(No Model.) 2 Sheets—Sheet 1.

R. GOODSON.

EVAPORATOR.

No. 365,515. Patented June 28, 1887.

Fig. 1

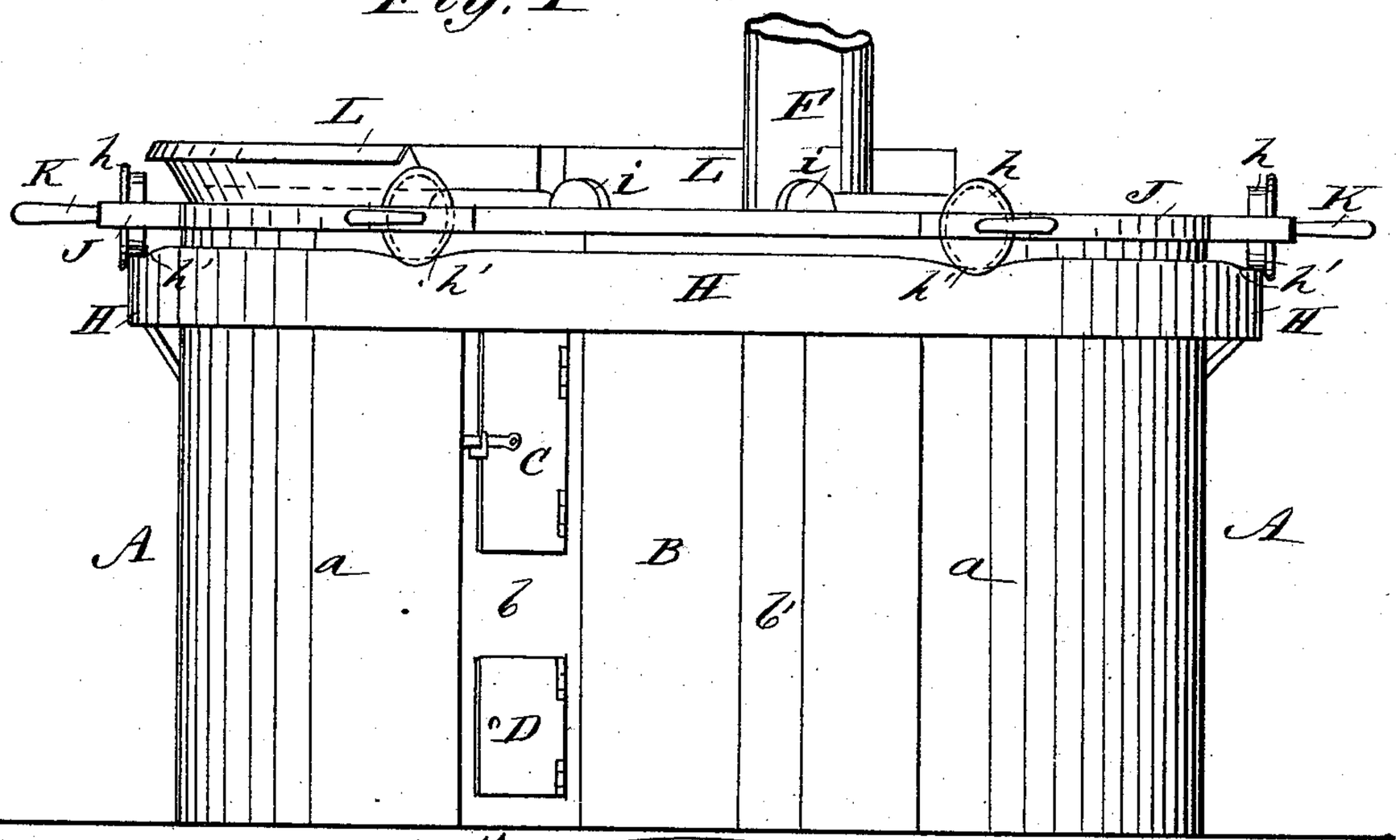
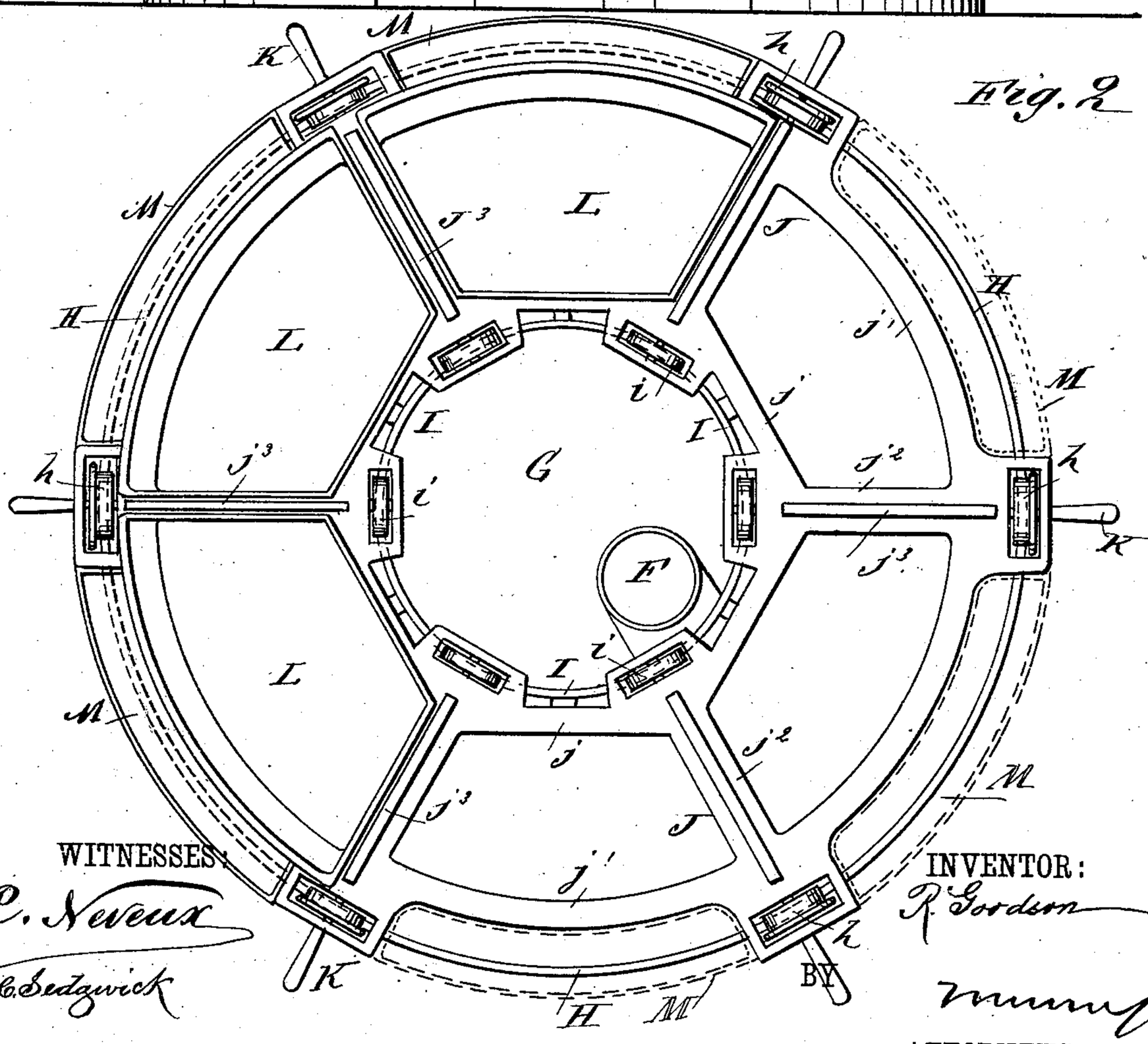


Fig. 2



WITNESSES:

