

(No Model.)

F. SLOAN.
PUMP FOR OIL TANKS.

No. 272,340.

Patented Feb. 13, 1883.

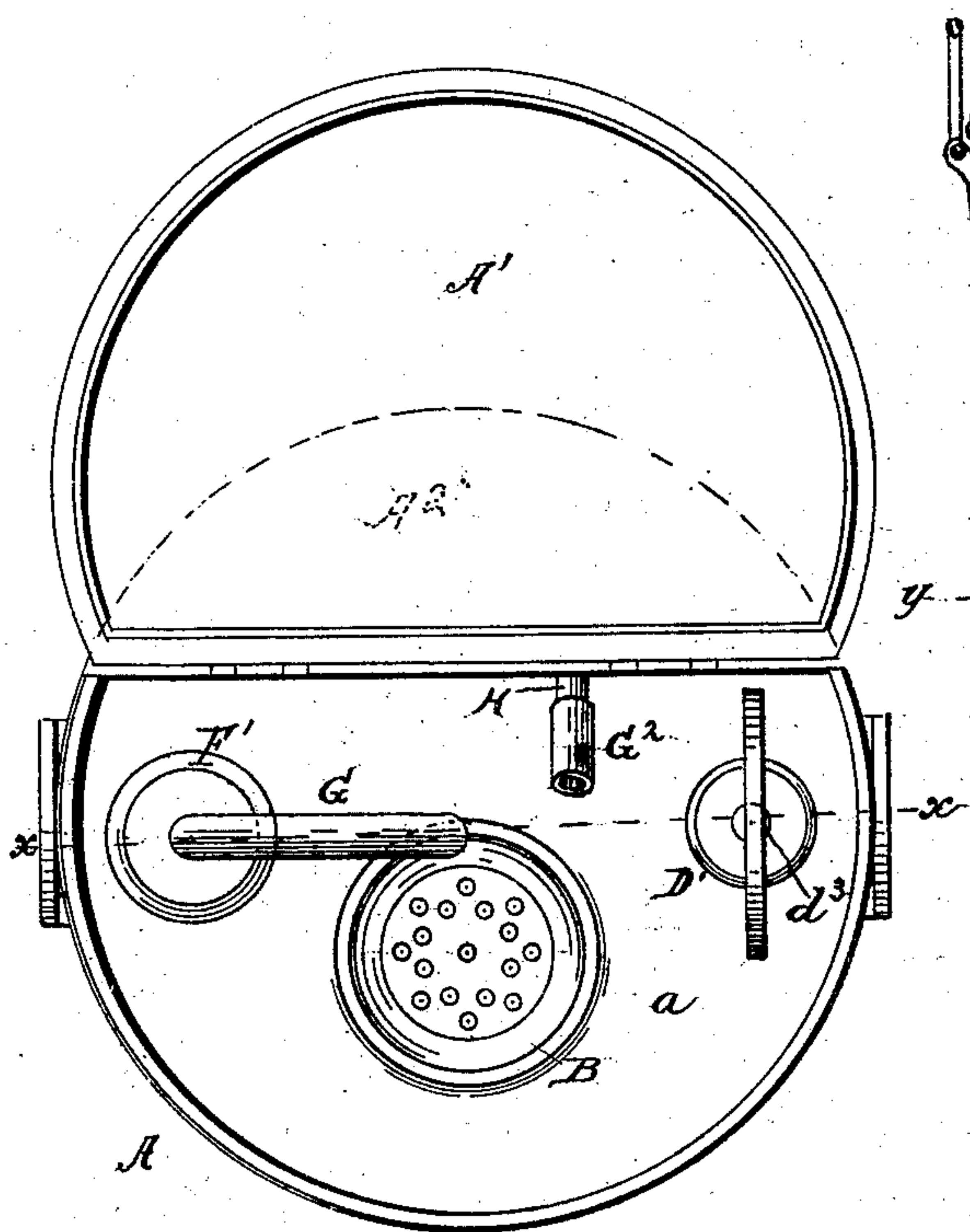


Fig 1

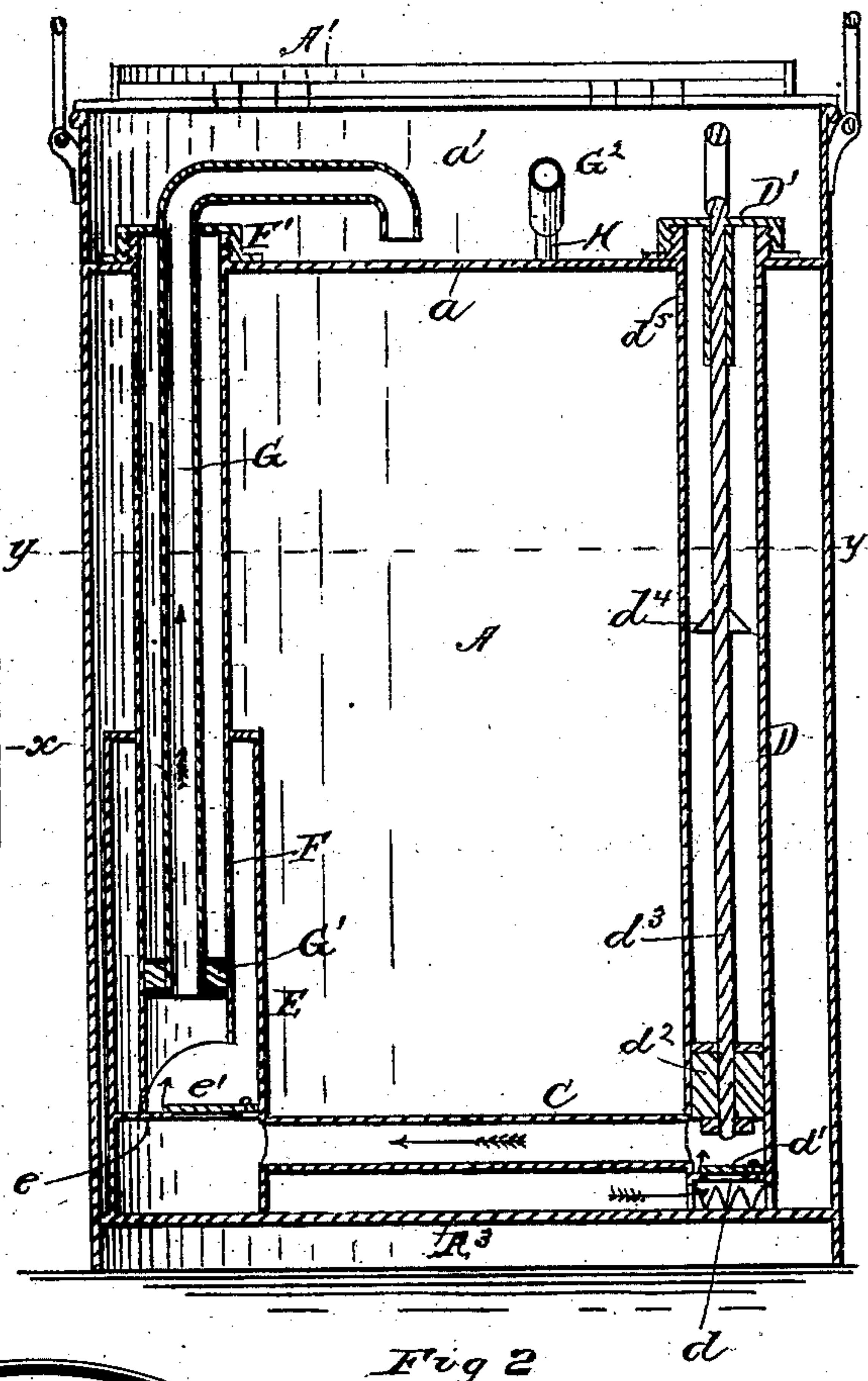


Fig 2

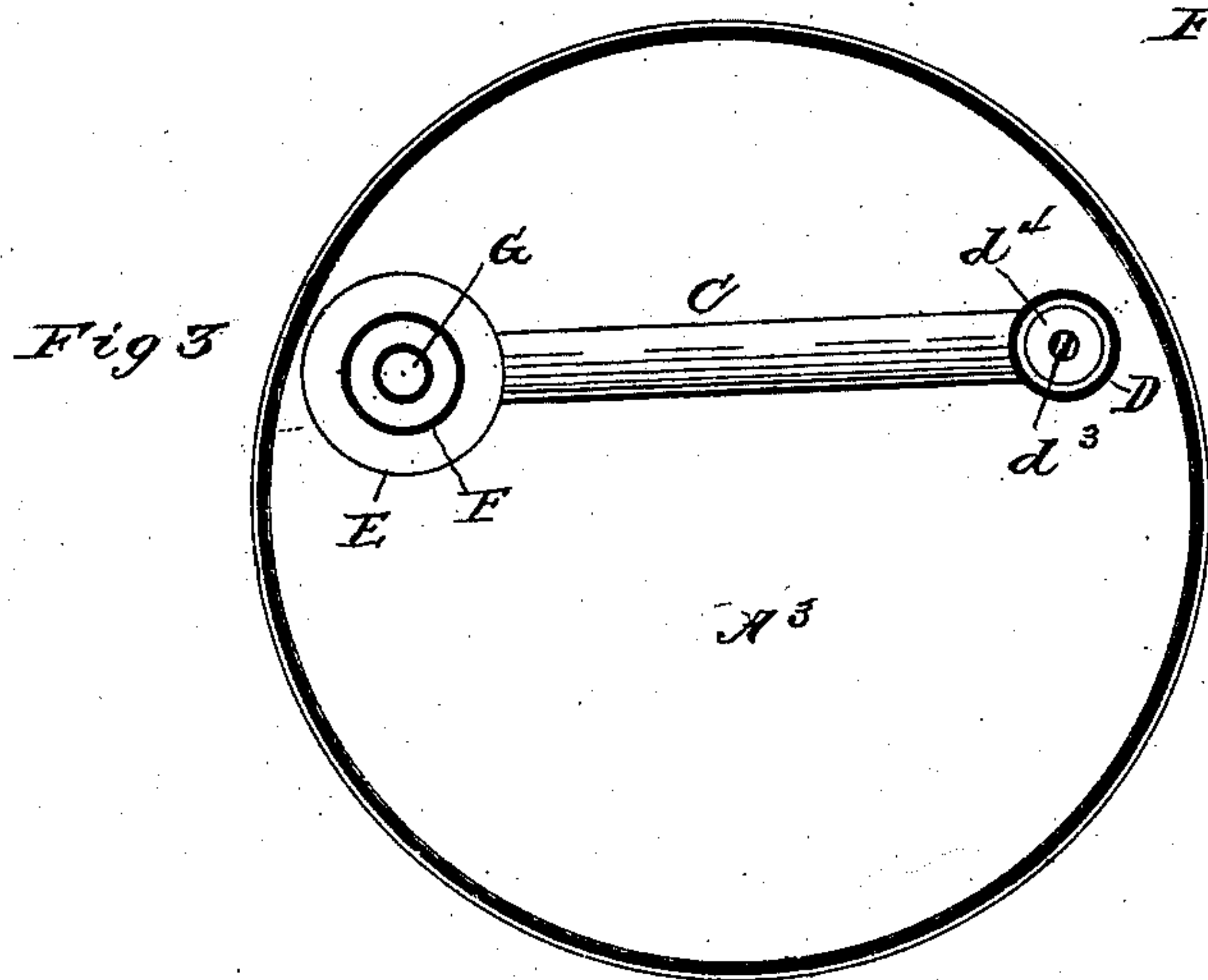


Fig 3

Witnesses

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FRANK SLOAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE ADAMS & WEST-LAKE MANUFACTURING COMPANY, OF SAME PLACE.

PUMP FOR OIL-TANKS.

SPECIFICATION forming part of Letters Patent No. 272,340, dated February 13, 1883.

Application filed September 22, 1882. (No model.)

To all whom it may concern:

Be it known that I, FRANK SLOAN, a citizen of the United States, residing at the city of Chicago, in the county of Cook, in the State of Illinois, have invented certain new and useful Improvements in Pumps for Oil-Tanks, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a top view of an oil-tank having my improved pumps, the lid being turned back. Fig. 2 is a section on the line *xx* in Fig. 1. Fig. 3 is a section on the line *yy* in Fig. 2.

