

(No Model.)

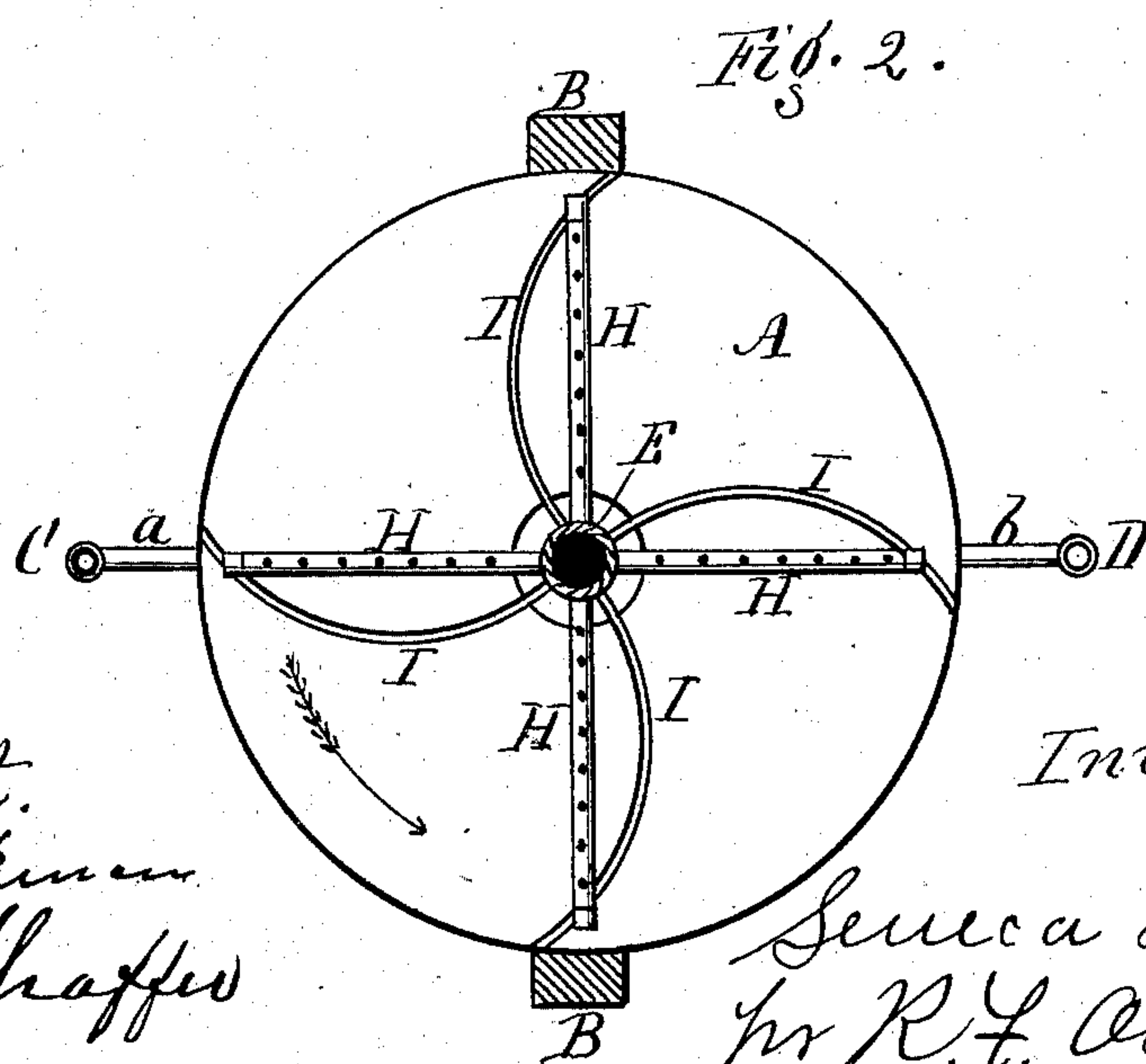
