

No. 608,338.

Patented Aug. 2, 1898.

G. J. MEYER.

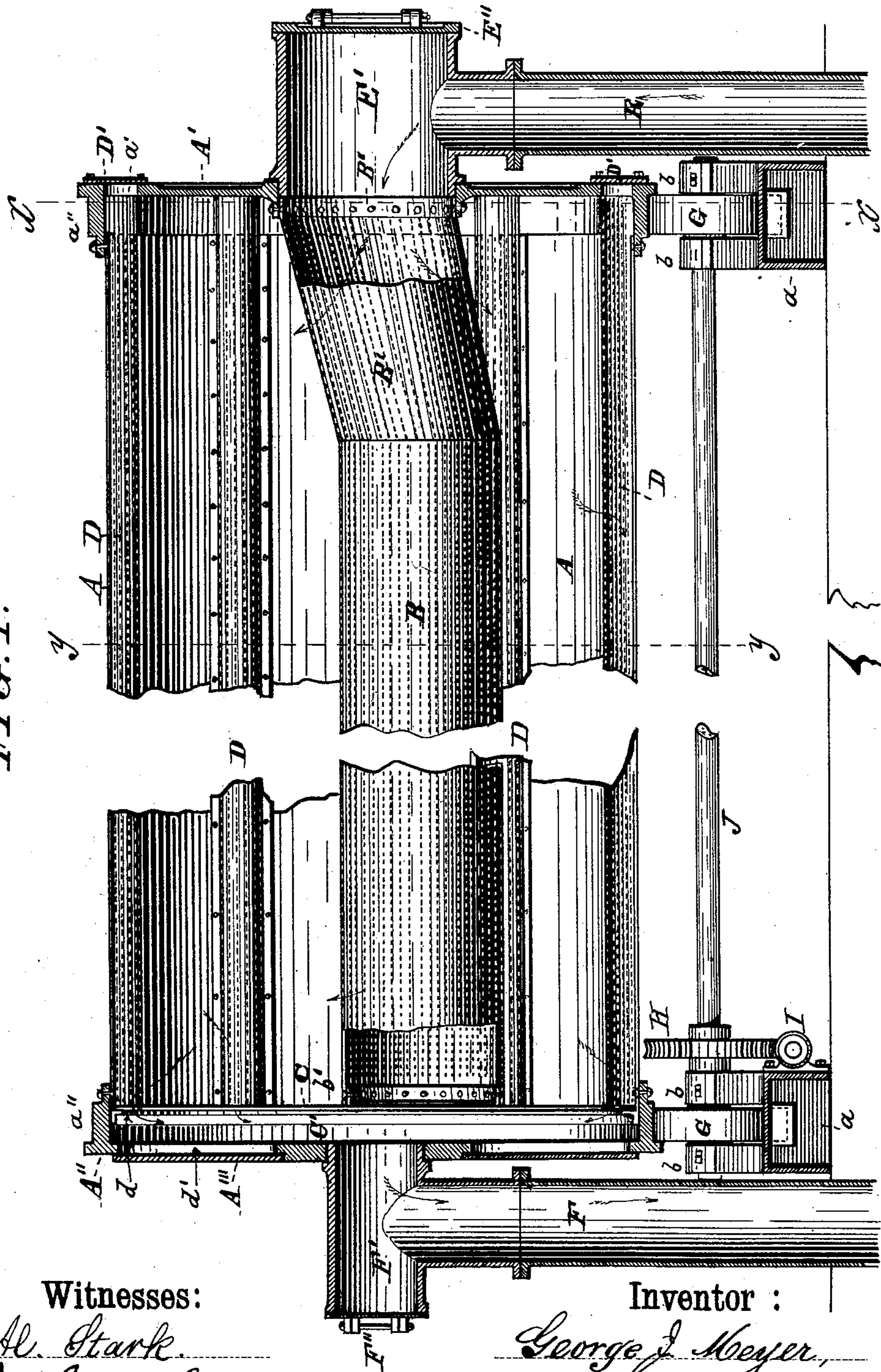
PNEUMATIC MALTING APPARATUS.

(Application filed Jan. 13, 1897.)

(No Model.)

3 Sheets—Sheet 1.

FIG. 1.



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3 Sheets—Sheet 2.

FIG. 3.

