

(No Model.)

C. SHINKLE.
DRAINAGE APPARATUS.

No. 260,793.

Patented July 11, 1882.

Fig. 1

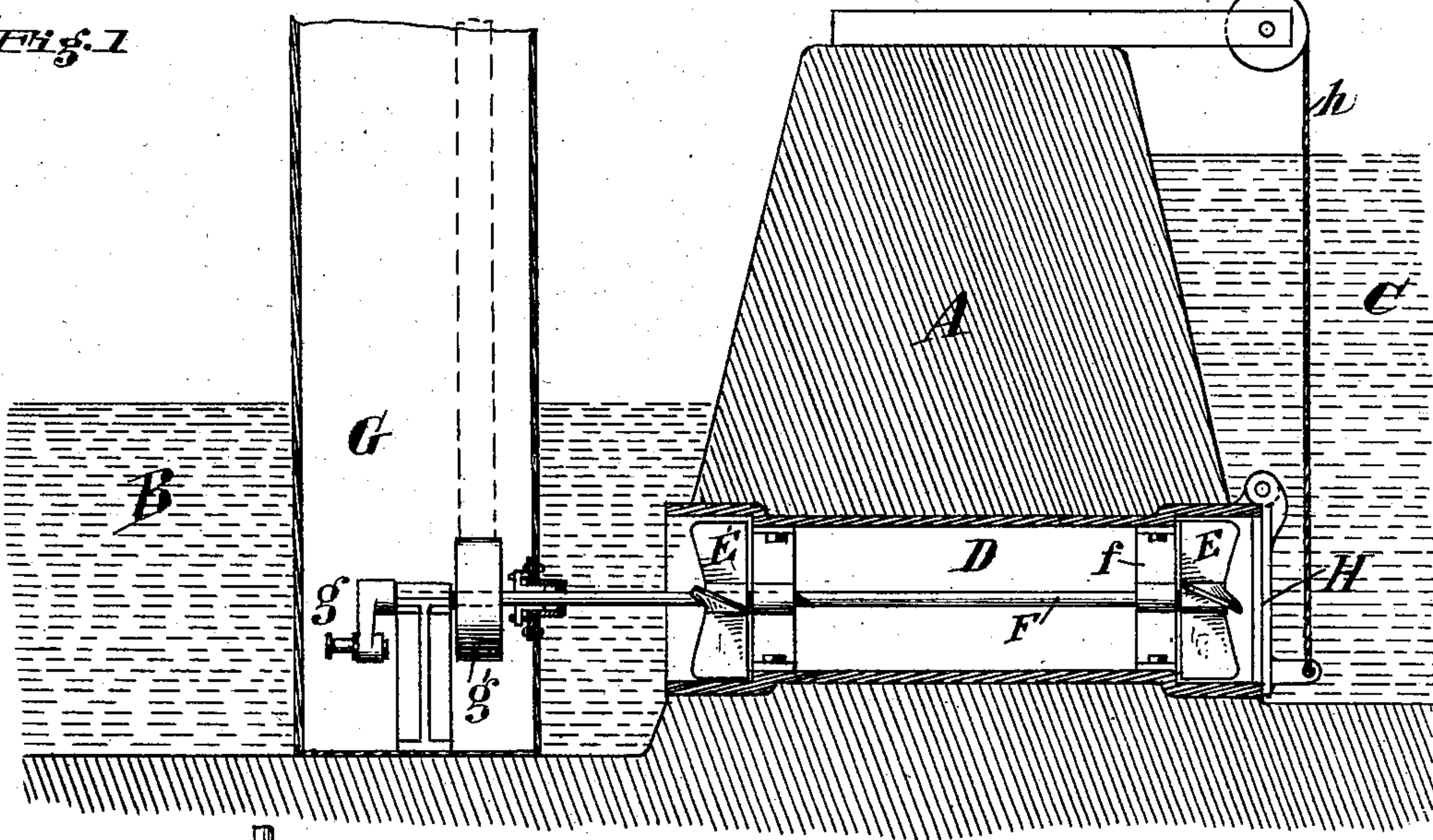


Fig. 2

