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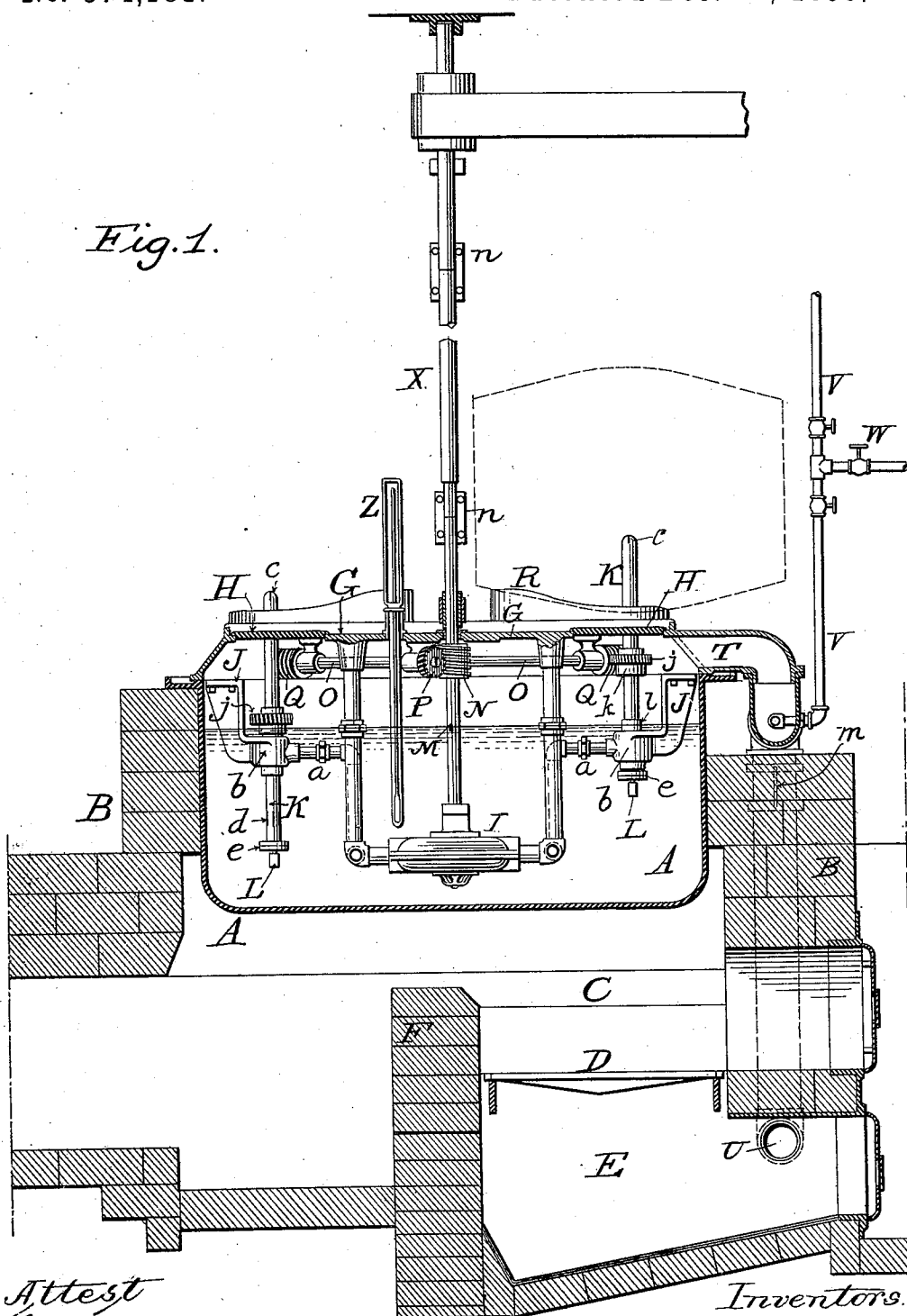
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J. F. THEURER & O. MUELLER.
CASK PITCHING APPARATUS.

No. 574,181.

Patented Dec. 29, 1896.

Fig. 1.



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C. B. Bull.

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(No Model.)

