Oct. 5, 1943. A. B. SIMON 2,331,001

TAPPING AND COOLING DEVICE

Filed July 6, 1939

FIG. 1

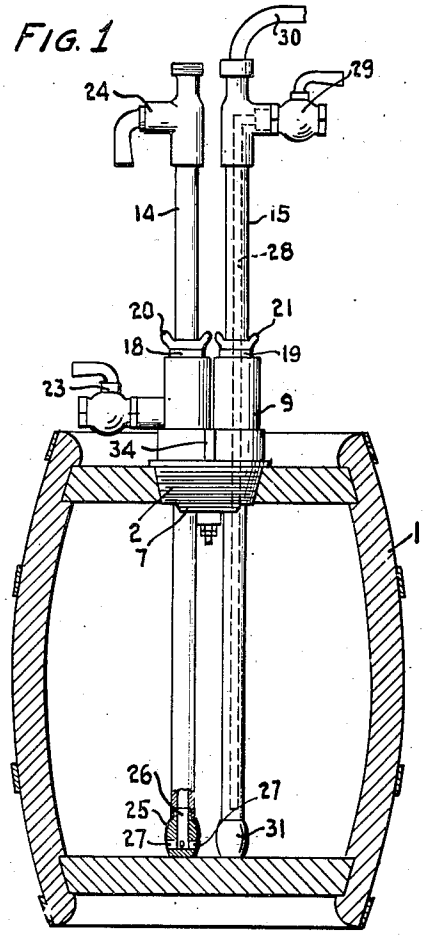


FIG. 2

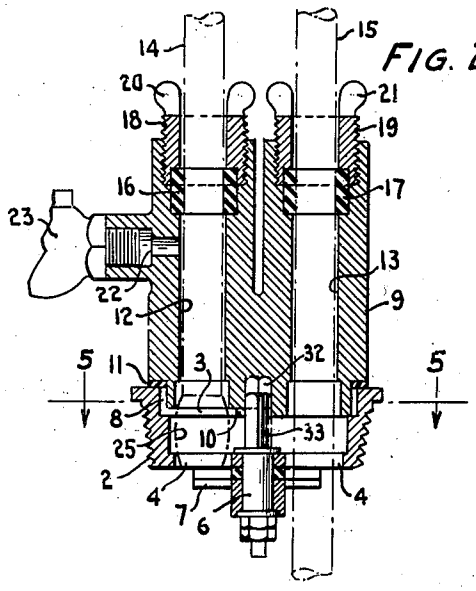


FIG. 3

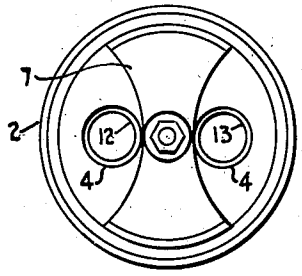


FIG. 4

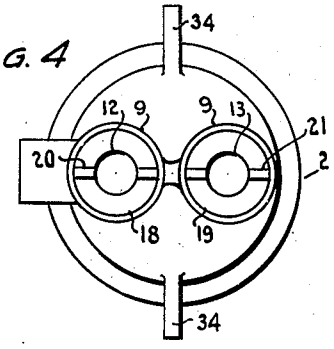


FIG. 5

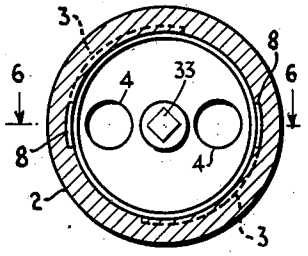


FIG. 6

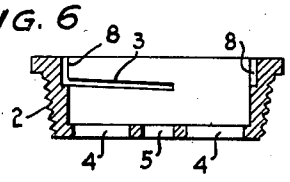
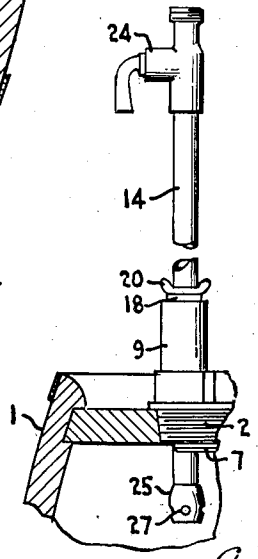


FIG. 7



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TAPPING AND COOLING DEVICE

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Application July 6, 1939, Serial No. 283,128

5 Claims. (Cl. 225—2)

This invention relates to attachments for kegs, barrels or other containers whereby the contents may be tapped off or refrigerated or both.

