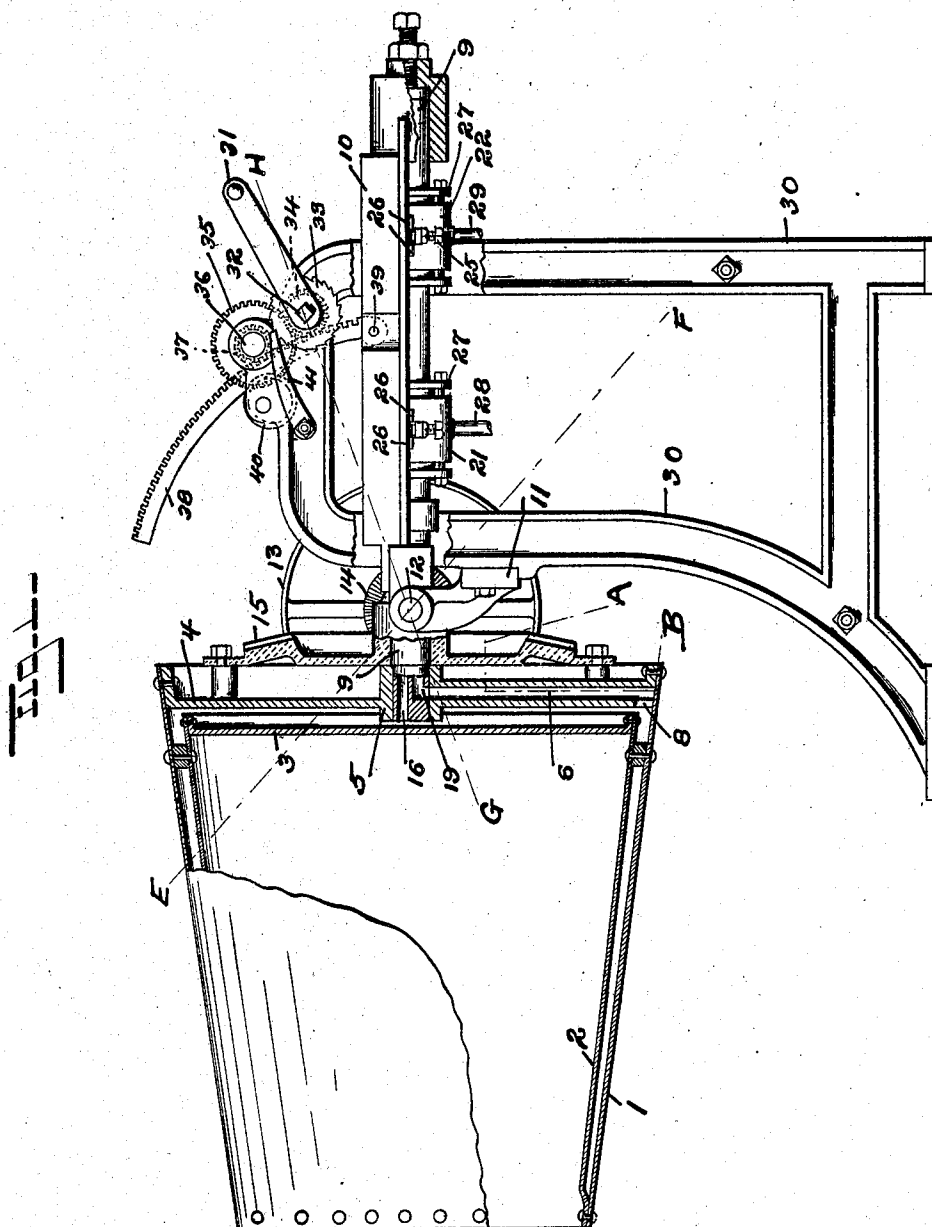


No. 885,813.

PATENTED APR. 28, 1908.

