

VALVE

The present invention relates to a so called "screw down" valve, such as a water tap, in which a spindle having
5 a handle at one end and a valve closure element at its other end passes through a tubular housing to which it is coupled by a screw thread so that rotation of the spindle moves the spindle axially of the housing and hence moves the closure element relatively to a seating, and a packing
10 nut which surrounds the spindle and extends partly into an end of the housing to which it is coupled by a screw thread so that the packing nut can be screwed in to compress a packing between the spindle and housing. Such a valve is hereafter referred to as being of the kind described.

15 Water taps to which the public have access such as in a communal housing are vulnerable to use by unauthorised users. To prevent this unauthorised use of a tap, the practice has been to encase the tap in a metal casing which is then padlocked. This suffers from the problem that
20 unauthorised users may damage the metal casing to gain access to the tap.

According to the present invention a valve of the kind described further comprises a locking means for releasably
25 locking the packing nut and spindle against relative rotation thereof.

The locking means advantageously comprises a substantially diametrically extending hole in the packing nut which is aligned with a laterally extending through
30 hole in the spindle when the valve is closed, allowing a part, such as a padlock hasp to pass through the aligned holes.

The packing nut is normally tightly engaged in the housing making it difficult for an unauthorised user to unscrew the packing nut together with the spindle.
35 However, for extra security, the packing nut may be fixed to the housing to prevent relative rotation therebetween.

The packing nut may be fixed to the housing by means of at least one hole in the packing nut which is aligned with a respective hole in the housing, and a respective pin fixed in the aligned holes in the packing nut and in the housing. The or each pin may be flush with the surface of the housing so that it cannot be gripped and removed by an unauthorised user.

Alternatively, the screw threads which couple the packing nut and the spindle to the housing are of opposite hands so that when the locking means locks the packing nut and spindle against relative rotation, the packing nut and spindle cannot be unscrewed together from the housing.

With this arrangement, an unauthorised user cannot unscrew the packing nut and spindle when they are locked together as the opposite handed screw threads provide an automatic counter locking effect.

Examples of a tap constructed in accordance with the present invention will now be described with reference to the accompanying drawings, in which;

Figure 1 is a side view of the tap with internal detail shown in broken lines;

Figures 2 and 3 are a side view and a plan view respectively of the housing;

Figures 4 to 6 are sectional, side and plan views respectively of the packing nut; and

Figure 7 and 8 are sectional and plan views respectively of the handle of the spindle.

The tap shown in figure 1 comprises a lower body 1 which contains a valve seat 2 for controlling the flow of water from an inlet 3 to an outlet 4. A tubular housing 5 partly formed with a hexagonal external configuration is screwed into the lower body 1 by means of a screw thread 6 and the joint is sealed by a washer 7. A spindle 8 engages the housing 5 by means of a screw thread 11 on the spindle 8 engaging with a screw thread 12 in the housing 5. The spindle 8 has a handle 9 at one end and a valve element 10 at the other. Turning the handle 9 causes the spindle 8 to

rotate within the housing 5 which raises and lowers the valve element 10 relative to the valve seat 2 to control the flow of water through the tap.

5 A packing nut 13 has a screw thread 14 which engages with a screw thread 15 in the housing 5, above the screw thread 12. The packing nut 13 has a hexagonal portion 16 to which a spanner can be applied to screw the packing nut into the housing 5 and compress packing (not shown) between the housing and the spindle 12 to maintain an adequate seal therebetween. Holes 17 are drilled through the screw
10 thread 14 of the packing nut 13 which are aligned with holes 18 in the housing 5 when the packing nut is fully screwed into the housing 5. Pins 19 are fixed in the holes 16, 17 to prevent relative rotation between the packing nut
15 13 and housing 5.

In normal use of the tap, the spindle 8 is rotated relatively to the packing nut 13 and housing 5 to move the valve element 10,.

20 Diametrically opposed holes 20 are drilled in the packing nut 13. A complementary hole is drilled in the spindle 8. When the tap is in its fully closed position, the holes 20 in the packing nut 13 and the hole in the spindle 8 line up to allow a padlock to be passed therethrough thus locking the tap to prevent use by
25 unauthorised users.

With this arrangement, the tap can be locked in its closed position to prevent use by an unauthorised user. By fixing the packing nut 13 to the housing 5, the unauthorised user is unable to unscrew the packing nut 13
30 and spindle 8 together in order to open the tap.

A hole 21 is provided in the handle 9 for the user to hang the padlock on when the tap is in use.

As an alternative to providing holes 17 and pins 19, the unscrewing of the packing nut 13 and spindle 8 together from the housing, when the packing nut and spindle are
35 locked together, is prevented by making the screw thread 11 on the spindle 8 which engages the housing 5 of opposite

hand to the screw thread 14 on the packing nut 13 which engages the housing 5.

5 Thus, when the packing nut 13 and spindle 8 are locked together, it is impossible to remove them from the tubular housing 5 because the packing nut 13 can only be removed by turning it in one direction and the spindle 8 can only be removed by turning it in the other direction. There is therefore an automatic counterlocking effect as the two parts are in opposition with each other.

CLAIMS

1. A screw down valve in which a spindle having a handle at one end and a valve closure element at its other end passes through a tubular housing to which it is coupled by a screw thread so that rotation of the spindle moves the spindle axially of the housing and hence moves the closure element relatively to a seating, a packing nut which surrounds the spindle and extends partly into an end of the housing to which it is coupled by a screw thread so that the packing nut can be screwed in to compress a packing between the spindle and housing, and a locking means for releasably locking the packing nut and spindle against relative rotation thereof.
2. A valve according to claim 1, wherein the locking means comprises a substantially diametrically extending hole in the packing nut which is aligned with a laterally extending through hole in the spindle when the valve is closed, allowing a part, such as a padlock hasp to pass through the aligned holes.
3. A valve according to claim 1 or claim 2, wherein the packing nut is fixed to the housing to prevent relative rotation therebetween.
4. A valve according to claim 3, wherein the packing nut is fixed to the housing by means of at least one hole in the packing nut which is aligned with a respective hole in the housing, and a respective pin fixed in the aligned holes in the packing nut and in the housing.
5. A valve according to claim 1 or claim 2, wherein the screw threads which couple the packing nut and the spindle to the housing are of opposite hands so that when the locking means locks the packing nut and spindle against



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relative rotation, the packing nut and spindle cannot be unscrewed together from the housing.

- 5 6. A screw down valve substantially as described with reference to the accompanying drawings.
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