June 22, 1937. F. O. PAIGE, JR 2,084,963

FASTENING AND DETECTING MEANS FOR VALVES AND THE LIKE

Filed Aug. 15, 1935

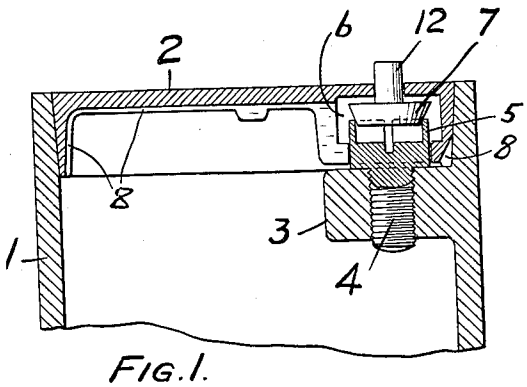


FIG. 1.

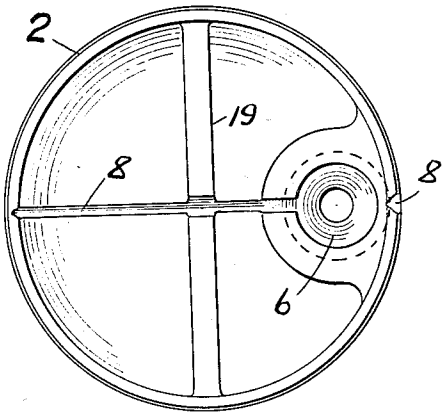


FIG. 2.

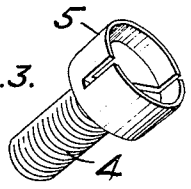


FIG. 3.

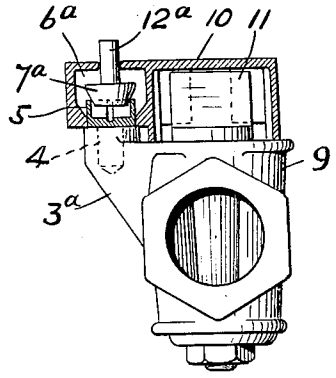


FIG. 4.

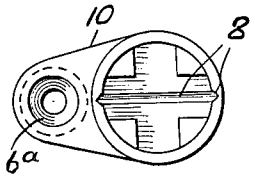


FIG. 6.

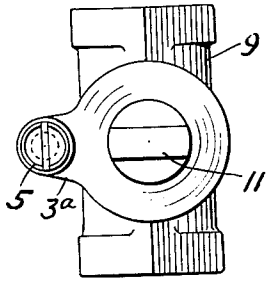


FIG. 5.

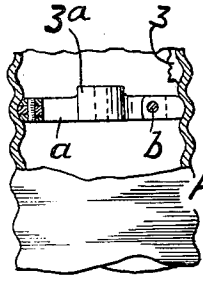


FIG. 8.

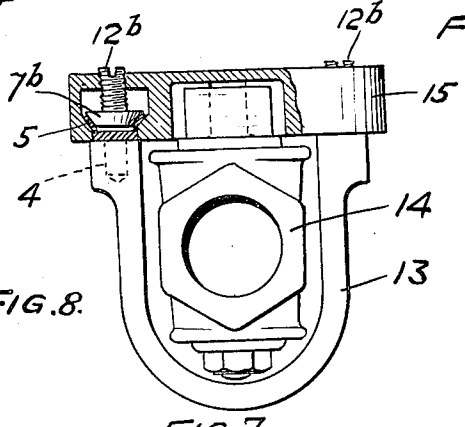


FIG. 7.

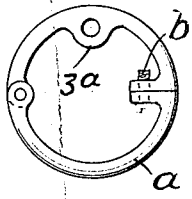


FIG. 9.

INVENTOR

Fred O. Paige, Jr.

BY

Augustus B. Stoughton

ATTORNEY.

