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(54) Improvements relating to taps.

(57) A water tap, Figure 1, has a headwork 34, which converts angular movement of the manually operated control member 44 into axial movement of the valve member 36, located inside a tubular body 10 and below the wall 12 on which the tap is mounted. This enables the knob to be of a particularly shallow height above that mounting wall.

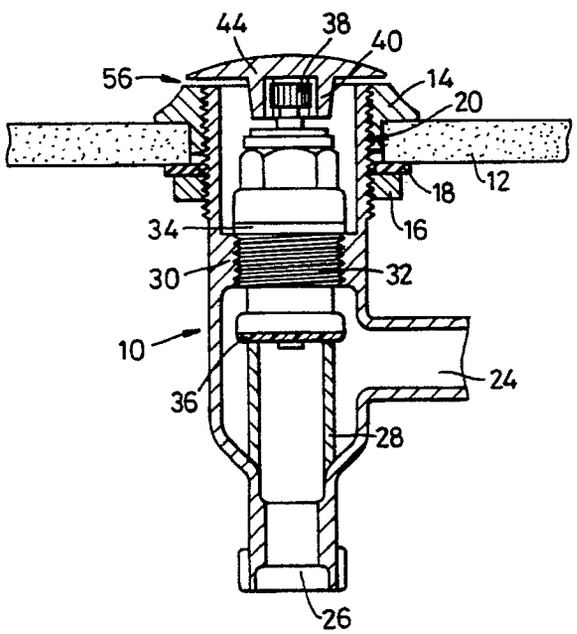

Fig. 1

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IMPROVEMENTS RELATING TO TAPS

This invention relates to water taps of the well known kind in which a valve stem or spindle is turned by a knob or like to open and close the tap so as to permit or prevent flow of water and vary the rate of flow between those extremes.

The invention is primarily concerned with so-called mixer taps for baths, lavatory basins, bidets and the like where the hot and cold water supplies are individually controlled but flows issue from a common spout. In such designs the pipework at least to the individual taps and often also from the taps to the spout is concealed below or behind a wall or platform of the sanitary appliance (bath or like) and only the so-called headwork of the tap, that is the mechanism which converts the rotation of the stem or spindle into movement of the valve closure element, and the spindle itself protrudes above or in front of the said wall or platform. In contemporary designs, this headwork is located in a cavity in the knob. The knob is usually opaque to conceal the headwork and the exterior of the knob is often made of a fancy shape for aesthetic reasons as well as to give a good grip by soapy fingers.

The object of the present invention is to provide improved designs.

According to the present invention a water tap comprises a tubular body for location in and extending through an aperture in the wall of a sanitary appliance or like, means to fix the body in said aperture including a flange to seat on said wall or like around the aperture, said body having an internal flange or shoulder mounting the headwork and a valve unit including a closure element permitting or preventing flow of water through said body according to the position of the closure element, and is characterised in that the said internal flange or shoulder is so spaced from the end of the tubular body provided with the external flange that the whole of said headwork and valve unit is located in the tubular body.

By these means a cavity to accommodate the projecting headwork is no longer required within the knob because the headwork is effectively recessed into the tubular body below the external flange, and the knob can be replaced by a disc or similar part of relatively short axial length which may have an extension into the tubular body engaged with the spindle. A completely new look can be achieved by these means.

The tubular body may be one-piece (unitary) and/or with an integral external flange at one extreme end, or it may be e.g. assembled of two parts inserted through the said aperture from opposite sides.

The invention is now more particularly described with reference to the accompanying drawing wherein two embodiments are illustrated in part-sectional elevation in Figures 1 and 2 respectively.

Turning now to the drawings, both of the illustrated embodiments comprise a generally tubular body 10 which extends through an aperture in flange 12 which may be a wall of a bath, basin, bidet or the like so that the body 10 is behind or below that wall and is not normally visible to a user.

In the arrangement of Figure 1, external flange 14 is formed on a separate tubular part 20 which is internally screwthreaded to engage with the same set of screwthreads as the nut 16, and in the arrangement in Figure 2 the flange 14 is formed on a tubular part 20 which is externally threaded to engage internal threads in the tubular body 10 and the latter has an external shoulder 22 to abut the washer 18 and for the purpose of clamping the tubular body to the sanitary appliance. Other arrangements are possible. For example the body 10 may be provided integrally with the external flange 14 instead of that being provided on a separate but screw connected part, in which case a nut 16 con be employed 05 in Figure 1 providing the nut can be assembled to the body.

In the arrangement shown in the drawings, the water outlet 24 is an integrally formed projection which is internally bored and that would prevent nut 16 being assembled onto the body at the lower end: but such an integral projection 24 is not an essential and in other constructions the nut 16 could be assembled by being slipped over the bottom end of the body. Other clamping means could be employed instead of a nut.

