

No. 819,240.

PATENTED MAY 1, 1906.

I. J. MILLS.
WHEAT TEMPERER AND HEATER.

APPLICATION FILED APR. 11, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

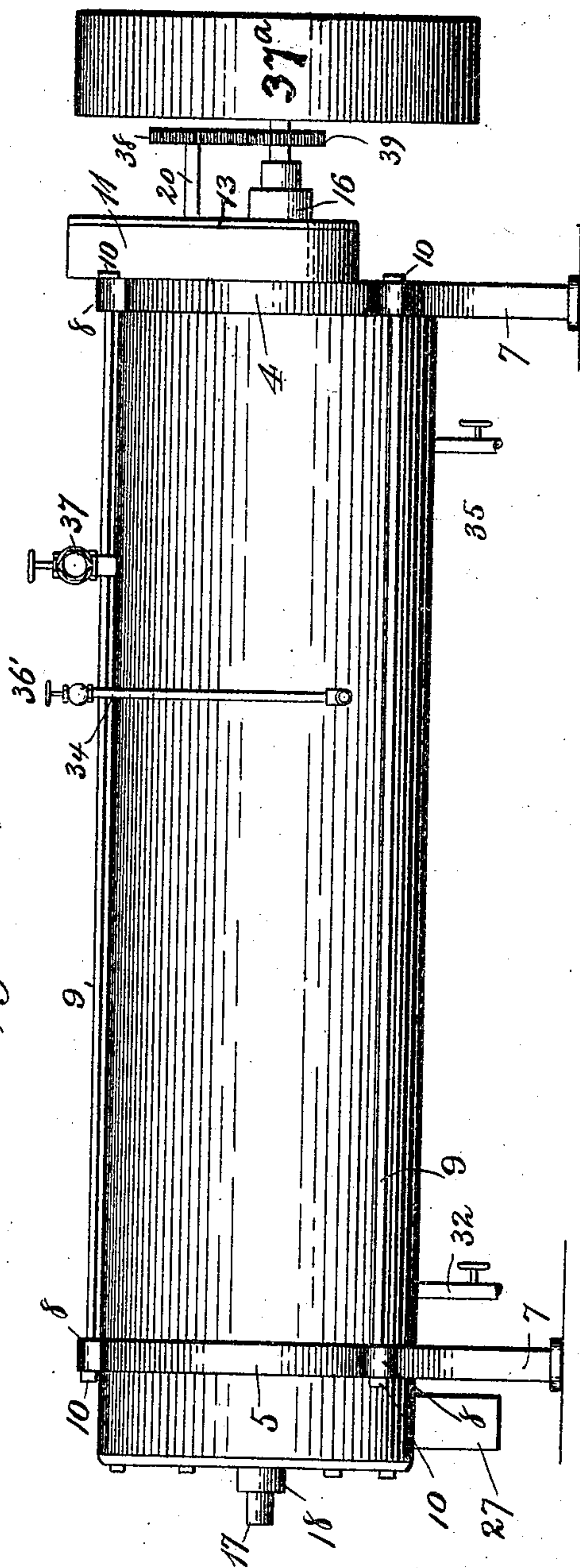
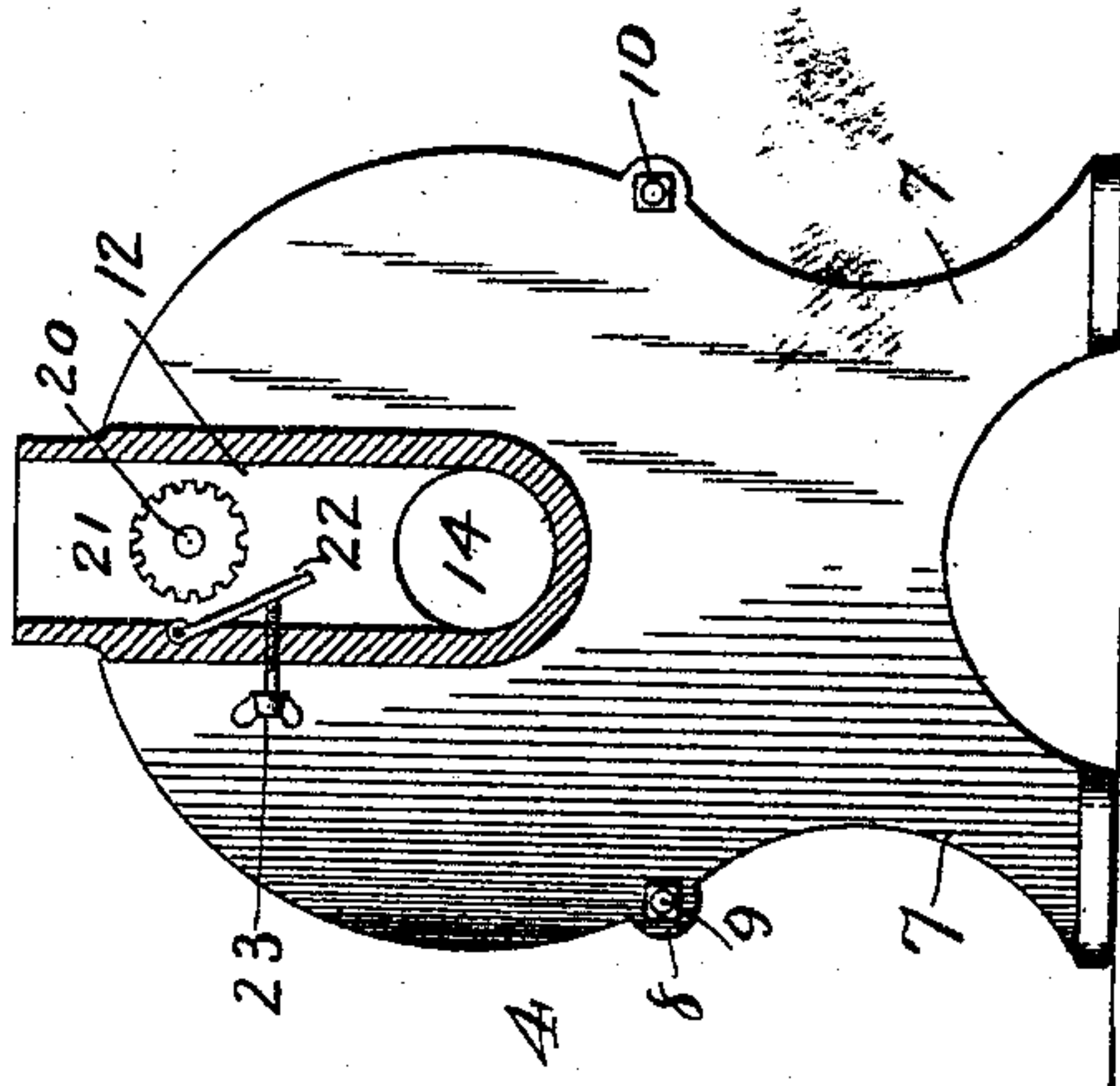


