

F. J. SKLASKA.
 REMOVABLE VALVE SEAT FOR FAUCETS.
 APPLICATION FILED MAR. 8, 1921.

1,431,701.

Patented Oct. 10, 1922.

FIG. 1.

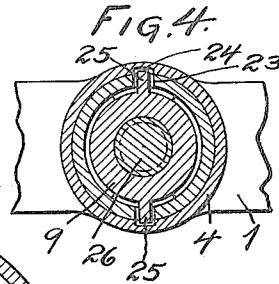
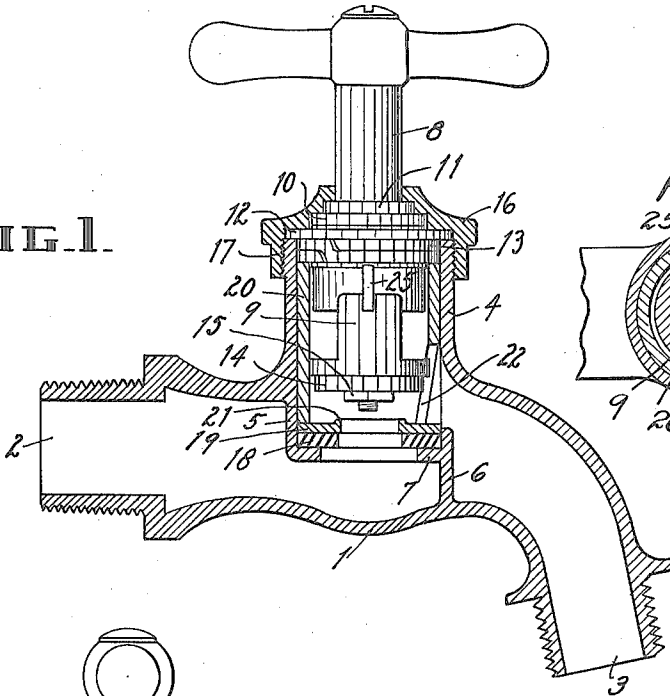


FIG. 2.

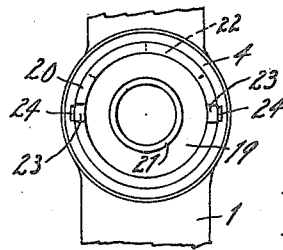
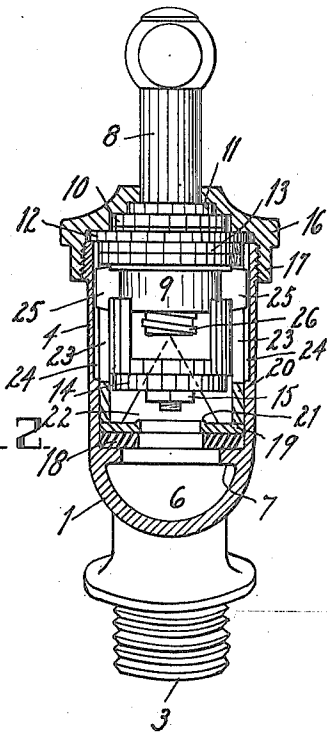


FIG. 3.

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REMOVABLE VALVE SEAT FOR FAUCETS.

Application filed March 8, 1921. Serial No. 450,520.

To all whom it may concern:

Be it known that I, FRANK J. SKLASKA, a citizen of Poland, residing at Westfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Removable Valve Seat for Faucets, of which the following is a specification.

My invention relates to improvements in valve construction, and more particularly to the valve-seats for faucets and the like, and resides in an independent and separable or detachable valve-seat mounted on a packing-ring which in turn is mounted on an annular flange in the valve casing, a hollow member inserted in said casing above said seat to retain the same in place, said member being perforated for the passage of water through one side thereof, and removable means to retain said member in position, together with a valve and valve-stem, the necessary packing members, and such other parts and members as may be needed or required in order to render the device complete in every respect, all as hereinafter set forth.

The primary object of my invention is to produce a comparatively simple and inexpensive, strong, and efficient, removable valve-seat and correlated and associated parts and members for the valve in a faucet or other fluid-control device, so that said seat when worn, or for any other reason, can be readily removed and replaced with another or itself replaced, thus doing away with regrinding the seat, and avoiding the necessity of discarding the entire faucet or other device after the seat has finally become useless.

Another object is to provide a valve-seat of this character which can be installed in old faucets without requiring a large amount of work to be done in order to enable this to be done.

This valve-seat and its correlated and associated parts and members are compact, and when properly assembled are tight and capable of giving as good or better service than is obtainable when the valve-seat is an integral part of the valve casing.

Other objects and advantages will appear in the course of the following description.