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C. Sedgwick

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3

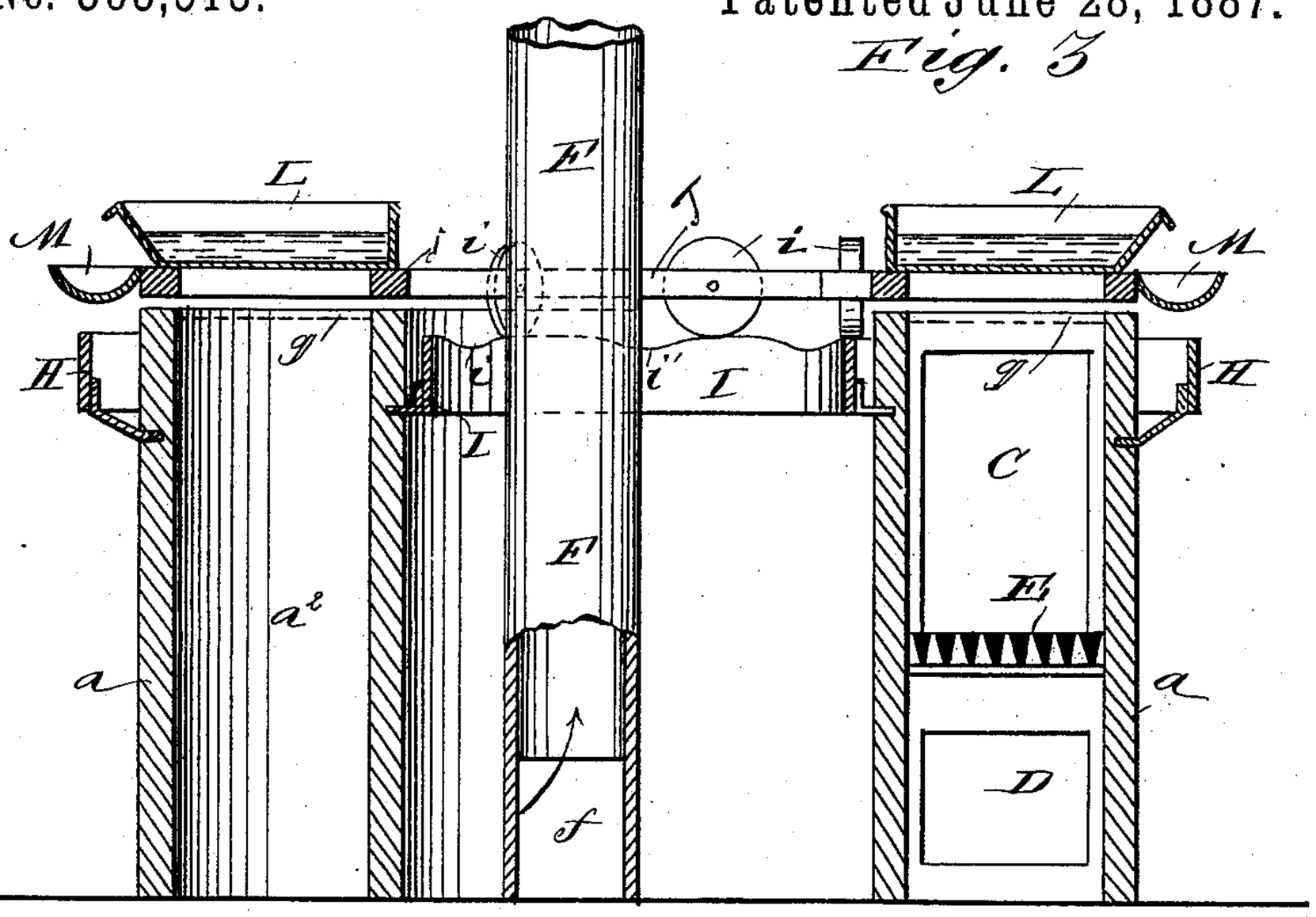
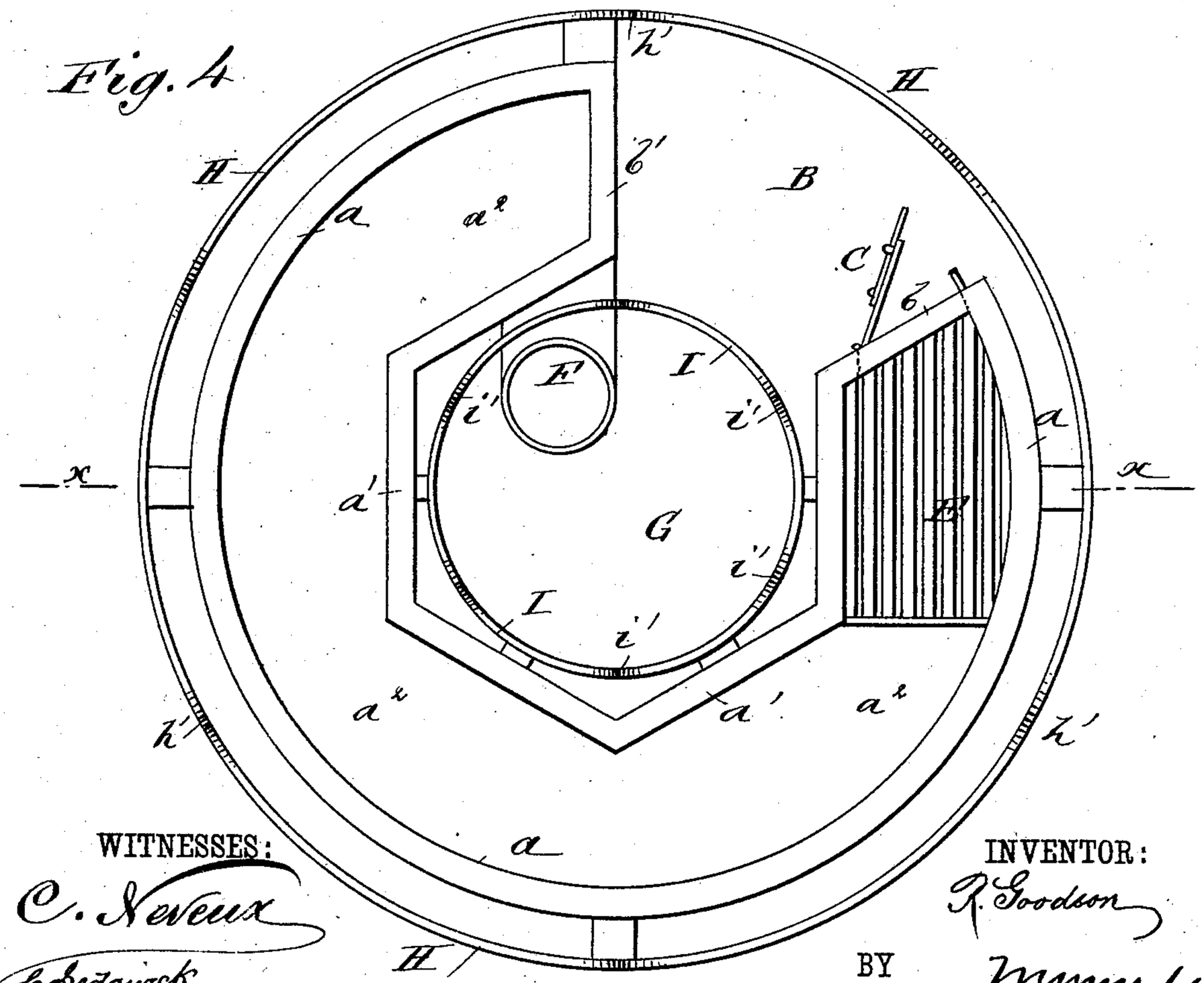