The main object of the invention is to provide improved means whereby a key, barrel or other container may be readily and efficiently tapped.

A further object of the invention is to provide improved means whereby the contents of a keg, barrel or other container may be readily and efficiently refrigerated.

A further object of the invention is to provide improved means whereby a barrel or other container may be readily and efficiently tapped and its contents refrigerated.

A further object of the invention is to provide means for efficiently and readily tapping a keg, barrel or other container whereby the container is maintained closed against contamination from the exterior at all times.

A further object of the invention is to provide an attachment for kegs, barrels or other containers whereby the container may be readily and efficiently tapped, the interior of the container being normally shut off from the exterior and automatically opened by the attachment of the tapping device.

A further object of the invention is to provide an attachment for tapping a keg, barrel or other container, which is readily applied and efficiently operates and which provides a means for tapping off the contents and also for supplying pressure to force the contents from the container.

Other and ancillary objects of the invention will appear hereinafter.

In the accompanying drawing which illustrates the invention—

Fig. 1 is a side elevation of apparatus according to the invention, such apparatus being, however, partly in section and the keg to which it is applied being shown in vertical-axial section;

Fig. 2 is an axial section, on an enlarged scale, through the bushing and tapping and refrigerating attachment, certain of the adjacent parts being omitted;

Fig. 3 is a bottom plan view of the apparatus of Fig. 2;

Fig. 4 is a top plan view of the apparatus of Fig. 2;

Fig. 5 is a section on the line 5—5 of Fig. 2;

Fig. 6 is a section of the bushing on the line 6—6 of Fig. 5, the other parts being omitted; and

Fig. 7 is a fragmentary view showing a portion of the attachment in side elevation and a fragment of the keg in section illustrating the tapping pipe at a stage of partial insertion.

In the accompanying drawing which illustrates the invention, in the head of the keg 1 is screwed a bushing 2 having the inclined bayonet slots 3 in oppostie sides, such bayonet slots communicating with the upper edge of the bushing by means of axially extending slots 8, and having holes 4 in the diaphragm constituting its bottom through which the eduction or cooling pipes may be extended into the keg as will be hereinafter referred to.

In the bottom of the bushing 2 is also a central hole 5 within which is rotatably mounted the spindle 6 to which is secured the valve 7 adapted to be moved into and out of position to close the holes 4 by turning the spindle 6. The detachable tapping and cooling attachment to be applied to the keg bushing comprises a body portion 9 having the turning wings 34, and provided at diametrically opposite points with lugs 10 adapted to be entered within the slots 8 and then turned into the slots 3, the inclination of which will draw the body tightly against the upper part of the bushing, a gasket 11 of rubber, or other suitable material, being compressed between the body and the bushing to make a tight joint.

Within the body 9 are two bores 12 and 13 within which longitudinally slide the tubes 14 and 15. Both of these tubes and their manner of operation may be precisely alike, when they may both be eduction tubes for the contents of the keg or barrel, as for instance they may lead from the interior of a keg to a plurality of faucets. In the structure shown, however, one of the tubes, namely 15, is used for cooling or refrigerating purposes as will later appear. The tubes 14 and 15 are respectively surrounded by gaskets 16 and 17 which are compressed by the gland nuts 18 and 19 having turning wings 20 and 21 at their upper exposed sections.

When the gaskets 16 and 17 are compressed they will bear tightly against the pipes 14 and 15 so that a fluid-tight joint is formed but longitudinal sliding of the tubes 14 and 15 is permitted.

There is a clearance in the bore 12 about the pipe 14, such clearance communicating through a passage 22 with a source of compressed air, such passage being controlled by the cock 23. The air under pressure is admitted to the surface of the liquid in the keg, to afford pressure to eject the liquid, from the bore 12 to the interior of the bushing 2 and thence through the holes 4 (when uncovered by the valve 7) into the interior of the keg above the liquid.

