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R. X. SCHUBENEL

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TAP

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Fig. 1

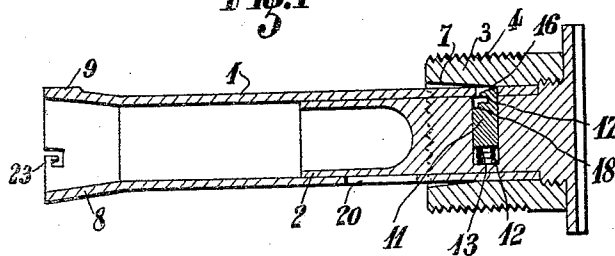


Fig. 2^a

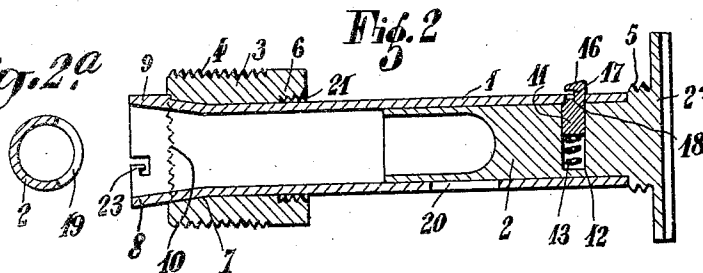


Fig. 2

Fig. 4

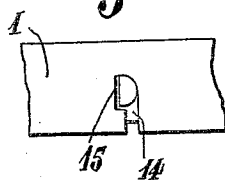


Fig. 3

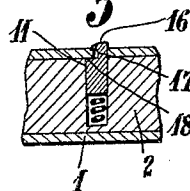
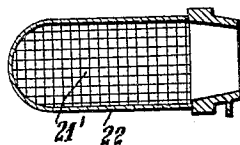


Fig. 5



Inventor:
Robert Xavier Schubnel
By
Penne Davis Marvin & Edmonds
attorneys

UNITED STATES PATENT OFFICE

ROBERT XAVIER SCHUBENEL, OF PANTIN, FRANCE

TAP

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The present invention relates to a tap adapted to be drawn into its mounting and applicable in particular to receptacles which are to be transported without removal of the tap.

The tap according to the invention is constituted by a tube sliding in a mounting which is fixed to the wall of the receptacle or other similar device to which the tap is to be fitted, the tube which forms the tap screwing into the mounting when it is in its retracted position and, when pulled out, making a tight fit with said mounting through the medium of two conical surfaces formed in the mounting and in the end of the tube respectively, said tap accommodating a hollow plug open on the liquid inlet side and being closed on the other side by a head projecting from the outside of the tube which can rotate through a certain angle within the tube, in order to bring a recess within the plug into register with an opening formed in the tube, thus enabling the liquid to flow, or the two openings to be brought out of register to cut off the liquid flow.

According to the invention, the tube and the plug are maintained interconnected by means of a tenon carried by the plug and sliding in a transverse groove formed in the tube.

Said tenon is mounted elastically in the plug so that it can be withdrawn into the latter when the tube is drawn into its mounting, the head of the tenon to this end being inclined while the opening of the mounting has a chamfer so as to push the tenon automatically into the plug.

The head of the tenon is widened and the groove formed in the tube of the tap is likewise widened at its end which accommodates the tenon when the tap is in its closed position, so that the tenon can only come back into the body of the plug when the tap is in the closed position and also so that the plug shall not rotate when the tube is withdrawn into the mounting.

Below this head and one side thereof, there is formed in the tenon a groove which engages with one of the edges of the groove

provided in the tube, thus allowing the tenon to slide in said groove on the tube.

Below the groove of the tenon, the latter has a shoulder allowing the tenon to project in the enlarged portion of the groove of the tube, beyond the position which allows of sliding, so as to hold the tap in the closed position and to allow it to open only after pressing with the finger on the head of the tenon.

On its rear flared portion, the tube has a projection which lodges in a notch provided in the flaring portion of the mounting when the tube is pulled out.

The projecting head of the plug has an arrow showing the location of the vent orifice of the tube when the tap is closed.

A sieve forming a strainer is mounted at the end of the tap. It may be mounted in the latter by means of a bayonet joint.

Other advantages and features of the invention will become apparent from the ensuing description taken with reference to the accompanying drawing which illustrates diagrammatically by way of example, an embodiment of the invention.

In this drawing, Figure 1 illustrates in longitudinal section the tap in its retracted position within the mounting.

Figure 2 shows it pulled out.

Fig. 2a is a cross-section of the recessed portion of the plug forming part of the tap.

Figure 3 is a corresponding detailed view.