The same letters denote the same parts in all the figures.

My invention relates to pumps, and more especially to pumps adapted to use in connection with tanks for the storage and discharge of petroleum and similar liquids; and it consists in the several devices and combinations of devices which will be fully described hereinafter, and definitely pointed out in the claims, the object being to promote convenience, cleanliness, and perfect operation in the drawing of petroleum and similar liquids for use.

In the drawings, A denotes the tank or receptacle for the petroleum or other liquid. It is represented as cylindrical, but may be rectangular, or of any form preferred. It may be made of any suitable material. It is provided with a hinged lid, A', which, as represented in the drawings, constitutes about three-fourths of its top. It is also closed at a short distance below this lid by a diaphragm, *a*, of the same form as the lid, and an upright partition, *a'*, extending from the straight edge of the diaphragm to the fixed portion A² of the top. Of course the lid and the diaphragm, or either of them, might extend all the way across without essentially varying the construction. A hole near the middle of the diaphragm gives access to the interior of the tank for the purpose of filling or cleaning, and is closed by a basin-shaped cover, B, with a bottom perforated to allow any oil that may accidentally drip on the diaphragm to return to the interior of the can. The perforations serve also to maintain a pressure of air on the surface of the oil in the can. By means of this diaphragm *a* an inclosed compartment for

the filling and discharging apparatus is provided in the upper part of the tank; and thus the drip incident to these operations is all confined within the tank itself.