The pipe 14 is adapted to be attached at its

upper end to a flexible or other conduit leading to the faucet, the pipe 14 being controlled by a cock 24. Into the lower end of the tube 14 is screwed a tip 25 having the central aperture 26 communicating at one end with the passage way in the pipe 14, and at its other end communicating with the interior of the keg outside the tube 14 by means of the lateral apertures 27. Within the refrigerating pipe 15 and spaced from the walls thereof is an induction pipe 28 for refrigerating fluid, which pipe communicates through the controlling cock 29 with any suitable source of cooling or refrigerating fluid. The pipe 28 extends to a point adjacent the lower end of the pipe 15 so that the cooling fluid passing downwardly through the pipe 28 will issue from the end thereof and then pass upwardly within the pipe 15 and about the pipe 28 to an exit pipe 30 at the upper end of the pipe 15.

The lower end of the pipe 28 is closed in fluid-tight fashion by means of a tip 31 screwed therein, such tip being similar to the tip 25 but having no openings therein to communicate outside the pipe 15, the tips 25 and 31 being of substantially the same exterior configuration.

The body 9 is provided with a socket 32 of square cross section which is adapted upon the inception of the attachment of the body to the bushing, to permit the end 33 of the valve spindle, which end is of square cross section, to enter within it. The turning of the body 9 to secure it in the bushing will then turn the valve so as to uncover the openings 4. Conversely the turning of the body 9 to detach it will cause the valve 7 to close the holes 4 in a fluid-tight manner.

The tips 25 and 31 are of such diameter that they will pass through the holes 4 but will not pass through the bores 12 and 13. This permits the pipes 14 and 15 to be slid longitudinally outwardly until the tips 25 and 31 are in the bushing (see Fig. 2) when they will not interfere with the movement of the valve 7 to close the openings 4 and at the same time withdrawal of the pipes 14 and 15 from the body 9 cannot be effected without unscrewing and removing the tips 25 and 31. This prevents the disassembly of the pipes and body accidentally or without a fixed purpose to do so.

In operation the pipes 14 and 15 will be slid inwardly until their inner ends are adjacent the bottom or lower head of the keg (see Fig. 1). In this position it will be seen that the cooling fluid traverses the liquid in the keg substantially from top to bottom and that the air pressure on the top of the liquid forces it into the lower end of the pipe 14 whence it is transmitted to the tap or serving faucet.

Ordinarily the tapping and cooling attachment would, when not in use, be prevented from becoming disassembled by reason of the fact that the pipes 14 and 15 cannot be withdrawn from the body 9. When desired to connect the attachment with the bushing in a barrel, the pipes 14 and 15 would be drawn outwardly until their tips 25 and 31 were substantially against the body 9. The barrel would have the valve 7 in position to close the openings 4 and when the attachment were applied, the lugs 10 would be entered within the slots 8 and the spindle end 33 in the socket 32. Turning of the body portion 9 to tighten it in the bushing by means of the inclined bayonet slots 3 would turn the valve 7 so as to uncover the openings 4. Air pressure would thus be admitted through the openings 4 to the top surface of the liquid in the container. The pipes 14 and 15 would then be pushed inwardly until their lower ends were adjacent the bottom of the keg (see Fig. 1), the cooling fluid entering through the tube 28 and passing upwardly in the tube 15 substantially from the bottom to the top of the liquid in the keg whereby an efficient cooling or refrigeration is effected. Further the air pressure on the surface of the liquid forces the liquid in through the tip 25 and up through the tube 14 under any desired eduction pressure (depending upon the air pressure applied), controlled by the service tap.

When it is desired to remove the attachment the tubes 14 and 15 are slid longitudinally outwardly until their tips 25 and 31 are within the bushing 2. The turning of the body 9 to detach it from the bushing 2, will then turn the valve spindle so that the valve 7 will close the openings 4. The keg, therefore, when emptied, will always be automatically tightly closed against the exterior so that no dirt, insects or other foreign objects can enter the keg while it is empty and thus deleterious fouling of the interior of the keg is prevented, the keg always being closed to the exterior except when it is opened for cleaning and filling at the brewery or when it is in operation of having its contents removed at the dispensing point.

While the invention has been illustrated in what is considered its best application it may have other embodiments without departing from its spirit and is not therefore limited to the structure shown in the drawing.

