

(No Model.)

H. JONES.
LIFTING PUMP.

No. 345,145.

Patented July 6, 1886.

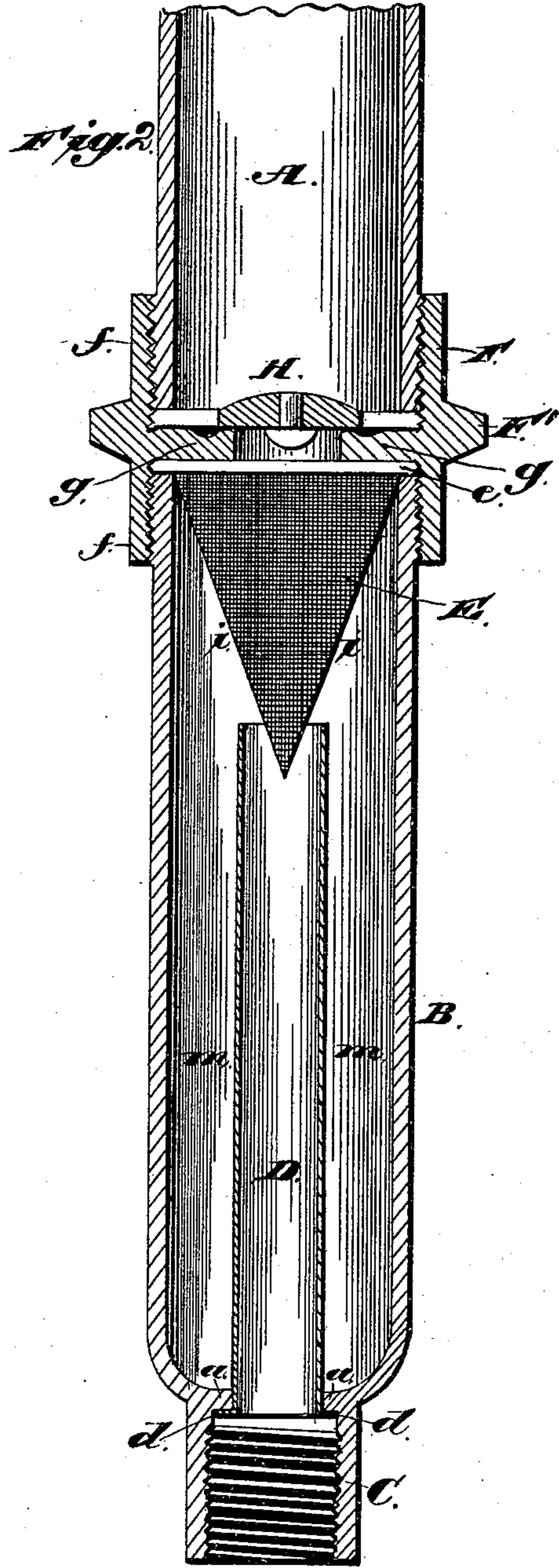
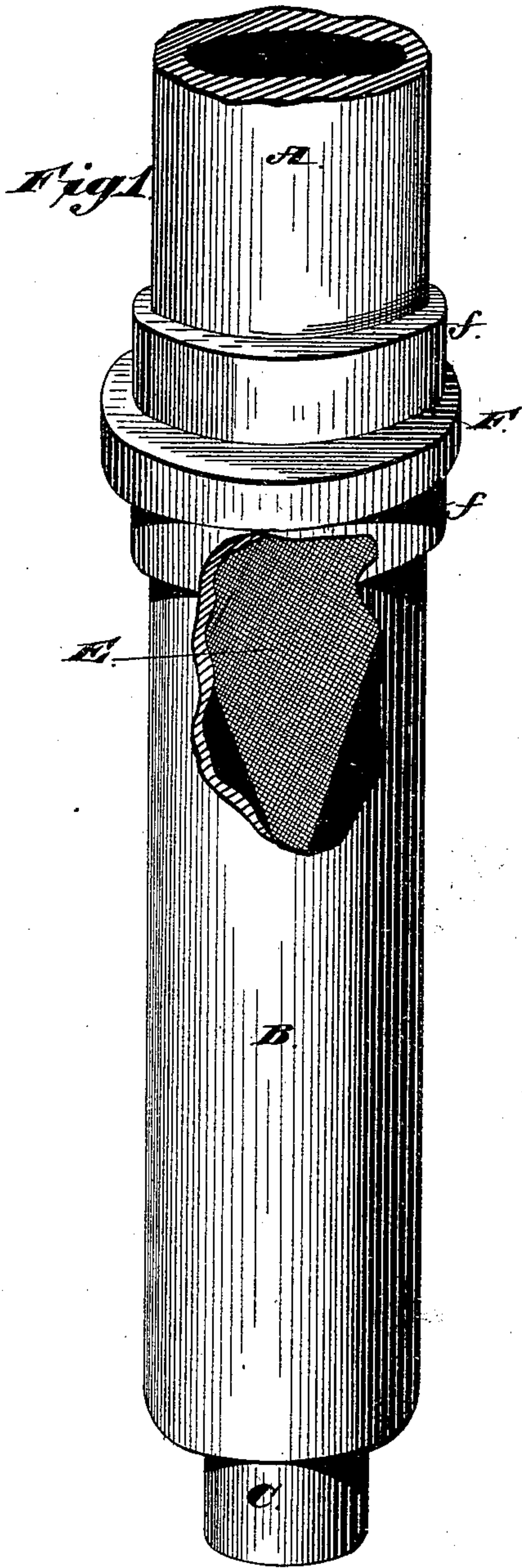
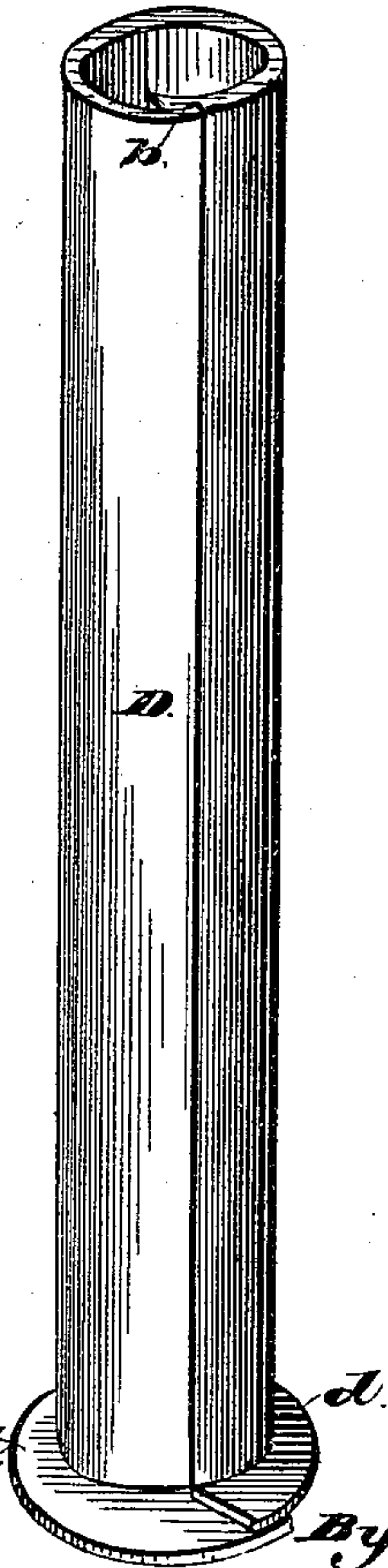