Fig. 4



WITNESSES:

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UNITED STATES PATENT OFFICE.

RUFUS GOODSON, OF BARNESVILLE, MISSOURI.

EVAPORATOR.

SPECIFICATION forming part of Letters Patent No. 365,515, dated June 28, 1887.

Application filed January 5, 1887. Serial No. 223,499. (No model.)

To all whom it may concern:

Be it known that I, RUFUS GOODSON, of Barnesville, in the county of Macon and State of Missouri, have invented a new and Improved Evaporator, of which the following is a full, clear, and exact description.

My invention relates to that class of evaporators used for defecating or purifying saccharine juices, and has for its object to provide a simple, inexpensive, efficient, and easily-handled apparatus of this character.

The invention consists in certain novel features of construction and combinations of parts of the evaporator, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is an elevation of the evaporator at the open side of the furnace, the troughs and some of the pans being removed. Fig. 2 is a plan view thereof, some of the pans being removed and the troughs shown in full lines at one side of the furnace and in dotted lines at the other side. Fig. 3 is a vertical sectional elevation taken on the line *x x* of Fig. 4, and with the flue of the furnace partly broken away; and Fig. 4 is a plan view of the furnace, the pan-carriage being removed.

The evaporator-furnace body A is made preferably cylindrical or annular in general form, but with a segment removed to provide an open space, B, at one side, formed by two end walls, *b b'*, which connect at their outer edges with the outer wall, *a*, of the furnace and at their inner edges with its inner wall, *a'*, which may be round, but preferably has the six-sided or polygonal form (shown clearly in Fig. 4 of the drawings.)

In the end wall, *b*, of the furnace there are fitted fire and ash-pit doors C D, respectively, which close openings through which fuel of any suitable kind may be passed onto a grate, E, and ashes may be removed. The draft-flue F of the furnace has an opening at its base, as at *f*, where it communicates with the interior heating space or chamber, a^2, of the furnace as near as may be to the other end wall, *b'*, of the furnace, and whereby the heat from a fire on the grate E will be compelled to travel clear around the furnace to the draft-flue, and with a gradually-decreasing temperature from the grate to the flue, which latter passes up through the central space, G, bounded by the inner wall, *a'*, of the furnace.

To the furnace-body at and around its top there are fixed by suitable fastening-lugs an outer ring or track, H, and an inner ring or track, I, and on these tracks the wheels *h i*, respectively, of the pan-carriage J are adapted to run. The frame or body of this carriage comprises inner and outer rings, *j j'*, connected by radiating arms or spokes j^2, provided with suitable slots to accommodate the wheels *h i*, and bearings for the axles of said wheels, and to the outer carriage-ring, *j'*, and preferably in line with the spokes and the wheels, there are fixed handles K, by grasping which the carriage may be turned on top of the furnace. Ribs j^3, rising from the center of the carriage-spokes, form guides or stops against which the ends of the evaporating-pans L fit, while the inner parts of the pans rest on the inner ring, *j*, and their outer parts on the outer ring, *j'*, of the carriage, and whereby the bottoms of the pans form a top wall to the furnace; or, if desired, the furnace may be provided with its own top wall, as indicated by dotted lines at *g g* in Fig. 3 of the drawings. The pans L are made with vertical end and inner walls or sides, and with their outer rounding side made flaring upward about at an angle of forty-five degrees to admit of readily skimming the saccharine juices into a leaden trough or troughs, M, shown fixed to the carriage immediately under the outer edges or sides of the pans; but the troughs may be held to the body of the furnace. The tracks H I are provided with depressions *h' i'*, respectively, into which the carriage-wheels are adapted to rest, and thereby allow the carriage J to rest closely on top of the furnace-walls to confine the heat within the furnace beneath the pans, and as the carriage is turned by its handles K a distance equaling that between the adjacent rollers all the pans will have been turned around for a space equaling the length of one of the pans, the entire carriage and pans being lifted a little from the top of the furnace as the wheels travel over the tracks between their depressions, and as will be understood from

Fig. 3 of the drawings. The pans may thus be turned to bring each successively over the hottest and gradually to the cooler portions of the furnace.