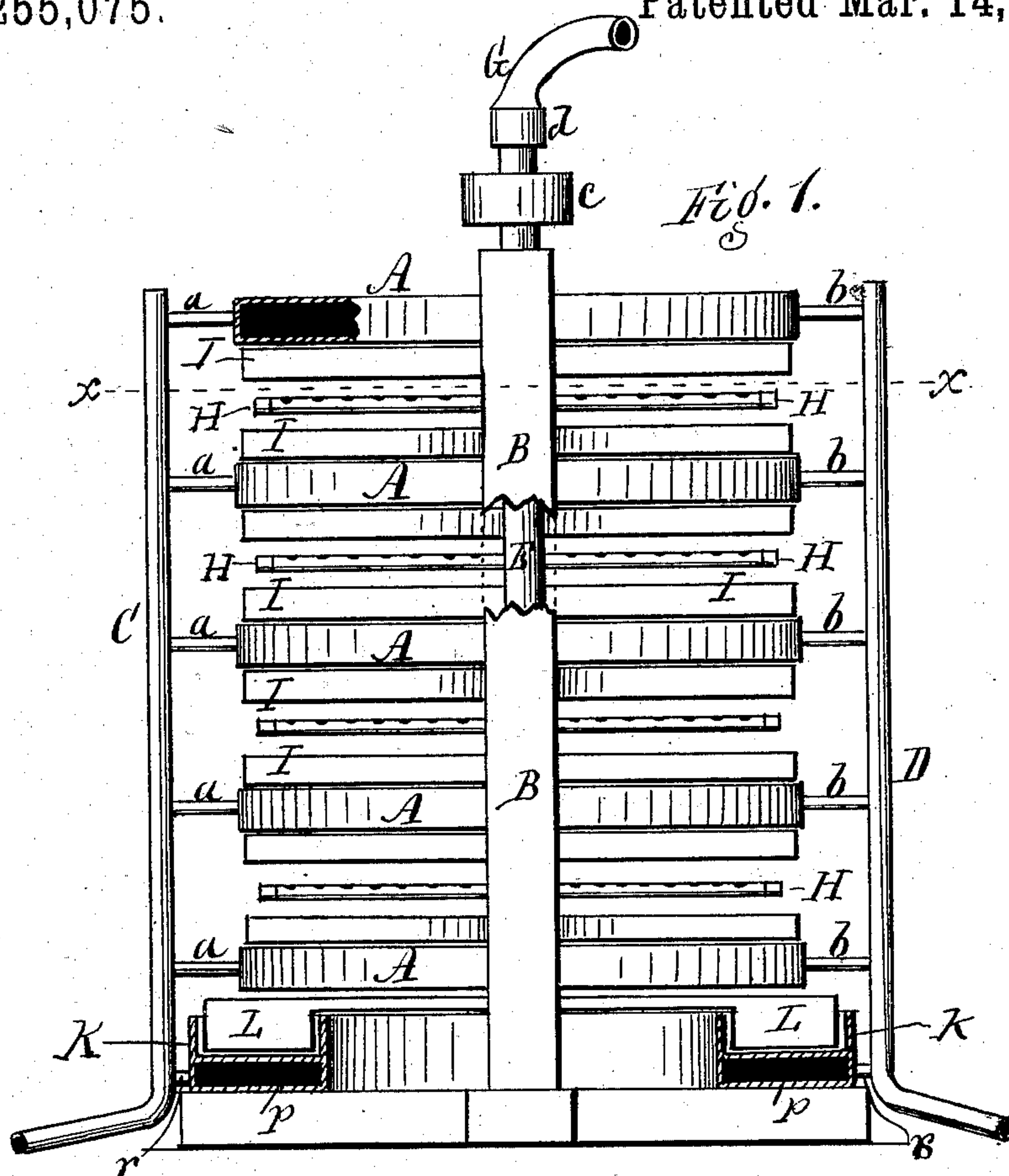
2 Sheets—Sheet 1.

