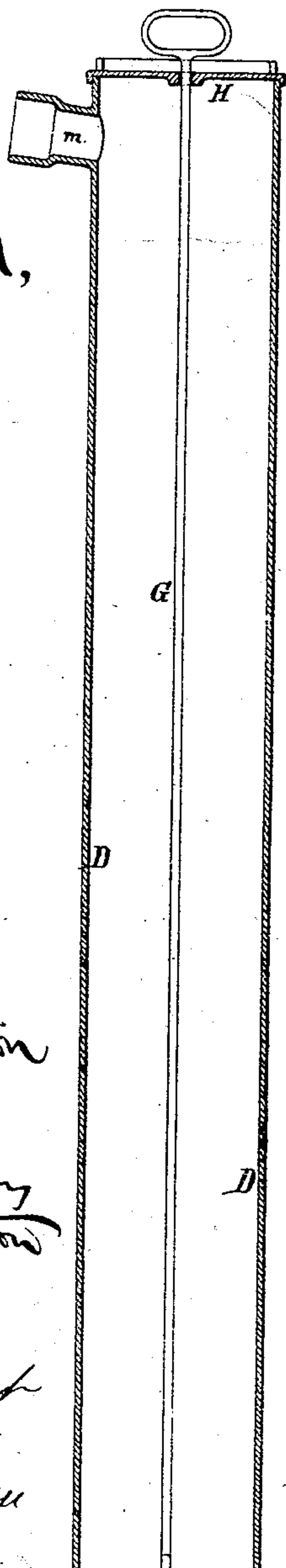


Fig. 2,

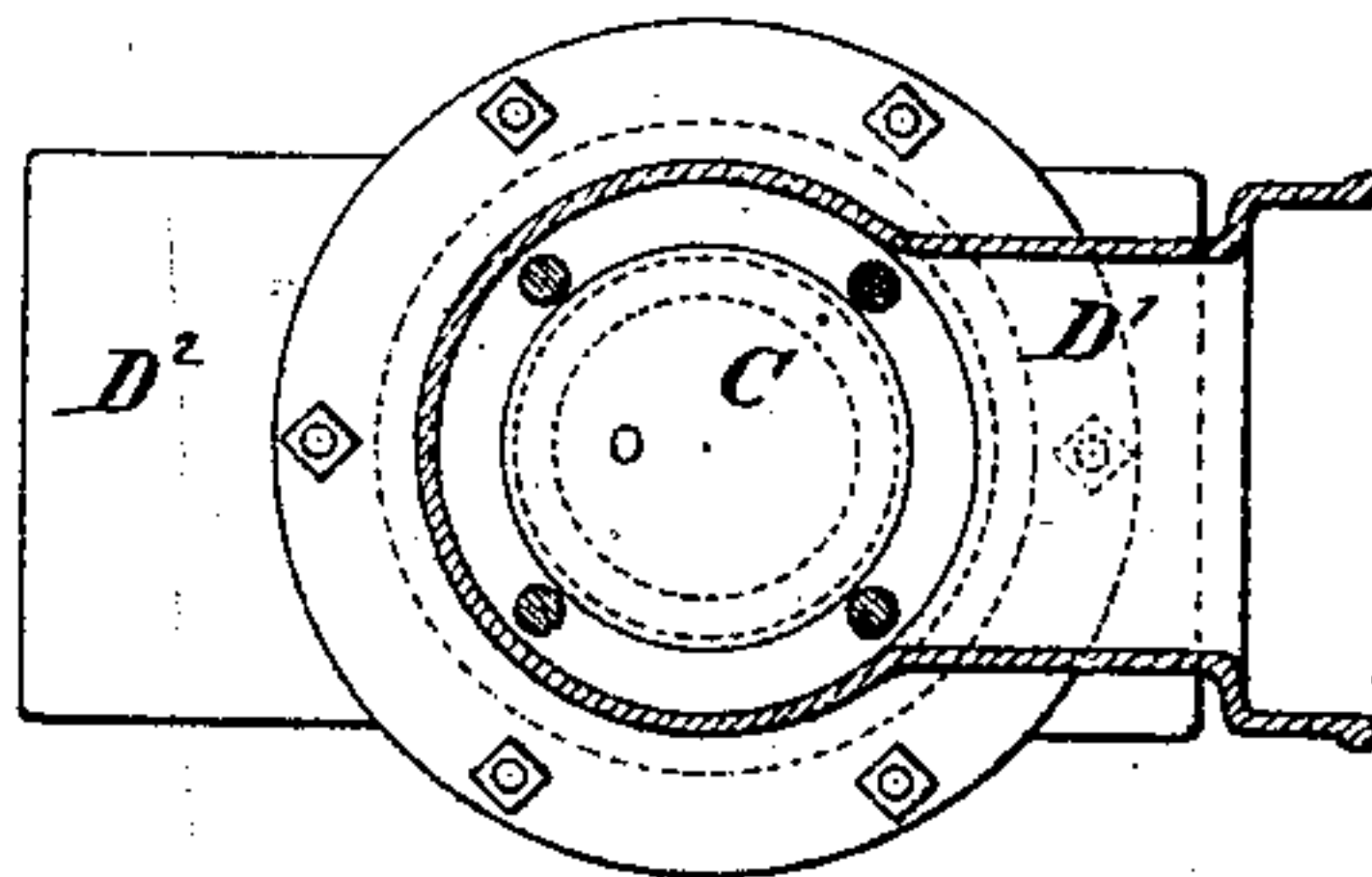


