(No Model.) 2 Sheets—Sheet 1.

C. B. MACY.

ROTARY COOKER.

No. 560,808. Patented May 26, 1896.

Fig. 1.

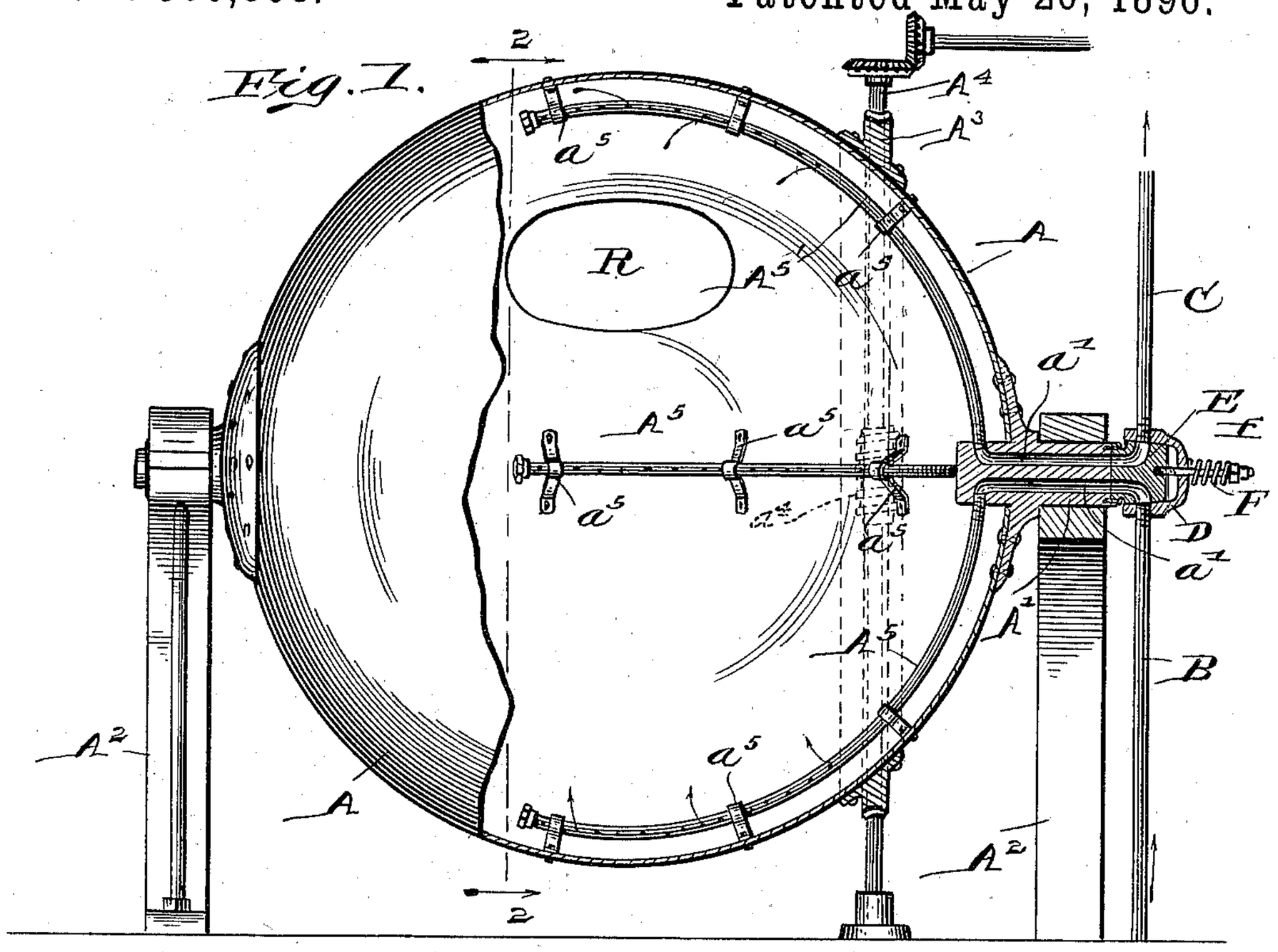
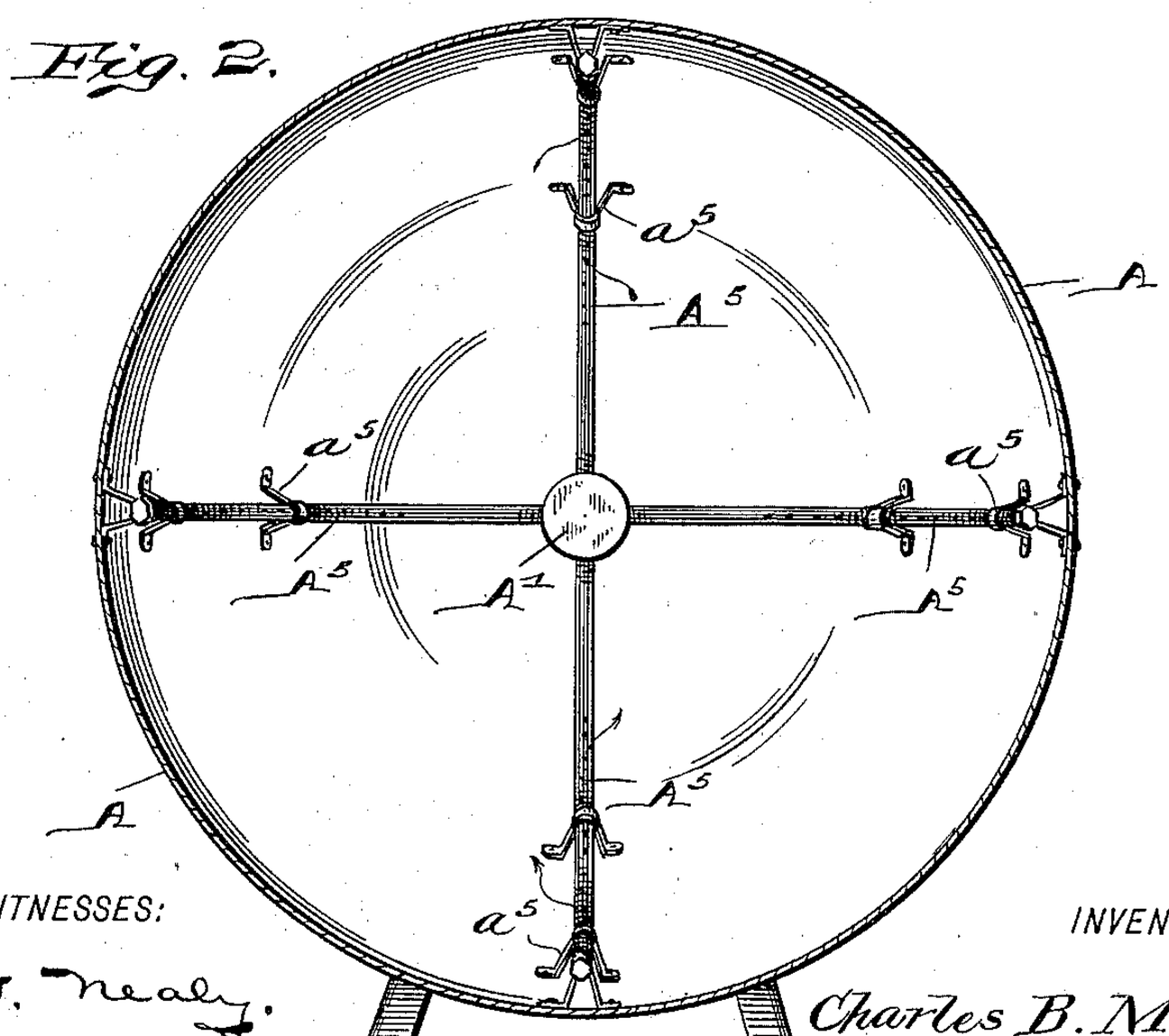