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

HARRY JONES, OF RICHMOND, INDIANA.

LIFTING-PUMP.

SPECIFICATION forming part of Letters Patent No. 345,145, dated July 6, 1886.

Application filed July 8, 1885. Renewed June 9, 1886. Serial No. 204,666. (No model.)

To all whom it may concern:

Be it known that I, HARRY JONES, a citizen of the United States, residing at Richmond, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Lifting Pumps, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to lifting-pumps; and it consists in the features more particularly hereinafter described, and pointed out in the claims.

In using driven wells, as is well known, the end of the well-pipe is in immediate contact with the earth or sand of the water-bearing stratum which it has penetrated. The suction of the pump acts upon this earth or sand and tends to raise it with the water. It being gritty or silicious acts to cut and destroy the valves and cylinders of the pump. To prevent this it has been customary to surround the lower perforated pointed end of the well-tube with a strainer of such fine reticulations as to forbid the passage into the well-tube of gritty or silicious matters, or else to make the perforations therefor fine and small, and so act to the same end. In such constructions it has been found that the force of suction draws the earthy matters against the lower guarded end of the well-tube. It then often so packs in there that water passes therethrough with great difficulty, if at all, causing the pump to "kick," owing to the fact that little if any water can enter to fill the vacuum below the piston. Such construction, also, as is evident, prohibits the formation of a cavity around the lower or inlet end of the well-tube, while the formation of a cavity therearound is desirable in that it furnishes a small reservoir or chamber aiding in furnishing the pump when in action with a proper supply of water.

The object of my invention, therefore, is to remedy these objections, to which end I combine with the pump and the well-tube a straining device and a receptacle for the foreign or gritty matters separated thereby from the water interposed between the well-tube and the pump, so that the lower end of the well-tube may be left so comparatively open that enough of the surrounding earth or sand may be drawn into and through the tube to form

a cavity or reservoir around the lower inlet end, while such matter is separated from the water before it reaches the pump and is deposited in the receptacle therefor, so that the valves and pump-cylinder and piston are preserved from the destructive action of the grit in such matter. I construct these parts so as to be readily separable for the purposes of easily clearing them, and so, also, as to be safe from any injury by frost or freezing.