Fig. 3,

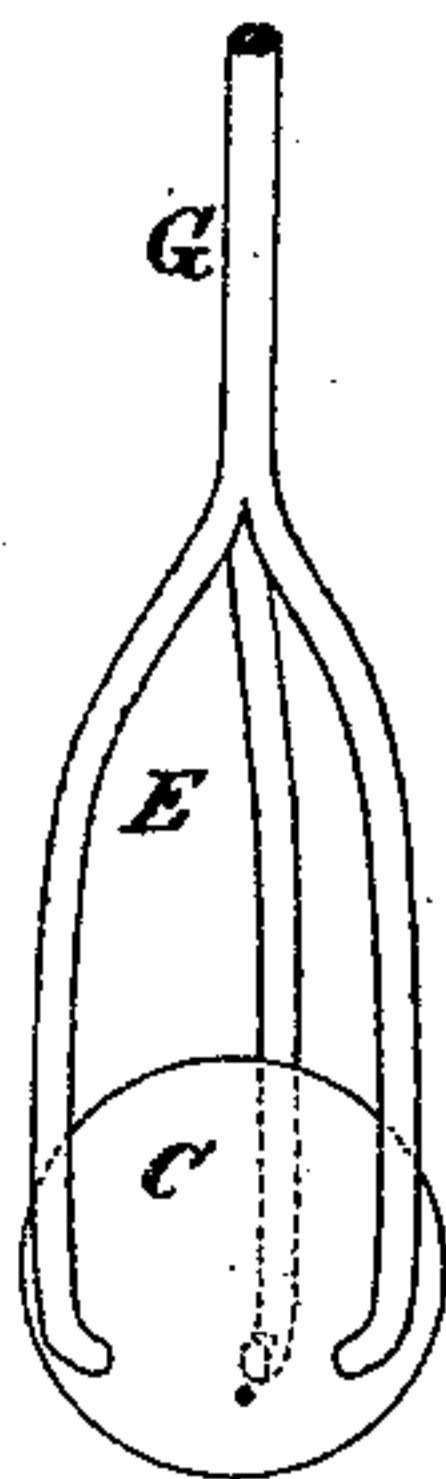