The tubular body 10 has an internal shoulder 30 which provides a screw-threaded bore. This receives the so-called headwork 34 of the tap which has a screwthreaded portion 32 engaged in that bore. The headwork includes spindle 38 at the upper end, and valve closure member 36 at the lower end. Turning the spindle (Fig 1) results in axial movement of the closure member 36. The closure member does not turn, and the spindle does not move axially. This is a well known mechanism for water taps often called 'non-rising head' because of the absence of axial movement of the spindle and needs no further description. (However, the invention is not restricted to use with this kind of mechanism). Axial movement of the member 36 opens or closes the inlet 26 to allow flow through the passage defined by the member 28 and out through the outlet 24.

In Fig. 2, a different, but equally well known mechanism for water taps is illustrated, in which a fixed disc of ceramic 37 has two diametrically related segmental ports, and a second like disc 39 is mounted on spindle 41 so as to be turned through 900 to vary the relationship of the ports in the two discs between complete alignment for full flow from inlet 26 via headwork ports 43 to output 24, and a position where the disc ports are wholly out of register with one another for no flow.

The spindle 38 is in both cases connected to a knob equivalent by any convenient means. It will be noted that the top of the spindle 38 is effectively at the same level as the upper extremity of the tubular body 10. It could however be above or below that level.

The knob equivalent in Figure 1 consists of a disc 44 which may be moulded from a suitable plastics material integrally with the tubular portion 40. In the arrangement in Figure 2 a slightly more complex construction is used in which the tubular portion 40 is moulded integrally with a disc 46 and the latter is received inside a peripheral skirt 48 on a slightly larger disc 50, leaving space between for an ornamental disc 52. The disc 52 may be coloured to match the sanitary appliance, and the cap 50 and the disc 46 may be of clear plastics material such as an acrylic which are welded together to enclose the disc.

Other knob equivalent arrangements may be employed with different attachment means.

The illustrated knob equivalents may be removed for tap maintenance by for example prising off with a knife blade inserted in position indicated by the arrow 56 in each of the drawings.

As will be appreciated by those skilled in the art, the essential difference between hitherto known taps and the invention is that the headwork 34 lies below flange 12 instead of above it.

Claims

1. A water tap comprising a tubular body for location in and extending through an aperture in the wall of a sanitary appliance or like, means to fix the body in said aperture including a flange to seat on said wall or like around the aperture, said body having an internal flange or shoulder mounting the headwork and a valve unit including a closure element permitting or preventing flow of water through said body according to the position of the closure element, and characterised in that the said internal flange or shoulder is so spaced from the end of the tubular body provided with the external flange that the whole of said headwork and valve unit is located in the tubular body.

2. A tap as claimed in Claim 1 in which said tubular body is unitary and one-piece.

3. A tap as claimed in Claim 1 wherein said external flange is a separate component connectable to the body.

4. A tape as claimed in Claim 1 wherein said tubular body comprises a pair of parts which are adapted to be screw-connected together after having been inserted through an aperture in a wall of a sanitary appliance or like from opposite sides of the same.

5. A tap as claimed in any preceding claim wherein the knob is a disc-like member having a tubular portion to engage with an operating spindle of the valve unit.

6. A tap as claimed in Claim 5 wherein the spindle lies substantially at the level of said wall when the tap is installed.

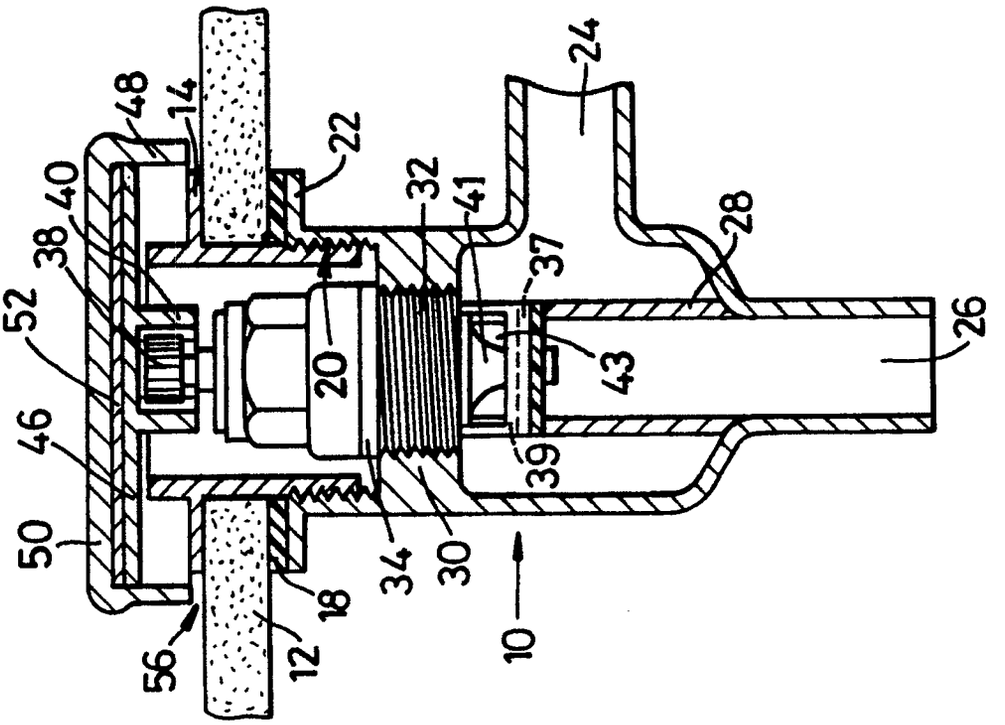
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Fig. 2