Fig. 3.



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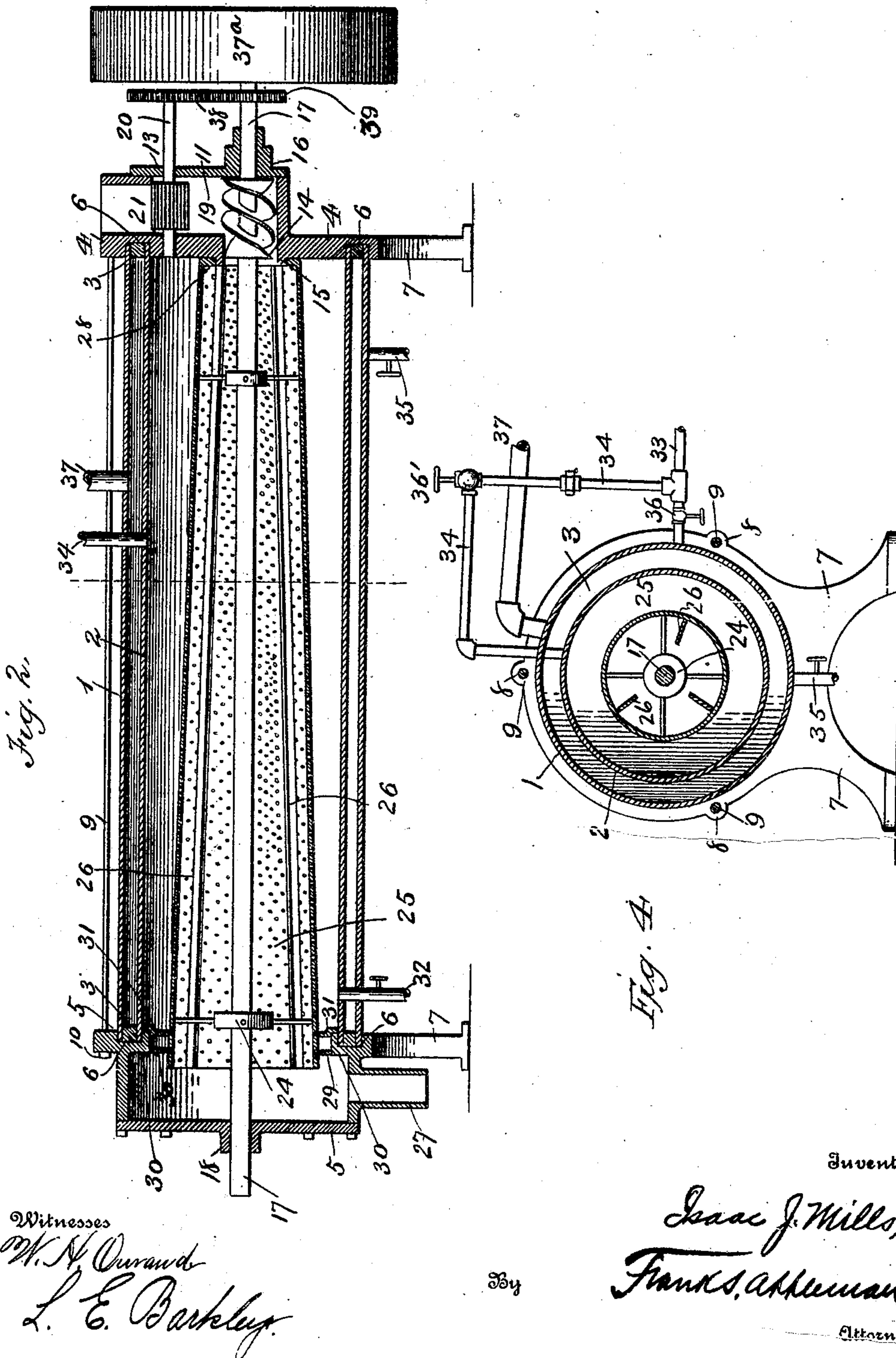
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

ISAAC J. MILLS, OF MACY, INDIANA.

WHEAT TEMPERER AND HEATER.

No. 819,240.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed April 11, 1905. Serial No. 254,950.

To all whom it may concern:

Be it known that I, ISAAC J. MILLS, a citizen of the United States of America, residing at Macy, in the county of Miami and State of Indiana, have invented certain new and useful Improvements in Wheat Temperers and Heaters, of which the following is a specification.

This invention relates to wheat temperers and heaters; and it has for an object to provide novel means in a device of this kind whereby the feed of wheat thereto may be easily and readily governed.