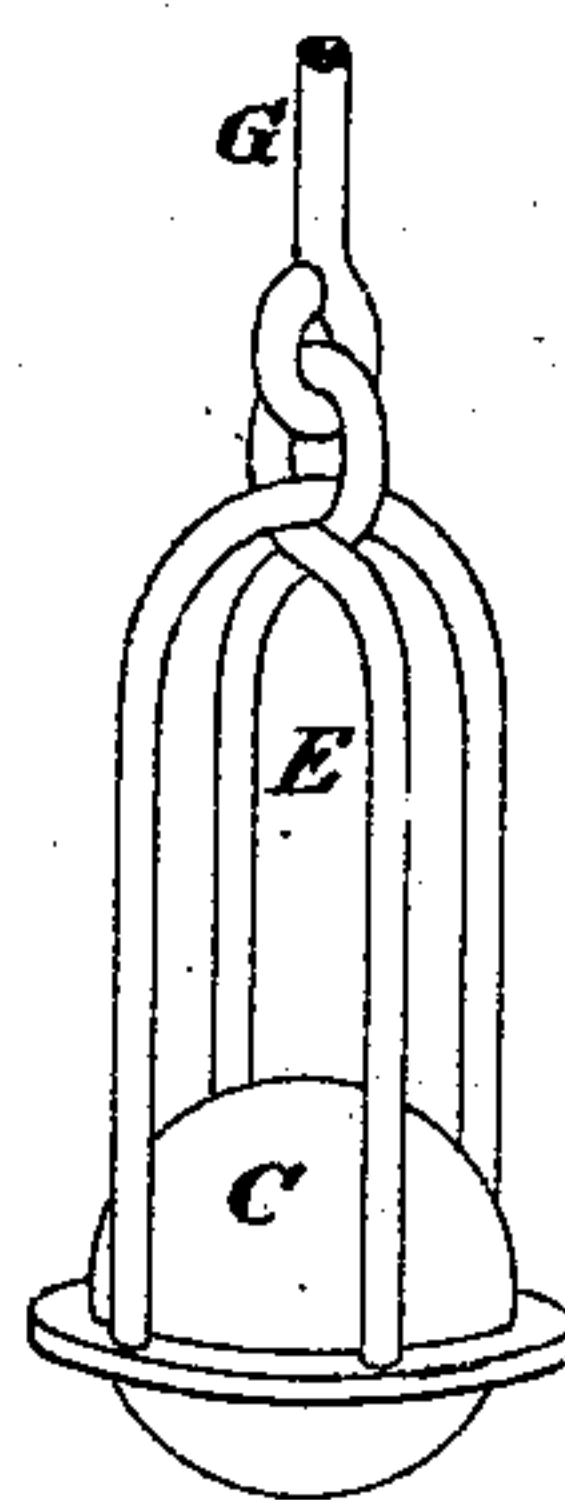
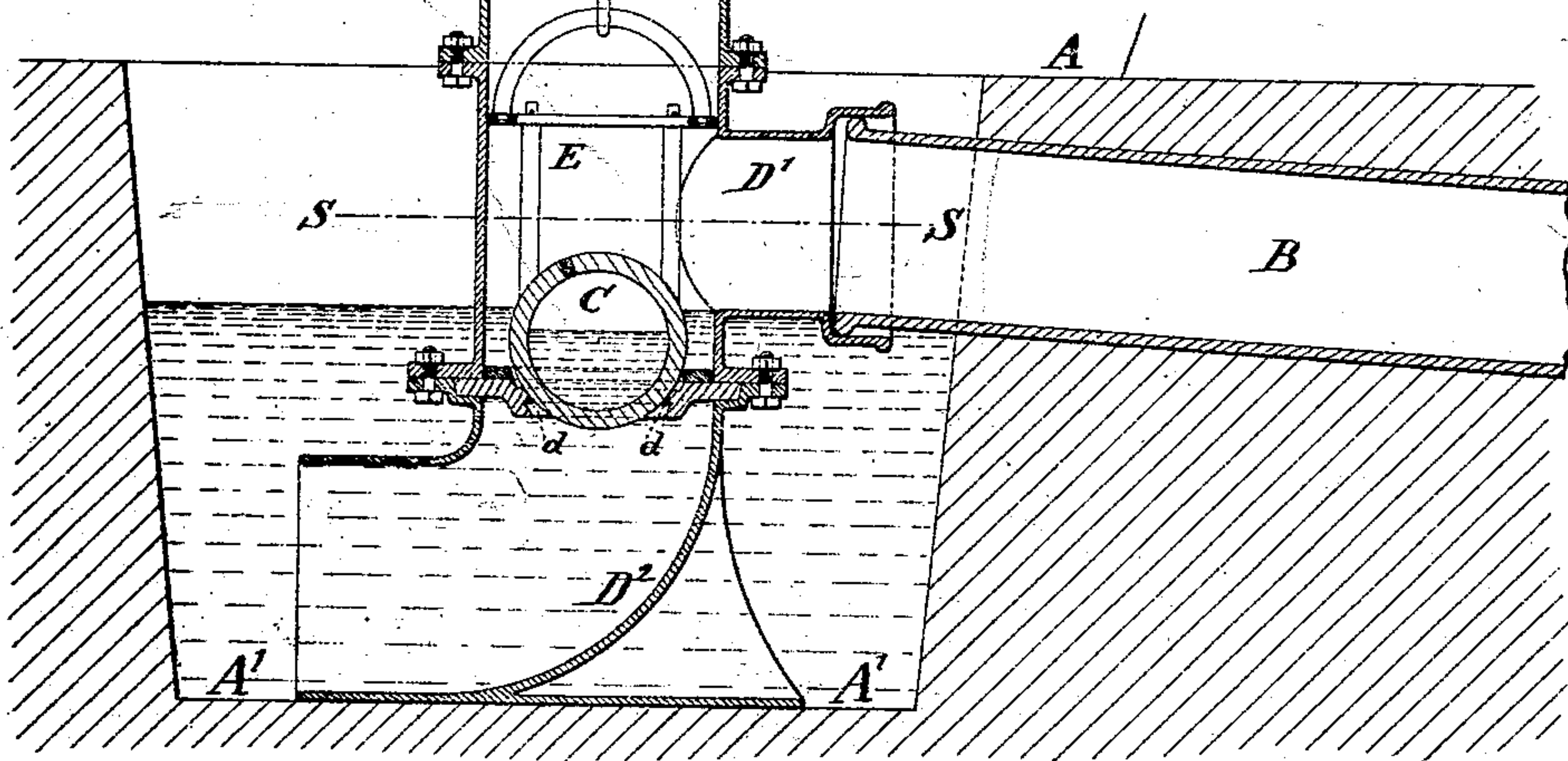