Figure 4 is a plan view of the head of the tenon in the closed position of the tap.

Figure 5 is an outer view of the strainer mounted on the tap.

The tap according to the invention broadly comprises a tube 1 in which can rotate a hollow plug 2, open at one end, and closed at the other end on which it carries a head 2'. The tube 1 can slide in a mounting 3 fixed to the body of the receptacle on which the tap is placed, for example, by means of a thread 4 screwing into the wall of the receptacle.

When the tap is in its retracted position it may be screwed into the mounting 3 by means of a thread 5 provided to this end on the plug 2 near the head 2' and by means of the corresponding tapping 6 formed to this end

in the mounting. In this position, as will be seen hereinafter, the plug and tube are interconnected.

On the contrary, when the tap is pulled out, it is locked on the mounting due to the fact that its endmost outer portion (on the left in Figures 1 and 2) is slightly flared at 7, while the tube likewise has a correspondingly flared portion 8 which enables the parts to be locked one to the other as may be seen in Figure 2. The tap is opened by rotating the plug 2 within the tube 1 and to prevent the tube 1 itself from rotating within the mounting 3, when said plug is rotated, either to open or to close the tap, the end of the tube 1 has a projection 9 which falls into one of the notches 10 provided to this end at the rear end of the mounting.

The plug 2 may turn in the tube 1 through a limited angle only and cannot shift longitudinally in the tube. This result is achieved by providing a tenon 11 housed in a corresponding recess 12 of the plug 2. A spring 13 located in the extension 12 below the tenon, constantly pushes the latter outwardly. This movement is, however, limited by the fact that the tenon projects through the tube 1 passing into a groove 14 formed in the tube, at the end of which groove lies a wider portion 15 and also due to the fact that the shank of the tenon is even larger than the part 15. The upper part of the tenon has a special form which is clearly apparent in Figures 1 and 2. It includes a head 16 having the same dimension as the widened portion 15 of the groove 14. Below said head, it has a reduced portion 17 forming a groove adapted to fit over the front edge of the groove 14. Finally, above said reduced portion 17, it includes a shoulder 18. At this point, the tenon is as wide as the widened head 16. Due to this particular design of the tenon, the latter operates in the following manner:—

When the tube is completely pulled out (Fig. 2) the tenon is thrust out by the spring 13 and it projects through the opening as shown in the figure. In this position, it is impossible to rotate the plug 2 relatively to the tube 1 since the portion 18 of the tenon is wider than the opening 14. To allow of rotation, the finger must be pressed on the head 16 of the tenon so as to depress the latter and bring the reduced portion 17 into register with the upper wall 11 of the tube 1. At this juncture, the portion 17 being on a level with the groove 14 and not being larger than said groove, the plug can rotate relatively to the tube 1. It should be noticed moreover, that as soon as rotation begins, the portion 17 being engaged in the groove 14, the tenon fits into the left edge (Fig. 4) of said groove, and that consequently, the parts may be rotated without it being necessary to continue to press on the head of the tenon; the movement of

rotation continuing, the recessed portion 19 of the plug illustrated in cross section in Fig. 2a, moves into register with an opening 20 formed at the lower end of the tube 1 and the liquid can consequently flow out through said opening. The groove 14 is, moreover, limited so that when the plug has been rotated until the tenon 11 has reached the end of said groove, the openings 19 and 20 shall be exactly in register. When it is desired to cut off the flow, the plug is rotated in the opposite direction; the solid portion of the plug then closing the opening 20 so that the flow ceases. The parts are rotated until the tenon 11 again arrives at the end of the groove 14 in the enlarged portion 15; the spring 13 thrusts back the tenon so as to cause it to pass up through said opening, the enlarged portion 18 of the tenon penetrates into the enlarged portion 15 of the groove and the tap is locked once more. It cannot open of itself due to blows or to inadvertence. To allow it to open again, it is necessary to press with the finger on the head 16 as has been explained above.

When the tap is drawn back into the mounting 3, the head 16 of the tenon which is slightly slanting, first bears against a likewise slanting part 21 of the mounting 3, the effect of which is to push the tenon inwardly and to keep it retracted in this position, as is seen in Figure 1. In this position also, it is impossible to rotate the plug in the tube 1 since the head 16 of the tenon exactly fills the enlarged portion 15 of the groove and cannot enter the narrower portion 14. At this moment, the rotation imparted to the head 2' to screw the plug in the mounting 3 causes the tube 1 to rotate without the openings 19 and 20 of the plug and tube respectively being brought into register.

