

S. D. Gilson,
Mary, Salt.
No. 113045. *Patented Mar. 28. 1871.*

Fig. 1.

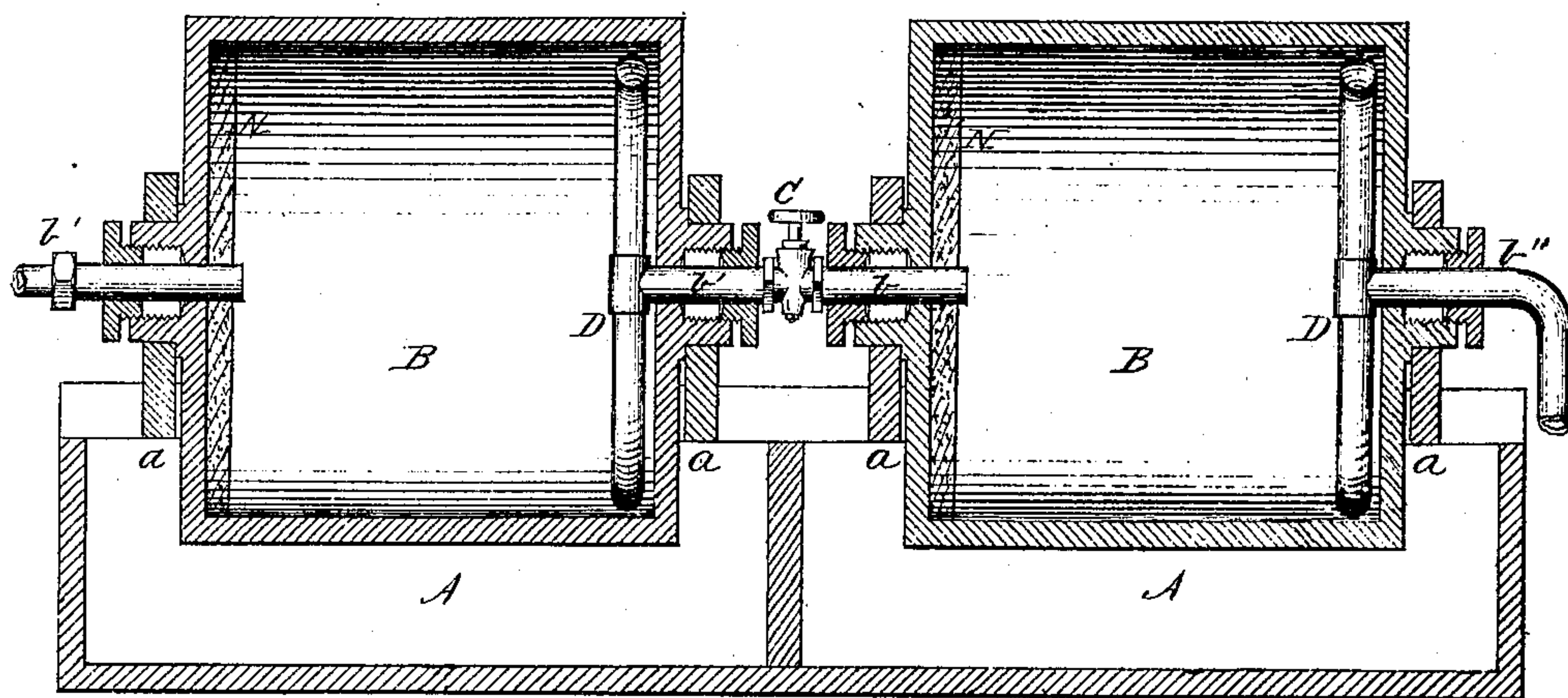


Fig. 2.