Fig. 4,



Inventors,
E. S. Dickinson
J. S. Peake
By their attorney
J. D. Stetson
Witnesses,

J. A. Surflet
A. Hornum



Low Water.

UNITED STATES PATENT OFFICE.

EDWARD S. DICKINSON AND JOHN L. PEAKE, OF NEW YORK, N. Y.

IMPROVEMENT IN DRAINING CELLARS.

Specification forming part of Letters Patent No. 117,156, dated July 18, 1871.

To all whom it may concern:

Be it known that we, EDWARD S. DICKINSON and JOHN L. PEAKE, both of the city, county, and State of New York, have invented certain new and useful Improvements in Means of Draining.

Our invention is a portable, light, and complete apparatus, which occupies very little room, and is strong and firm and little liable to failure from any cause. It is intended more particularly for draining the cellars of buildings which are liable to be flooded at high tide, but it may apply with advantage in draining mines and other excavations, under similar circumstances, or where the conditions with regard to drainage are liable to vary at intervals from freshets in adjacent streams, or even where, from the proximity to open sea, it is liable to be effected by waves in heavy weather.

We are aware that it has been common in draining marshes and various places subject to tidal fluctuations to provide drains with self-acting valves which would open on the sinking of the tide and allow water to flow out, and which would shut of themselves on the rise of the tide and exclude it from returning. This is the basis of our invention. We make a convenient construction, which may be cheaply produced in the shop ready to set up at once without labor. It provides a drain secured by a self-acting valve, with peculiar means for controlling and operating the valve and for ascertaining all the conditions at every stage. We have applied it in draining the cellar of a large building in this city, the bottom of which is below the level of the sea at high water. There are, or might be, many cellars so situated in this city, and probably in most other maritime cities. Our invention is adapted to greatly promote the practicability and usefulness of deep cellars by tidal docks and streams.

We will proceed to describe what we consider the best means of carrying out our invention.

The accompanying drawing forms a part of this specification. Figure 1 is a central vertical section. Fig. 2 is a horizontal section on the line S S in Fig. 1. Figs. 3 and 4 show modifications of certain parts. The drawing represents the novel parts, with so much of the earth-work as seems necessary to understand their relations thereto.

Similar letters of reference indicate corresponding parts in all the figures.

