

SINGAPORE

PATENTS ACT

COMPLETE SPECIFICATION

FOR A STANDARD PATENT

ORIGINAL

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Invention Title :

Tap Locking Device

The following statement is a full description of this invention, including the best method of performing it known to me/us:-



TAP LOCKING DEVICE

Field of the Invention

The following invention relates to a tap locking device, typically, though not exclusively for application to mains pressure water taps.

It would be desirable to provide a convenient means by which a tap may be locked against unauthorised use.

Disclosure of the Invention

There is disclosed herein a tap locking device comprising:

a hand grip;

a lock barrel;

a locking sleeve secured against rotation to said hand grip;

an engagement sleeve secured against rotation to the shaft of a tap; and

cam means secured to said lock barrel, whereupon activation of said lock barrel moves said cam and ball bearing means to secure said locking and engagement sleeves, thereby securing said hand grip to said shaft.

Preferably, apertures are provided in said locking sleeve through which said ball bearings may pass.

Brief Description of the Drawings

A preferred form of the present invention will now be described by way of example with reference to the accompanying drawings, wherein:

Fig. 1 is a schematic cross-sectional elevational view of a tap locking device upon a tap, and

Fig. 2 is a schematic cross-sectional plan view taken at II-II in Fig. 1.

Description of the Preferred Embodiment

In the accompanying drawings there is schematically depicted a tap locking device 10 upon a tap 25.

Locking device 10 comprises a lock barrel 12 into which a key 11 can be inserted for rotation of lock barrel 12.

Lock barrel 12 is mounted within a hand grip 16 which in turn is mounted upon shaft 18 of tap 25.

Within hand grip 16 there is provided a locking sleeve 13 fixed against rotation to hand

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grip 16. The locking sleeve 13 might be press fitted within hand grip 16 and retained therein by interference fit or otherwise secured against rotation to hand grip 16 or formed integrally therewith. Locking sleeve 13 as shown in Fig. 2 comprises a pair of opposed apertures 19 through which ball bearings 17 may pass.

Secured to the bottom of locking barrel 12 is a cam 15. Cam 15 may be secured to locking barrel by a screw or other fixing means. Upon rotation of cam 15, opposing cam surfaces 21 push respective ball bearings 17 outwardly through apertures 19.

An engagement sleeve 14 is fixed against rotation to shaft 18 of tap 25. Such fixation may be by way of screw 22 or otherwise. Engagement sleeve 14 is dimensioned so as to be freely located within hand grip 16. Located about the internal periphery of engagement sleeve 14 is a plurality of recesses 20. Recesses 20 are shaped to mate with ball bearings 17.

In use, upon turning of key 11, locking barrel 12 will rotate such that cam 15 pushes ball bearings 17 outwardly through apertures 19 as described above. In such a position, the ball bearings rotationally fix locking sleeve 13 with engagement sleeve 14 such that rotation of the hand grip 16 by a user will result in corresponding rotation of tap shaft 18.

If the key is turned in the opposite direction, the ball bearings 17 are free to move back through apertures 19 to allow free rotation of locking sleeve 13 relative to engagement sleeve 14.

A cap 24 is provided about tap shaft 18 to seal the mechanical contents of the locking device 10 in place.

Hand grip 16 is also provided with a plurality of gripping recesses 23 to be gripped by a user.

It should be appreciated that modifications and alterations obvious to those skilled in the art are not to be considered as beyond the scope of the present invention. For example, any means of selectively fixing locking sleeve 13 relative to engagement sleeve 14 may be adopted without departing from the spirit and scope of the invention.

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The claims defining the invention are as follows:

1. A tap locking device comprising:
a hand grip;
a lock barrel;
a locking sleeve secured against rotation to said hand grip;
an engagement sleeve secured against rotation to the shaft of a tap; and
cam means secured to said lock barrel, whereupon activation of said lock barrel moves said cam and ball bearing means to secure said locking an engagement sleeves, thereby securing said hand grip to said shaft.
2. A tap locking device of previous claim 1 further comprising an aperture in said locking sleeve through which said ball bearing passes.
3. A tap locking device substantially as hereinbefore described with reference to the accompanying drawings.