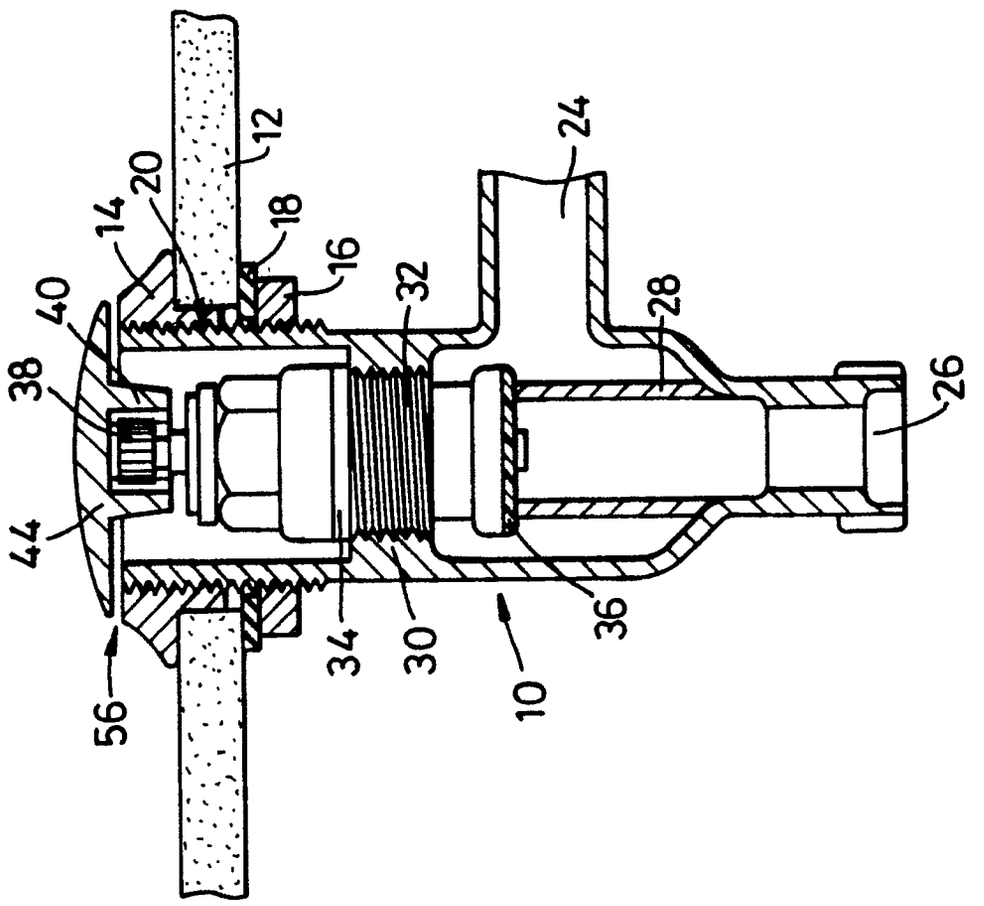
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Fig. 1

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 90 31 1806

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Y	US-A-3 387 309 (JOHNSON) * Whole document *	1-4,6	E 03 C 1/042
Y	DE-A-2 063 682 (KRAUS) * Pages 6-8; figure 2 *	1-4,6	
A	DE-A-3 116 502 (HUNZIKER) * Figures 1-3 *	1	
A	US-A-3 026 898 (WELLER)		

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

E 03 C
E 03 B

The present search report has been drawn up for all claims

Place of search	Date of completion of search	Examiner
The Hague	18 February 91	HANNAART J.P.

CATEGORY OF CITED DOCUMENTS

X: particularly relevant if taken alone
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E: earlier patent document, but published on, or after the filing date
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