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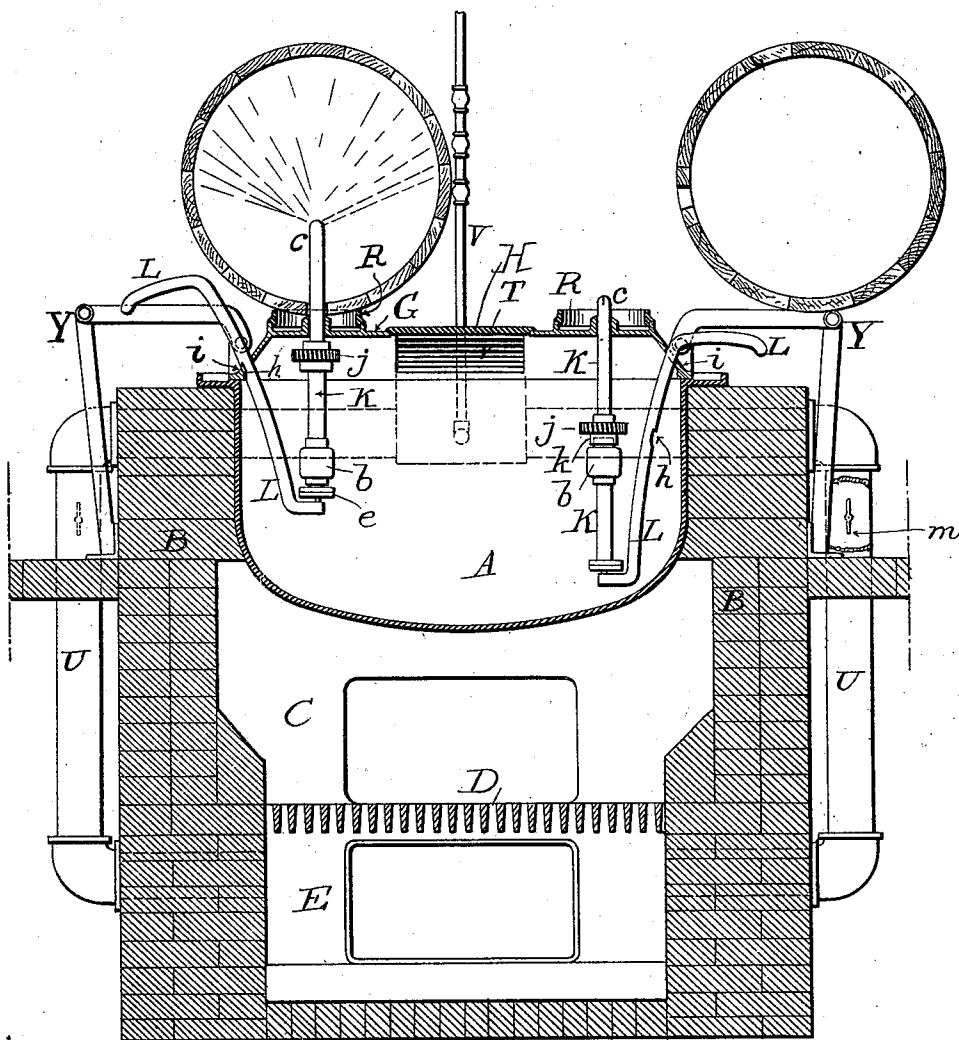
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Fig. 2.