The operation of the evaporator is as follows: The pan L, immediately over the open space B at the side of the furnace, is filled with juice, and the entire carriage will be turned to bring this pan over the grate E to boil the juice, and as this is accomplished the next following pan, which had been filled over the space B while the first one was boiling, will in turn be carried directly over the furnace-fire by turning the carriage J, and so on, the entire series of pans being in turn subjected to boiling heat, and being gradually moved around as the juice thickens toward the cooler parts of the furnace to prevent burning of the juice. It will be noticed that the circular or generally rounding form of the furnace and the location of the flue-connection at *f* next the inner wall of the furnace induces the greatest flow of heat toward the inner furnace-wall all around from the grate to the flue, and this makes the juices in the pans boil from the inner toward the outer walls or sides of the pans, thereby carrying the impurities toward the outer sides of the pans automatically, and so they may readily be skimmed off into the trough below. The gradually-broadening shape of the pans favors greatly this outward flow of the impurities, and the result is a practical self-defecation of the juice, entailing very little labor by comparison with other methods of purification.

The evaporator shown has space for six pans on the carriage, one of the pans being over the space B at the side of the furnace, where it will not be subjected to heat, and allowing the finished juice to be drawn from it, while the juice in the other five pans is in as many different stages of defecation; but it is obvious that the evaporator may be made larger in diameter or oblong in shape, to accommodate a greater or lesser number of pans, as the work to be done may require, and, if desired, there may be more than one of the spaces B around the side of larger furnaces.

During evaporation of the juice the pan-carriage may be turned backward at any time to subject any one or more of the pans to a greater degree of heat, should it be found desirable, as will readily be understood.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. An evaporator made with a furnace-body, A, formed with walls *a a' b b'*, providing an approximately annular combustion-chamber, as a^2, and a side space or opening, B, a fire grate or pot, as E, next the wall *b*, and a flue, F, communicating with the chamber a^2 through the inner wall, *a'*, substantially as shown and described.

2. The combination, in an evaporator, of a furnace-body, A, having a circuitous combustion-chamber, as a^2, tracks held to the body, a rotatable carriage mounted on the tracks, and said tracks provided with depressions at intervals, substantially as shown and described, whereby as the carriage rests in the track-depressions it will, with pans held by it, close the top of the furnace to confine the heat, and as the carriage is turned it will, with the pans, be raised on the tracks between the depressions thereof, as herein set forth.

3. The combination, in an evaporator, of a furnace-body, A, having a combustion-chamber, as a^2, tracks H I, held to said body, a carriage, as J, fitting the tracks, and pans L, placed on the carriage and made wider at their outer than at their inner parts, substantially as shown and described.

4. The combination, in an evaporator, of a furnace-body, A, provided with a combustion-chamber, as a^2, tracks H I, held to the body and provided with depressions *h' i'*, respectively, and a carriage, J, having wheels *h i*, fitting the tracks H I and adapted to their depressions, substantially as shown and described.

5. The combination, in an evaporator, with a furnace-body, A, having a combustion-chamber, as a^2, of a rotatable carriage, J, mounted on the body and made with pan-supports *j j'* j^2, and pans L on the carriage, closing the top of the chamber a^2 and having a gradually-broadening upper edge, substantially as shown and described.

6. In an evaporator, the rotatable pan-carriage made with rings *j j'*, connected by spokes j^2, wheels *h i*, adapted to tracks on a furnace, and handles K, substantially as shown and described.

7. In an evaporator, the combination, with a furnace-body, as A, a rotatable carriage, J, mounted thereon, and pans, as L, placed on the carriage, of troughs M, adapted to receive the scum from the pans, substantially as shown and described.

8. An evaporator constructed substantially as herein shown and described, and comprising a furnace-body, A, having a combustion-chamber, a^2, and side opening or space, B, a fire grate or pot, E, and a flue, F, placed, respectively, at opposite ends of the chamber a^2, tracks on the body A, a rotatable carriage, J, adapted to the tracks, pans L, made broader at their outer sides and fitted on the carriage, and troughs M on the carriage below the pans, all arranged for operation as and for the purposes set forth.

RUFUS GOODSON.

Witnesses:
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W. A. GRIFFIN.