WITNESS:

Robt R. Mitchell

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FASTENING AND DETECTING MEANS FOR VALVES AND THE LIKE

Fred O. Paige, Jr., Hammond, Ind., assignor to Kitson Company, Philadelphia, Pa., a corporation of West Virginia

Application August 15, 1935, Serial No. 36,301

4 Claims. (Cl. 292—307)

Public utility organizations suffer considerable loss of product through unauthorized tampering with the devices such as valves and the like by which the supply is delivered to and cut off from customers.

It is the object of the present invention to oppose such unauthorized tampering and to provide for its detection.

Other objects of the invention will appear from the following description at the end of which the invention will be claimed.

Generally stated the invention comprises two elements adapted to be inseparably held in respect to each other, except by the fracture of one of them, and of which one is provided with an internally enlarged socket having a through opening and is the element usually fractured, a screw mounted in the other element and having an expansible head adapted to enter said socket, and a swage arranged in the socket in operative relation to the head and having a shank accessible through said opening.

The invention also comprises the improvements to be presently described and finally claimed.

In the following description reference will be made to the accompanying drawing forming part hereof and in which,

Figure 1 is a transverse sectional view of the upper part of a curb box and its cover and embodying features of the invention.

Figure 2 is a plan view of the under side of the cover.

Figure 3 is a perspective view drawn to an enlarged scale of one of the parts shown in Figure 1.

Figure 4 is an end view partly in section of a valve embodying features of the invention.

Figure 5 is a top or plan view of the valve shown in Figure 4 with the upper parts removed.

Figure 6 is a plan view of the under side of the cover shown in Figure 4.

Figure 7 is a view illustrating a modification of the invention in which the same is applied by means of a cover and yoke.

Figure 8 is a sectional view illustrating a modification, and

Figure 9 is a top or plan view of an element shown in Fig. 8.

Referring more particularly to Figures 1, 2, and 3, 1 indicates the upper portion of a curb box, and 2 indicates its cover and these constitute two elements which are to be inseparably held in respect to each other, except by the fracture of one of them. By way of explanation it may be said that a curb box at its lower end houses a valve interposed in the connection that leads from the main in the street to the interior of a dwelling or the like. A curb box affords means, when its cover is removed, for the insertion of a key by means of which the valve or a part thereof is engaged to open the valve and supply a customer, and to close the valve and cut off the supply, when the customer is in arrears in payment, or at any time. By way of further explanation dishonest customers have filled the curb box with cement and have replaced the cover after having tampered with the valve, leaving the supply open. In such cases the utility company supplying the product, which may be gas, water, steam, oil, gasoline or other fluid, has no means of discovering whether the product is being stolen and cannot turn the valve without digging up the curb box. Again if the meter is removed, the supply must be shut off at the curb, otherwise a supply can be obtained or stolen by connecting the meter inlet and outlet pipes. In accordance with the present invention, and as illustrated in Figures 1 and 2, the curb box 1 is internally provided with a lug projection or other suitable means 3 for receiving the screw 4. The screw 4 has an expansible head 5. When the cover 2 is in place the head 5 of the screw enters the internally enlarged socket 6 with which the cover is provided. 7 is a swage block arranged in the hollow head of the screw 5 and having a shank 12 projecting above the cover. When a representative of the company knows that the valve at the bottom of the curb box is in off or on position as may be desired he applies the cover with the parts in the position indicated in Figure 1 and then drives the swage downward by means of its shank. The result of this is that the expansible head of the screw is expanded in the internal enlargement of the socket of the cover, and the cover and the curb box are inseparably connected. The head of the screw is shown as expanded in Figure 7. The only way that the cover can be removed is by breaking it. For this purpose it is shown as weakened by grooving or notching, as indicated at 8, and by reenforcing it as indicated at 19. However, this is not necessary in all cases and in detail it can be modified. If the customer breaks the cover or tampers with it that fact is evident to an inspector. If the representative of the company breaks the cover so as to obtain access to the valve at the bottom of the box he replaces the broken cover with a new one and for that purpose removes the screw 4 and supplies a new one.

