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TAP STRUCTURE

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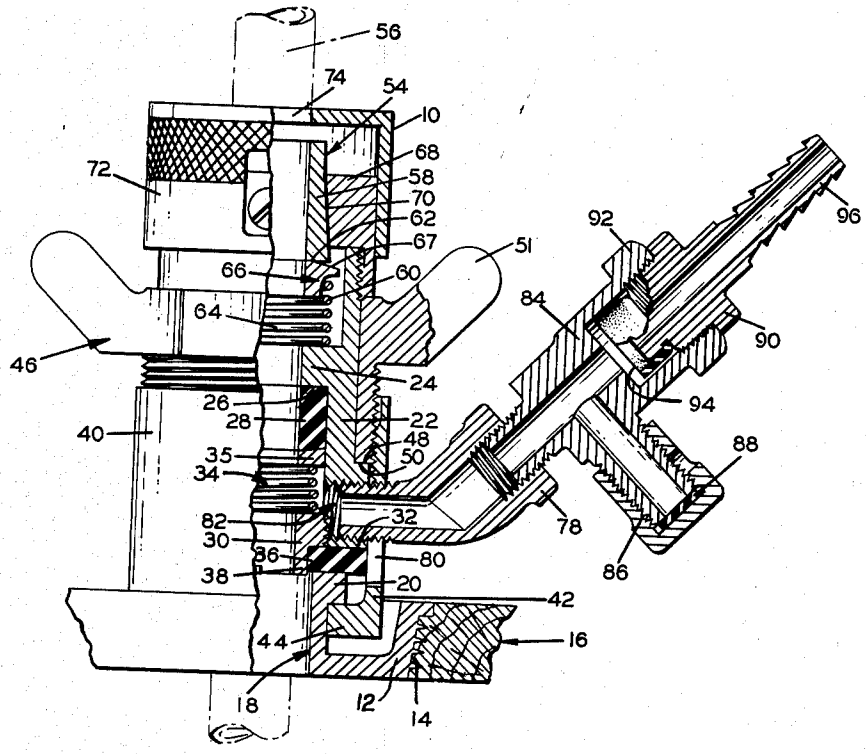


FIG. 1

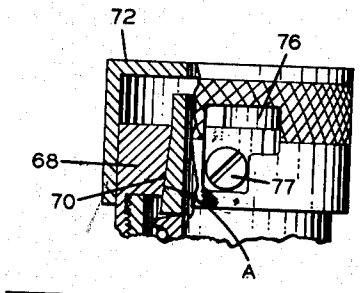


FIG. 2

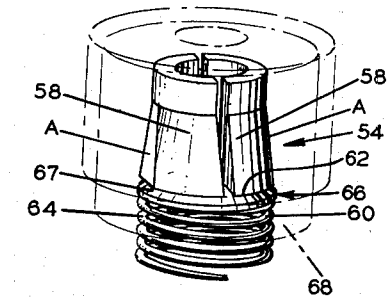


FIG. 3

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TAP STRUCTURE

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8 Claims. (Cl. 285—40)

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This invention relates to tapping of beer barrels and the like and more particularly to an improved tap structure for cooperative use with barrels and the like.

Broadly the invention comprehends the provision of an improved form of barrel tap for use with a beverage siphoning or drawing rod or tube having means incorporated therein effective to insure the sealing of the contents in the barrel, for positively preventing accidental displacement of the rod or tube when pressure is imposed on the contents of the barrel and providing for easy application and removal of the tap from the barrel.

Although numerous taps of the instant nature have been devised extending over a period of several years none have incorporated mechanical means therein for preventing the accidental displacement of the siphoning tube or rod in connection with which the tap is utilized for siphoning the contents of the barrel to which the tap and rod are applied.

An object of the invention is the provision of a barrel tap that can be easily and quickly applied and removed from a barrel to which it is to be applied.

Another object of the invention is the provision of a barrel tap structure having a wedge locking means incorporated therein engageable with the siphoning rod effective to prevent its accidental displacement of the rod from the barrel to which applied when pressure is injected into the barrel for the proper siphoning or drawing of the contents from the barrel.

A further object of the invention is the provision of a tap for cooperative coupling engagement with a conventional form of barrel bung or bushing and the like having a sealing means acted upon by the pressure injected into the barrel to which the tap is applied, a locking means for restraining accidental displacement of the siphoning rod that can as desired be removed from locking engagement by a simple manipulative movement, and a pressure bleed relief means for relieving the pressure from the barrel to permit of the easy removal of the tap from the barrel whenever desired.