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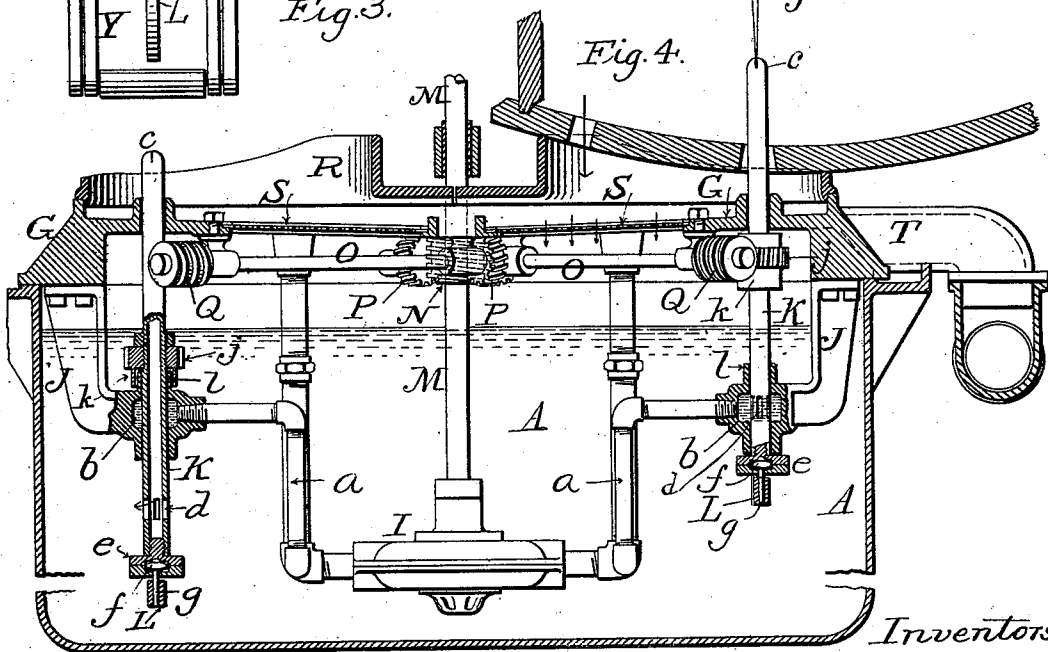
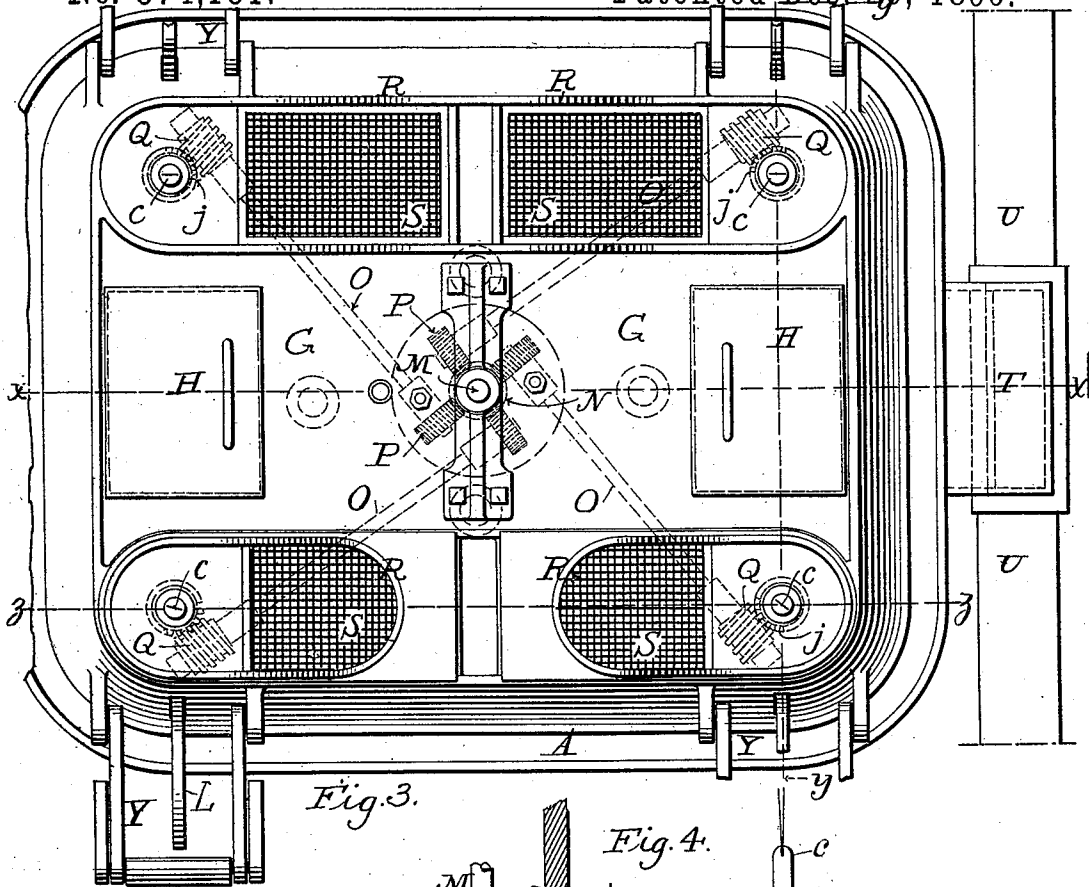
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Attest { C. C. Brundage
C. F. Bull.