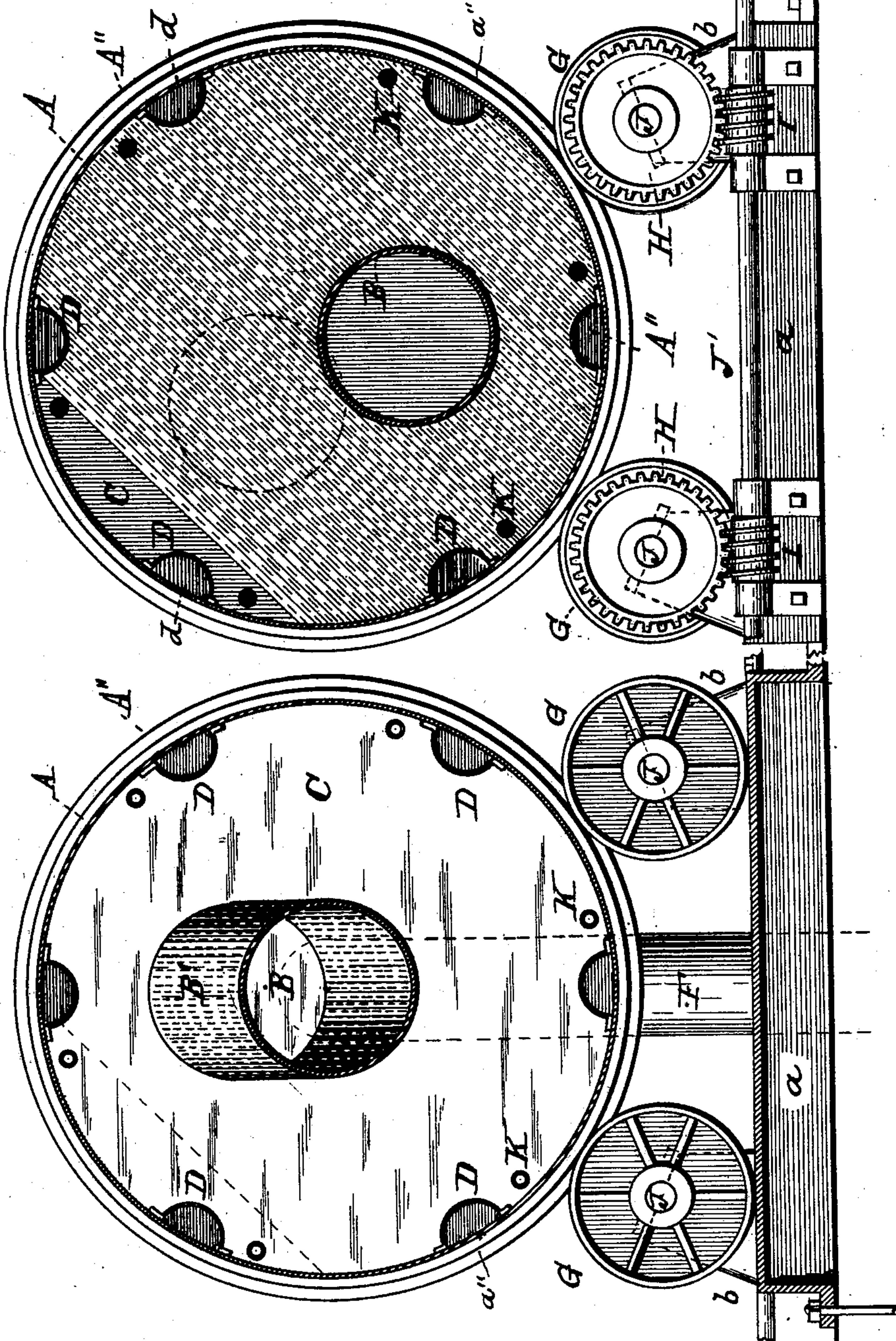
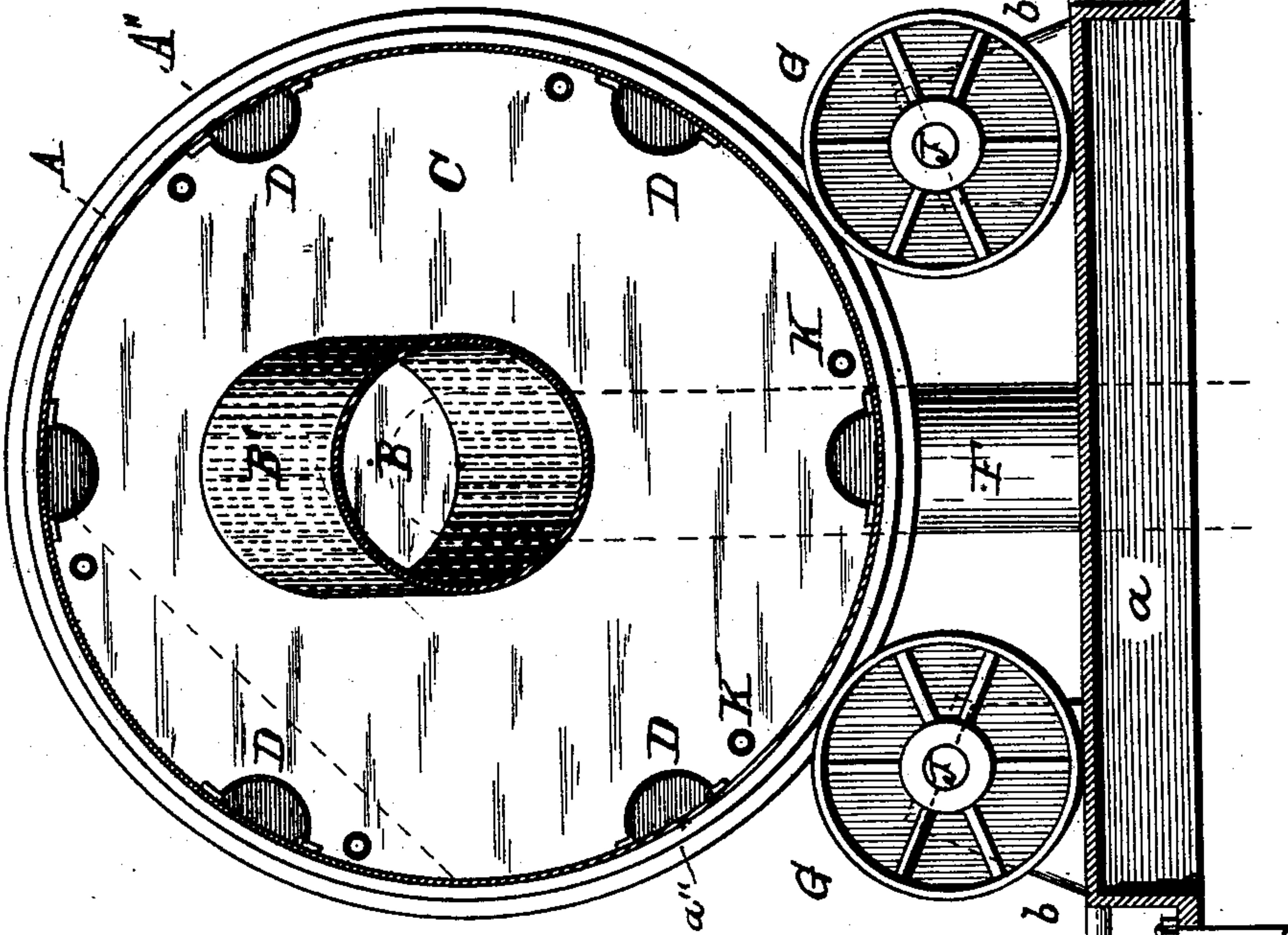