It should be observed that when it is desired to pull out the tube and after the plug 2 has been unscrewed from the mounting 3, the tube 1 takes up no particular position so that the opening 20 is not necessarily at the lower end. Moreover, the liquid might flow just as well if the opening 20 were placed on the side or on the top of the tube; as, however, it is preferable that said opening should be at the lower portion, to this end there may be provided on the head 2' of the plug an arrow which indicates the position of the opening 20 when the plug and the tube are in the position shown in Figure 1 or 2. By rotating this arrow by hand until its point is directed downwardly, the opening 20 is likewise directed downwardly. This of course, must be done before the tube is completely pulled out, that is to say, before the projection 9 is lodged in one of the notches 10 of the mounting 3. When the tube is suitably oriented, it is pulled out to the fullest extent and it then locks in the desired position. The tap is then opened by pressing on the head 16 of the

tenon 11 and by rotating the plug in the manner previously described.

A strainer may be mounted on the tap so as to hold back the impurities. Said strainer, illustrated in Figure 5, is constituted by a metallic gauze 21' in the form of a sleeve closed at one end and mounted at the other on a ring 22. Said ring fixes in the flared end of the tube 1 by means of a bayonet joint 23. As the ring 22 is accommodated in the tube, the presence of the strainer in no way hinders the operation of the apparatus as has been described above.

From the preceding it will be observed that the tap according to the invention is of simple construction, only including a small number of parts of standard manufacture and hence inexpensive and the unit operates in a completely reliable manner since it includes no part whose operation or construction is complicated.

It is to be understood that the invention has only been described and illustrated above in a purely explanatory and by no means limitative manner and it may be subjected to various modifications of detail without departing from the spirit of the invention.

I claim:

1. In a tap device, the combination with a receptacle and a mounting piece secured to said receptacle, of a hollow tube adapted to be pulled in and out of said mounting piece, a hollow plug member closed at one end and mounted to rotate within said tube, said plug including an opening adapted to be brought by rotation of said plug into and out of register with a corresponding opening formed in said tube, a tenon member mounted in a recess in said plug and adapted to project into a groove formed in said tube, and means associated with said tenon and groove for permitting a predetermined angular displacement of said plug relative to said tube or for directly connecting said plug and tube together.

2. In a tap device, the combination with a receptacle and a mounting piece secured to said receptacle, of a hollow tube adapted to be pulled in and out of said mounting piece, a hollow plug member closed at one end and mounted to rotate within said tube, said plug including an opening adapted to be brought by rotation of said plug into and out of register with a corresponding opening formed in said tube, a tenon member mounted in a recess in said plug and projecting into a groove formed in said tube, the body of said tenon being wider than the widest part of said groove adapted to accommodate the correspondingly shaped head of said tenon, said groove having a narrower portion with which a corresponding reduced grooved portion of said tenon can engage, said tenon locking said tube and plug together or permitting of a predetermined angular displacement of

said plug relative to said tube according to the position of said tenon with respect to said tube groove.

3. Tap device according to claim 2, in which the head of said tenon is inclined while the opening of said mounting piece is formed with a chamfer so as automatically to force the tenon into the plug.

4. Tap device according to claim 2, in combination with spring means mounted in said plug recess and tending to force said tenon out of said recess.

5. Tap device according to claim 2, in which said tenon has a shoulder below its groove, whereby said tenon may be held, the widened portion of said tube groove raised above the position permitting sliding of said tenon in said tube groove.

6. In a tap device, the combination with a receptacle and a mounting piece secured to said receptacle and having notches formed in one end thereof, of a hollow tube adapted to be pulled in and out of said mounting piece and including a notch adapted to engage in a notch of said mounting piece when said tube is drawn out therefrom, a hollow plug member closed at one end and mounted to rotate within said tube, said plug including an opening adapted to be brought by rotation of said plug into and out of register with a corresponding opening formed in said tube, and means for connecting said plug to said tube to rotate said tube into and out of locking engagement with said mounting piece, said means preventing relative longitudinal displacement between said plug and tube.

7. In a tap device, the combination with a receptacle and a mounting piece secured to said receptacle, of a hollow cylindrical tube adapted to be pulled in and out of said mounting piece and having one end only thereof conical to fit in a similarly conically-shaped portion of said mounting piece, both said conical portions being made of very hard material, a plug member to rotate within said tube and comprising a solid cylindrical portion and a semi-cylindrical portion adapted to open or close an opening formed in said tube when said plug is rotated in said tube, means for connecting said plug to said tube to rotate said tube into and out of locking engagement with said mounting piece, said means preventing relative longitudinal displacement between said plug and tube and including a spring adapted to hold said plug in the closure position of said plug.

ROBERT XAVIER SCHUBENEL.

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