S. DOBBS.

SALT EVAPORATOR.

No. 255,075.

Patented Mar. 14, 1882.



Attest.
Chas. J. J. J.
H. E. Shaffer

Inventor.

Seneca Dobbs,
per R. F. Asgood,
atty.

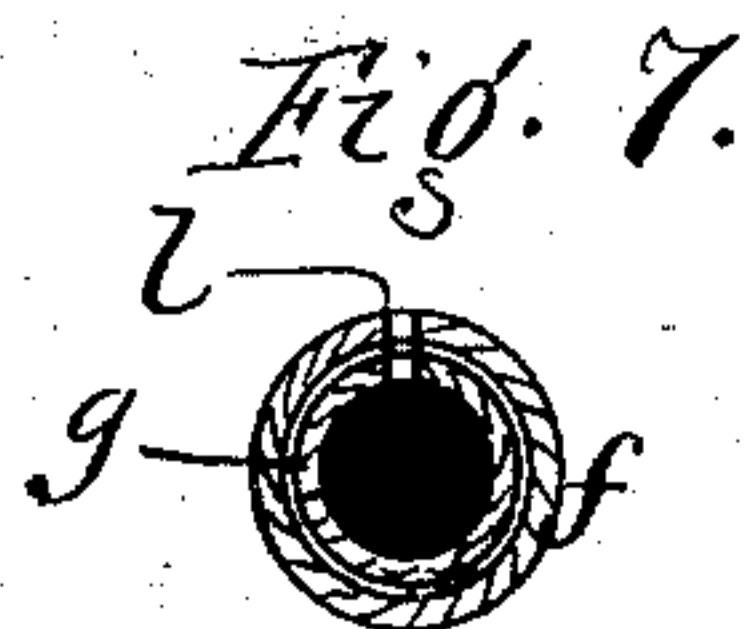
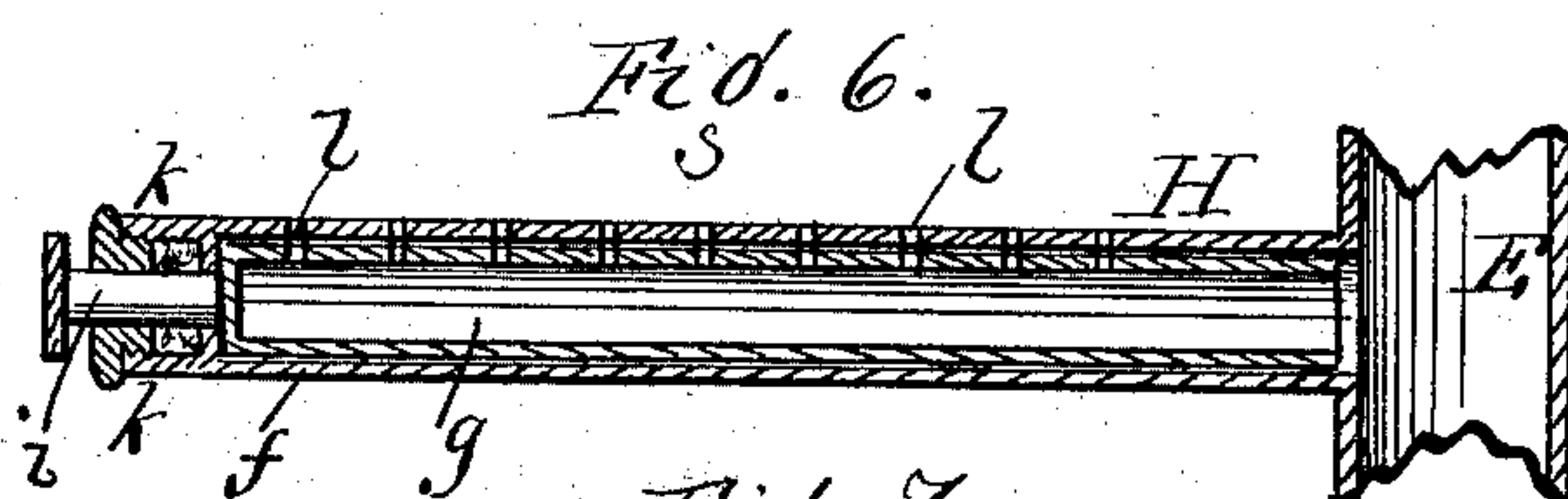
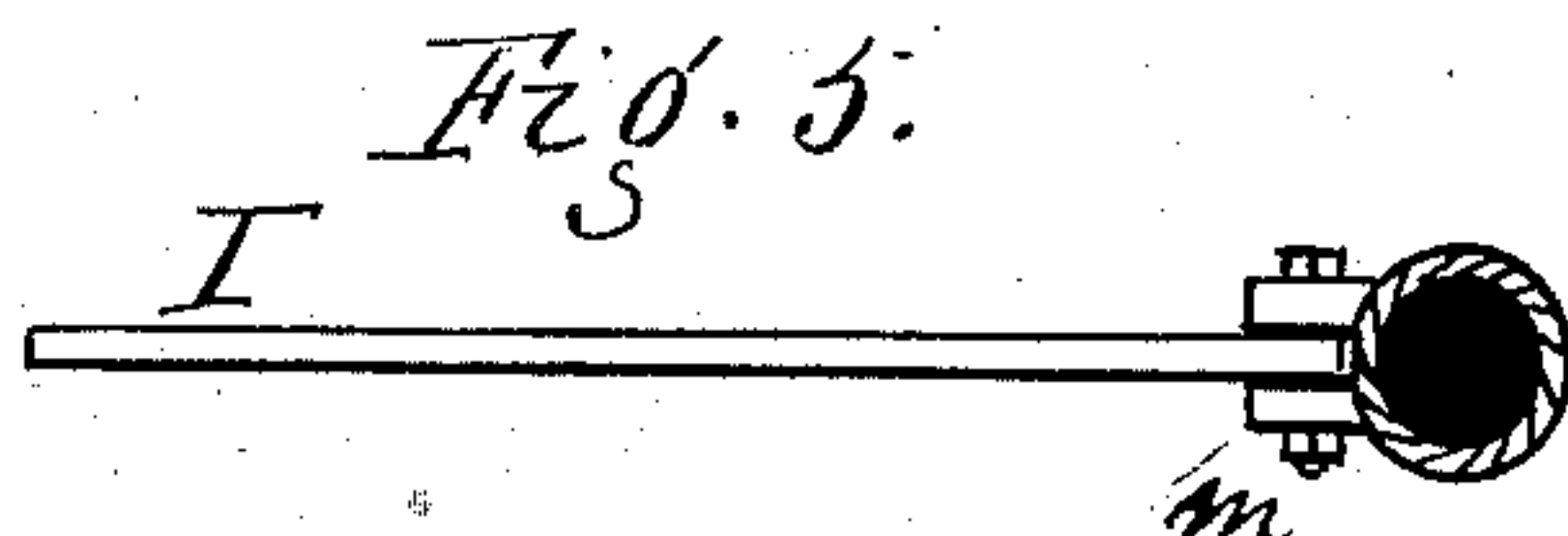