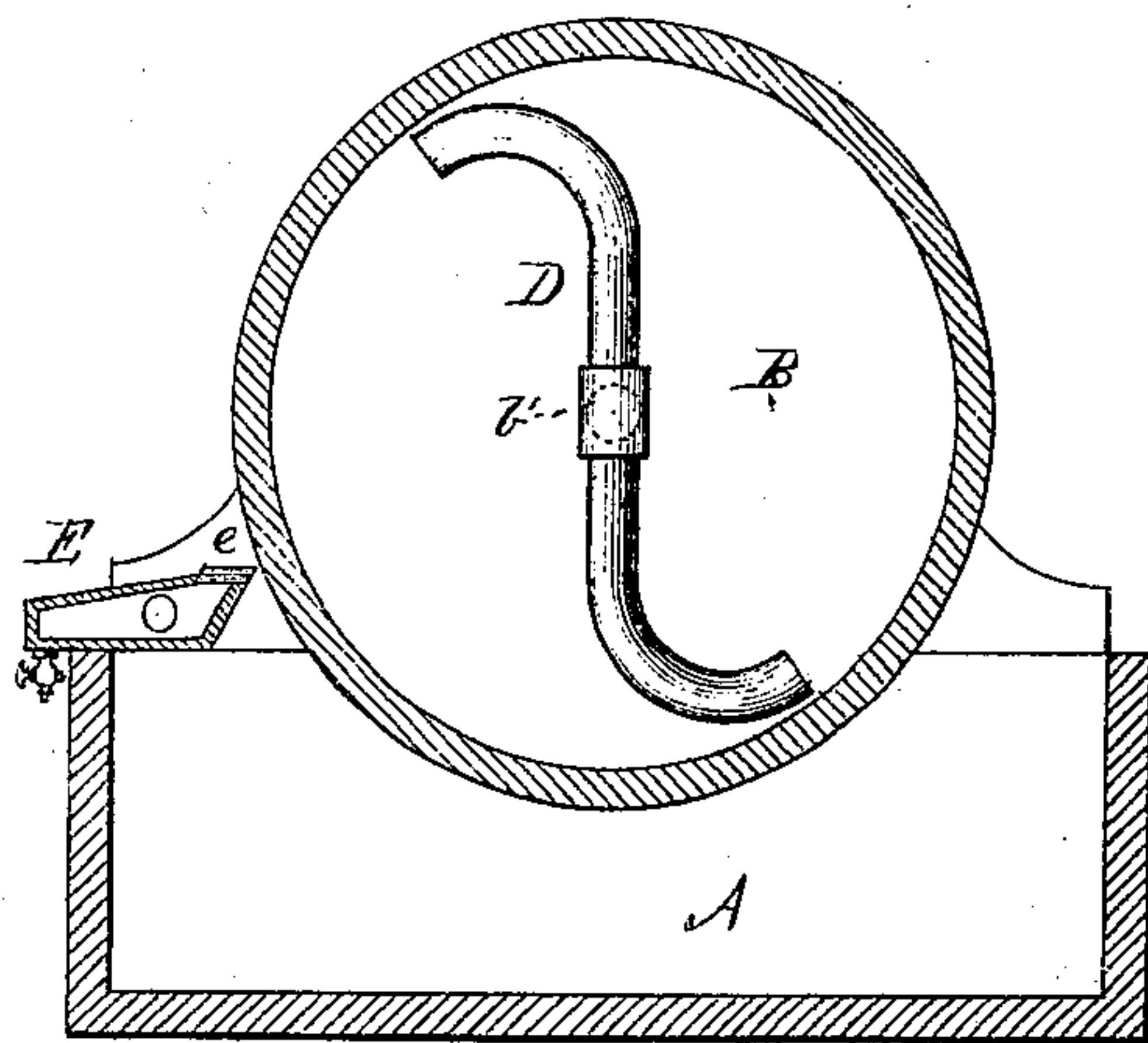
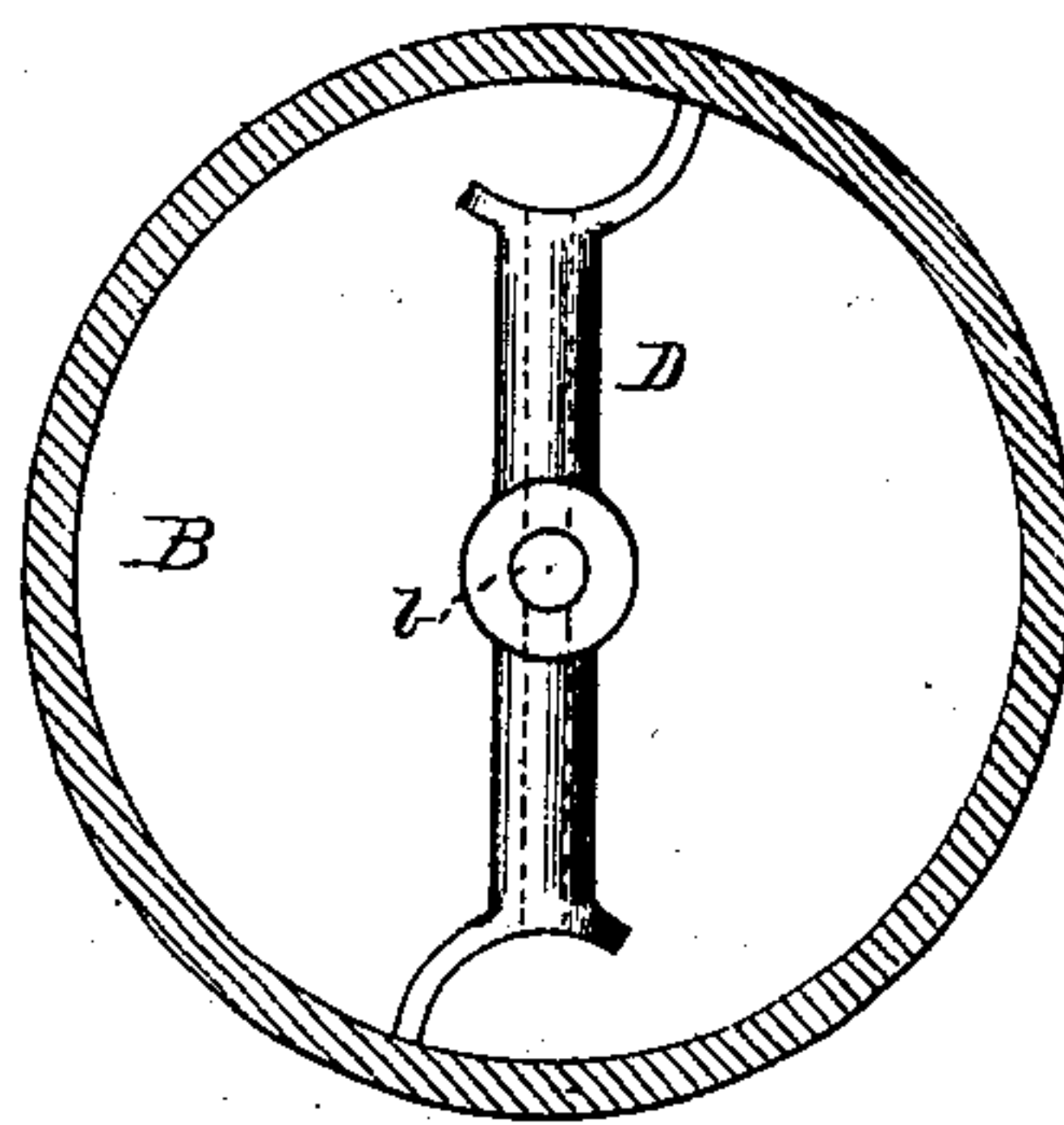