FIG. 2.



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3 Sheets—Sheet 3.

FIG. 5.

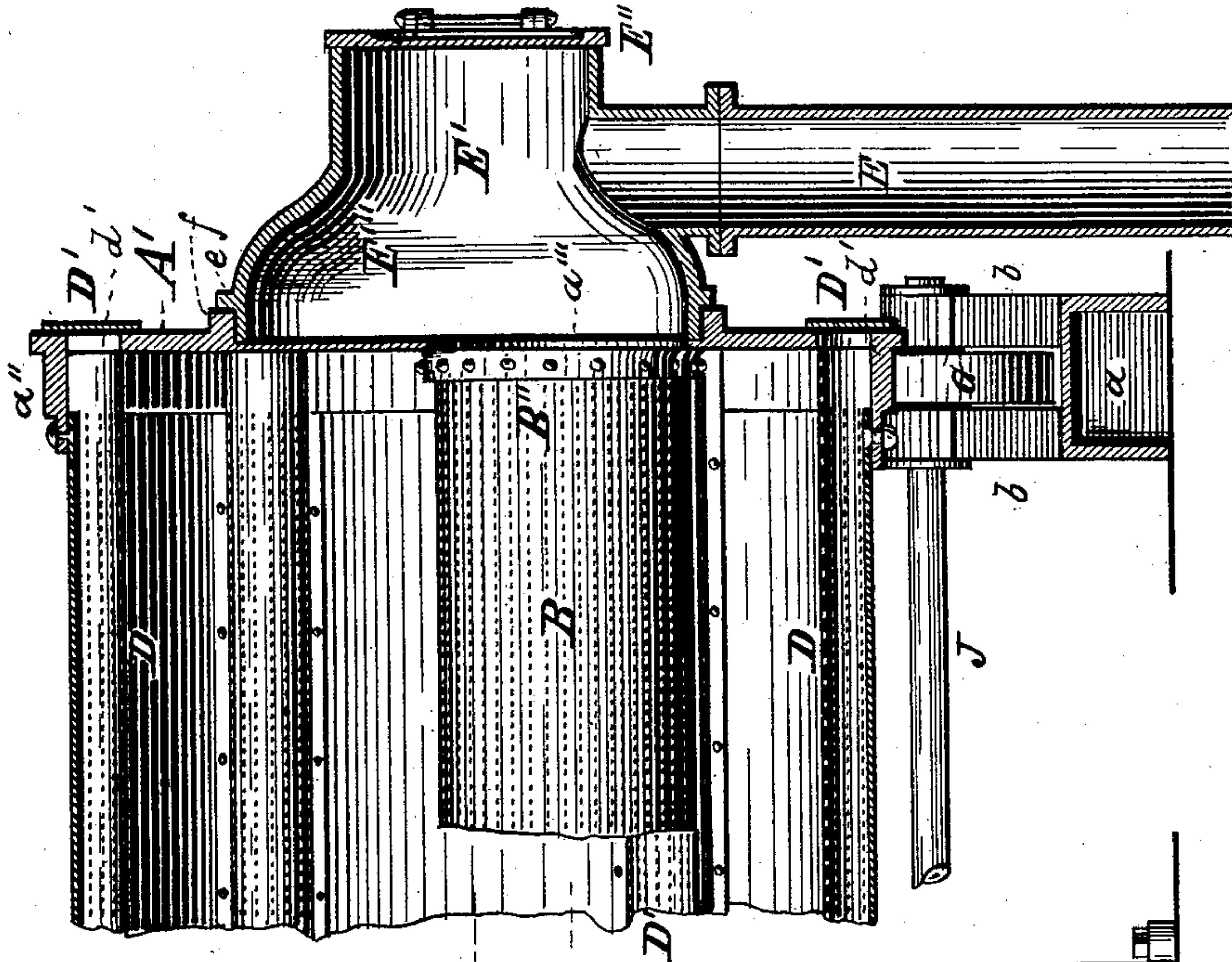
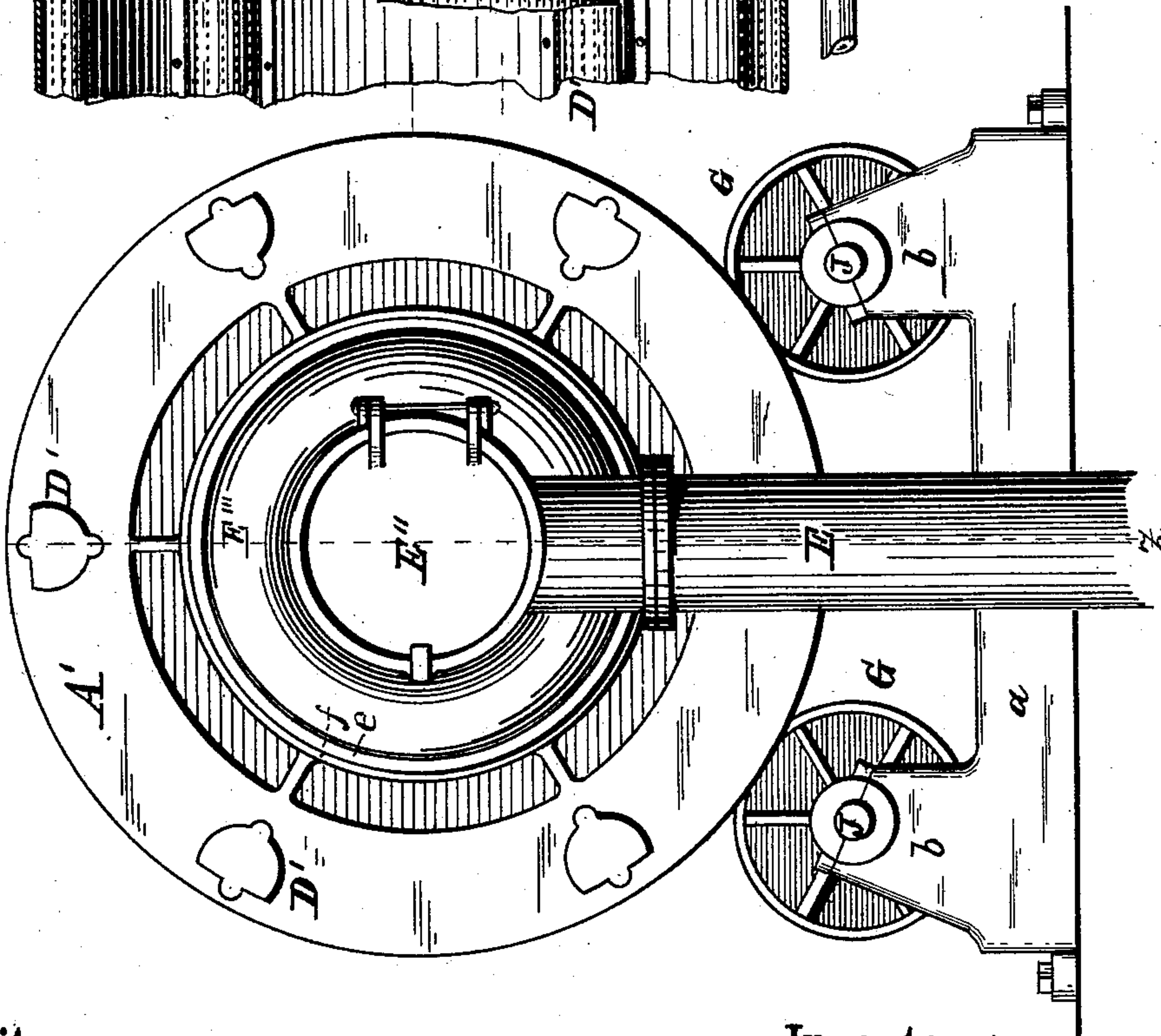