It is also an object of this invention to provide novel means whereby the dry steam applied to the wheat may be held from rapid condensation.

A further object of this invention is to provide means in a device of this character whereby the feed mechanism is operated from the drive mechanism of a revolving drum.

It is also an object of the invention to provide a device of this kind whereby the wheat is continuously agitated and is carried through the drum free from clogging or obstruction.

Finally, an object of this invention is to produce a novel device of this character that will be simple in construction, efficient in practice, and economical to manufacture.

With the foregoing and other objects in view the invention consists in the details of construction, and in the arrangement and combination of parts to be hereinafter more fully set forth and claimed.

In describing the invention in detail reference will be had to the accompanying drawings, forming part of this specification, wherein like characters denote corresponding parts in the several views, in which—

Figure 1 is a side elevation of the device. Fig. 2 is a longitudinal section thereof. Fig. 3 is an end view, partly in section, parts of the device being omitted. Fig. 4 is a section taken on the line indicated on Fig. 2.

In the drawings, 1 is an outer drum, and 2 an inner drum, secured at their ends to an interposed ring 3 by rivets or other suitable means passing therethrough. (Not shown.) These drums are so constructed as to stand boiler-pressure. The ends of the double drum are secured to cast heads 4 5, which are provided with annular channels 6, in which the said ends are adapted to fit. These heads are held to the drums in any suitable man-

ner, preferably by bolts. Formed with or secured to the heads are standards or legs 7, adapted to support the entire device. The heads are also provided with perforated off-sets 8, through which pass reinforcing-stays 9, held against displacement by the nuts 10 or other means. The advantage and intention of these parts is thought to be obvious.

The head 4 is provided with a central bore or opening 14 and has formed on the exterior a hopper or feed-chamber 11, through which wheat is fed to the interior of the device. This chamber has an opening 12 in its face, which is closed by a cap 13, bolted or otherwise secured to the chamber. On the interior of the head 4, around the bore 14 thereof, is formed a boss or flange 15, which has its outer surface circular and smooth. The bore of the boss coincides with the bore of the head and is likewise smooth. The cap 13 of the feed-chamber 11 is provided with a bearing 16, in which is mounted an end portion of a shaft 17, which shaft extends through the double drum and has its opposite end portion mounted in a bearing 18 in the head 5. Mounted on the shaft is a spiral feed 19, which is located within the feed-chamber 11 and extends partly within the bore of the head 4. This spiral feed is of any ordinary or preferred construction and operates in the usual manner.

Arranged above the shaft 17 within the feed-chamber 11 is a small shaft 20, one end of which is mounted in the head 4 and the opposite end in the cap 13. Mounted on the shaft 20 and extending across the chamber 11 is a feed-wheel 21, provided with a series of longitudinal corrugations around its periphery. This wheel is adapted to force the wheat within the chamber down upon the spiral 19. To a side wall of the chamber 11 is pivoted a regulating or governor valve 22, which has its pivotal point on the same plane with the shaft 20. This valve is intended to regulate the flow of wheat through the chamber 11 and is operated by means of a set-screw 23, threaded through a wall of the chamber 11 and having its free end bearing against the lower portion of the valve. This screw 23 is intended to only close the valve, as the valve will open by gravity or by force of the wheat thereon. Although not shown, it may be stated that the valve 22 may be of such size or construction to entirely cut off the flow of grain.