Jacob F. Theurer
Oscar Mueller

by

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UNITED STATES PATENT OFFICE.

JACOB F. THEURER AND OSCAR MUELLER, OF MILWAUKEE, WISCONSIN,
ASSIGNORS, BY MESNE ASSIGNMENTS, TO ALONZO PAWLING AND HENRY
HARNISCHFEGER, OF SAME PLACE.

CASK-PITCHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 574,181, dated December 29, 1896.

Application filed August 30, 1895. Serial No. 561,000. (No model.)

To all whom it may concern:

Be it known that we, JACOB F. THEURER and OSCAR MUELLER, citizens of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Apparatus for Washing, Pitching, or Enameling Casks Barrels or Kegs, of which the following is a specification.

Our invention relates to apparatus for washing, pitching, or enameling casks barrels, and kegs; and it consists in various matters hereinafter set forth, the objects sought being simplicity of construction, convenience and rapidity of operation, and efficiency of action.

In the accompanying drawings we have illustrated our apparatus in its preferred form, but it is to be understood that within somewhat wide limits the form and construction of parts may be varied as circumstances require or convenience suggests.

Figure 1 is a vertical sectional view of the apparatus on the line xx of Fig. 3. Fig. 2 is a vertical section on the line yy of Fig. 3. Fig. 3 is a top plan view; and Fig. 4 is a vertical section on the line zz of Fig. 3, designed to show on a larger scale various details of construction.

In breweries and other places where large numbers of kegs, barrels, and casks are used the time and labor involved in properly cleansing and pitching or enameling them are items of great importance.

Our purpose is to produce simple, durable, and efficient machinery capable of rapidly performing the work of cleaning and coating and requiring but little manual labor.

With this purpose in view we construct our apparatus in the following manner, subject, of course, to such modifications as fall properly within the province of the engineer or mechanic.

A indicates a tank or vat, of iron or other suitable material, which may be conveniently supported upon masonry B, advisably of fire-brick or like refractory material, capable of withstanding high temperatures.

Beneath the tank or vat A, and extending about half-way across the same, more or less, are a fire-chamber C, having grate-bars D, an

ash-pit E, and the usual doors for the respective spaces as well shown in Figs. 1 and 2. The form and dimensions of the vat are optional, and the same is true of the fire-space, though it is preferred to arrange a bridge-wall F about midway between the front and rear sides of the space immediately beneath the vat, as shown in Fig. 1. This arrangement causes the burning gases and products of combustion to pass in close contact with the bottom of the tank or vat, so that the heat is effectively applied and well utilized.

The space in rear of the bridge-wall connects, either directly or by an intervening tunnel, with a stack or chimney, which serves to afford a proper draft and to carry off such smoke and soot as may be produced.

The tank or vat A is provided with a top or cover G, which is made bodily removable, and has attached to it all the working parts, so that repairs may be made to the machinery without putting out the fire or emptying the tank. To give ready access to the interior without necessitating removal of the top, manholes are formed in the top G, and these are furnished with removable covers H, as shown in Figs. 1, 2, and 3.

Suspended from the top G, or otherwise conveniently sustained or supported, is a centrifugal pump I or equivalent liquid-forcing apparatus. The shell or casing of pump I communicates by branch pipes a with annular chambers b , formed in substantial brackets or hangers J, bolted or otherwise made fast to top G. It is of course obvious that the chambers b may be formed in castings made separate from the brackets or hangers, but secured thereto, though it will be found convenient and economical to form them therein.

The annular chambers b are each formed with a concentric opening at top and bottom, through which openings passes a tube K, terminating in a nozzle c .