Two upright tubes diametrically opposite each other rest on the bottom A³ of the tank. A short distance above their lower ends they are connected by a horizontal tube, C. Of the upright tubes, one, D, extends a little above the diaphragm *a*. Several openings, *d*, are cut in its wall at the bottom, terminating below the point where the horizontal tube enters it. Immediately above these openings, and just below the horizontal tube, is a valve, *d'*, opening upward only. Above the valve a piston, *d*², is operated by a piston-rod, *d*³. That part of the wall of the tube D which projects above the diaphragm *a* is threaded on the outside, and is covered by a cap, D', correspondingly threaded on its inner side, and having in its upper surface an aperture just large enough for the piston-rod to pass easily through. The piston-rod carries about midway of its length a diaphragm, *d*⁴, which limits its upward stroke, and thus prevents the piston from being brought so near the top of the tube as to throw out above the diaphragm *a* the oil which may have got above the piston. Perforations *d*⁵ in the upper part of the tube D, but below the diaphragm *a*, allow this oil to return to the reservoir, which should never be filled quite to the level of these perforations. The other upright tube, E, is of about twice the diameter of the tube D, and extends about half-way up to the diaphragm *a*. It is closed just above the horizontal tube C by a diaphragm, *e*, in which there is an upwardly-opening valve, *e'*.

Another upright tube, F, about equal in diameter to the tube D, rests on the diaphragm *e*, its lower part being cut away on one side enough to allow free motion to the valve. Like the tube D, it extends through the upper diaphragm, *a*, and is closed at the top by a similar screw-cap, F', which has an aperture in its top large enough to admit the passage of a small outlet-pipe, G, also upright, which extends downward within the tube F nearly or quite to the point where that tube is cut away, to allow the opening of the valve *e'*. At its lower end this tube G is surrounded by a dia-

phragm, G', of india-rubber or other suitable material, which fits snugly within the tube F, though with a moderate degree of force it may be moved up or down or turned. It is made fast to the pipe G. The opening in the screw-cap F' also admits of an upward and downward and revolving motion of the pipe, the pressure of the diaphragm G' against the walls of the tube F being, however, sufficient to hold the pipe G in any position against accidental shifting. At its upper end the pipe G is bent into a horizontal and then into a downward direction, so as to form a spout. The upper end of the tube E is closed around the tube F.

The operation of the mechanism described is as follows: The piston d^2 being lifted, the pressure of air on the surface of the oil in the tank forces oil through the openings d to fill the vacuum thus made in the tube D. The piston being pressed down again, the backward flow of oil thus caused in the tube D closes the valve d' , and is necessarily directed into the horizontal tube C and into the lower part of the tube E, lifting the valve e' and partly filling that part of the tube which is above the diaphragm e . Successive strokes of the piston force more and more oil into the tubes E and F above the diaphragm e , the valve e' not suffering any to return, and the air in the upper part of the tube E promoting by its pressure a steady flow up through the outlet-pipe G. This outlet-pipe may be adjusted at any height that may be found suitable for the vessel to be filled, and it may be turned in the tube F, so that its spout end shall point in any direction that may be found convenient.

Instead of being adjustable and bent, as described, at its upper end, the outlet-pipe G might be fixed, having a flexible tube of india-rubber or other suitable material attached to its

upper end. The tube F, whose principal object is to afford a bearing for the motion of the pipe G, might in that case be dispensed with. The construction shown in the drawings is, however, neater and more convenient.

If the pipe G be constructed with the flexible tube, when the latter is not in use its nozzle G^2 may be slipped over a short tube, H, projecting from the upper diaphragm, a , and opening into the interior of the tank, and the drip of the flexible tube will thus be returned to the tank.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The stationary discharge-tube F, provided with the perforated cap F', in combination with the adjustable discharge-tube G, arranged within it, but not in contact with it, and provided with the elastic diaphragm G', of diameter sufficient to fill the space between the two tubes, substantially as and for the purpose described.

2. The tube E, provided with the diaphragm e and upwardly-opening valve e' , the tube F, extending from the diaphragm to the top of the reservoir, the outlet-pipe G, provided with the diaphragm G', and means for forcing oil into the tube E below the diaphragm e , all constructed, arranged, and operating in combination, substantially as and for the purposes described.

3. The pump-tube D, provided with the upper openings, d^5 , in combination with the piston d^2 , and piston-rod d^3 , provided with the diaphragm d^4 , substantially as and for the purpose described.

FRANK SLOAN.

Witnesses:

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