W. F. TOBIN.

GROUND KEY STOP AND WASTE COCK.

APPLICATION FILED MAY 31, 1916.

1,202,003. Patented Oct. 17, 1916.

Fig 1

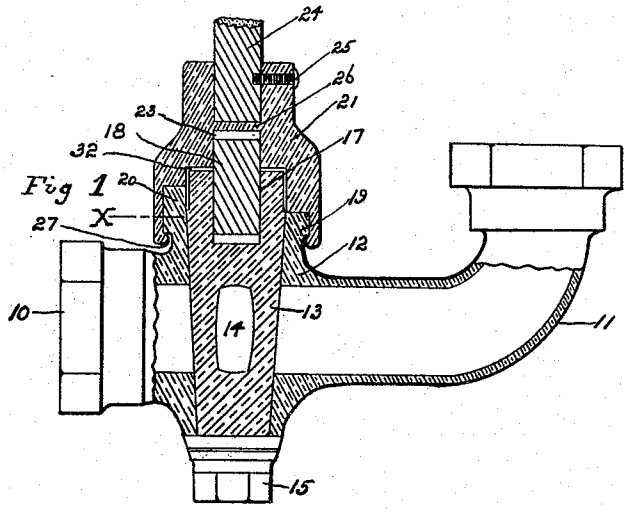


Fig 2

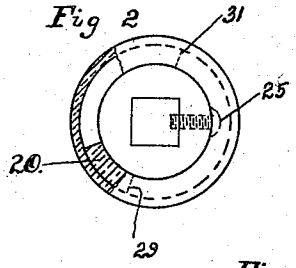


Fig 3

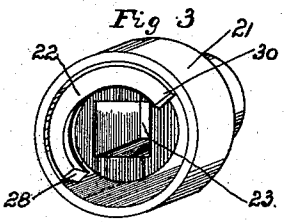


Fig 4

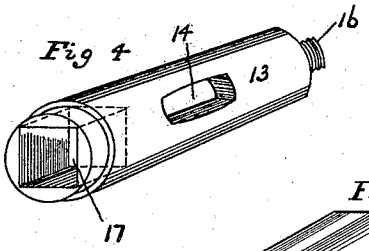
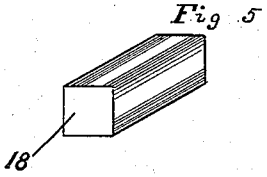


Fig 5



WITNESS

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GROUND KEY STOP AND WASTE COCK.

1,202,003. Specification of Letters Patent. Patented Oct. 17, 1916.

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To all whom it may concern:

Be it known that I, WILLIAM F. TOBIN, a citizen of the United States, and a resident of Pueblo, in the county of Pueblo and State of Colorado, have invented a certain new and useful Improvement in Ground Key Stop and Waste Cocks, of which the following is a full, clear, and exact description.

This invention is an improvement in ground key cocks and particularly in stop and waste cocks and its object is the provision of a device in which the transmission of shocks or blows through the operating rod or handle to the plug key to jam or set the same will be rendered impossible. Broadly speaking, this object is attained by providing a connection between the operating rod and the plug key which is free to yield in the direction of the axis of the plug key, the operating rod meanwhile having a bearing on the cock body whereby the force of any shock or blow will be absorbed by the cock body instead of being transmitted to the plug key. In the particular embodiment of my invention shown in the drawings the operating rod is seated in a cap shaped member which has a rotatable bearing on the cock body and always rests thereon, rotary movement being transmitted from the cap to the plug key by means of a floating square key free to yield with reference to one or both of the members in which it is seated. Ample clearance is also provided between the bottom of the cap and the top of the plug key so that the former can not set the latter, the plug key being held to its seats by the action of a set nut alone.

A more detailed understanding of my invention will be had by a reference to the accompanying single sheet of drawings in which—

Figure 1 is a side elevation of a stop or hydrant cock made according to my invention, the operating portions of the device appearing in central, vertical section; Fig. 2 is a plan view of the device with the inlet and outlet connections omitted, a portion of the view being broken away to show a section on the line X of Fig. 1; Fig. 3 is a perspective view of the cap portion of the device looking at it from its larger or lower end; Fig. 4 is a perspective view of the plug key viewed from the upper end; and Fig. 5 is a perspective view of the floating key.

