2 Sheets—Sheet 1.

L. SCHREIBER.

Machine for Pitching Casks.

No. 204,456. **Patented June 4, 1878.**

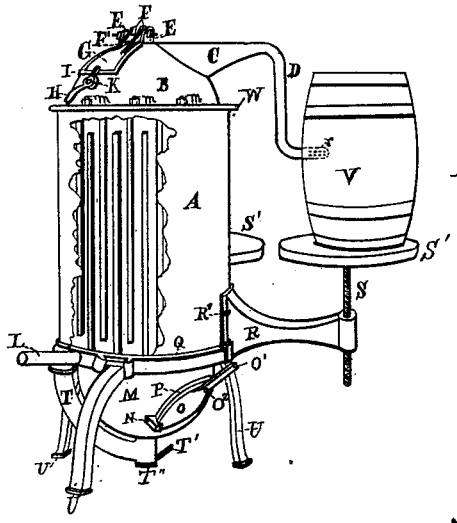

Fig 1.

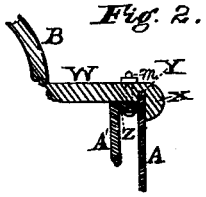

Fig. 2.

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2 Sheets—Sheet 2.

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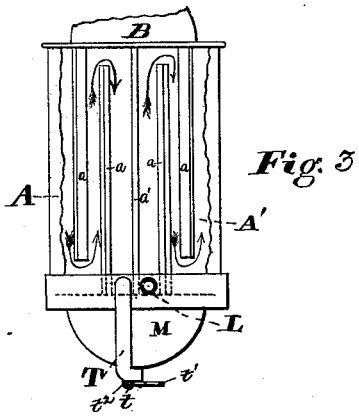

Fig. 3

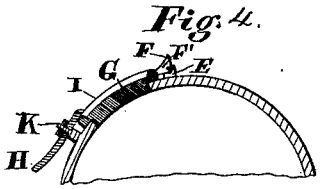

Fig. 4.

Fig. 5.

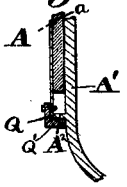

Fig. 6.

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UNITED STATES PATENT OFFICE.

LEONHARD SCHREIBER, OF CINCINNATI, OHIO.

IMPROVEMENT IN MACHINES FOR PITCHING CASKS.

Specification forming part of Letters Patent No. **204,456**, dated June 4, 1878; application filed December 17, 1877.

To all whom it may concern:

Be it known that I, LEONHARD SCHREIBER, of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Machines for Pitching Casks, of which the following is a specification:

My invention belongs to that class of apparatus whereby a hot fluid is applied to the interior of kegs or casks to prepare them to receive an inward application or coating of pitch or other melted substance, the latter application rendering said kegs or casks fit to hold spirituous or volatile liquors free from contact with the wood of the cask.

The first part of my invention consists, in general, in such a construction of the furnace as that the fluid with which the cask is to be heated shall circulate in a space between the wall of the furnace and a shell or wall outside of same, and then be passed directly through the fire before being introduced into the cask. In this way the durability of the furnace is much increased, for the fluid passing between the shells carries off the heat, and prevents the inner shell or furnace-wall from burning out. Fuel is also economized, for the reason that the fluid employed to heat the keg is partially heated by the caloric radiating from the inner wall of the furnace, which caloric would otherwise be wasted.

Another feature of my invention consists in the arrangement of the door, and pan, and latch, whereby the said door may be readily and hermetically closed, and thereby prevent the escape of the fluid which is forced through the ash-pan and furnace to heat the barrel.

Another feature of my invention consists in the construction of the furnace feed-door, so that the door, when opened, shall be held in a position convenient for applying thereto the plastic material for sealing the door to the furnace.

The fourth feature of my invention consists in improvements in the general construction of the apparatus, whereby the various portions can be readily removed to be renewed, repaired, or cleaned.

In the accompanying drawings, Figure 1 is a perspective view of the whole machine. Fig. 2 is a section through the joint at the top, showing the construction of the joint. Fig. 3 shows the arrangement of the diaphragms and the inlet and outlet pipes of the space between the shells. The horizontal dotted line in Fig. 3 shows the position of the top of flange A^2. Fig. 4 shows a section taken through the center of the door. Fig. 5 is an end view of the door, showing the edge beveled. Fig. 6 is a section taken through the two shells and one of the diaphragms.