Other objects and advantages of the invention will appear from the following description taken in connection with the drawings forming a part of the specification, and in which,

Fig. 1 is a side plan view of a barrel tap partly in section;

Fig. 2 is a side plan view of the upper portion of the tap; and

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Fig. 3 is an isometric view of the siphoning tube wedge locking mechanism incorporated in the top of Fig. 1.

The presently devised tap is directed at the provision of a tap for use with barrels and the like in the siphoning of the contents therefrom that safeguards injury to the individual using the tap and insures against accidental loss of the contents from the barrel when the tap is in use by positively preventing the accidental displacement of the siphoning tube or rod from the barrel when pressure is injected into the barrel. This tap incorporates in its general design a mechanical wedge locking collar effective to grasp and inhibit movement thereof from the barrel in one direction while at the same time permitting of the further injection or thrusting of the rod into the barrel if required. Furthermore, a pressure seal is incorporated into the tap structure which not only provides a seal between the tube or rod and tap to prevent the escape of pressure or contents of the barrel but also affords a resilient radial holding force for the rod. An air bleed means is also provided in the tap permitting of the relief of pressure from the barrel when the contents of the barrel are consumed or at any other time when it is desired to remove the tap so as to remove pressure acting on the tap and the seals thereof and thereby facilitate the removal of the tap without applying more than a normal manual turning action to the tap.

Referring to the drawings for more specific details of the invention 10 represents generally a tap for beer barrels or the like adapted to be applied to a barrel bung or bushing 12 securely sealed in an opening 14 in one end of a barrel 16 having a conventional nipple 18 providing an annularly notched flange 20.

The tap 10 includes a hollow cylindrical member 22 provided with a radially inward directed annular flange 24 intermediate its length supporting on one face 26 thereof an annular sealing member 28 of rubber or like material and having collar member 30 fixedly threaded in one end 32 thereof. The sealing member 28 is biased axially in one direction away from collar 30 and against face 26 of flange 24 by a washer and coil spring assembly 34 interposed axially of the collar member 30 and sealing member 28, the purpose of which will hereinafter appear. The washer 35 of assembly 34 has a radially inwardly tapered face adapted to bear against one end face of sealing member 28 effective to cause a

radial inward movement of the sealing member upon the axial movement thereof.

A sealing gasket 36 of rubber or similar material is mounted upon the collar member 30 and end 32 of the member 22 with the gasket externally annularly of flange 38 of collar member 30.

A hollow cylindrical member 40 is mounted in external telescoping relation upon cylindrical member 22 for movement relative thereto and provides at one end a coupling head 42 having an inwardly notched flange 44 for cooperative locking engagement with the notched flange 20 of the barrel bung 12 and is internally threaded at its other end for loosely threaded engagement with an externally threaded collar 46 mounted in bearing relation upon the external periphery of member 22.

The collar 46 has one end 48 bearing axially upon an annular shoulder 50 of an enlarged annular portion of cylindrical member 22 and provides at its other end a pair of radial outwardly extended ears or wings 51 for the manual rotation of collar 46.

The cylindrical member 22 has mounted upon one end 52 thereof axially disposed to its other end 32 a siphoning tube holding means 54 effective to prevent accidental displacement of the siphonnig tube 56 from the barrel.

The means 54 comprises a pair of mating semicircular keys 58 having a central opening therebetween of size commensurate with the external diameter of the tube to be held thereby and a tapering external surface, the mid peripheral portions of each key being flattened at A the purpose of which will hereinafter appear.

The keys are normally biased in one direction away from cylindrical member 22 by a spring assembly 60 interposed between the flange 24 and the bases 62 of the keys. The spring assembly 60 comprises a coil spring 64 and an annular collar 66 having a tapered face 67 such that only a limited annular area contact is had with the bases 62 of the keys.

The keys 58 are restrained from movement in one direction by a collar 68 fixedly threaded upon the end 52 of member 22, said collar having an internal annular tapered surface 70 adapted for bearing engagement upon the tapered surfaces of keys 58. The collar 68 in its threaded position on member 22 maintains the winged collar 46 substantially in fixed axial position relative to member 22.

An externally knurled cap member 72 is loosely fitted over the collar 68 and has a central opening 74 therethrough and an L-shaped slot 76 in the wall surface thereof receiving a lug or screw 77 fixedly secured to the external surface of the collar 68, the purpose of which will hereinafter appear.

The member 22 is restrained from rotative movement relative to member 40 by a fitting 78 extending through a slotted opening 80 in the member 40 into threaded engagement in a threaded hole 82 in member 22. The fitting 78 has in turn a T fitting 84 threaded therein, the branch 86 of which provides a capped air bleed means 88 for relieving pressure from the barrel when necessary. The fitting 84 has another fitting 90 threaded in branch 92 thereof providing a one way valve means 94 on one end and a pressure source hose or conduit connection 96 on its other end.