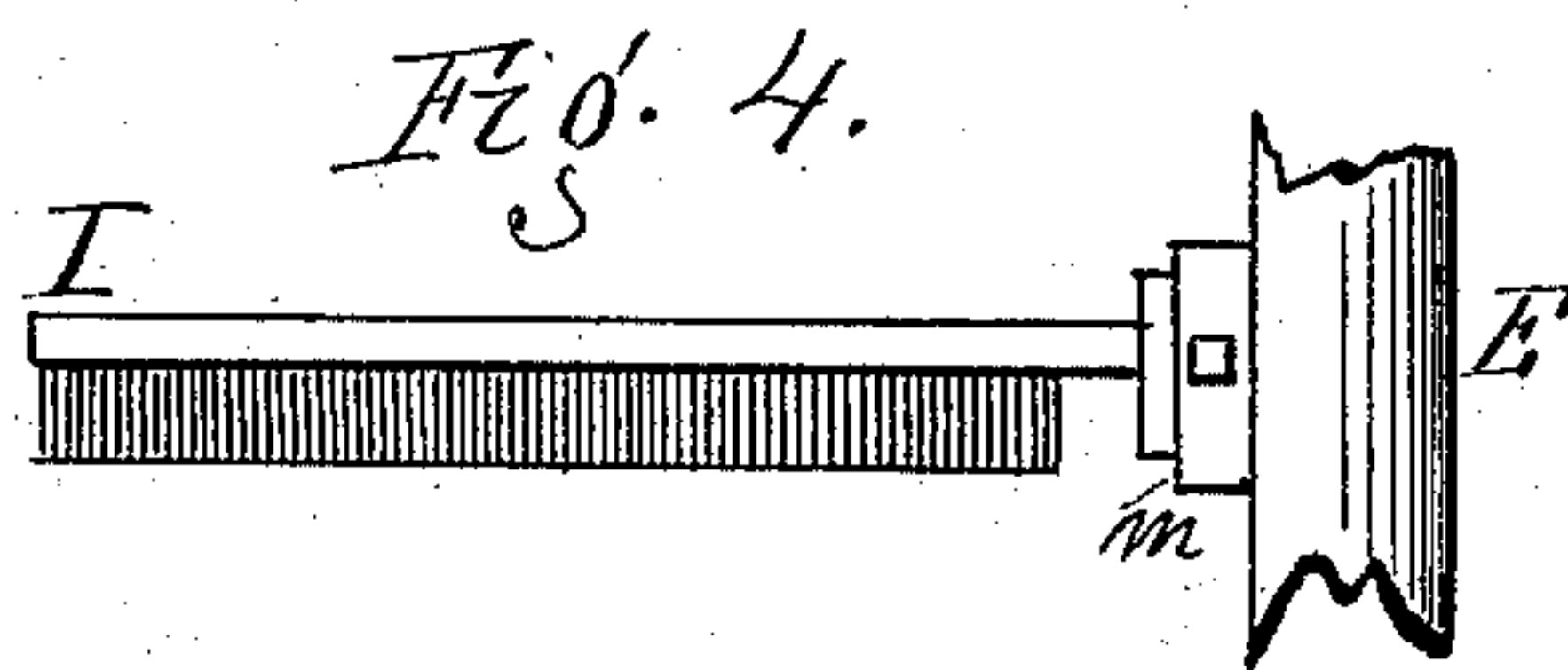
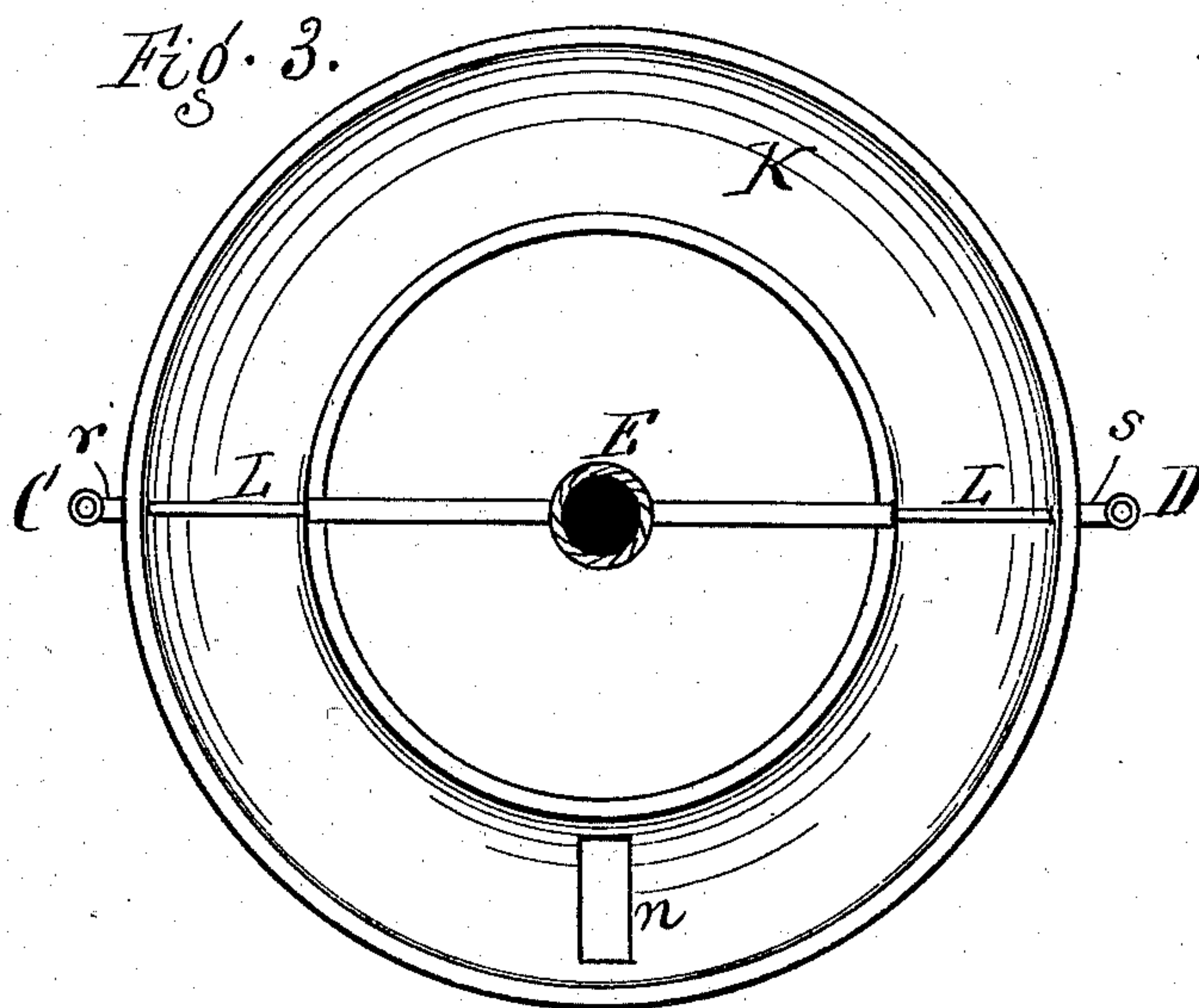
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2 Sheets—Sheet 2.