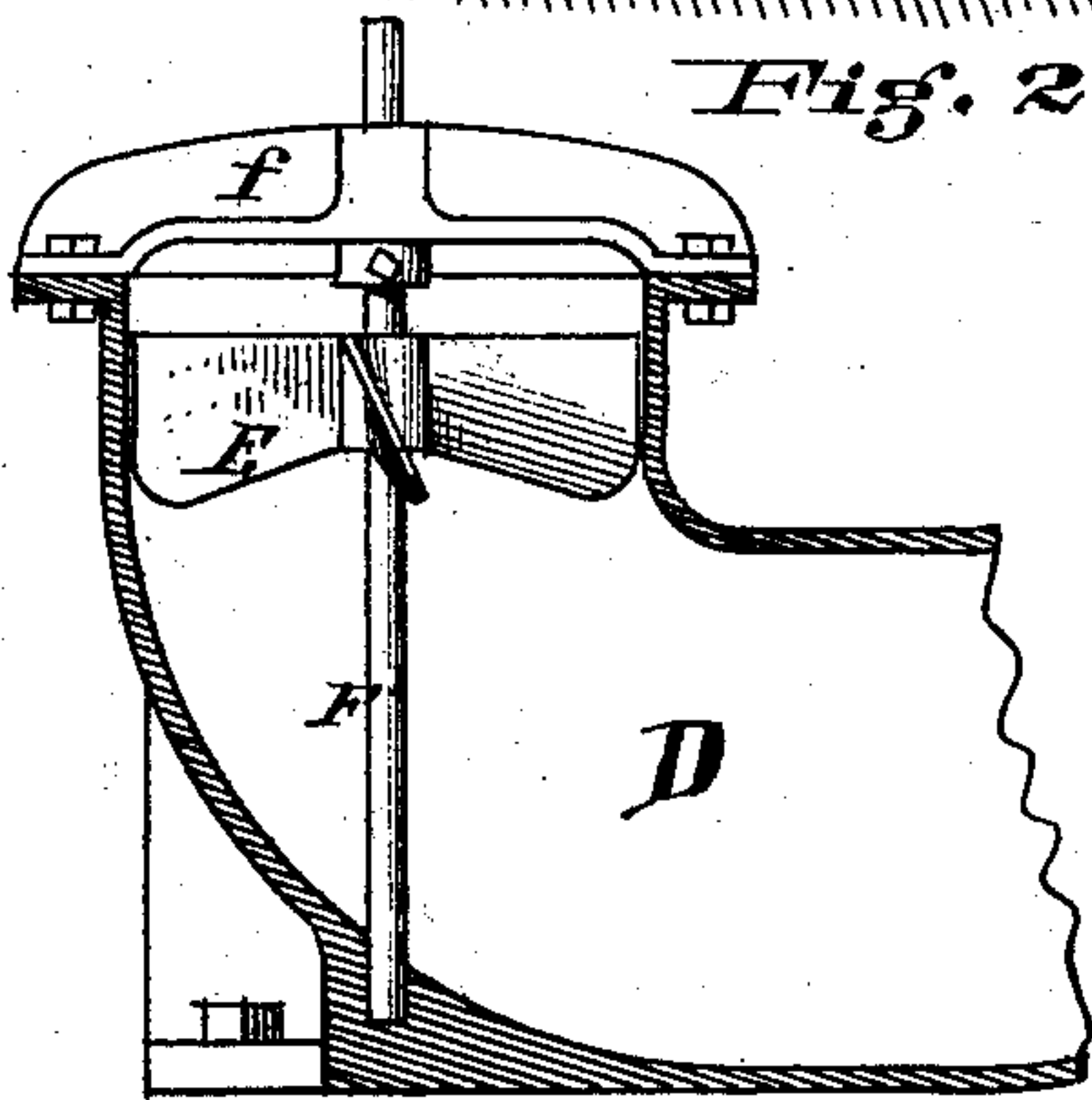
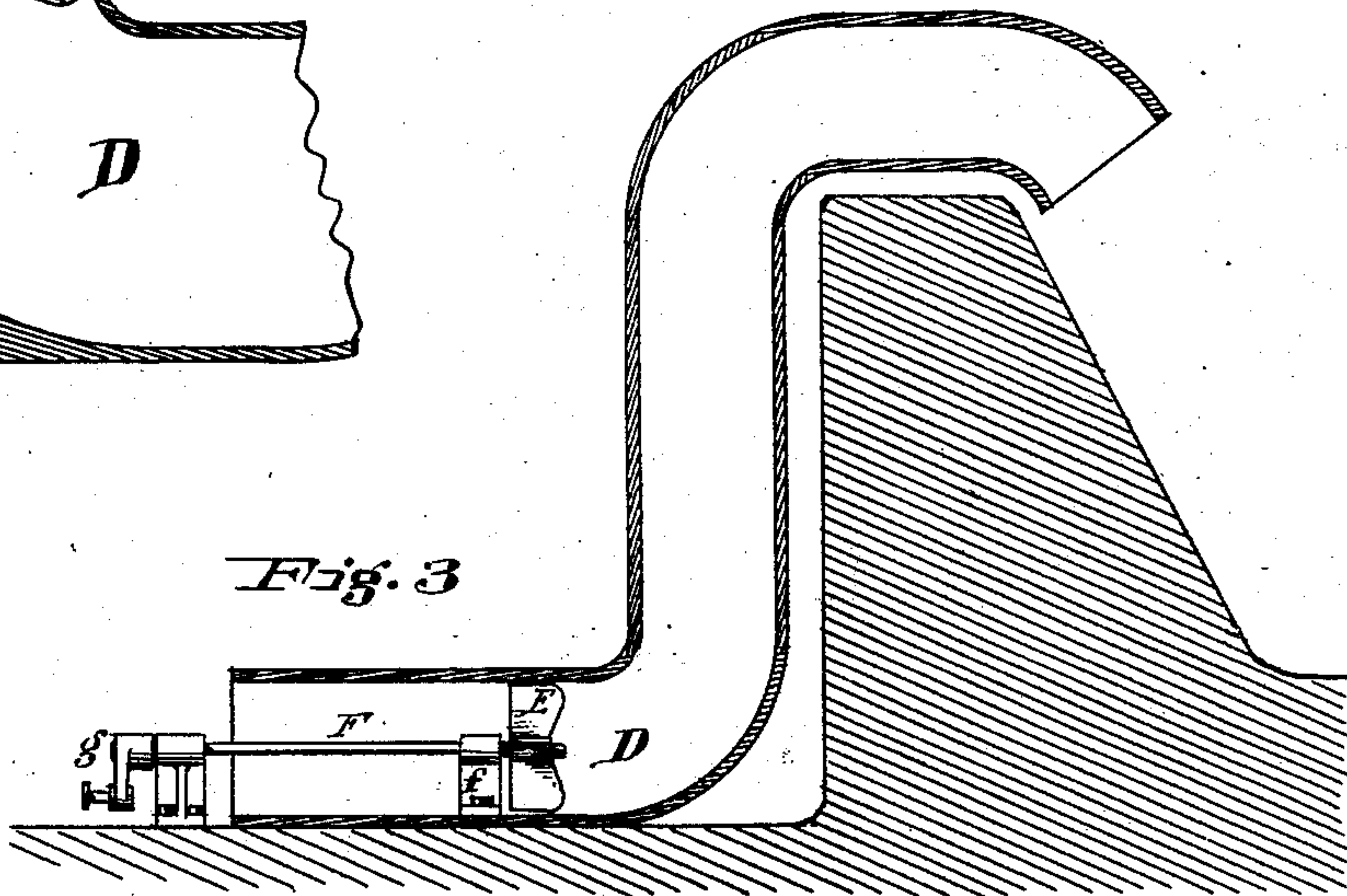