DATED this Sixteenth Day of February 1996

David Tay Kim Guan

Patent Agent for the Applicant
AZMAN SOH & MURUGAIYAN

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TAP LOCKING DEVICE

ABSTRACT

A tap locking device (10) to be attached to the shaft (18) of a tap (25) comprises a hand grip (16) having mounted therein a locking barrel (12) to be activated by a key (11). Upon turning of key (11) and barrel (12), a cam (15) forces ball bearings (17) through apertures (19) in a locking sleeve (13) into respective recesses (20) in an engagement cylinder (14) attached to shaft (18). The ball bearings effectively rotationally lock engagement sleeve (14) to locking sleeve (13) to enable activation of the tap by rotation of hand grip (16). In the unlocked configuration, with ball bearings (17) disengaged from respective recesses (20), the hand grip (16) will rotate freely disabling operation of the tap (25).

Figs. 1 and 2

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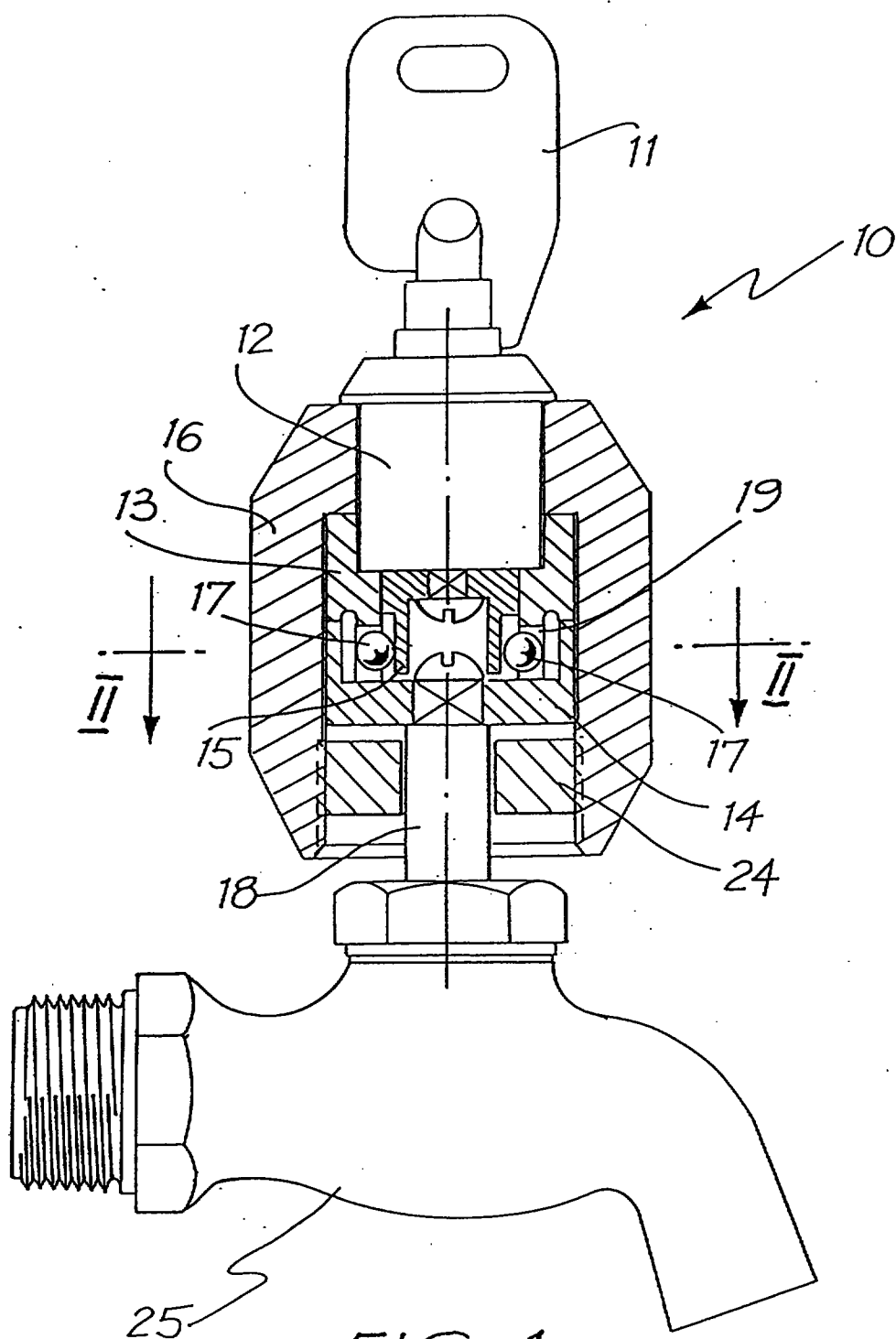