I attain the objects and secure the advantages of my invention by the means illustrated in the accompanying drawings, in which—

Figure 1 is a central, longitudinal, vertical section through a faucet in or with which is incorporated a removable valve-seat that em-

bodies a practical form of my invention; Fig. 2, a transverse, vertical section through said faucet at right-angles to that which appears in the preceding view, and taken on the axis of the valve-stem; Fig. 3, a plan of the vertical chamber and contents thereof of said casing, looking down into said chamber, and, Fig. 4, a cross section through the top portion of the valve.

Similar reference characters designate similar parts throughout the several views.

The casing, valve and valve-stem, and connections between said stem and said casing, of the faucet herein shown and described, are of old and well-known construction, and only said casing and the cap-nut are shown in section in the drawings.

A valve or faucet casing is represented at 1, the inlet to such casing being at 2 and the outlet thereof being at 3, and said casing having a vertical chamber 4. The inlet chamber is separated from the outlet chamber in the casing 1 by interior vertical walls 5 and 6 and a perforated horizontal member between and connecting said walls, which member forms an annular flange 7. Water entering the casing 1 and 2, passes under the wall 5, upward through the opening formed by the flange 7, and over the top of the partition 6, to escape at the outlet 3.

The faucet is provided or equipped with a valve-stem 8 and a valve 9 of the type wherein the valve-stem rotates without reciprocation and the valve reciprocates without rotation. The valve-stem 8 is provided with an integral or fixed collar 10, and there are packing-rings 11 and 12 respectively above and below said flange, on said valve-stem. A compression spring 13 encircles the valve-stem 8 below the packing-ring 12. On the bottom of the valve 9 is a disc or packing 14 of fiber, rubber, or other suitable material. The packing 14 is held in place against the bottom of the valve 9 by means of a nut 15. A cap-nut 16 fits on to the valve-stem 8 above the packing-ring 11, and has an interiorly screw-threaded part 17 to engage the upper terminal of the wall of the chamber 14, which latter is exteriorly screw-threaded for that purpose. The cap-nut 16 is suitably shouldered to engage the packing-ring 11, the flange 10, and the packing-ring 12. The packing-ring 12 is of sufficient size to fit over the upper edge of the wall of the chamber 4, so that, when the cap-screw 16 is screwed tightly into place, the packing-ring 12 is

compressed between said nut and wall and seals the joint between these two members. Likewise the packing-ring 11 is compressed between the engaging parts thereof of the cap-nut 16 and the flange 10 and seals the joint between the valve-stem 8 and said nut. As already observed or will be understood, the parts and members thus far described in detail are generally old and well known.

The new elements of the device comprise a perforated cushion or packing-ring 18 of suitable material, a disc having a central opening therethrough which constitutes a valve-seat 19, and a cylinder 20. The packing-ring 18 is seated on the flange 7 and held in place by surrounding portions of the partition members in the casing 1, including the wall 5 and a portion of the wall 6 which extends above the flange 7. The valve-seat 19 is mounted on the packing-ring 18; and said seat preferably has on top thereof surrounding the opening therein a flange 21, as is customary with valve-seats in connection with which packing-provided valves are used.

The cylinder 20 is a retaining member for the valve-seat 19 and when the parts are assembled rests on top of said seat adjacent to the periphery thereof. Said cylinder has a sliding fit in the chamber 4. There is an opening 22 in the side of the cylinder 20 at the base to establish communication between the chamber 4, or rather between the cylinder and the outlet chamber in the casing 1. The cylinder 20 is held in place by the spring 13 which is of a size to permit the same to rest on the upper edge of said cylinder. The spring 13 is forced into contact with the cylinder 20 by the packing-ring 12, when the cap-nut 16 is screwed onto the wall of the chamber 4 and tightened.

It is necessary to lock the cylinder 20 against rotation, otherwise the cylinder would be liable to have its position changed so as to locate the opening 22 in such a manner that communication from the chamber 4 or the interior of said cylinder, through such opening, into the outlet chamber in the casing 1, would be wholly or partially cut off by the cylinder. To this end there are oppositely-disposed, longitudinal slots 23 in the cylinder 20 and oppositely-disposed, vertical slots or recesses 24 in the wall of the chamber 4 to receive oppositely-disposed lugs 25 on the valve 9, which lugs are common to valves of this character. The lugs 25 extend through the slots 23 into the recesses 24, thus locking the cylinder 20 to the wall of the chamber 4, and at the same time holding the valve 9 against rotation. The lugs 25 are, of course, free to move up and down in the slots 23 and recesses 24 when the valve 9 is opened and closed, by means of the valve-stem 8, in the usual manner.

The flange 10, located as it is between the packing-ring 11 which is confined by the cap-nut 16, and the parts and members below said flange, is prevented from moving longitudinally, and in turn prevents the valve-stem 8 from so moving.