Fig. 3



Attest

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UNITED STATES PATENT OFFICE.

CHARLES SHINKLE, OF COVINGTON, KENTUCKY.

DRAINAGE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 260,793, dated July 11, 1882.

Application filed September 16, 1881. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SHINKLE, a citizen of the United States, residing at Covington, Kenton county, Kentucky, have invented new and useful Improvements in Drainage Apparatus, of which the following is a specification.

My invention relates to devices employed for draining swamps, low-lying lands, sewerage, &c., into the sea or into natural outlets against a head of water standing ordinarily at a higher level; and it consists in the construction and arrangement of apparatus hereinafter described.

In the accompanying drawings, illustrating my invention, Figure 1 is a sectional view of a dam separating the waters to be drained from the outlet-basin, showing my improvement applied thereto. Fig. 2 is a sectional view of a modified form of the drainage pump, and Fig. 3 a sectional view of a dam to which a further modified construction of the apparatus is applied.

In the drawings, A designates a dam separating a catch-basin, B, into which the drainage is collected from the outer basin, C, which may be a river, lake, or outlet of any kind.

In the dam A, I place one or a series of cylinders, D, arranged horizontally at the lowest level to which it is desired to drain the basin B, and arrange therein one or more propeller-wheels, E, upon a central shaft, F, mounted in suitable bearings in the standards *f*, as a means of drawing and forcing the water from the basin B into the outlet C.

Although I have shown two wheels in the cylinder D, yet ordinarily, when the head of water outside is not excessive, a single wheel E will be sufficient. Where a single wheel is employed it is preferably placed near the outlet end of the cylinder, as shown, and the cylinder itself is in such case preferably constructed in a slightly conical form, having a larger diameter at the receiving end than at the discharging end, in order to insure a ready flow of water to supply the suction of the pump.

The cylinder D is enlarged slightly at the end where the wheel is placed, so that a wheel equal to or greater than the diameter of the cylinder may rotate therein in order to prevent the backlash of water and secure a steady flow outward. As contributing somewhat to a perfect action in this regard, the blades of the

propeller-wheel may terminate outwardly in a band or cylindrical flange turned and fitted to the enlargement referred to. The pitch and number of the blades must be determined by the power employed and the head of water resisting the outflow, as will be readily understood by those conversant with the subject.

In Fig. 1 I have shown the shaft F extended into a well, G, where the motive power is applied either by coupling the driving-engines directly to a crank, *g*, or by belting to a pulley, *g'*. This arrangement is desirable where wheels of considerable size are used for moving large quantities of water against considerable resistance, in which case a high speed is required; but ordinarily the power may be transmitted from above by a vertical shaft and bevel-gearing.

The outer end of the cylinder D is provided with a hinged flap-valve, H, opening outward. This will ordinarily operate automatically to prevent backflow by the greater pressure without but a lifting rope or chain, *h*, may be attached and operated from above.

Where the head of water on the outside is variable, as in the case of tides, or water affected by winds, it may occur that the head of water in the catch-basin will exceed that without, in which case the driving-engines may be stopped, and the water allowed to flow outward by its natural gravity.

In Fig. 2 the cylinder is formed with an elbow, by which its receiving-mouth opens vertically, allowing the wheel to be mounted on a vertical shaft for convenience of operating.

In the modification shown in Fig. 3 the cylinder is placed wholly in the catch-basin B and its exit end carried upward and over the dam. This construction may be necessary where it is not desirable to perforate the dam to place the apparatus in position; but otherwise the first-mentioned construction is preferred.

It will be readily understood that in the drainage of swamps and sewerage catch-basins a large amount of dirt, earth, gravel, weeds, &c., is liable to be drawn through the apparatus, and that the latter, to be efficient, must therefore be of the simplest construction and accessible to repairs; the arrangement of apparatus shown I have found to be the best under all circumstances of use.

I do not wish to be understood as claiming

broadly a submerged pipe or cylinder provided with a propeller-wheel for creating an artificial current and drawing off stagnant waters, for such, independently considered, is old.

5 Having described my invention, I claim and desire to secure by Letters Patent—

1. The apparatus for draining swamps and the like into tide-water or other outlet, consisting in a dam separating the drainage catch-
10 basin from the outlet waters, and one or more channels extending at or below the desired drainage level through said dam, and provided with valves acting automatically to prevent
15 backflow, and a propeller-wheel operating in the cylinder upon a central shaft, substantially as specified.

2. In combination with the dam A, separating a catch-basin, B, from the outlet C, a cylinder, D, extending horizontally through the dam, and provided with one or more propeller-
20 wheels, E, arranged upon a central axial shaft, and an outer valve, H, substantially as specified.

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

CHARLES SHINKLE.

Witnesses:

L. M. HOSEA,
GEO. B. MUSCHLER.