S. DOBBS.
SALT EVAPORATOR.

No. 255,075.

Patented Mar. 14, 1882.



Attest.
Chas. J. Pinner
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Inventor.
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UNITED STATES PATENT OFFICE.

SENECA DOBBS, OF ROCHESTER, NEW YORK, ASSIGNOR OF ONE-HALF TO
WILLIAM D. CLARK, OF SAME PLACE.

SALT-EVAPORATOR.

SPECIFICATION forming part of Letters Patent No. 255,075, dated March 14, 1882.

Application filed August 24, 1881. (No model.)

To all whom it may concern:

Be it known that I, SENECA DOBBS, of Rochester, Monroe county, New York, have invented a certain new and useful Improvement in Salt-Evaporators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of the machine, partially in section. Fig. 2 is a horizontal section in line *x x*. Fig. 3 is a plan of the discharge-trough at the bottom of the machine. Figs. 4 and 5 are views showing one of the brushes in elevation and plan. Figs. 6 and 7 are views showing one of the spray-pipes in longitudinal and cross section.

My improvement relates to salt-evaporators in which a series of hollow drums or heaters are used, heated by steam, and a series of revolving spray-pipes are used, resting between the drums, for throwing the brine upon the drums, and a series of scrapers or brushes are employed for removing the salt from the surface of the drums, all as hereinafter more fully described.

In the drawings, A A A represent a series of thin hollow drums or heaters, arranged one above another in a suitable frame, B, to which they are attached in a stationary manner. The steam is admitted into these drums by a main steam-pipe, C, and branches *a a a*, and the exhaust is discharged through a corresponding pipe, D, and branches *b b b*, and the waters of condensation are conducted back to the boiler. The pipes may be provided with suitable valves or cut-offs to regulate the flow. The top and bottom surfaces of the drums are made smooth and flat for the deposit of the salt and for the proper action of the scrapers or brushes over the same for the removal of the deposit; and in order to retain the surfaces in this flat condition under the pressure of the steam, tie-bolts are preferably used, connecting the two opposite faces of the drums. It is preferable, also, to cover the surfaces of the drums with porcelain, enamel, or some other preparation to prevent oxidation.

E is a vertical water-pipe, which passes centrally down through eyes or openings in the drums and rests in suitable bearings to

receive rotary motion. It is driven by a pulley, *e*, or other suitable means. At its top is a stuffing-box, *d*, with which connects the main water-pipe G. If desired, the water may be entered at the bottom instead of the top. This allows the brine to be supplied continuously to the revolving pipe without leakage.