The main portion of the body of the furnace of the apparatus consists of two upright cylindrical shells, A and A^1, whose walls are preferably parallel to each other, and at, say, about one inch apart. The space between the shells is tightly closed at the top and bottom. Vertical ribs or diaphragms *a* extend from one shell to the other, in a line with radii from the center of the furnace. These ribs are about four inches apart. One rib extends from the top of the space to within about four inches of the bottom of said space between the shells, and the succeeding adjacent rib extends from the bottom of said space to within four inches of the top. This arrangement of spaces at the top of alternate ribs and at the bottom of the ribs between the alternate ribs, is continued around the furnace from where the fluid is admitted into said space between said shells to where it has an exit from the said space. The fluid entering said space is thus compelled to pass up between two ribs, over one of these ribs, and down between the last-named rib and the rib next beyond and under the bottom of the latter, then up between the latter rib and the rib next adjacent beyond, and over the top of the latter, and so on, traversing a sinuous vertical path, in contact all the time with the surface of the inner shell of the furnace till it reaches the exit-orifice, the mouth of pipe T. The location of said exit-orifice is preferably near the orifice admitting the fluid to the space between the shells, all communication between said orifices other than by the fluid passing in a sinuous course and around the entire furnace, as aforesaid, being prevented by a continuous diaphragm or rib, *a'*, extending from the top to the bottom of said space between the shells and between the said inlet and outlet orifices.

The top B of the furnace (here shown as a hemispherical shell) is preferably united to the shells A and A^1 by a peculiar joint. (See Fig.

2, where W shows a horizontal flange on the base of the top, provided at its outer edge with a lip or vertical flange, X.)

A vertical recess, Y, in the lower side of flange W, immediately behind flange X, receives the upper edge of shell A, sufficient of the recess being unoccupied above the end of shell A to allow the latter an opportunity for expansion without straining the connection between flange W and the inner shell A^1. The latter is provided at its upper edge with a flange, *z*, extending horizontally outward, and is connected to flange W by a bolt and nut, *m*. In this manner the top is well secured to the shells, and any expansion or contraction of either shell cannot disturb the connection thereof or the tightness thereof.

The top of the furnace is provided with an opening for introducing fuel into the furnace, provided with a door, G, having knuckles F′, receiving the pin, the latter sustained outside of the knuckles by upright studs E. Each knuckle is provided with an extension, F, whose office is to prevent the door, when opened, from falling more than a very little distance back out of a vertical position, thus enabling this door to be readily handled, and to be in a fit position to receive the cement or fire-clay, with which the door is to be sealed.

A flange, I, on the outside edge of the door fits closely upon the outside of top B around the said opening, and thus enables the door to be tightly closed and sealed.

A latch, H, pivoted near its center at K, is so arranged that when in use the upper end presses the door down, so that its flange I presses closely upon the top B. To better accomplish this, the back of the door, where the end of the handle comes, is beveled, as shown in Fig. 5, and the handle, as it is turned upon the upper face of the door in one direction, not only locks the latter, but wedges it down upon the furnace-top with great force, and when turned in the other direction unlocks the door. The lower ends of the shells A A^1 are attached to a thick annular band, Q. This band Q is provided with a flange, Q′, (see Fig. 6,) which is bolted to the flange A^2 of shell A^1, thereby affording a support for the outer shell A. The shell A is preferably bolted to the band Q, as shown in Fig. 6.

The ash-pan M is formed by the inner shell A^1, as shown in Fig. 6, and is provided, in the lower portion of one side, with an opening closed by a shield-door rotating on a pivot, the latter located at one end of the door. The door is provided with a handle, O′, for opening and closing it. The outer edge of one-half the door is beveled, and fits beneath a catch, N, which latter thus serves to press the door closely over the edges of the opening and render the opening air-tight. Immediately below the level of the band Q the grate is placed.

The upper end of each leg is wedge-shaped, and adapted to fit a dovetail groove at the exterior of the band, the weight of the furnace tending to keep each leg firmly in position.