FIG. 1

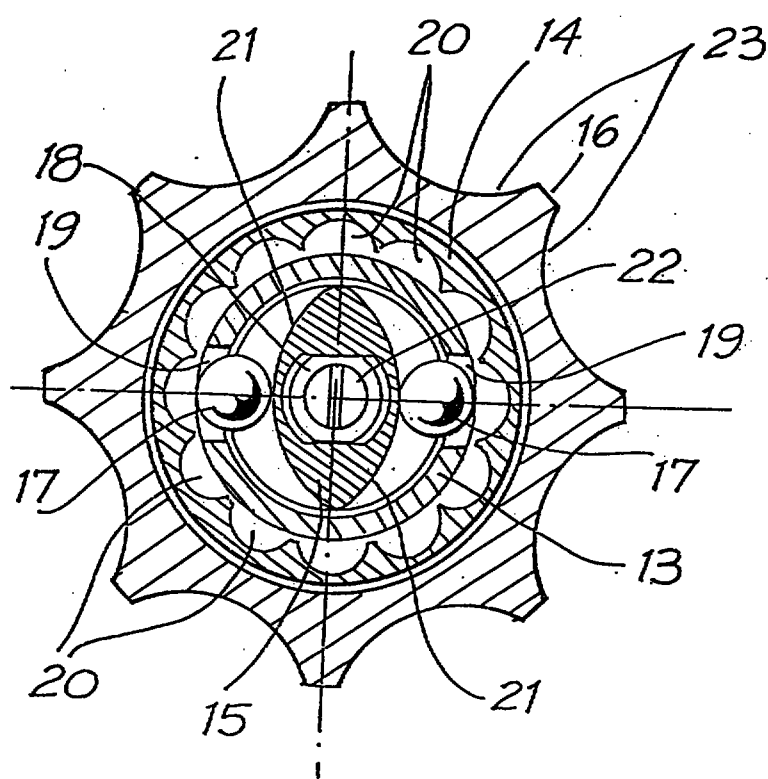


FIG. 2

TAP LOCKING DEVICE

Field of the Invention

The following invention relates to a tap locking device, typically, though not exclusively for application to mains pressure water taps.

It would be desirable to provide a convenient means by which a tap may be locked against unauthorised use.

Disclosure of the Invention

There is disclosed herein a tap locking device comprising:

a hand grip to be mounted to the shaft of a tap and a lock barrel mounted within the hand grip and adapted upon activation to selectively rotationally secure the hand grip to the shaft.

Preferably, a locking sleeve is secured against rotation to the inside of the hand grip; and an engagement sleeve is secured against rotation to the shaft and locking means are provided which upon activation of the locking barrel mutually secure said locking and engagement sleeves.

Preferably, the locking means comprises a cam secured to the locking barrel and ball bearing means movable by the cam and engageable with said engagement sleeve.

