

No. 717,332.

Patented Dec. 30, 1902.

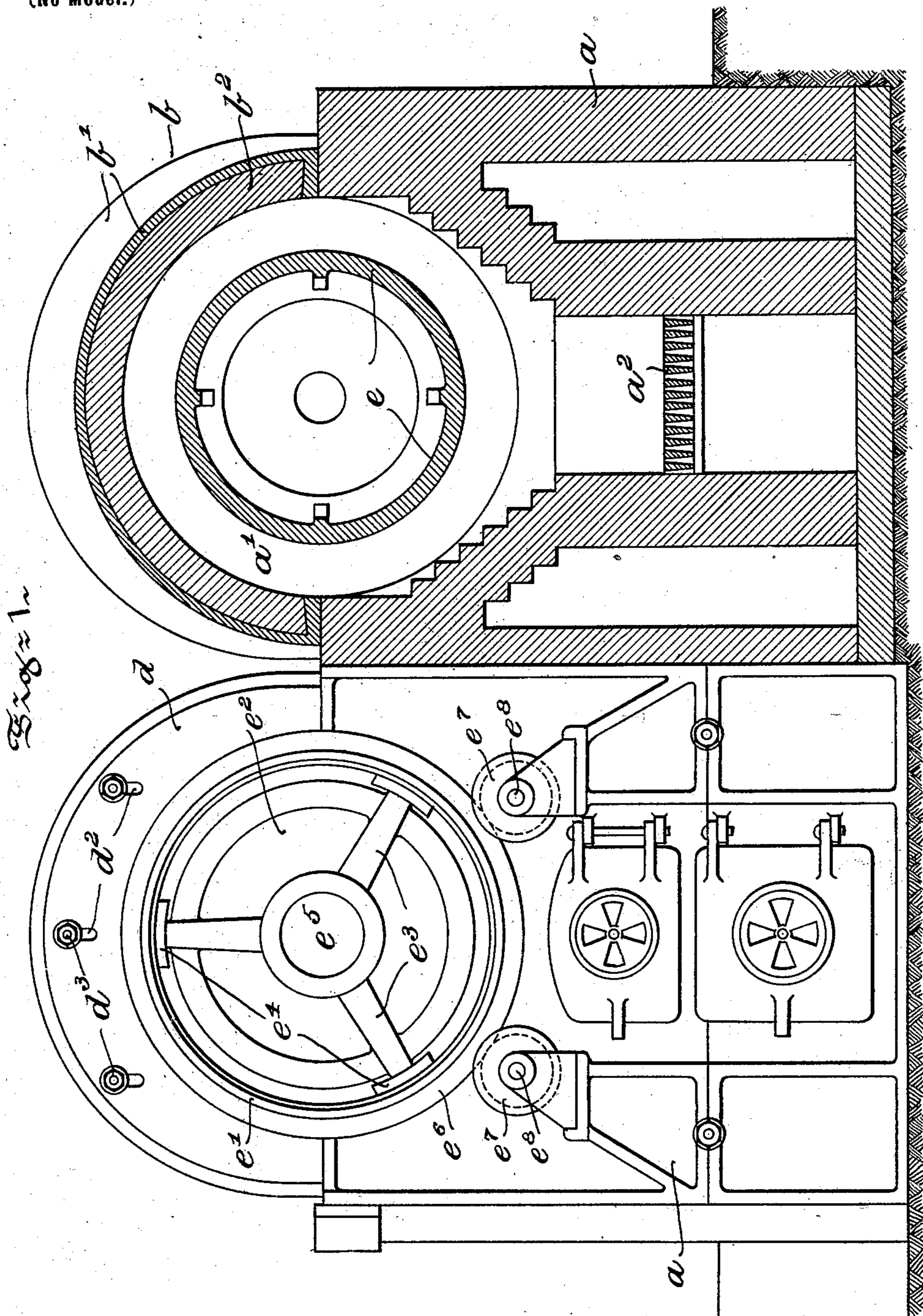
I. L. BRIGGS.

ROTATING AND DISCHARGING RETORT FURNACE.

(Application filed June 4, 1902.)

(No Model.)