The flanges R′ of the arms R, as is evident from inspection, may be readily attached at any convenient height on the furnace.

A pipe, L, is the channel of communication between the blower and the space between the shells, while the tube T, located at the annular band, conveys the heated fluids to and up through the bottom of the ash-pan. Tubes C, starting from top B, convey the fluid to the interior of the keg, which latter, while its interior is being heated, rests upon the stand S′.

The sides and end of the nozzle of the tube D, which latter enters the keg, are preferably perforated with small round holes, which throw or distribute the blast of heated fluid over the interior of the keg. Each stand S′ is adjustable vertically by rotating it, as it is supported by a screw rotating in and engaging a female screw in the end of arm R. The latter are suitably attached to the sides of shell A, preferably as shown, viz., by flanges R′ and bolts.

An aperture in the bottom of the ash-pan, where tube T joins the ash-pan, serves to keep the tube at that point free from dirt, ashes, &c., by allowing the latter to drop out. This aperture is closed by means of a beveled pivoted door, *t*, swinging on a pivot placed at one side of the aperture. This door has a handle, t^1, so placed in relation to the hinge of the door that the handle operates as a lever to swing the door in the direction of the plane of the latter. The edge of the door, when slid over the aperture, fits within a catch, t^2, and, as the edge of the door is beveled, furnishes a means, in connection with handle t^1, of wedging the door tightly against the face of the aperture.

My invention operates as follows: The stand S′ having been adjusted, the keg V is placed thereon, and the nozzle end of the tube D is inserted in the bung-hole of the keg. The door G having been opened, and fuel having been introduced through the same into the furnace and a fire lighted, the door G is closed and locked tightly down with latch H, being everywhere hermetically sealed by means of fire-clay or cement. The blower is then set in motion, and air forced rapidly through the tube L, and through all of the circuitous channels of the space between shells A and A^1, thus taking up much of the heat in the inner shell. Leaving said space, the air travels through tube T, and thence up through the space included by the ash-pan, (the dumping-door O of the grate and the aperture for clearing out the outlet of tube into the ash-pan being, of course, tightly closed,) and thence is forced through the grate and the fire, where it is highly heated, and then passes out through the tubes D into the kegs, the interior of which is thereby heated, in preparation for the reception of the pitch, &c.

Instead of air, wet steam may be introduced

through my machine, the extra heat imparted to it during its contact with the outer surface of the inner shell and diaphragms will change it to a dry steam, very useful for the purpose of heating the kegs.

When desired, the tube T may be disconnected from the ash-pan, and any fluid, as air, gas, or water might be introduced through tube L, and, passing out through tube T, be utilized in any manner desired. In the event of tube T being disconnected from the ash-pan, and employed to convey away water, &c., or other fluid not employed to heat the keg, the fluid to heat the keg would be introduced directly from the blower into the furnace, and preferably at a point therein below the fire.

The ribs or diaphragms may be vertical, diagonal, or horizontal, and their number may be increased or diminished at will, so long as enough remain to compel the fluid passing between the shells to circulate sufficiently to reach every portion of the furnace-shell A^1, (which forms the inner wall of said space,) and to abstract enough heat from said shell to prevent the same from burning out.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of shells A A^1, provided with an intervening air-space, inlet-tube L, exit-tube T, ash-pan M, a furnace, and tube D, arranged substantially as and for the purposes specified.

2. In combination with the cylindrical shell A, the band Q, provided at its exterior with dovetail grooves adapted to receive the upper extremities of the legs or feet U, for the purposes specified.

3. In combination with a close furnace and a blast apparatus, the ash-pan M and latch O O′, substantially as and for the purposes specified.

4. The peculiar devices, consisting of flange W, with flange X, recess Y, and flange Z, for combining the shells A A^1 and the top B, substantially as specified.

5. In combination with the band Q, properly supported by legs or equivalent devices, the shell A and the inner shell A^1, provided with flange A^2 substantially as and for the purposes specified.

6. In combination with a blast apparatus and a close furnace, provided with top B E E, the door G, provided with knuckles F′, having projections F, substantially as and for the purposes specified.

LEONHARD SCHREIBER.

Attest:
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C. WALTON, Jr.