Preferably, apertures are provided in said locking sleeve through which said ball bearings may pass.

Brief Description of the Drawings

A preferred form of the present invention will now be described by way of example with reference to the accompanying drawings, wherein:

Fig. 1 is a schematic cross-sectional elevational view of a tap locking device upon a tap, and

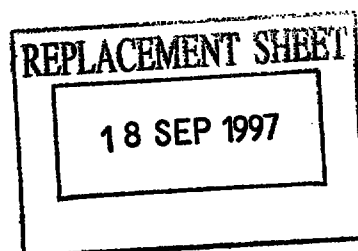
Fig. 2 is a schematic cross-sectional plan view taken at II-II in Fig. 1.

Description of the Preferred Embodiment

In the accompanying drawings there is schematically depicted a tap locking device 10 upon a tap 25.

Locking device 10 comprises a lock barrel 12 into which a key 11 can be inserted for rotational of lock barrel 12.

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Lock barrel 12 is mounted within a hand grip 16 which in turn is mounted upon shaft 18 of tap 25.

Within hand grip 16 there is provided a locking sleeve 13 fixed against rotation to hand grip 16. The locking sleeve 13 might be press fitted within hand grip 16 and retained therein by interference fit or otherwise secured against rotation to hand grip 16 or formed integrally therewith. Locking sleeve 13 as shown in Fig. 2 comprises a pair of opposed apertures 19 through which ball bearings 17 may pass.

Secured to the bottom of locking barrel 12 is a cam 15. Cam 15 may be secured to locking barrel by screw 22 or otherwise fixed thereto. Upon rotation of cam 15, opposing cam surfaces 21 push respective ball bearings 17 outwardly through apertures 16.

An engagement sleeve 14 is fixed against rotation to shaft 18 of tap 25. Such fixation may be by way of screw 22 or otherwise. Engagement sleeve 14 is dimensioned so as to be freely located within hand grip 16. Located about the internal periphery of engagement sleeve 14 is a plurality of recesses 20. Recesses 20 are shaped to mate with ball bearings 17.

In use, upon turning of key 11, locking barrel 12 will rotate such that cam 15 pushes ball bearings 17 outwardly through apertures 19 as described above. In such a position, the ball bearings rotationally fix locking sleeve 13 with engagement sleeve 14 such that rotation of the hand grip 16 by a user will result in corresponding rotation of tap shaft 18.

If the key is turned in the opposite direction, the ball bearings 17 are free to move back through apertures 19 to allow free rotation of locking sleeve 13 relative to engagement sleeve 14.

A cap 24 is provided about tap shaft 18 to seal the mechanical contents of the locking device 10 in place.

Hand grip 16 is also provided with a plurality of gripping recesses 23 to be gripped by a user.

It should be appreciated that modifications and alterations obvious to those skilled in the art are not to be considered as beyond the scope of the present invention. For example, any means of selectively fixing locking sleeve 13 relative to engagement sleeve 14 may be adopted without departing from the spirit and scope of the invention.

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REPLACEMENT SHEET

18 SEP 1997

CLAIMS

1. A tap locking device comprising a hand grip to be mounted to the shaft of a tap and a lock barrel mounted within the hand grip and adapted upon activation to selectively rotationally secure the hand grip to the shaft.
2. A tap locking device of claim 1 further comprising a locking sleeve secured against rotation to the inside of the hand grip and an engagement sleeve secured against rotation to the shaft, and locking means which upon activation of the locking barrel mutually secure said locking and engagement sleeves.
3. The tap locking device of claim 2 wherein said locking means comprises a cam secured to the locking barrel and ball bearing means movable by the cam and engageable with said engagement sleeve.
4. The tap locking device of previous claim 3 further comprising an aperture in said locking sleeve through which said ball bearing passes.
5. A tap locking device substantially as hereinbefore described with reference to the accompanying drawings.