3 Sheets—Sheet 1.



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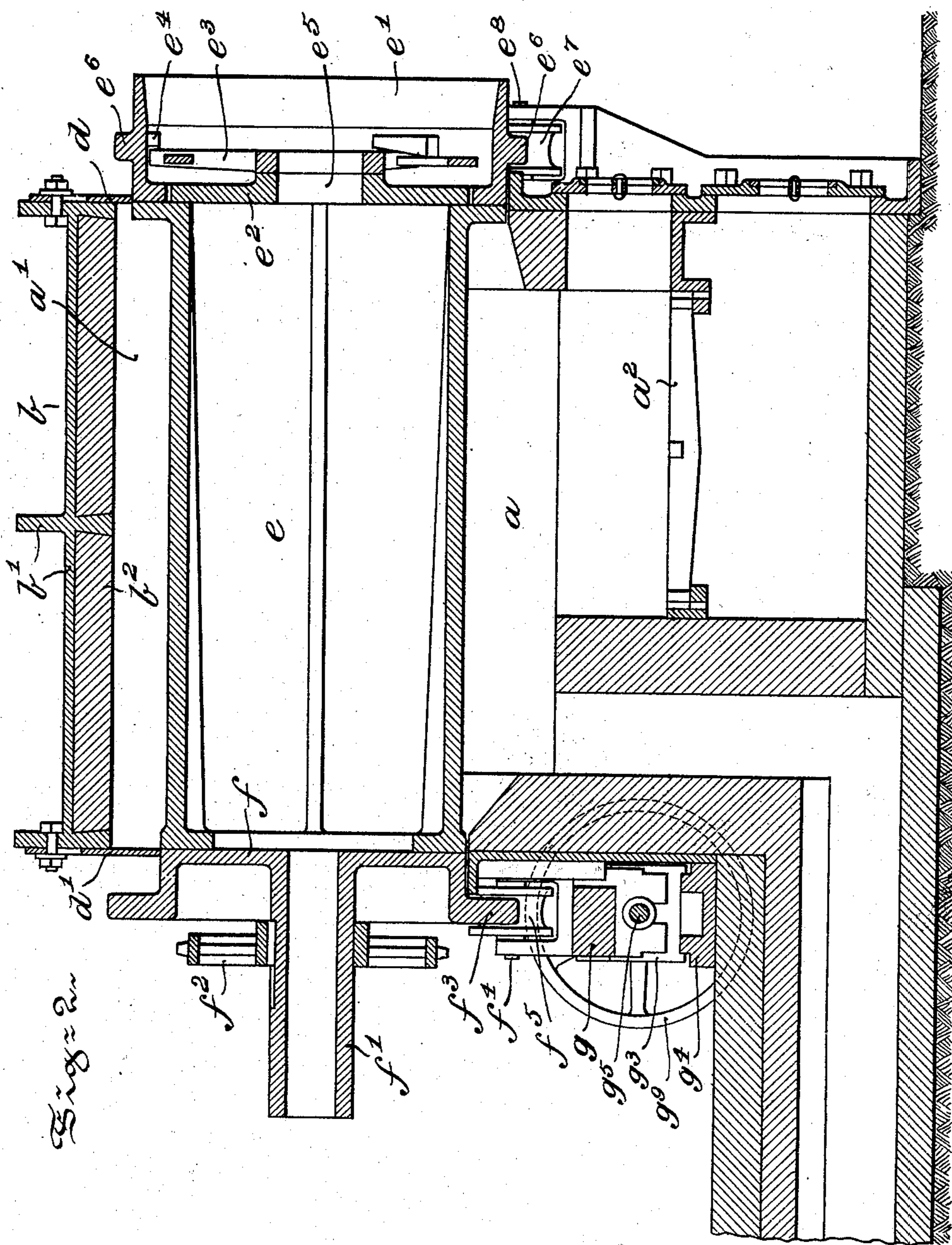