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

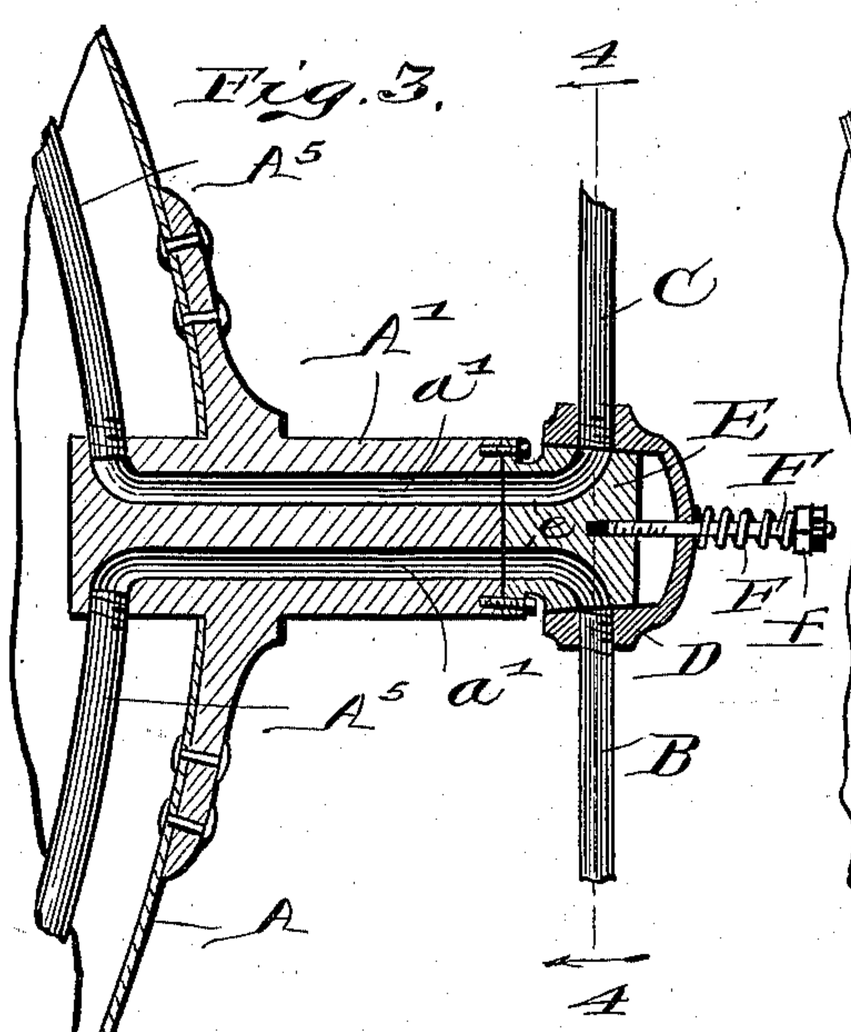


Fig. 5.