Sometimes curb boxes are corrugated or simi-

larly formed. In such cases referring to Figs. 8 and 9 if the lug 3 is broken or even if the top of the curb box is broken off, a lug 3^a can be supplied by clamping an expansible ring *a*, provided with a lug 3^a inside of the damaged box as indicated Fig. 8. As shown the ring is in segments hinged together and is expanded by a reversely threaded bolt *b*, but of course that construction is merely typical.

The construction and operation of the modification shown in Figures 4 to 6 are as above described except as follows: The invention is applied to a valve device arranged, for example, in the inside of a building. The casing of the valve is provided with a lug 3^a which receives the screw 4 and use is made of a cover 10 notched to receive the key 11 of the valve plug in either open or closed position. The cover 10 is provided with the internally enlarged socket 6^a and it contains the swage 7^a having the shank 12^a. The cover is secured to the valve casing so as to lock the plug in the proper position and the cover can only be removed by breaking it.

The construction and mode of operation of the modification shown in Figure 7 are as above described except that one of the elements to be connected is a yoke 13 adapted to encircle a valve 14. The screws 4 with expansible heads are mounted in the ends of the yoke and the cover 15 is provided with the internally contracted sockets which receive the expansible heads of the screws. The swages 7^b have screw threaded shanks 12^b which have threaded engagements with holes in the cover. The cover is provided with cruciform notches for the reception of the key of the plug of the valve. In assembling the device use may be made of a clamping or other means for holding the yoke up to the valve casing. It may be remarked that swage blocks with screw threaded shanks may be used in the construction shown in Fig. 1 and that covers overlapping the top of the box as shown in Fig. 4 may be employed in the construction of Fig. 1. If desired the covers may be serially numbered in order to provide means for protecting against, or for discovering, fraudulent substitution.

Referring to the device generally the swage is beveled in respect to the expansible portion of the screw head. As shown the swage is conical in form. The swage is shown as provided with a shank accessible from the outside of the cover but the swage may be arranged inside of the cover and operated by a blow struck upon the outside of the cover, instead of upon the shank of the swage.

The head of the screw is shown as countersunk providing a readily expansible wall through which the notch for a screw driver extends.

It will be obvious to those skilled in the art that the invention is applicable in a variety of ways to a variety of uses, and that modifications may be made in details of construction and arrangement without departing from its spirit otherwise than as the prior art and the appended claims may require.

I claim:

1. In combination two elements adapted to be inseparably held together except by the fracture of one of them, an internally enlarged socket provided in one of said elements, a screw mounted in the other of said elements and having an expansible head adapted to enter the enlargement of the socket and a swage arranged for movement in the socket, in operative relation to the head and adapted when operated through one of the elements to expand the head.

2. In combination a curb box having a lug, a curb box cover having an internally enlarged socket, a screw mounted in the lug and having an expansible head arranged in the enlargement of the socket, and a swage arranged in the socket and having a stem projecting through the cover.

3. In combination two elements adapted to be inseparably held in contact except by the fracture of one of them and of which one is provided with an internally enlarged socket having a through opening, a screw mounted in the other element and having a countersunk expansible head adapted to enter said socket and a conical swage arranged in the socket in operative relation to the head and having a shank projecting through said opening.

4. Fastening means for a valve having a valve casing and an operating device projecting therefrom, said fastening means comprising two elements which, when connected together, surround said operating device, an internally enlarged socket provided in one of said elements, the other of said elements having a screw-threaded cavity therein, a screw mounted in said cavity and having an expansible head located in said socket, and a swage arranged in said socket and in operative relation to said expansible head and having a portion projecting from said socket so that said swage can be operated from the exterior of said elements to expand said head into engagement with said socket.

FRED O. PAIGE, JR.