DATED this Sixteenth Day of February 1996

David Tay Kim Guan

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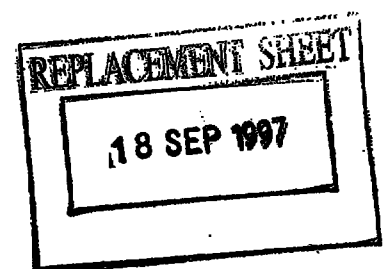
REPLACEMENT SHEET

18 SEP 1997

TAP LOCKING DEVICE

ABSTRACT

A tap locking device (10) to be attached to the shaft (18) of a tap (25) comprises a hand grip (16) having mounted therein a locking barrel (12) to be activated by a key (11). Upon turning of key (11) and barrel (12), a cam (15) forces ball bearings (17) through apertures (19) in a locking sleeve (13) into respective recesses (20) in an engagement cylinder (14) attached to shaft (18). The ball bearings effectively rotationally lock engagement sleeve (14) to locking sleeve (13) to enable activation of the tap by rotation of hand grip (16). In the unlocked configuration, with ball bearings (17) disengaged from respective recesses (20), the hand grip (16) will rotate freely disabling operation of the tap (25).



TAP LOCKING DEVICE

Field of the Invention

The following invention relates to a tap locking device, typically, though not exclusively for application to mains pressure water taps.

It would be desirable to provide a convenient means by which a tap may be locked against unauthorised use.

Disclosure of the Invention

There is disclosed herein a tap locking device comprising:

a hand grip to be mounted to the shaft of a tap and a lock barrel mounted within the hand grip and adapted upon activation to selectively rotationally secure the hand grip to the shaft.

Preferably, a locking sleeve is secured against rotation to the inside of the hand grip; and an engagement sleeve is secured against rotation to the shaft and locking means are provided which upon activation of the locking barrel mutually secure said locking and engagement sleeves.

Preferably, the locking means comprises a cam secured to the locking barrel and ball bearing means movable by the cam and engageable with said engagement sleeve.

Preferably, apertures are provided in said locking sleeve through which said ball bearings may pass.

Brief Description of the Drawings

A preferred form of the present invention will now be described by way of example with reference to the accompanying drawings, wherein:

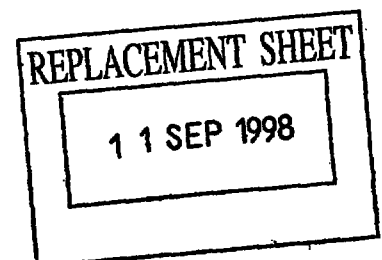
Fig. 1 is a schematic cross-sectional elevational view of a tap locking device upon a tap, and

Fig. 2 is a schematic cross-sectional plan view taken at II-II in Fig. 1.

Description of the Preferred Embodiment

In the accompanying drawings there is schematically depicted a tap locking device 10 upon a tap 25.

Locking device 10 comprises a lock barrel 12 into which a key 11 can be inserted for rotational of lock barrel 12.



Lock barrel 12 is mounted within a hand grip 16 which in turn is mounted upon shaft 18 of tap 25.

Within hand grip 16 there is provided a locking sleeve 13 fixed against rotation to hand grip 16. The locking sleeve 13 might be press fitted within hand grip 16 and retained therein by interference fit or otherwise secured against rotation to hand grip 16 or formed integrally therewith. Locking sleeve 13 as shown in Fig. 2 comprises a pair of opposed apertures 19 through which ball bearings 17 may pass.

Secured to the bottom of locking barrel 12 is a cam 15. Cam 15 may be secured to locking barrel by screw 22 or otherwise fixed thereto. Upon rotation of cam 15, opposing cam surfaces 21 push respective ball bearings 17 outwardly through apertures 19.

An engagement sleeve 14 is fixed against rotation to shaft 18 of tap 25. Such fixation may be by way of screw 22 or otherwise. Engagement sleeve 14 is dimensioned so as to be freely located within hand grip 16. Located about the internal periphery of engagement sleeve 14 is a plurality of recesses 20. Recesses 20 are shaped to mate with ball bearings 17.