Fig. 2

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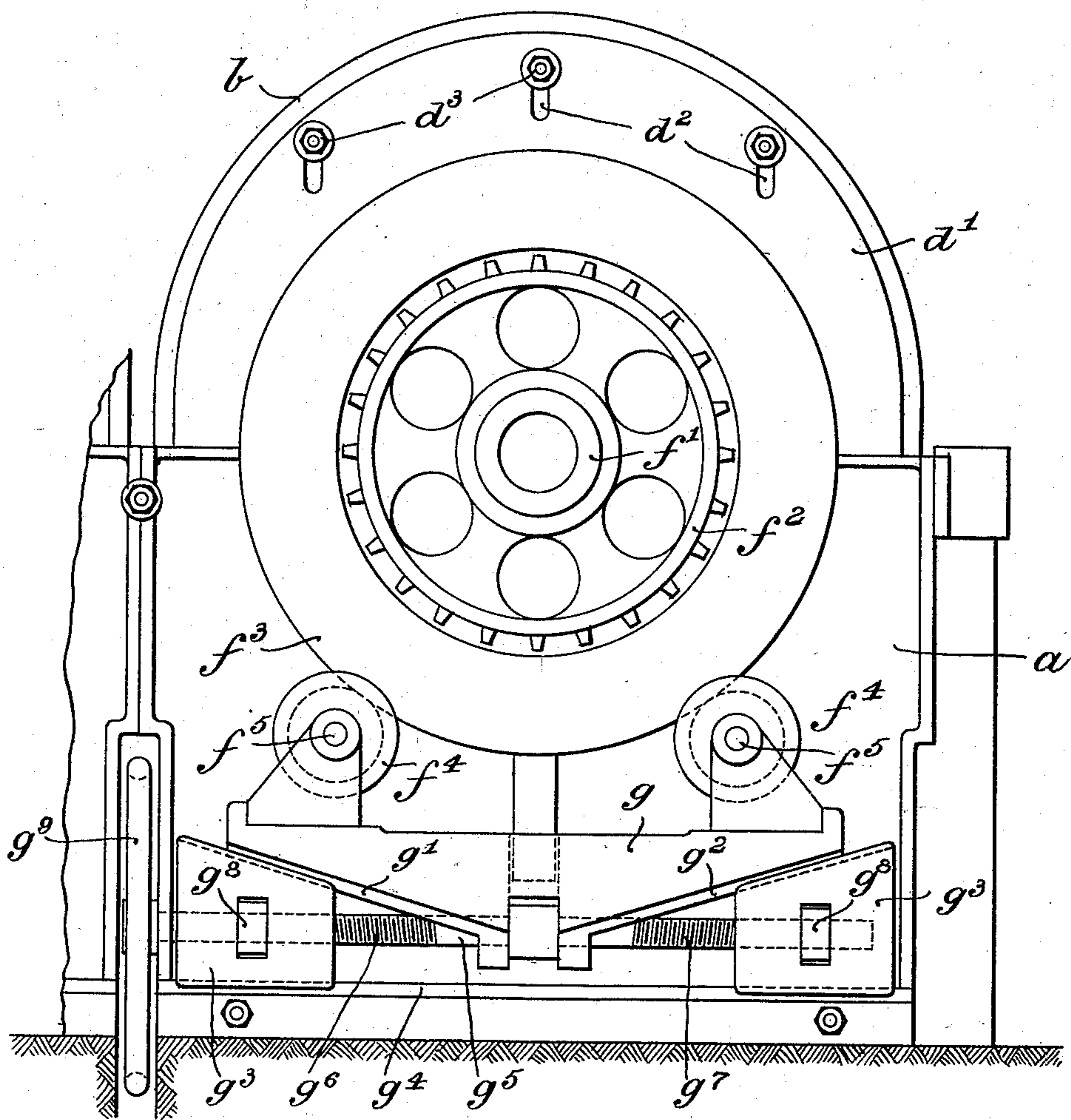
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3 Sheets—Sheet 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

IRVING L. BRIGGS, OF CAMDEN, NEW JERSEY, ASSIGNOR TO N. Z. GRAVES & CO., INC., OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

ROTATING AND DISCHARGING RETORT-FURNACE.

SPECIFICATION forming part of Letters Patent No. 717,332, dated December 30, 1902.

Application filed June 4, 1902. Serial No. 110,162. (No model.)

To all whom it may concern:

Be it known that I, IRVING L. BRIGGS, a citizen of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Rotating and Discharging Retort-Furnaces, of which the following is a specification.

My invention has relation to a retort-furnace wherein the retort is rotatable within the walls of the furnace, and in such connection it relates to means whereby said retort may be brought into condition to discharge its contents from its outlet-opening without interfering with or stopping its rotation within the furnace.

The principal objects of my invention are, first, to provide in a retort-furnace a retort adapted to be readily rotated within the furnace and provided with means of simple construction whereby during the rotation of the retort it may be manipulated to bring it into condition for more readily discharging its contents, and, second, to provide in a retort-furnace, in combination with a retort, means for rotating said retort in said furnace and a fixed support upon which one end of the retort rotates, a vertically-adjustable support for the other end of the retort, upon which support the retort may readily rotate, and means for elevating and depressing said adjustable support to bring the opposite end of said retort into a position wherein the contents may be discharged without interfering with the rotation of the retort within the furnace.

The nature and scope of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a view, partly in front elevation and partly in section, of a double retort-furnace, each furnace embodying main features of my invention. Fig. 2 is a longitudinal sectional view taken centrally through one of the retorts; and Fig. 3 is a rear elevational view, slightly enlarged, of one of the furnaces and its retort, illustrating the means for manipulating the retort during its rotation and prior to the discharge of its contents.