FIG. 4.



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UNITED STATES PATENT OFFICE.

GEORGE J. MEYER, OF BUFFALO, NEW YORK.

PNEUMATIC MALTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 608,338, dated August 2, 1898.

Application filed January 13, 1897. Serial No. 619,119. (No model.)

To all whom it may concern:

Be it known that I, GEORGE J. MEYER, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Pneumatic Malting Apparatus; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheets of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has general reference to improvements in pneumatic malting apparatus; and it consists, essentially, in the novel and peculiar combination of parts and details of construction, as hereinafter first fully set forth and described, and then pointed out in the claims.

In the drawings already referred to, which serve to illustrate my said invention more fully, Figure 1 is a longitudinal sectional elevation, in line $z z$ of Fig. 4, of a pneumatic malting-drum constructed in accordance with my invention. Fig. 2 is a transverse sectional elevation in line $x x$, and Fig. 3 a similar view in line $y y$ of Fig. 1, in both figures the drum being assumed to be seen from the front end looking toward the rear. Fig. 4 is a front elevation, and Fig. 5 a longitudinal sectional elevation in line $z z$ of Fig. 4, of a modified form of my invention.

Like parts are designated by corresponding letters of reference in all the figures.

The object of this invention is the improvement of existing pneumatic malting-drums to produce a better and more uniform product of malt than has heretofore been produced. In order to attain these results, I construct this pneumatic malting apparatus substantially in the following manner:

A in the drawings represents a cylindrical shell of a pneumatic malting-drum, it being riveted to a flanged head A' with one end and to a similar back head A'' with the other end.

C is a division-plate or diaphragm placed a suitable distance from the back head to produce a chamber C' in said drum, as shown in Fig. 1.

D are a series of perforated semicircular conduits longitudinally secured to the inner

periphery of the shell A. They start with one end at the diaphragm C, in which there are openings d for this purpose, and they terminate in the head A' , in which there are similar openings a' , the latter being closed by plates D' in order that access may be had to the interior of the said perforated conduits D for cleaning and other purposes.

E is the air-admission pipe, terminating in a cylindrical tube E' , one end of which is closed by a hinged door E'' , while the other opposite end enters the head A' and forms a journal therefor, around which one end of the drum revolves.