Fig. 3.



Witnesses:
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SAMUEL D. GILSON, OF SYRACUSE, NEW YORK.

Letters Patent No. 113,045, dated March 28, 1871.

IMPROVEMENT IN THE MANUFACTURE OF SALT FROM BRINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, SAMUEL D. GILSON, of Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Salt-Evaporator and Saturating Engines; and I do hereby declare the following to be a clear and exact description thereof sufficient to enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a central vertical longitudinal section of my invention;

Figure 2 is a vertical cross-section of the same, showing the tank, cylinder, knife, and discharge-pipe;

Figure 3 is a modification of the collecting and discharge-pipe.

My invention consists—

First, in arranging over a brine-tank or bath, in suitable bearings, one or more cylinders, which, in operation, is or are to be filled with steam, hot water, &c.

Second, in providing said cylinders with *S* or other-shaped pipes, connected with an exhaust-pipe, for collecting the water or condensed steam in one cylinder and conveying it to another or back to the boiler.

Third, in a steam-chest, provided with a knife or scapper, which chest can be adjusted so as to make fine or coarse salt.

Fourth, in providing an exhaust-pipe between one or more cylinders with a stop-cock or valve for regulating the supply or exhaust of steam.

Referring now to the drawing—

A in the several figures represents a tank or bath, made of wood or metal, but so constructed as to resist the chemical action of the brine when placed therein.

It is provided with any number of standards, *a a*, which form bearings for steam-cylinders B.

These cylinders may be made of wood or metal, preferably of the latter, and either cast or of sheet metal.

They are provided with suitable openings, through which pipes *b b'* extend. These pipes are made stationary, and provided with suitable stuffing-boxes, and to the pipes *b b'*, inside the cylinders, are secured an *S* or other-shaped water-collecting and discharge-pipes or tubes D.

The head or heads or the end or ends of cylinder or cylinders upon the inside or the outside of the cylinder or cylinders are provided with a non-conducting material, so as to prevent the escape of and utilize heat.

In the present instance a metallic or other plate is placed upon the inside or the outside of the head or

end, a space being formed for the interposition of suitable material to act as a non-conductor.

The object of providing the cylinder or cylinders with such non-conductors of heat is apparent, since there can be no radiation of heat at the head or end; consequently the heat is retained within the cylinder.

When one or more cylinders are used, stop-cocks or valves C are interposed between the exhaust-pipes *b'* and supply-pipes *b*, so as to regulate the flow of water or steam from the cylinder or cylinders.