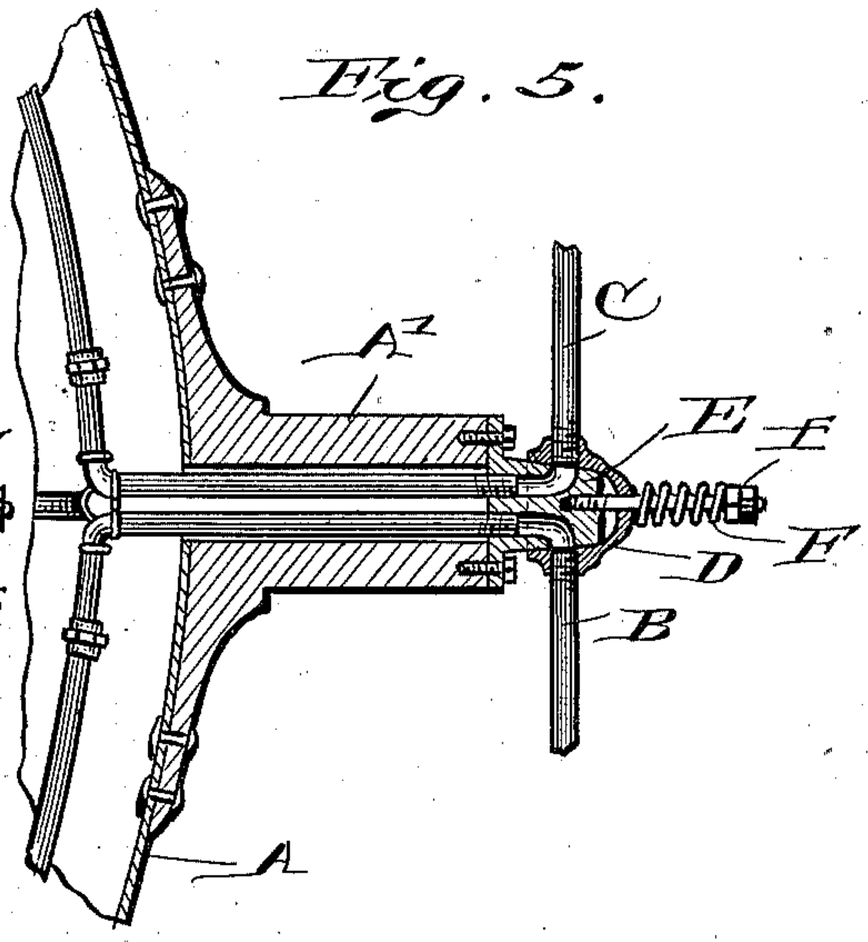
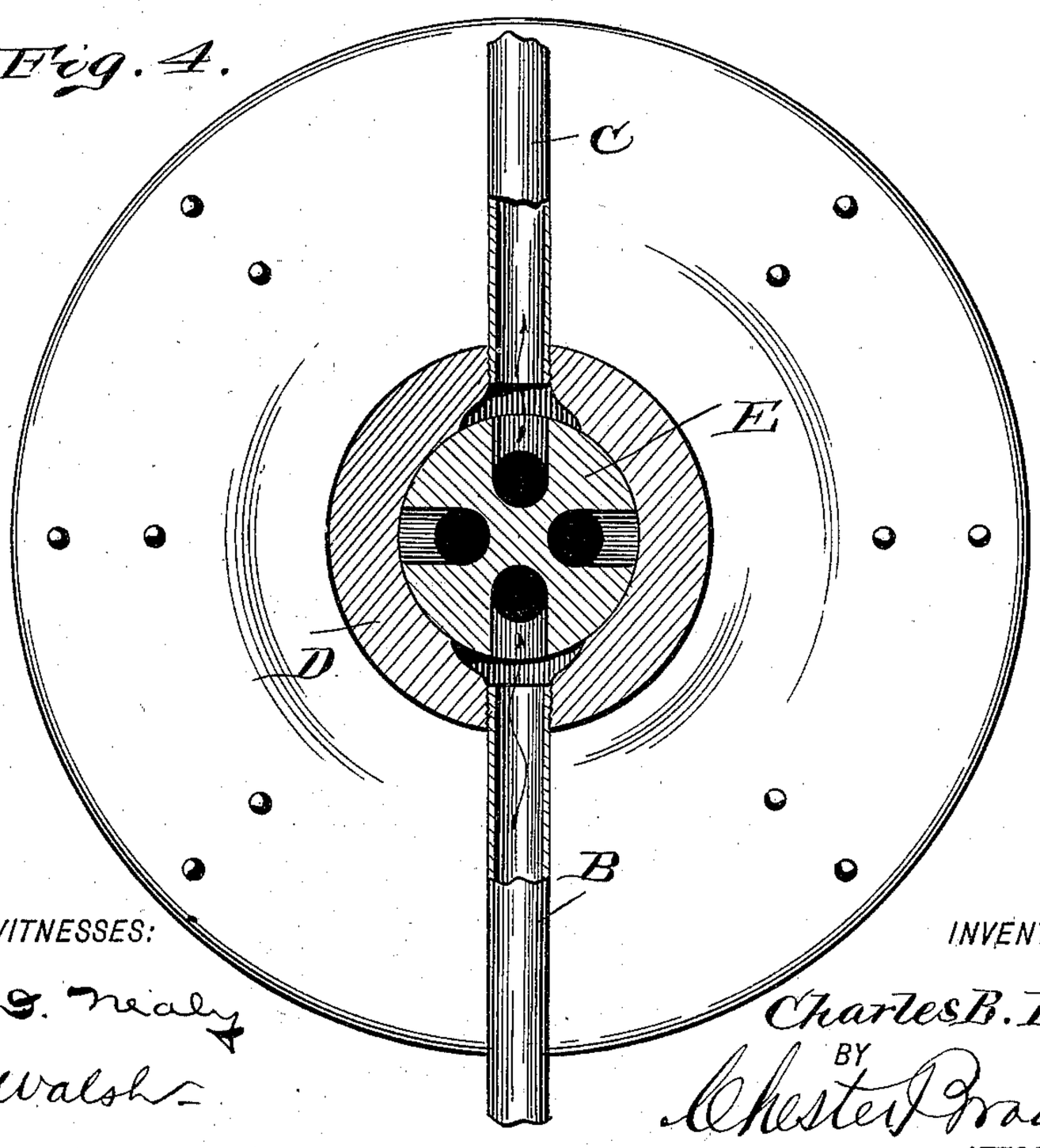