In a normal applicational use of the tap upon a barrel containing a liquid beverage or the like it is necessary that the cap member 72 be pressed down against the keys 58 so as to move them axially against the resistance of the spring assembly 60 such that the keys are free to assume a position wherein a maximum central diameter is possible therebetween, the slot 76 in the cap receiving the lug in its normally horizontal projected portion so as to provide for a holding of the keys against axial movement imposed by spring assembly 60. The tap with the keys 58 in the above stated position is coupled to the barrel nipple with the notched flange 44 of the coupling head 42 fitted into interlocking relation with the notched flange 20 of a barrel as disclosed by Fig. 1 and wherein the sealing gasket is drawn into annular sealing arrangement on the nipple of the barrel. The sealing gasket is effectively moved into sealing engagement on the nipple through the rotative manipulation of collar 46, said rotation of collar 46 causing a relative axial movement of members 22 and 40 to one another, the direction away or toward one another of the sealing gasket 36 on the member 22 and flange 40 on member 40 being dependent on the direction of rotation of the collar. With the tap secured in position on the barrel the siphoning rod or tube 56 is projected through the central opening extending through the tap into the barrel to the desired depth at which time the cap member is turned slightly permitting of its release from holding the keys 58 against the resistance of spring assembly 60. Upon the release of cap 72 the keys are free to move into radial gripping force against the tube with spring 64 forcing the keys axially into wedge engaging relation upon the internal tapered surface 67 of collar 66 causing a radial force transmission to keys 58 which in turn is imposed by keys 58 at their inner annular surface to the rod 56.

With the tap in coupled relation on the barrel nipple and the keys in locking engagement on the rod 56 air under pressure can be delivered in the desired amount to the interior of the barrel by way of fitting 90, past one way valve 94, through fittings 84 and 78 and thence centrally through the opening in member 22 into the barrel. The air pressure injected into the barrel in addition to acting on the contents therein acts upon washer 35 of spring assembly 34 effective to cause its axial movement against the sealing member 28 which in turn forces the sealing member radially into sealing engagement on the peripheral adjoining surface of the rod.

The air bleed means 88 in T fitting 84 is used solely when it is desired to relieve the pressure injected into the barrel for the express purpose of easily detaching the tap from the barrel.

While this invention has been described in connection with certain specific embodiments, the principle involved is susceptible of numerous other applications that will readily occur to persons skilled in the art. The invention, therefore, is limited only as indicated by the scope of the appended claims.

What I claim is:

1. A tap comprising a hollow member for application to a bushing and adapted to receive and support a siphon tube therein, a coupling on said member axially movable thereto having means on one end for interlocking engagement with the bushing, an element rotatable on said member cooperably engageable with said coupling for effecting axial movement thereof relative to the member, and a spring pressed mechanical wedge one axial direction locking mech-

anism for the siphon tube supported on one end of the member opposite to the bushing application end thereof comprising a pair of like semi-circular keys presenting inner arcuate axially extended bearing surfaces, and external tapered surfaces, an annular member secured to the hollow member having an internal annular tapered surface engageable with the external surfaces of the keys, a resilient means urging the keys into engagement with the annular member, said keys extending axially beyond one end of the annular member, an annular cap member supported on and relatively axially movable to the annular member engageable with the ends of the keys protruding beyond the annular member for moving the keys axially against the resistance of the resilient means.

2. A tap comprising a hollow member having one end adapted for application to a bushing, a tubular member on said member having lugs at one end for coupling engagement with the bushing, means for restraining the members to axial movement to one another, a rotary collar on said hollow member having screw threaded engagement with the tubular member, an axially spring pressed internal annular radial sealing member mounted internally on the hollow member, and an axially spring pressed annular wedge one axial direction locking means supported in one end of the hollow member comprising a pair of like semi-circular keys, each having an internal cylindrical surface and an external tapered surface so arranged as to present a truncated conical assembly, means on the hollow member having a conical surface engageable with the tapered surfaces on the keys, and manual means movable on the hollow member engageable with the wedge locking means in a direction opposing the spring pressed direction thereof.

3. A tap comprising a hollow member for application to a bushing and adapted to receive and support a siphon tube therein, a coupling on said member axially movable thereto having means on one end for interlocking engagement with the bushing, an element rotatable on said member cooperably engageable with said coupling for effecting axial movement thereof relative to the member, an annular sealing member supported internally of said members adapted to have internal peripheral sealing engagement on the siphon tube and a wedge one axial direction locking mechanism supported on the hollow member at one end thereof comprising a pair of axially movable semi-circular keys arranged in circular arrangement having a conical shaped exterior and an internal cylindrical bearing surface, means resiliently biasing the keys in one direction, and a collar secured to the hollow member having an internal conical surface in bearing relation complementary to the conical surface on the keys adapted to have its internal surface in engagement with the siphon tube, and a collar supported for movement on the hollow member engageable with the one axial extremity of the keys of the wedge locking mechanism opposing the resilient biasing of the keys.