Arranged on the shaft 17 is a series of spi-

ders 24, adapted to rotate therewith, which have secured thereto the perforated cylinder or drum 25, which tapers toward one end and has its diameter at its greatest point less than the diameter of the inner drum. The perforations of the drum are of such size as to prevent the passage of wheat-grains there-through. The larger end of the drum is open and extends slightly within the head 5. Longitudinally of the interior of the drum 25 is a series of ribs 26, preferably three in number, which will agitate the wheat within the drum and permit the wheat to be thoroughly treated by the steam that is to be admitted within the drum. It is the intention of these ribs to elevate the wheat for a certain distance and then allow it to drop, an operation which is thought to be apparent. The bottom portion of the head 5 is provided with an outlet-spout 27, which is secured to or formed with the head 5. The smaller end of the drum 25 is provided with a head 28, having a central opening adapted to fit snugly over the boss 15 of the head 4 and rotate there-around. The opposite or large end of the drum 25 is provided with a flange 29, which is of such size as to abut the annular shoulder 30, formed at the inner edge of the head 4. This flange prevents any of the wheat being discharged from forcing its way back between the inner drum 2 and the perforated drum 25. On the inside of this flange is formed or secured a ring 31, which extends slightly below the shoulder on the inner wall to prevent any accumulation of water from condensation from passing into the wheat. To let out this accumulation of water, a valved pipe 32 communicates with the interior of the inner drum at a point near the head 5. A pipe 33 from a suitable source of steam communicates with the space between the drums 1 and 2 and is for the purpose of heating the drums, especially the inner drum 2, so that the live steam, which enters the inner drum through the pipe 34, connected to the pipe 33, will not rapidly condense. The live steam within the inner drum 2 passes through the perforation of the drum 25 and thoroughly heats and tempers the wheat therein, said wheat being fed within the drum 25 by the spiral feed 19 from the feed-chamber 11. To withdraw the water of condensation from the space between the two drums, a valved pipe 35 communicates therewith. A valve 36 is positioned on the pipe 33 between the outer drum 1 and the union of pipes 34 and 33 in order that the flow of steam into the space between the drums 1 and 2 may be shut off. This is done when the exhaust-steam of an engine is employed, said exhaust entering a space by means of the pipe 37. The pipe 34 is also provided with a shut-off valve 36, as it might be desirable at times to heat the drums 1 and 2 before the live steam is permitted to enter the inner drum. The

shafts 17 and 20 extend a suitable distance beyond the cap 13, and on the shaft 17 is mounted a pulley 37^a, which is driven by any suitable means, and on the shaft 20 is a gear-wheel 38, which meshes with a second gear 39 on the shaft 17. It is thus to be seen that the main shaft 17 and the feed-shaft 20 are operated from the same source simultaneously. In lieu of the meshing gears sprockets connected by a chain may be substituted, as both forms have been found to work with equal success in the operation of a machine of this character.

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

1. In combination, a double drum, heads for the drum, a perforated drum in the double drum, a feed-chamber carried by one of the heads of the double drum and communicating with the perforated drum, means for controlling the passage through the feed-chamber, means for rotating the perforated drum, a flange on the perforated drum contacting with the inner surface of the double drum, a suitable connection communicating with the space of the double drum for admitting steam therein, and a suitable connection communicating with the interior of the inner drum for admitting steam thereto.

2. In combination, a double drum, heads for the drums, a perforated drum in the double drum, said drum being tapered and open at its larger end, longitudinal ribs on the interior of said perforated drum, means for rotating the perforated drum, a flange on the larger end of the perforated drum contacting with the double drum, a suitable connection communicating with the space of the double drum for admitting steam thereto and a suitable connection communicating with the interior of the inner drum for admitting steam thereto.

3. In combination, a double drum, heads therefor, one of said heads having a bore and having a boss arranged therearound, a feed-chamber carried by the head having the bore, a delivery-spout carried by the opposite head, a shaft extending longitudinally of the double drum and mounted in the heads thereof, spiders on the shaft, a perforated drum carried by the spiders, said drum having a perforated head engaging the boss of the head of the double drum, a flange on the larger end of the perforated drum contacting with the double drum, a feeding device within the feed-chamber, and means for admitting steam within the double drum.

In testimony whereof I affix my signature, in the presence of two witnesses, this 6th day of April, 1905.

ISAAC J. MILLS.

Witnesses:

M. L. ENYART,
 O. M. ENYART.