Fig. 4.



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ROTARY COOKER.

SPECIFICATION forming part of Letters Patent No. 560,808, dated May 26, 1896.

Application filed September 11, 1895. Serial No. 562,167. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. MACY, a citizen of the United States, residing at Noblesville, in the county of Hamilton and State of Indiana, have invented certain new and useful Improvements in Rotary Cookers, of which the following is a specification.

My invention relates to that class of apparatus employed in the cooking of straw preparatory to making straw board or paper therefrom; and it consists, essentially, in an improved arrangement for the introduction of the steam, of which a peculiar valve is the principal feature.

Referring to the accompanying drawings, which are made a part hereof and on which similar letters of reference indicate similar parts, Figure 1 is a view, partly in side elevation and partly in central vertical section, of a globular tank fitted with attachments embodying my said invention; Fig. 2, a transverse sectional view of the same as seen when looking in the direction indicated by the arrows from the dotted line 2 2 in Fig. 1; Fig. 3, an enlarged view of the valve and immediately adjacent parts, similar to a portion of Fig. 1; Fig. 4, a detail sectional view as seen when looking in the direction indicated by the arrows from the dotted line 4 4 in Fig. 3, on a still further enlarged scale; and Fig. 5, a view similar to Fig. 3, but showing an alternative construction, suitable especially to be embodied in old machines.

In said drawings the portions marked A represent the revolving and preferably globe-shaped tank into which the straw is to be introduced for treatment; B, the steam-ingress pipe; C, the steam egress or exhaust pipe; D, the outer portion or shell of my improved valve into which the pipes B and C enter; E, the inner portion or center of said valve, and F a spring whereby the surfaces of the valve portions are held into close contact.