C. L. WARNER.
DRYING OUT BARREL.
APPLICATION FILED APR. 14, 1906.

2 SHEETS—SHEET 1.



Witness

Thomas H. Monk
Wallace S. Hoyle

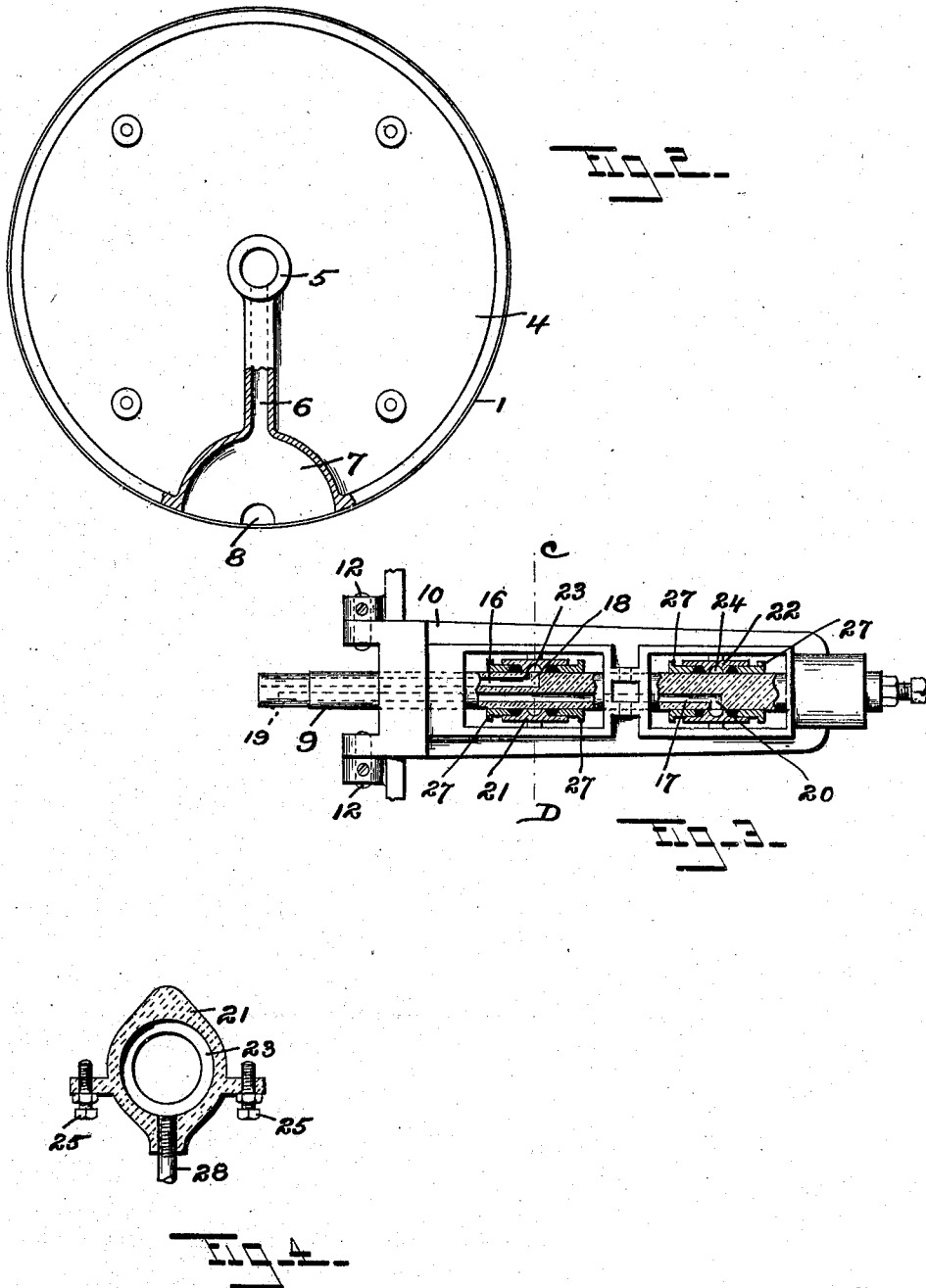
Inventor
Charles L. Warner
by *George S. Hoyle*
Attorney

No. 885,813.

PATENTED APR. 28, 1908.

C. L. WARNER.
DRYING OUT BARREL.
APPLICATION FILED APR. 14, 1906.

2 SHEETS—SHEET 2.



Witness
Florence H. Ward
Wallace S. Myer

Inventor
Charles L. Warner
by George E. Hall
Attorney

UNITED STATES PATENT OFFICE.

CHARLES L. WARNER, OF WATERTOWN, CONNECTICUT, ASSIGNOR TO THE BAIRD MACHINE COMPANY, OF WATERTOWN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

DRYING-OUT BARREL.

No. 885,813.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed April 14, 1906. Serial No. 311,745.