In assembling the parts, the packing-ring 18 is first placed in position on the flange 7, next the valve-seat 19 is placed on said packing-ring, with the flange 21 directed upwardly, then the cylinder 20 is introduced into the chamber 4 on top of said valve-seat, care being taken to have the slots 23 in alignment with the recesses 24 and the opening 22 directed toward the outlet end of the casing 1. After the introduction of said cylinder the valve 9 is inserted in the casing in said cylinder and the cap-nut 16 placed over the top of the wall of said chamber, and finally said nut is screwed down tightly on said wall to force the spring 13 down on top of said cylinder and compress the packing-ring 12 between the flange 10 and the top of said wall. When introducing the valve 9 with the lower terminal portion of its stem 8 into the cylinder 20, it is necessary to insert the lugs 25 in the slots 23 and recesses 24. The faucet is now ready for use like any other faucet.

While the valve 9 is open, as shown in Figs. 1 and 2, the water flows from the inlet chamber in the casing 1, through the openings in the flange 7, the packing-ring 18, and the valve-seat 19, into the cylinder 20, and through the opening 22 in said cylinder, into the outlet chamber in said casing. When the valve 9 is closed, by turning the valve-stem 8 in the direction to force said valve downwardly into close contact with the seat 19, or with the seat flange 21, the water is held back in the inlet chamber of the casing 1 and the flow thereof entirely cut off from the outlet chamber in said casing, since the opening through said valve-seat is now tightly and securely closed by the packing 14. The valve is raised from the seat to open the same by turning the valve-stem in the opposite direction.

When the valve-seat 19 becomes worn so that leakage occurs, or when for any other reason it be necessary or desirable to remove said seat, the cap-nut 16 is unscrewed from the wall of the chamber 4 to release the parts confined thereby, and such parts, including the valve-stem 8, valve 9, spring 13, and packing-rings 11 and 12, are removed with said nut from the casing. The cylinder 20 now being exposed as well as released can be drawn upwardly out of the chamber 4, and the valve-seat 19 taken out through said chamber. After removing the cylinder 20 and valve-seat 19, the same or another, valve-seat, as occasion demands, is replaced or placed on the packing-ring 18, the cylinder 20 is returned to position, and the other

parts of the faucet are reassembled, so that said faucet is once more ready for operation in the usual manner. While the valve-seat 19 is out, the packing-ring 18 can be renewed if necessary.

The opening 22 and slots 23 must be in such relationship that, when the former is in position to open a way into the outlet chamber in the casing 1, the latter are in position to receive the lugs 25 and at the same time permit said lugs to enter the recesses 24.

The threaded terminal of the valve-stem 8, with which the valve 9 is engaged, appears at 26 in Fig. 2.

Although more or less change in the shape, size, and other features of the removable valve-seat and correlated and associated parts and members, as here presented, may be made without departing from the nature of my invention or exceeding the scope of what is claimed, I am aware that faucets have been provided with removable valve-seats, and do not, therefore, seek to claim broadly such a construction.

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in a device of the class described, with a casing consisting in part of a vertical chamber, and having therein partition members which divide the lower portion of the same into inlet and outlet chambers, one of such members consisting of a flange below said vertical chamber, of a perforated packing-ring receivable on said flange, an independent valve-seat, receivable on said packing-ring, a cylinder receivable on said valve-seat, said cylinder opening into said outlet chamber, a valve in said cylinder, means to hold said cylinder and valve against rotation, and removable means to retain said cylinder in place on said valve-seat.

2. The combination, in a device of the class described, with a casing consisting in

part of a vertical chamber having slots in the wall thereof, and said casing having therein partition members which divide the lower portion of the same into inlet and outlet chambers, one of such members consisting of a flange below said vertical chamber, of a perforated packing-ring receivable on said flange, an independent valve-seat receivable on said packing-ring, a cylinder receivable on said valve-seat, said cylinder opening into said outlet chamber, and having longitudinal slots therein, which last-named slots are adapted to coincide with said first-named slots, a valve having flanges to enter and operate in said slots, a stem for said valve, and removable means to retain said cylinder in place and hold said stem against longitudinal movement.

3. The combination, in a device of the class described, with a casing consisting in part of a vertical chamber having slots in the wall thereof, and said casing having therein partition members which divide the lower portion of the same into inlet and outlet chambers, one of such members consisting of a flange below said vertical chamber, of a perforated packing-ring receivable on said flange, an independent valve-seat receivable on said packing-ring, a cylinder receivable on said valve-seat, said cylinder opening into said outlet chamber, and having longitudinal slots therein, which last-named slots are adapted to coincide with said first-named slots, a spring to engage the top of said cylinder, a valve having flanges to enter and operate in said slots, a stem for said valve, and removable means to retain said spring in place on said cylinder and to hold said stem against longitudinal movement.

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Witnesses:

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R. E. MARTIN.