The tank A is of substantially the usual character of tanks for this purpose. Commonly it is of large size, those used by me being of about six tons capacity. It is provided with a door R, through which the straw may be introduced and removed, and is supported by gudgeons A′, which are mounted in bearings in supporting-frames A^2. A common way of driving this tank is to attach screw-segments A^3 to its surface, with which a worm-gear on the shaft A^4 will engage, as indicated by the dotted lines in Fig. 1; but it may, of course, be driven in any desired manner without departing from my invention, which does not relate to either the construction of the tank, generally, or the means of driving it. In my preferred construction one of said gudgeons has four longitudinal perforations a', and to these are coupled, on the inside of the tank, the pipes A^5, which pipes are perforated at the inner ends for the discharge of the live steam and the escape of the exhaust-steam. Said pipes, as will be presently explained, take steam when in their lower position and discharge said steam into the bottom of the tank, as indicated by arrows in Figs. 1 and 2, and convey away the exhaust-steam when they are at their upper position, as also indicated by arrows. When there are four pipes, as shown in the drawings, the two at the sides are idle or inoperative and are simply provided for the purpose of securing a more frequent admission and exhaustion of the steam. Said pipes are also adapted to serve as arms or ribs inside the tank, for the purpose of lifting and tumbling the straw being treated, they being mounted on brackets A^5 for the purpose, as clearly shown in the drawings.

The pipes B and C enter suitable perforations in the valve-shell D, which said valve-shell is held from revolving by said pipes. The live steam enters through the pipe B and passes successively through the perforations a' in the gudgeon A′, (or the corresponding pipes, where the construction shown in Fig. 5 is employed,) passing thence to the pipes A^5 when said pipes are in the lower portion of the tank A, and issues through the perforations of said pipes into and among the straw and liquor contained therein. Such of the steam as escapes condensation passes into said pipes A^5 when they are in the upper portion of the tank, and passes thence out through the perforations a' to the pipe C and off.

The valve-shell D has suitable perforations to receive the pipes B and C, which perforations are enlarged somewhat at the inner sides, so as to admit and discharge steam

through a greater portion of the revolution of the apparatus than merely the diameter of the pipes themselves, as will be readily understood. Its interior surface, which fits onto the valve-center, is somewhat conical, as shown, to secure a close fit thereonto.

The valve portion E is secured to the end of the gudgeon A′ and revolves therewith, and there are perforations *e* in this said valve part E, which form continuations of the perforations *a′* in the gudgeon and are curved around so as to register with the perforations in the shell D, which receive the pipes B and C when the proper point in the revolution of the apparatus is reached. This valve portion or center is also conical on its surface, which fits the other portion or valve-shell.

The spring F surrounds the securing-bolt F′, which passes loosely through a central perforation in the shell D and enters a screw-threaded perforation in the valve part E, whereby it is secured thereto. Nuts *f* are placed on the end of this screw-threaded bolt or rod outside the spring. The purpose is to hold the valve-shell D by spring-pressure onto the valve-center E, and the surfaces of these two valve parts where they come together being slightly conical, as shown, insures a steam-tight fit without the employment of any packing, and notwithstanding the continual rotation of one part relatively to the other, which obviously is a considerable advantage.

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

1. The combination, with a rotary cooking-tank, of a perforated gudgeon secured thereto, a perforated valve-center secured to the end of said gudgeon, a valve-shell covering said valve-center and provided with perforations which register with the perforations leading to and through the gudgeons, and pipes entering said perforations and secured to said valve-shell, substantially as and for the purposes set forth.

2. The combination, with a rotary tank having perforated pipes therein, of a perforated gudgeon with which said pipes are connected at the inner end, a valve-center secured to the end of said gudgeon and containing perforations which form continuations of the perforations therein and which perforations diverge to the periphery of said valve-center, and a valve-shell placed over said valve-center with corresponding perforations leading thereinto and steam-pipes connected with the perforations in the valve-shell, substantially as set forth.

3. The combination, with a rotary tank having a gudgeon provided with perforations leading therethrough, a valve-center having a conical peripheral formation and provided with corresponding perforations leading from its periphery to and into the perforations in the gudgeon, and a valve-shell having a conical interior and connections with steam-pipes, said valve-shell being placed over said valve-center, and a spring connected to said valve-center and pressing upon said valve-shell, whereby the two are held into close contact, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 9th day of September, A. D. 1895.

CHARLES B. MACY. [L. S.]

Witnesses:

CHESTER BRADFORD,

JAMES A. WALSH.