Referring to the drawings, the furnace *a* is of the ordinary construction, except with respect to the roof or dome *b* and the front and rear cover-plates *d* and *d'*. The dome *b* is semicircular in shape and consists of an iron frame *b'*, having its interior filled with refractory material *b²* and removably supported at its turned-in ends *b³* upon the side walls of the furnace *a*. The roof or dome *b* carries at either end a cover-plate *d* or *d'*, each of which is slotted, as at *d²*, to permit the plates *d* or *d'* sliding upon bolts *d³*, which secure the plates to the roof or dome *b*. The roof or dome *b* forms the cover or top for a chamber *a'*, wherein the retort *e* is adapted to rotate. Heat is supplied to the chamber *a'* from fuel burning upon the grate *a²*.

Detailed description of the heating of the furnace *a* and of the retort *e* is not necessary, since the same is well known in the art and forms no part of this present invention.

At the front end of the retort is secured a cap *e'*, within which is arranged a circular door *e²*, adapted to be locked to the cap *e'* to close a central orifice in said cap and the discharge end of the retort *e* by means of the arms *e³*, projecting radially over the door and entering the keeper-plates *e⁴*, formed on the interior of the cap *e'*. The door *e²* has, as is usual, a central opening *e⁵*, through which the contents of the retort *e* may be inspected. The rear end of the retort is also closed by a cap *f*, from which projects a central hollow shaft *f'*, on which is splined a driving-wheel *f²*. Rotary motion is conveyed to the shaft *f'* through the wheel *f²* by means not shown, and when the shaft *f'* rotates the retort *e* is rotated within the furnace *a*. The front cap *e'* is provided with an annular flange *e⁶*, riding upon the rollers *e⁷*, each of which is mounted in a bearing *e⁸*, fixed to the front of the furnace *a*, as clearly illustrated in Figs. 1 and 2. The rear cap *f* has an annular flange *f³*, riding upon the rollers *f⁴*; but these rollers are mounted upon vertically-adjustable bearings *f⁵*, adapted to be raised and lowered as occasion requires by the following preferred mechanism, (illustrated in Figs. 2 and 3:) The bearings *f⁵* project from a yoke *g*, the under face of which inclines or tapers upward

from a central point on the yoke g . Against the respective inclined portions g^1 and g^2 thus formed rests one of the blocks g^3 , each block having an upper face inclined in the same direction as the portion g^1 or g^2 , against which it rests, and each block g^3 also has a base sliding back and forth upon a rail or bracket g^4 , fixed to the rear wall of the furnace. A shaft g^5 , having two oppositely-inclined threads g^6 and g^7 at the opposite ends of the shaft, traverses both blocks g^3 , and each thread g^6 or g^7 engages the nuts g^8 , each nut being within a block g^3 . A hand-wheel g^9 is adapted to turn the shaft g^5 in either direction. When turned in one direction, the shaft g^5 brings the two blocks g^3 toward each other, and thereby causes said blocks to elevate the yoke g and the bearings f^5 , supported by said yoke g . When the yoke and bearings are thus elevated, the rear end of the retort e is raised and the retort inclined from the rear downward toward the front or discharge end of the retort. The two plates d and d' slide up or down, according to the movement of the retort e , upon their bolts d^3 , and hence keep the chamber a' closed at the upper end during the tilting movement of said retort e . A movement of the shaft g^5 in an opposite direction causes the blocks g^3 to separate and the yoke g and bearings f^5 to be lowered. The rear end of the retort e can thus be manipulated quickly and readily while rotating within the chamber a' , and all change of movement of the retort e up and down in said

chamber a' may take place without unsealing the front or rear of said chamber a' , by reason of the slotted plates d and d' , which readily adjust themselves to the position assumed by the retort e in the furnace.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a retort-furnace, a cylindrical retort having at either end a peripheral flange, two grooved rollers engaging the peripheral flange at one end of the retort, a fixed bearing in which the grooved rollers rotate, a second set of two grooved rollers engaging the peripheral flange at the other end of the retort, a yoke having its under face inclined upward from the center to the ends of the yoke, said yoke supporting the second set of rollers a predetermined and fixed distance apart, two sliding blocks arranged beneath the oppositely-inclined surfaces of the yoke, means for sliding said blocks toward or away from each other to thereby elevate or depress the yoke and second set of rollers, and means for rotating said retort upon the fixed and adjustable rollers.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

IRVING L. BRIGGS.

Witnesses:

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