What I claim is:

1. The combination with a bushing adapted to be secured in an opening in a container wall, said bushing having a diaphragm at its lower end, openings in said diaphragm communicating with the interior of the container, said openings being upon diametrically opposite sides of the center of the bushing, a valve upon the side of said bushing adapted to be on the interior of the container when the bushing is in position, said valve being movable to open and close the said openings, a valve stem upon which said valve is rotatably fixed at its mid point, said stem being mounted in said diaphragm at its center, means for rotatably securing said valve and valve stem to said diaphragm, an attachment body, a bayonet joint connection for securing said body to said bushing, a plug and socket connection between said stem and said body permitting relative longitudinal, detaching movement of said stem and said body, but preventing relative rotation thereof, said valve and said body being secured in such relative angular positions about the center line of said bushing that said openings will be closed by said valve when said body is moved to detach it from the bushing and said valve will be moved to open said openings when said body is secured to said bushing and a plurality of pipes sildably mounted in said body and adapted to be in line with said openings when said body is in secured position within the bushing.

2. The combination with a bushing having a diaphragm and adapted to be secured in a container wall and to receive an attachment body and having holes adapted to receive pipes on diametrically opposite sides of its center, of a valve rotatably mounted at the center of said bushing and simultaneously opening and simultaneously closing said holes, a valve spindle extending through said bushing diaphragm and adapted to

be engaged by said attachment body for rotating said valve, said valve and spindle being secured to and entirely supported by said diaphragm and said bushing comprising means at diametrically opposite sides of the bushing center for securing said attachment body to said bushing.

3. The combination with a bushing adapted to be secured in a container wall and to receive an attachment body, said bushing having a side wall and a bottom diaphragm and holes in said bottom diaphragm adapted to receive pipes, said holes being on diametrically opposite sides of the bushing center, of a rotatably mounted valve on one side of said diaphragm, a valve spindle extending through said diaphragm, said spindle, at its end opposite said valve, being adapted to be placed in and out of operative engagement with the attachment body as the attachment body is moved into and out of said bushing, said bushing having bayonet joint parts on said side wall on diametrically opposite sides of the bushing center, said bayonet joint parts being adapted to engage with cooperating bayonet joint parts of the attachment body, said bottom diaphragm being flush with the lower extremity of said bushing and said valve and stem being secured to and entirely supported by said diaphragm.

4. The combination with a bushing adapted to be secured in an opening in a container wall, said bushing having a plurality of openings upon diametrically opposite sides of the bushing center and communicating with the interior of the container, of valve means mounted upon said bushing and movable to open and close the said openings in the bushing, an attachment body having openings through which pipes are adapted to slide, means for securing said body to said bushing, means for engaging said body with said valve means to move it into position to open the bushing openings and move the openings in said body into registry with the bushing openings as said body is secured to said bushing, and to move said valve means to close said bushing openings and said body openings out of registry with said bushing openings as said body is moved to detach it from said bushing said openings in said body being smaller than said bushing openings and there being a space between said bushing openings and said body openings whereby enlarged terminals on said pipes may pass through the bushing openings and be contained in the said space, but which are larger than and cannot pass through the said body openings.

5. The combination with a bushing adapted to be secured to an opening in a container wall, said bushing having a diaphragm at its lower end, openings in said diaphragm communicating with the interior of the container, said openings being upon diametrically opposite sides of the center of the bushing, a valve upon the outside of said bushing adapted to be on the interior of the container when the bushing is in position, said valve being movable to open and close the said openings, a valve stem upon which said valve is rotatably fixed at its mid-point, said stem being mounted in said diaphragm at its center, means for rotatably securing said valve and valve stem to said diaphragm, an attachment body having a channel in which a pipe may be slidably mounted, a bayonet joint connection for securing said body to said bushing, a plug and socket connection between said stem and said body permitting relative longitudinal detaching movement of said stem and said body, but preventing relative rotation thereof, said valve and said body being secured in such relative angular positions about the center line of said bushing that said openings will be closed by said valve and said body channel moved out of registry with any of said diaphragm openings when said body is moved to detach it from the bushing and said valve will be moved to open said diaphragm openings and said body channel will be moved into registry with one of said openings when said body is moved to secure it to said bushing.

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