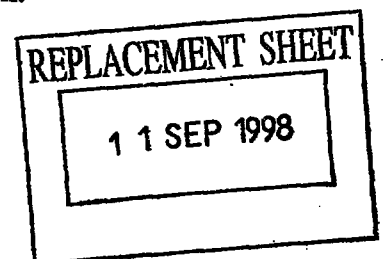
In use, upon turning of key 11, locking barrel 12 will rotate such that cam 15 pushes ball bearings 17 outwardly through apertures 19 as described above. In such a position, the ball bearings rotationally fix locking sleeve 13 with engagement sleeve 14 such that rotation of the hand grip 16 by a user will result in corresponding rotation of tap shaft 18.

If the key is turned in the opposite direction, the ball bearings 17 are free to move back through apertures 19 to allow free rotation of locking sleeve 13 relative to engagement sleeve 14.

A cap 24 is provided about tap shaft 18 to seal the mechanical contents of the locking device 10 in place.

Hand grip 16 is also provided with a plurality of gripping recesses 23 to be gripped by a user.

It should be appreciated that modifications and alterations obvious to those skilled in the art are not to be considered as beyond the scope of the present invention. For example, any means of selectively fixing locking sleeve 13 relative to engagement sleeve 14 may be adopted without departing from the spirit and scope of the invention.



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CLAIMS

1. A tap locking device comprising a hand grip to be mounted to the shaft of a tap and a lock barrel mounted within the hand grip and adapted upon activation to selectively rotationally secure the hand grip to the shaft.
2. A tap locking device of claim 1 further comprising a locking sleeve secured against rotation to the inside of the hand grip and an engagement sleeve secured against rotation to the shaft, and locking means which upon activation of the locking barrel mutually secure said locking and engagement sleeves.
3. The tap locking device of claim 2 wherein said locking means comprises a cam secured to the locking barrel and ball bearing means movable by the cam and engageable with said engagement sleeve.
4. The tap locking device of previous claim 3 further comprising an aperture in said locking sleeve through which said ball bearing passes.
5. A tap locking device substantially as hereinbefore described with reference to the accompanying drawings.

DATED this Sixteenth Day of February 1996

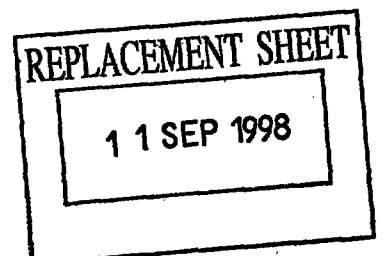
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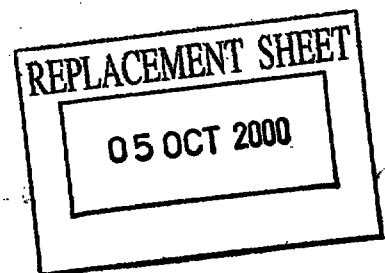
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The claims defining the invention are as follows:

1. A tap locking device comprising:
a hand grip to be mounted to the shaft of a tap;
5 a lock barrel mounted within the hand grip and adapted upon activation to selectively rotationally secure the hand grip to the shaft;
a locking sleeve secured against rotation to the inside of the hand grip;
an engagement sleeve secured against rotation to the shaft; and
means for locking which, upon activation of the lock barrel, mutually secure said
10 locking and engagement sleeves, said locking means comprising a cam secured to the lock barrel and at least one ball bearing movable by the cam and engageable with said engagement sleeve.
2. The tap locking device of claim 1 wherein said locking sleeve has at
15 least one aperture formed therein through which said at least one ball bearing passes.
3. The tap locking device of claim 1, wherein said engagement sleeve has one or more indentations formed therein for interengagement with at least a portion of said at least one ball bearing.
- 20 4. A tap locking device substantially as hereinbefore described with reference to the accompanying drawings.



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