F is the air-outlet pipe, constructed in all respects similar to the inlet-pipe, its cylindrical tube F' being closed by a hinged door F'' and its open end entering the back head A'' and around which the back end of said drum revolves.

B is a cylindrical perforated tube having on one end an inclined extension B' , which is securely fastened to the head A' at B'' , the other end of said perforated tube B being riveted to the diaphragm C at b' in such a manner that the end B'' is centrally within the head A' , while the opposite end is out of the center of the diaphragm, the center lines of the said tube B being parallel axially, but not coinciding, as clearly illustrated in the figures.

G are a series of rollers mounted upon shafts J, revolving in bearings b , projecting from the base a . These shafts, and with them the rollers G, are revolved by worm-wheels H, engaged by worms I, secured to a shaft J' from any suitable motor. The rollers G revolve the drum by frictional contact between their periphery and the tracks a'' on the heads A' A'' , respectively.

K are a series of perforated pipes located within the shell A and connected with mechanism (not shown) on the outside of the head, so that a supply of water may pass through these pipes to moisten the contents of the drum in the well-known manner, one such sprinkling device being shown in Letters Patent granted to me on the 5th day of September, 1893, No. 504,478.

In operation the drum is filled nearly full of grain and then revolved at a very slow speed, while at the same time air is drawn

through the apparatus by connecting an exhaust-fan with either the supply or exhaust pipe, it being understood that the result produced is the same in either event. When
 5 air enters at E, it passes through the perforated pipe or tube B' B and, escaping through its perforations, passes through the grain and through the conduits D into the end chamber C' and from thence through the discharge-
 10 pipe F, while when the air enters at F it takes a reverse course from that described.

In malting-drums as heretofore made a perforated tube is centrally located therein, which tube is in axial line with the drum.
 15 In my experience with such drums the grain is not as thoroughly stirred as it should be to subject it equally and evenly to the action of air and moisture. The layers surrounding the central tube will mostly retain their
 20 relative position. Those nearer to the outer shell also remain at the outside. Now by placing this tube B eccentrically to the axial line of the shell A this tube B acts as a scoop, as it were, and prevents the grain from re-
 25 maining stationary while the shell revolves, owing to the slow speed of the drum, and thereby produces a better and more thorough changing of position of the kernels, and as a final result a more even germination and
 30 chemical action in the process of malting.

The back head A'' is provided with large openings d'', which are closed by removable plates A''', so that access may be had to the chamber C through these openings.

35 In Fig. 1 I have shown a pneumatic malting-drum in which the perforated tube B is placed eccentrically to the shell A. In Figs. 4 and 5 I have shown a modification of this construction wherein the tube B runs the en-
 40 tire length of the shell A, the end B' of which is secured to an inwardly-projecting flange on the inner surface of the head A'. On the outer surface of this head is an annular projecting ring f, and through the head is a cir-

cular opening a''', placed eccentrically to the 45 annular ring f and communicating with the tube B. The pipe E' is provided with a bell-shaped enlargement E''', the end of which fits the inner surface of the annular ring f, while
 50 a collar e on said bell bears against the face of the annular pipe, which guides the pipe. This bell-shaped enlargement is of a sufficient diameter to embrace the opening a'', so that as the drum revolves this opening a''' will al-
 55 ways be in communication with the pipe E'.

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

1. In a pneumatic malting-drum, an inner perforated tube having at one end an inclined 60 extension the end of which is in the center of the drum axially, said tube having its axial line parallel with but not coinciding with the axial line of the drum, as specified.

2. In a pneumatic malting-drum, the com- 65 bination, with the shell of the heads, the diaphragm located near one of the said heads, a perforated tube in said shell one end of which is secured to the diaphragm and the other end to the front head, the center line of said tube 70 being parallel with but not coinciding with the center line of said shell, suitable air-conduits in the said shell, the ingress-pipe and the outlet-pipe, as and for the object set forth.

3. In a pneumatic malting apparatus a ro- 75 tating shell, having located therein a perforated ventilating-tube the center line of said tube being parallel with, but not coinciding with, the center line of said shell whereby the grain is agitated and turned in the man- 80 ner as and for the object set forth.

In testimony that I claim the foregoing as my invention I have hereunto set my hand in the presence of two subscribing witnesses.

GEO. J. MEYER.

Attest:

MICHAEL J. STARK,
 MICHAEL J. STARK, Jr.