To all whom it may concern:

Be it known that I, CHARLES L. WARNER, a citizen of the United States, residing at Watertown, in the county of Litchfield and State of Connecticut, have invented certain new and useful Improvements in Drying-Out Barrels, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to new and useful improvements in drying-out barrels, and has for its object, among other things, to provide a device of this character having means for the admission of live steam therein and means whereby the exhaust and condensed steam may be automatically taken therefrom.

To these, and other ends, my invention consists in the drying-out barrel having certain details of construction and combination of parts as will be hereinafter described and more particularly pointed out in the claims.

Referring to the drawings, in which like numerals of reference designate like parts in the several figures; Figure 1 is a side elevation of my improved drying-out barrel, partly in section; Fig. 2 is an elevation of the closed end of the barrel, the sectional portion being upon line A—B of Fig. 1; Fig. 3 is a plan view of the shaft carriage with the steam boxes and barrel shaft partly in section; and Fig. 4 is a transverse sectional view of one of the steam boxes upon line C—D of Fig. 3.

The device herein described, while not limited to such use, is more especially designed to be used for drying small metal articles after they are taken out of a wet tumbling solution, an acid dip, or a treatment of similar character.

In the practice of my invention I provide a barrel preferably in the form of the frustum of a cone, and constructed with an outer shell 1 and an inner shell 2 secured together so as to leave an open space therebetween which is closed at the front end. The inner shell is provided with a head 3 and the outer shell with a head 4, said last mentioned head having a hub 5 in the center and an inclosed passage 6 extending radially from said hub and opening into an enlarged packet 7. Through the head 4 and opening into the pocket 7 is the opening or port 8. The barrel is fixed on the end of a shaft 9 which is rotatable in a carriage 10 that is movably

mounted at its front end by the pintles 12 to the brackets 11 that are secured to the standards 30.

A rotary movement is imparted to the barrel from a pulley 13 having a pinion 14 connected therewith which meshes into and drives a gear 15 secured to the head 4. Extending lengthwise within the shaft 9 are the passages 16 and 17, the passage 16 opening through the end of the shaft, as shown in Fig. 1, and having a passage 18 extending radially therefrom through to the outside of said shaft. The passage 17 is closed at both ends but connected by a passage 19 with the outside of said shaft near its inner end and with a passage 20 to the outside of said shaft near the outer end. Surrounding said shaft are the steam boxes 21 and 22, each of said boxes being provided with the interior chambers 23 and 24 and held against rotary movement by the engagement of the screws 25 with the underside of the carriage 10 and against endwise movement by the engagement of said screws with the lugs 26 integral with said carriage. These steam boxes are held in a position wherein the passage 18 opens into the chamber 23 during all of its rotation, and the hole 20 into the chamber 24. Leakage from these boxes is prevented by the packing glands 27 which are connected with and adjustable therein in a well known manner. Threaded into said steam boxes are the pipes 28 and 29. The carriage 10 is shifted upon its pivot mounting so as to bring the axis of the shaft 9 in any intermediate position between the broken lines D—F and G—H of Fig. 1, by means of the crank 31, which rotates a shaft 32 carrying a ratchet disk 33 and a pinion 34, a shaft 36 having a gear 35 thereon which meshes into the pinion 34, and a pinion 37 that meshes into the teeth of a rack 38 which is connected with the carriage 10 by a pintle 39 and lying upon a rotatably adjustable support 40, and a pawl 41 which engages the ratchet disk 33. The rotation of the crank 31 imparts movement to the rack 38 through the intermediate mechanism above described, and thereby shifts the position of the carriage 10 and the shaft 9 connected therewith.

In operation live steam is admitted into the chamber 23 in the steam box 21 through the pipe 28 and passes from said chamber through the passages 18 and 16 into the chamber between the heads 3 and 4 and the

outer and inner shells 1 and 2, where it heats said barrel to the desired temperature. The exhaust steam and water condensed therefrom escapes from said chamber through the opening or port 8 into the pocket 7, thence through passage 6, passages 19, 17 and 20 to the chamber 24 in the steam box 22, and escapes therefrom through the pipe 29.

Heretofore in drying out barrels it has been impracticable to automatically remove the condensed steam therefrom except by manual means and then only by stopping the rotation of the barrel. In my device these, and many other objections, are overcome, as the exhaust steam will automatically escape from the barrel through the port 8, and the water formed in said barrel also passes through said port, when, by the rotation of said barrel, the port is in its down position, and as the barrel continues its rotation the water that has passed into the pocket 7 escapes by gravity through the passage 6 and is ejected through the pipe 29. Even while the barrel is stationary and the port 8 in its down position, the pressure of the live steam will be sufficient to drive the exhaust steam and water out of the barrel through said port.