Each tube K is provided near its lower end with a series of slits or openings d , which, when the tube is elevated, as shown at the right-hand side in Figs. 1 and 4 and at the left-hand side in Fig. 2, come within the annular space b , and are thus put into com-

munication with pipe *a*, and consequently with pump I. When the pipe K is lowered, as represented at the opposite side in each of said figures, the imperforate body of the pipe stands within the annular chamber *b*, and hence nothing can enter the pipe from the pump, but the openings *d*, being below chamber *b*, the contents of pipe K may freely flow back into the tank until the level in the pipe and in the tank is equalized. This prevents the pitch or other enameling material from solidifying in the nozzle. Each pipe K is closed at its lower extremity, and is provided with a two-part shell *e*, within which is swivelled a double-convex disk *f*, provided with a depending stem *g*.

L indicates a lifting-bar, the lower end of which is provided with an opening to receive the stem *g*, while the upper end extends through an opening in top or cover G and is bent outward to form a handle, as shown in Fig. 2. At a suitable point in its length each bar L is provided with an undercut notch *h* to receive a lip *i*, formed at the outer end of the opening in top G through which the bar passes. The location of the notch is such that when the nozzle *c* is elevated to its proper height and the openings *d* are carried within chamber *b* by the lifting of bar L the notch shall be coincident with the lip *i*, and the lifting-bar may be securely hung upon said lip, as shown at the left hand in Fig. 2.

Secured to each tube K above the portion of bracket J through which said tube passes is a gear-wheel *j*, formed with a depending collar *k* to encircle a vertical neck *l*, formed upon the bracket, as shown in Fig. 4. The neck and collar jointly form a fluid-check in the nature of a dash-pot, serving to prevent the pipe K and the lifting-bar L, which jointly possess considerable weight, from falling too suddenly and injuring the apparatus. The descent of said parts is prompt and certain during the most of their travel, but just before reaching their lowest position the collar encircles the neck, confines a body of the liquid with which the tank A is supplied, and can only complete its descent gradually as the liquid is forced out from between the neck and collar. This enables the nozzle to be speedily withdrawn from and carried clear of the keg or cask, which is quite desirable, yet precludes injury of the parts through too sudden movement or by concussion.

Each nozzle *c* is provided with one or more slits or perforations, preferably a single slit, through which the liquid issues under the pressure produced by the pump. By employing the single slit a broad flat sheet of liquid is thrown from the nozzle with force sufficient to reach the most distant part of a cask, barrel, or keg.

For the purpose of distributing the liquid over the entire interior of the cask or keg it is desirable to rotate either the nozzle or the vessel, and for several reasons it is deemed better to rotate the nozzle. For this purpose

the shaft M of pump I is provided with a worm or screw N, which gives motion to a series of tangentially-arranged shafts O through the medium of worm gear-wheels P. Each shaft O carries at its outer end a worm or screw Q, and each of said worms or screws meshes with one or another of the worm-wheels *j* of the nozzle-pipes K, as seen in Figs. 1, 3, and 4, when the nozzles are elevated. Merely lowering a nozzle disconnects its wheel *j* from the worm or screw which rotates it, and thus brings the nozzle to rest, at the same time cutting off its communication with the pump, but establishing communication with tank A. Elevating the nozzle places its rotating gear in mesh and reestablishes communication with the pump, at the same time cutting off direct communication with the tank.

Kegs and casks usually contain three openings, one in the head, another at the mid-length, and a third near one end, and it has hitherto been necessary to plug two of these openings before inserting the injector-nozzle. This required considerable time and a large supply of plugs of proper size. We now avoid the necessity of thus plugging any except the opening in the head by arranging the cask or keg to lie in a fixed position and permitting the surplus liquid to flow out through the middle bung-hole and through one of the two openings left unplugged.

To support the kegs or casks in proper position relative to the nozzles, there is provided for each an oblong frame or bed R, the upper edge of which is so curved as to afford a proper seat for the side of a keg or cask and to prevent the latter from rolling off sidewise. This will be readily understood upon referring to Figs. 1, 3, and 4. The bed-frames or supports R are of a length to support the keg or cask at a point near one end and at another point between the bung-hole and the opposite end of the cask, as indicated in Figs. 1 and 4. This arrangement permits the attendant to rock or tip the keg or cask upon the edge of the support at a point near the mid-length of the former, and thus to lift the inner end above the raised edges, which hold it against rolling, and in this way the placing and handling of the kegs or casks are made easy.