To the tank or bath A is secured a steam-chest or box, E, provided with a knife, *e*, and suitable valve.

The chest is made adjustable horizontally by means of a screw or other suitable device, and is for the purpose of making, and at the same time effectually drying either, as it passes over it, fine or coarse salt.

In using my apparatus the brine or salt water is prepared in the usual manner, and conveyed to the bath. Steam, water, hot air, &c., are let into the cylinder or cylinders, and motion being applied to it or them, the cylinder is hung so as to come in contact with the salt water or brine, and, as the surface successively revolves from the salt water or brine, a film of salt will be deposited thereon, which is dried in part by the cylinder or cylinders.

As the salt accumulates, when it is desired to make the same coarse, it gradually falls off of its own gravity, and descends to the bottom of the tank, but the same thus produced is of a coarse quality.

When it is desired to make a fine quality of salt, the steam-chest is moved toward the cylinder or cylinders, and so adjusted as to scrape the salt off in the required degree of fineness, and as the salt falls off on to the chest E it is quickly dried and ready for use.

In order to prevent any chemical action of the salt on the cylinder or cylinders, it or they may be, if it be desired, plated or otherwise covered with a metal or other material different from that of which the cylinder or cylinders may be formed or composed.

While the cylinder or cylinders revolve in the salt water not yet come to brine, lime, iron, and other impurities adhere or form a coating upon the periphery of their surfaces.

The impurities thus formed, it is found, are difficult and almost impossible to remove. This I overcome, for when the cylinder or cylinders revolve or move within the tank or bath, and the impurities above mentioned adhere to the periphery of the surface or surfaces of the cylinder or cylinders, the knife E, which I prefer to be heated by hot water or steam, is moved toward the periphery of said cylinder or cylinders, and all impurities removed to the extent required.

These impurities, formed by the chemical action of the salt water or brine upon the cylinder or cylinders, after being removed by the knife descend to the bot-

tom, and the water is then drawn off before its utilization.

The steam in the cylinders will be very apt to condense, and as they revolve the water is collected in the tubes D, and passed from cylinder to cylinder, if more than one be used, to the boiler, thus economizing fuel.

In fig. 3 is shown a modified form of the water-collecting tube, in which a flattened concave end is substituted for the curved tube, its operation being substantially the same.

The various qualities of salt thus prepared by my apparatus are ready for packing as soon as they leave the drying-chest, boxes, &c., being placed at the chests to catch it; or it may be removed to any desired place by an apron attached to the bath in the rear of the knife.

It will be found that salt manufactured by my apparatus is unexcelled in quality, and it can also be manufactured very cheap and at the same time be equal to the best.

Having thus described my invention,

What I claim is—

1. A movable or revolving hollow cylinder or a series of hollow cylinders hung in suitable bearings on a brine-tank, when said cylinder or cylinders are plated, coated, or covered with a metal or other material different from that of which the cylinder or cylinders are composed, substantially as described.

2. In an evaporating or saturating salt-engine, a movable or revolving hollow cylinder or cylinders, in combination with a vat or tank which is supplied with salt water or brine, substantially as described.

3. The head or head of a hollow cylinder provided with a non-conductor, substantially as described.

4. Collecting and discharge-cups or pipes, arranged within a hollow cylinder or cylinders, for a purpose substantially as described.

5. A valve or cock arranged upon the eduction and induction-pipes of a salt-evaporator or saturating-engine, substantially as described.

6. A hollow steam or hot-air cylinder revolving in a brine-tank provided with pipes or cups within its interior, in combination with the exhaust return-pipe *b''*, for a purpose substantially as described.

7. A partition arranged in a brine-tank between an evaporating and saturating hollow cylinder, substantially as set forth.

8. A hollow adjustable knife, capable of being located and so constructed and arranged as to produce coarse or fine salt, substantially as described.

9. The method of drying salt by passing the same over a hollow steam-chest or a knife, substantially as described.

10. A hollow knife moving horizontally, and so arranged as to be adjusted toward the periphery of the cylinder or cylinders, for the purpose of removing impurities collected thereon, substantially as described.

11. A hollow cylinder or cylinders revolving or moving within a brine-tank, when said cylinder or cylinders take up the different impurities produced by the chemical action of the salt water or brine upon the surfaces of said cylinder or cylinders of the same, and precipitating a portion into the bottom of the tank, substantially as described.

12. Evaporating and saturating-cylinders, communicating with each other through the medium of an induction and eduction-pipe, substantially as described.

To the above I have signed my name this 21st day of September, 1870.

SAM. D. GILSON.

Witnesses:

JAMES L. NORRIS,
H. CLAY JOHNSON.