4. A tap comprising a hollow member for application to a bushing and adapted to receive and support a siphon tube therein, a coupling on said member axially movable thereto having means on one end for interlocking engagement with the bushing, an element rotatable on said member cooperably engageable with said coupling for effecting axial movement thereof relative to the member, a mechanical wedge locking mechanism for the siphoned tube supported on one end of the hollow member comprising a collar member, secured on the end of the hollow member, having an internal conical surface with the small diameter thereof remote from the end of the hollow member, a pair of like semi-circular annular keys, each having an internal semi-cylindrical surface and an external semi-conical surface with the keys arranged in truncated conical array internally of the collar member, with the small diametered ends of the keys protruding axially beyond the collar member, and annular spring means arranged internally of the hollow member urging the keys into conical sliding engagement with the collar member, and annular means supported on the collar member axially relatively movable thereto and engageable with the ends of the keys protruding axially beyond the one end of the collar member for moving the keys axially against the annular spring means.

5. A tap according to claim 4 wherein the annular spring means includes a collar having a tapered surface on one end thereof engageable with the large diametered ends of the keys and a coiled spring acting upon the opposite end of the collar urging the collar into axial abutting engagement on the keys.

6. A tap comprising a hollow member for application to a bushing and adapted to receive and support a siphon tube therein, a coupling on said member axially movable thereto having means on one end for interlocking engagement with the bushing, an element rotatable on said member cooperably engageable with said coupling for effecting axial movement thereof relative to the member, a mechanical wedge locking mechanism for the siphon tube supported on one end of the hollow member comprising a collar member secured on said one end of the member, having an internal conical surface with the small diameter thereof remote from the end of the hollow member, a pair of like semi-circular annular keys, each having an internal semi-cylindrical surface and an external semi-conical surface with the keys arranged in truncated conical array internally of the collar members, with the small diametered ends of the keys protruding axially beyond the collar member and an annular spring means arranged internally of the hollow member urging the keys into conical sliding engagement with the collar member, said hollow member having an internal flange intermediate the bushing application end and the end of the hollow member upon which the wedge locking mechanism is supported, an annular seal arranged internally of the hollow member having one axial end thereof in end butting relation on the flange and resiliently loaded wedge means urging the sealing member in an axial direction against the flange.

7. A tap comprising a hollow member for application to a bushing and adapted to receive and support a siphon tube therein, a coupling on said member axially movable thereto having means on one end for interlocking engagement with the bushing, an element rotatable on said member cooperably engageable with said coupling for effecting axial movement thereof relative to the member, a mechanical wedge locking mechanism for the siphon tube supported on one end of the hollow member comprising a collar member secured on said one end of the

member, having an internal conical surface with the small diameter thereof remote from the end of the hollow member, a pair of like semi-circular annular keys, each having an internal semi-cylindrical surface and an external semi-conical surface with the keys arranged in truncated conical array internally of the collar members, with the small diametered ends of the keys protruding axially beyond the collar member and an annular spring means arranged internally of the hollow member urging the keys into conical sliding engagement with the collar member, said annular spring means including a collar having a tapered surface on one end thereof engageable with the large diametered ends of the keys and a coiled spring acting upon the opposite end of the collar urging the collar into axial abutting engagement on the keys, and an annular cap member supported for axial movement on the collar member which is adopted to have engagement with the ends of the keys protruding beyond one end of the collar operative to urge the keys against the tapered collar to affect a movement of the keys away from one another.

8. A tap, adapted to be secured to a container bushing, comprising a sleeve structure, adapted to receive and support a siphon tube therein, a coupling on said structure axially movable thereto, having means on one end for interlocking engagement with the bushing, an element rotatable on said structure cooperably engageable with said coupling for effecting axial movement thereof relative to the structure, a mechanical wedge locking mechanism for the siphon tube supported

on one end of the structure comprising a collar member, secured on said one end of the structure, having an internal conical surface with the small diameter thereof remote from said one end of the structure, a pair of like semi-circular annular keys, each having an internal semi-cylindrical surface and an external semi-conical surface with the keys arranged in truncated conical array internally of the collar member, with the small diametered ends of the keys protruding axially beyond the collar member, annular spring means arranged internally of the structure urging the keys into conical sliding engagement with the collar member, and means on the collar member axially relatively movable thereto and engageable with the ends of the keys protruding axially beyond the one end of the collar member, for moving the keys axially against the annular spring means.

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