In order to adapt the same apparatus to handle whole, half, and quarter barrels, or such other sizes as may be desired, the supporting-frames or boxes R are made removable and interchangeable, each having the same-sized base, but the raised rims or sides varying according to the contemplated size of cask or vessel, as indicated in Fig. 3.

When the keg or cask is in position upon its box or supporting-frame R, the two holes fall within its boundaries, and the old coating, which is softened and removed by the liquid injected, flows out of the middle bung-hole and the opening near the end of the keg or cask, together with any surplus of the injected liquid. It often happens that impurities and

foreign matters of one kind or another are contained in the liquid flowing from the keg or cask, and it is desirable to prevent these from flowing back into the tank A. Hence inclined screens or gratings S are placed in the top or cover of the tank, one within each of the spaces surrounded by the frames R. The liquid flowing over this screen passes through its perforations or meshes and mingle with that of the tank A, but solid matters are held back and prevented from fouling the liquid in the tank.

The matter removed from kegs and casks is often quite ill-smelling or foul, and it is desirable to prevent the odors from being disseminated through the brewery or the work-room. We accordingly carry a pipe or trunk T from the top G of the tank A and connect it by a pipe or pipes U with the ash-pit E of the furnace, as shown in the several figures. The strong draft induced by the fire and the stack or chimney causes air to be drawn downward through the screens or gratings S into the ash-pit and through the fire, which effectually destroys the odors. By this same provision the fumes arising from the liquid itself are carried off, burned, and thus rendered harmless.

If at any time the draft be insufficient to produce a proper ingoing current of air through the screens, a steam-jet may be employed in pipes U to strengthen the flow. For this purpose we provide a steam-pipe V, communicating with any convenient generator and provided with a suitable controlling-valve.

The pipes U U are furnished with dampers *m*, by which communication with the ash-pit may be regulated or cut off, as required.

Pitch and some other substances employed for coating kegs and casks being quite inflammable and liable to take fire at any moment, it is desirable that provision be made for speedily putting out the flames if they start in or about the tank A. To this end we provide pipe V with a branch W, communicating with a reservoir containing carbonic-acid gas or any other fire-extinguishing gas, and by providing both the pipe V and the branch W with proper valves steam or carbonic-acid gas may either or both be admitted to or shut off from the tank A. By the introduction of the gas the flames may be quickly subdued and the apparatus thus speedily restored to operative condition.

As before mentioned, it is desirable to be able to remove all working or moving parts of the apparatus and to repair them without putting out the fire or emptying the contents of the tank, and for this reason all such parts are carried by the top G. Where the pump-shaft M extends to an elevated support or bearing, as indicated, and as will ordinarily be found desirable, it will advisably be made with a removable section X, connected with adjoining sections by compression-couplings

or equivalent fastenings, so that it may be taken out to permit elevation of the cover G.

Y indicates a jointed bracket or shelf to support the keg or cask while being rolled to and from its supporting-bed or box R, one such support being arranged by the side of each box R, as shown in Figs. 2 and 3.

In practice it is found advisable to make the tank A of comparatively small dimensions and to so brace and strengthen the top that it shall not warp or spring, as otherwise the shafts and gearing are apt to be thrown out of proper alinement or adjustment, and thus caused to work with difficulty or to bind and prevent operation. It is deemed best to provide space for four nozzles and casks, though we do not restrict ourselves to this or any other number, but may use one alone or any greater number.

As suggested at the outset, various modifications may be made, such, for instance, as other common forms of gearing, perforated instead of slitted nozzles, the employment of a metallic casing in lieu of masonry, and such other variations as are within the province of mechanics and builders of apparatus of the kind.

When provided with the furnace, the apparatus is capable of use either for washing or cleansing casks or for pitching or enameling them, and of course it may be used also with cold solutions. If intended only for cold solutions, the furnace may be omitted.

A thermometer Z is provided to indicate the temperature of the liquid in the vat.

The pipes U may connect with the space in rear of the bridge-wall, if desired.

While the pump-shaft M will ordinarily be carried to an elevated support or bearing and provided with a removable section, we do not of course wish to restrict ourselves to this precise arrangement, as it is obvious that a rope drive may be employed, in which case the shaft M will extend but a short distance upward, where it will be provided with a grooved wheel to receive the driving rope or band.