A is the bottom of the cellar, and A' is the bottom of a pit or sunk portion in a corner thereof, and connected by blind drains, not represented, with the other portions of the cellar, so that the pit receives all the water which oozes into the cellar through the interstices in the earth or from other cause. D is a pipe, laid horizontally or slightly inclined therefrom, and communicating directly or indirectly with an adjacent sewer or with the river, ocean, or other body of water which is liable to fluctuation in height, but which is certain to stand at intervals with its surface below the level of the cellar-floor. D D¹ D² is a casing of cast-iron or other suitable material, made in several pieces bolted tightly together, as represented, and carrying a valve-seat, d', which receives a spherical valve of India rubber or other suitable material. I prefer that this valve shall be of India rubber, with a single hole therein, stopped by a plug of India rubber or other suitable material, after it has been partially filled with water or with other heavy material, so as to make its mean density a little greater than that of water. In other words, it should sink with a gentle force so as to offer little objection to rising. The lower portion of the casing D² is made with a broad flat foot to stand firmly on the bottom, and is provided with an opening laterally to receive the water. Above the valve the horizontal arm D¹ connects with the drain-pipe B. Above this the casing D extends directly upward several feet, so that its upper end is certainly above the level to which the water will ever rise. When the water from the tide or other source outside sets back through the drain-pipe B it closes the valve C and rises in the upright casing or stand-pipe D. When the water retires again it empties the entire apparatus above the base of the branch D¹. So soon as the level within the pipe D sinks below that of the water in the pit the valve C rises and the device commences to receive and discharge water. We provide means both for confining the valve near its seat, and also for hauling it up for inspection and clearing or repairs at intervals. This is effected by means of a cage, E, and rod G provided with a handle at the top, and steadied, if necessary, by a slight removable cross-bar, H, resting on suitable bearings near the top. The cage E is made as open as possible to avoid clogging with rags, paper, or any foreign substance which may come from the pit with the water, but

must be sufficiently close to prevent the escape of the ball-valve C. It is adapted to retain the valve and prevent its getting far away from its seat, without interfering with its free rise and fall within proper limits, and is also adapted, by means of the rod G, to be hauled up, bringing the valve with it whenever necessary. The figures represent several modifications of this form of the apparatus.

The open casing D affords a ready means of measuring at any time the height of the water therein. Good management requires that the valve-cage, when found to be clogged by rags, paper, or any other material known or unknown, so as to operate imperfectly, shall be drawn up and cleaned when the water outside is low. In case of emergency, however, it can be hauled up and rapidly cleaned and returned when the water outside is at any level, the only evil resulting in such case being the small quantity of water which can flow in during the interim. We provide a small lateral nozzle near the top of the casing D, adapted to be coupled to a pipe leading from a lift and force-pump. By means of such pump the cellar may be emptied by the application of any suitable power, when, in an extraordinary emergency, the self-acting means are not sufficient to empty it. This condition is liable to be realized in maritime cities when a gale of wind prevailing for a long period blows the water into river or harbor and prevents the sea from ebbing properly. This nozzle *m* allows the pump to be connected and disconnected without

endangering the tightness and completeness of the other provisions. Water from sinks, or other discharges about the house or mine, may be led into the casing D at the top, or through additional side branches near the top, without seriously interfering with the action of our invention.

We do not confine ourselves to the precise form of the valve C. Any other which is light, adapted to be caged, and little liable to be clogged, may serve.

To provide against any serious influx of water while the valve and its cage are raised, we can provide a plug, not represented, to be lowered down through the stand-pipe directly upon the seat.

We claim—

1. The drain B and valve C, in combination with the open-top stand-pipe or tall casing D, arranged to operate relatively to each other and to the pit or place to be drained, and to a fluctuating water-level outside, as and for the purposes herein specified.

2. In connection with the drain-pipe B, stand-pipe D, and valve C, the cage E and lifting-rod G or their equivalents, adapted to allow the removal and return of the valve, as herein specified.

In testimony whereof we have hereunto set our names in presence of two subscribing witnesses.

E. S. DICKINSON.
JOHN L. PEAKE.

Witnesses:

THOMAS D. STETSON,
C. C. LIVINGS.