Experience has demonstrated that the means herein described permits the barrel to be maintained at a high state of temperature by the continual passage of live steam therethrough and all of the water is ejected therefrom, the pocket 7 acting as a bucket to pick up the water at each revolution of the barrel.

There are minor changes and alterations that can be made within my invention, and I would therefore have it understood that I do not limit myself to the exact construction herein shown and described, but claim all that falls fairly within the spirit and scope of my invention.

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

1. In a device of the character described, the combination with a rotary jacketed barrel with a chamber between the walls thereof; of a shaft rotating with said barrel and provided with longitudinal passages therein lying side by side and substantially parallel with each other; means for admitting steam to said chamber through one of said passages; and means for removing the exhaust steam and water from said chamber through a second passage in said shaft.

2. In a device of the character described, the combination with a rotary jacketed barrel, with a chamber between the walls thereof; of a shaft rotating with said barrel and provided with longitudinal passages therein lying side by side and substantially parallel with each other; means for admitting steam to said chamber through one of said

passages; a pocket connected with said barrel and rotating therewith; a connection between said chamber and pocket; and means for removing the contents of said pocket and chamber through a second of said passages in said shaft.

3. In a device of the character described, the combination with a rotary jacketed barrel, having a chamber between the walls thereof and a pocket connected with said chamber; of a shaft having independent live steam and exhaust steam passages therein with separate and independent openings through the sides of said shaft connecting therewith, one of said passages having a direct connection with said chamber and the other an indirect connection through said pocket.

4. In a device of the character described, the combination with a rotary barrel; of a shaft connected therewith having an outer solid end and two steam passages therein one of said passages opening at the inner end into said barrel and at the other end through the side of said shaft; a pivotally mounted carriage within which said shaft is journaled; means for moving said carriage upon its pivot mounting; and means for continuously rotating said barrel irrespective of the position of said carriage.

5. In a device of the character described, the combination with a rotary barrel; of a shaft connected therewith having steam passages therein; a carriage, within which said shaft is journaled, pivotally mounted at one end, having crank means connected with the opposite end, whereby the same may be moved upon its pivot mounting; and means located between the ends of said shaft for admitting steam to one of said passages and exhausting condensed steam from the other of said passages during the rotation of said shaft.

6. In a device of the character described, the combination with a base member; of a carriage pivotally connected therewith; a shaft rotatably mounted within said carriage and having a plurality of passages therein shorter in length than said shaft and having openings connected therewith through the side thereof; a barrel fixed to said shaft; steam boxes connected with said carriage and encircling said shaft where the said openings pass through the sides thereof; means for admitting live steam to one of said boxes; means for exhausting the condensed steam from the other of said boxes; means for moving said carriage upon its pivot mounting and holding the same in any of its adjusted positions; and means for rotating said shaft and barrel irrespective of the position of said carriage.

7. In a device of the character described, the combination with a rotary barrel; of a shaft connected therewith having two pas-

sages therein which are connected at their outer ends with passages through the sides of said shaft, one of said passages opening through the inner end of said shaft into said
5 barrel, and the other having an opening through one side of said shaft near the inner end thereof; steam boxes surrounding said shaft adjacent to the openings through the sides thereof; a carriage pivotally mounted
10 upon a fixed part and within which said shaft is journaled; means for moving said carriage about its pivot mounting and securing the same in any of its adjusted positions; and means for admitting steam to one of the said
15 passages in said shaft and exhausting from the other of said passages the condensation thereof during the rotation of said shaft and while the same is being moved with said carriage.

20 8. In a device of the character described,

the combination with the barrel constructed substantially as herein described; of a shaft 9 having the passages 16, 17, 18, 19 and 20 therein; a pivotally mounted carriage 10 within which said shaft is journaled; manually operated means for moving said carriage upon its pivot mounting; means for locking the same against movement in any of its intermediate positions; steam boxes 21 and 22 encircling said shaft and held against
25 endwise movement therein; pipe connections 28 and 29 with said boxes; and means for continuously rotating said barrel and shaft.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES L. WARNER.

Witnesses:

HATTIE M. SOMERVILLE,
BURTON J. CALKINS.