Having thus described our invention, we claim—

1. In combination with a tank and with a furnace for heating the same; a trunk opening directly from the tank into the furnace to carry off fumes from the tank; and a steam-pipe opening into the trunk and serving to induce a current through the same.

2. In combination with a tank and with a furnace for heating the same; a trunk connecting the tank and furnace and provided with a valve or damper, and a pipe communicating with the tank and with a source of carbonic-acid gas; whereby fumes arising within the tank may normally pass to the furnace; and whereby communication between the furnace and tank may be closed and carbonic-acid gas be introduced into the tank without entering the furnace.

3. In combination with tank A, and its furnace B, trunks T, U, steam-pipe V, carbonic-acid-gas pipe W, and valves for controlling the flow of steam and gas; whereby the same jet device is made to serve for both.

4. In combination with tank A and its top or cover G, a pump suspended from said top, and a shaft extending from the pump to an overhead bearing or support and provided with a removable section; whereby upon the removal of said section the top G may be lifted off with the parts attached thereto.

5. In combination with a tank, a bracket provided with an annular chamber *b*; a pipe K provided with a nozzle *c* and with a lateral opening *d*; a pump I; a pipe *a* connecting the pump and chamber *b*, and means for moving pipe K longitudinally to carry the opening *d* into or out of chamber *b*, as desired.

6. In combination with the tank of a cask cleaning or enameling apparatus, a jet or spray device comprising a shell or casing having an annular chamber *b*, and a pipe closed at one end, provided with a delivery-orifice at the other end, and having an inlet-orifice at an intermediate point, said pipe being longitudinally movable and thereby adapted to bring the inlet-opening into communication with chamber *b*, and to close it against direct communication with the tank; or to carry said opening out of communication with the inlet and into direct communication with the tank, whereby liquid is permitted to drain from the nozzle.

7. In combination with tank A and a top or cover therefor, a pump I; a shaft X for imparting motion thereto; a worm-wheel N carried by said shaft; a shaft O provided with worm-gear P and worm or screw Q, and a jet-pipe K provided with a worm gear-wheel *j*; all arranged substantially as described and shown; whereby the jet-pipe is thrown into gear and is caused to rotate when moved to operative position, but is disconnected from the gearing when withdrawn from operative position.

8. In combination with a tank and pump; a rotatable shaft O provided with a gear-wheel Q; a bracket or support J provided with a chamber *b*; a pipe *a* connecting chamber *b* with the pump; a pipe K provided with a nozzle *c* and with lateral orifice *d*; a gear-wheel *j* secured to pipe K and adapted to mesh with gear Q, and means for moving pipe K longitudinally.

9. In combination with a tank and with a bracket or support as J, a jet-pipe K movable longitudinally through the support; and a neck and collar formed one upon the support and the other upon the pipe; whereby the liquid of the tank is confined and caused to cushion the descent of the pipe.

10. In combination with bracket J provided with neck *l*; pipe K; and gear-wheel *j* secured to said pipe and provided with collar *k*, substantially as and for the purpose explained.

11. In combination with tank A and its top or cover G provided with lip *i*; vertically-movable jet-pipe K; and lifting-bar L provided with notch *h*.

12. In combination with tank A and bracket J; jet-pipe K; lifting-bar L, and a swivel connection between the pipe and bar, consisting of a two-part shell *e*, and a disk *f* seated within said shell and having a stem *g* seated in the bar L.

13. In a cask cleansing or enameling apparatus, the combination of a tank; a frame or support to hold a cask above said tank, and a screen interposed between the cask and tank to prevent large particles of matter from flowing from the cask into the tank.

14. In combination with a tank or vat, a cask holder or support adapted to sustain a cask on its side and to extend beyond the two side openings of the cask, and a screen interposed between the tank and the side opening of the cask nearest its end.

15. In combination with a furnace-tank, having an opening in its top; a cask-support surrounding said opening; an injecting-nozzle extending upward within the cask-support; and a trunk leading into the furnace and serving to carry fumes and odors from a cask placed upon said cask-support, into the furnace, substantially as set forth.

In witness whereof we hereunto set our hands in the presence of two witnesses.

JACOB F. THEURER.
OSCAR MUELLER.

Witnesses:

H. C. GOETZ,
EMIL BEST.