H H H are a series of radial or curved spray-pipes attached to the rotary pipe and resting between the drums, as shown. They take the water from the rotary pipe and spray it between the drums, so that it comes in minute contact with all parts of the heating-surface. One or more of these spray-pipes may be used between each two drums. These spray-pipes are each composed of an exterior pipe, *f*, which connects with the feeder, and an interior pipe, *g*, Figs. 6 and 7, open-ended at its inner end, but closed at its outer end, and having a shank or extension, *i*, extending out through a stuffing-box, *k*, at the outer end of the exterior pipe, by which the interior pipe may be turned axially, and leakage is prevented at the outer end. Through the two pipes are made a series of coincident perforations, *l l*, which form the spray-openings. These are preferably on the upper side, by which means the brine is first sprayed to the upper heating-surface, and then falls upon the lower one. By turning the inner pipe the coincident holes may be set wide open to discharge the maximum amount, or they may be closed more or less to lessen the discharge, and by this means the spraying action may be graded exactly as desired.

I I are a series of scrapers or brushes attached to the rotary water-pipe, and revolving in close contact with the flat surfaces of the drums. An upper and a lower set rest between each two drums, so as to scrape both the upper and lower heating-surfaces. In Figs. 1 and 2 scrapers are shown. In Figs. 4 and 5 brushes are shown. Either form may be employed with the same result. They are preferably made curved, as shown in Fig. 2, to properly discharge the salt over the edges of the drums, and are also set back in such position as to allow the water to properly evaporate as it is thrown off by the preceding spray-pipe. The shank of the scraper or brush is attached to lugs *m m* by a screw-bolt or other

means, and is vertically adjustable, to a limited extent, to fit the scraper or brush properly to its work.

K is a circular annular trough or tank beneath the drums, standing in such a position as to catch the salt which is thrown over the edges of the drums by the scrapers or brushes.

L L are scrapers or brushes attached to the revolving pipe, which scrapers or brushes rest in the trough and sweep the salt around to a discharge-opening, *n*, formed in the bottom of the trough, through which it falls, ready to be conveyed away. The bottom of the trough is provided with a steam-space, *p*, into which steam is admitted through a branch pipe, *r*, connecting with the live-steam pipe C, and from which it is discharged through branch *s*, connecting with exhaust-pipe D. By this means the salt is dried sufficiently to enable it to be properly moved.

If desired, the top and bottom surfaces of the drums A A, upon which the deposit is formed, may be made convex or concaved instead of plane, and the deposit may be swept off either over the outer edge or through the central eye or opening. If desired, also, the spray-pipes may have the spray-openings on the bottom or the sides instead of the top. If desired, also, the spray-pipes may be covered with wire-cloth to spread and dissipate the water in a more effective manner.

Having thus described my invention, I claim—

1. In an apparatus for evaporating salt, the combination of the series of evaporating-drums

A A, the rotary water-pipe E, the perforated spray-pipes H H, attached to the rotary pipe and resting between the drums, the scrapers or brushes I I, also attached to the rotary pipe and resting between the drums, the annular trough K, resting below the drums, and the scrapers or brushes L L, attached to the rotary pipe and resting in the trough, as herein shown and described.

2. In an apparatus for evaporating salt, the combination of a series of heating-drums having flat surfaces, a rotary water-pipe passing centrally through openings in the drums, a series of rotary spray-pipes arranged between the drums, and a series of rotary scrapers or brushes, also located between the drums, and serving to clear the flat surfaces of the drums of the deposit, as herein shown and described.

3. The spray-pipe H, consisting of an exterior pipe, *f*, and interior pipe, *g*, provided with coincident spray-holes, *l l*, the exterior pipe being provided with a stuffing-box at its outer end, and the interior pipe being provided with an extension passing out through the stuffing-box, whereby the interior pipe may be turned axially to regulate the discharge through the spray-holes, as herein shown and described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

S. DOBBS.

Witnesses:

R. F. OSGOOD,
J. Z. CULVER.