Referring to the drawings, let 10 indicate inlet and 11 outlet connections of any desired shape which are preferably formed as integral cast extensions of a cock body 12. The tapered plug key 13 having the passage 14 therethrough is seated in suitable seats in the body 12 so that when in the position shown in Fig. 1 it closes communication between the inlet and outlet ports and when turned through a quarter revolution the passage 14 will afford communication between said connections. A set nut 15 screwed on the threaded stud 16 serves to retain the plug 13 to its seats with the proper fit.

The plug 13 is provided with a square socket 17 in its upper end in which the square key 18 is adapted to be seated either a slight distance above the bottom of the socket 17 as indicated in Fig. 1 or in contact with the bottom thereof, as may be preferred

The body of the cock 12 has a sleeve 19 upstanding therefrom, the inner surface of which constitutes the upper seat for the plug 13 and the upper face of which has a lug 20 projecting therefrom to act as a stop for the rotating cap 21. This cap is seated on and bears on the upper face of the sleeve 19 and is free to have a limited rotation thereon, this rotation being limited by engagement of the lug 20 with the lug 22 on the inner face of the cap 21. This cap has a lower square socket 23 therein which is adapted to loosely receive the correspondingly shaped key 18, and an upper socket for the reception of an operating lever or handle 24 preferably secured in position by a set screw or the like 25. A division plate 26 forms a convenient stop to prevent the operating rod 24 from entering far enough to interfere with the key 18 but any other means as, for instance, a sleeve on the operating rod 24 for performing the same function could be substituted therefor.

The cap 21 should be retained from displacement off its bearing on the sleeve 19 and I have illustrated this as attained by spinning or drawing a slight retaining sleeve 27 thereon which retaining sleeve reaches under the sleeve 19 though any convenient means for attaining this result may be employed without departing from my invention.

Operation: The cock in the position shown in Figs. 1 and 2 is closed and the end 28 of the lug 22 contacts with the right hand side of the lug 20 as indicated by the dotted

line 29 in Fig. 2, the position of the end 30 being indicated by the line 31 in the same figure. If now the operating rod be turned in a counter clock-wise direction through a quarter revolution the passage 14 will be in position to open communication between the intake 10 and the outlet 11 and when the quarter revolution is complete the surface 30 will contact with 20 to stop the movement.

The fit of 18 in the socket 23 being loose and the cap 21, which is rigidly secured to the operating rod or handle, having its bearing on the sleeve 19, any shock or blow given the rod or handle 24 will be transmitted to the cock body 12 instead of to the plug key 13 and it will be clear that the latter can not be set thereby, there being always a slight clearance space 32 between the plug key 13 and the cap 21.

It will be obvious that the element 18, whose function is to transmit rotary motion from the cap to the plug key without transmitting to the plug key any stresses in a direction axial thereof, may be free with respect to both the plug key and the cap or with reference to either one of the same and still perform its functions. It will therefore be clear that the element 18 may be rigid or even integral with the cap 21 provided its lower end does not touch the bottom of the socket 17 and it is in loose or free play engagement with the sides thereof; and that this and other changes in details of construction may be made without departing from my invention.

Having thus described my invention what I claim and desire to secure by Letters Patent is:—

1. In a device of the class described, a cock body, a plug key operable therein, a rotatable cap covering said plug key but spaced therefrom, said cap having a bearing on said cock body, means for rotating said cap, and an axially yielding connection between said cap and said plug key.

2. In a device of the class described, a cock body, a plug key rotatable therein to open or close said cock, a rotatable cap covering said plug key but spaced therefrom, said cap having a bearing on said cock body, an operating rod fixed in said cap, and an axially yielding connection between said cap and said plug key.

3. In a device of the class described, a cock body, a plug key rotatable therein, a rotatable cap covering said plug key but spaced therefrom, said cap having a bearing on said cock body, one of said rotatable members having a square socket therein, a square key carried by the other of said rotatable members and having a sliding, non-rotatable fit in said square socket, and an operating rod fixed in said cap.

4. In a device of the class described, a cock body, a plug key operable therein, said plug key having a square socket in its upper end, a rotatable cap covering said plug key but spaced therefrom, said cap having a bearing on said cock body and being provided with a square socket in its lower face, a square key disposed in said sockets, the fit between said key and the socket in said cap being loose, and an operating rod rigidly connected to said cap.

In testimony whereof I have hereunto affixed my signature.

WILLIAM F. TOBIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."