In the accompanying drawings are shown means for practicing the invention, wherein Figure 1 is a perspective view of the intermediate chamber, partially broken away to show the inclosed straining device; Fig. 2, a longitudinal section thereof; and Fig. 3 a perspective view of the inlet-pipe for the intermediate chamber.

In the drawings, A represents the lower part of the pump proper, the inlet-valve H thereof being the only valve shown.

B is the intermediate chamber, preferably of the same size as the pump-tube A. At its lower end it is somewhat contracted and formed into the screw-threaded projection C, by which it is secured to the well-tube.

Between the body and part C is formed the internally-projecting flange *a*, for a purpose hereinafter referred to.

D is the inlet-pipe leading from the well-tube upon which B is to be secured, to the interior of B. It is made of a piece of suitable sheet metal folded around so that its edges overlap to form the loose lap-joint *b*. At its lower end is a flange, *d*, corresponding in width to the width of the flange *a* projecting inwardly from C, while the diameter of D is normally such as to easily fill the opening from C into B.

E is the straining device, formed of any suitable reticulated material formed into the shape of an inverted cone. It is attached to or formed with a ring or flange, *e*, by which it is secured in position. This strainer projects to such distance downwardly within B, and the inlet-tube D rises within B to such distance that the apex of E and the top of D are contiguous to each other, the apex of E preferably projecting within the mouth of D, as shown.

For securing the chamber B and the pump A together a thimble, F, is used consisting of a central web or ring, F', having screw-threaded

projections *ff* upon either side for engagement with screw-threaded portions of A and B, respectively. Upon the interior of F at or near its center is an inwardly-projecting flange, *g*, which forms a seat for the valve H, the inlet-valve of the pump proper. In combining these parts the valve H is laid upon *g* and A secured into F, so that the edge of H is secured and forms a gasket between A and *g*. The flange *e* of E is secured between the top of B and *g*, the thimble F thus uniting A and B and securing the valve H and strainer E in position. The inlet-pipe D is slid through C into B until its flange *d* rests upon flange *a*. B being then secured to the well-tube D, will be held firmly in position by the clamping of *d* between the top of the pump-tube and the flange *a*. Thus constructed and mounted the lower end of the well-tube need not be protected by the ordinary strainer—in fact, such strainer preferably is not used—in order that the surrounding material may be drawn up and a cavity formed around the lower or inlet end of the well-tube, constituting a reservoir and negating danger of stopping of flow of water into the tube from the packing of the material around the ordinary screen. As this material is drawn up with the water, it strikes upon the apex of E with such force as to be carried up its sloping slides, say approximately to the points *ii* beyond the mouth of D, the water passing through the meshes of the strainer while the matter which cannot pass therethrough falls back into the annular chamber *m*, formed between the exterior of D and interior of B.

When it is desired to clean the screw or the chamber, A by means of F is simply detached from B, when the screw may be lifted out and cleansed, the contents of the chamber removed and the parts then readily replaced.

The intermediate chamber, B, may be placed above or below ground, as from its construction frost or freezing can work no injury to it. As before stated, the joint *b* of D is a simple loose lap-joint whose edges are capable of sliding upon each other; hence the tube is collapsible or yielding without danger of fracture. The joint being loose, any water which may have accumulated in the chamber *m* within B finds egress therefrom through the joint *b* and

back into the well-tube. If water be held therein by material which may have accumulated in the chamber, and the water freezes, the expansive force due to freezing is expended upon the tube D, causing it to collapse or be compressed sufficiently to protect B against the action of such force.

While this invention has been referred to herein as more particularly applicable to driven-well pumps, it is evident that it is equally applicable to any pumps and to any pump-tubes leading into a supply of water from which it is desired to separate foreign or gritty matters.

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

1. The combination, in a pump, of a chamber or receptacle and an inlet-pipe projecting upwardly therein, having a loose lap-joint and an inclosing-flange which fits closely around the orifice of said chamber and prevents the mingling of the incoming water with the refuse substances in the outer chamber, the pipe being so constructed that the lapping edges will pass each other and leave an opening for the escape of the water surrounding the pipe when freezing, thereby preventing the chamber from bursting, substantially as described.

2. The combination, in a pump, of a chamber or receptacle, an inlet-pipe projecting upwardly therein and having a loose lap-joint, a straining device in the shape of an inverted cone whose apex is at or about at the exit of the inlet-pipe, substantially as described.

3. The combination, in a pump, of a chamber or receptacle, an inlet-pipe projecting upwardly and having a loose lap-joint, a straining device below the valve in the shape of an inverted cone whose apex projects into the inlet-pipe at its upper end, and means, substantially as described, for holding said straining device in position, as and for the purposes set forth.

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

HARRY JONES.

Witnesses:

CHARLES S. HYER,
EMMA M. GILLET.