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UNITED STATES PATENT OFFICE.

FELIX STAEDLI AND GUSTAV VOGT, OF NEW YORK, N. Y.

STOP-COCK.

SPECIFICATION forming part of Letters Patent No. 679,062, dated July 23, 1901.

Application filed May 24, 1900. Serial No. 17,787. (No model.)

To all whom it may concern:

Be it known that we, FELIX STAEDLI and GUSTAV VOGT, citizens of the United States, residing in the borough of Bronx, in the city and State of New York, have invented a certain new and useful Improvement in Stop-Cocks, of which the following is a specification.

The improvement is intended more especially for serving what are known as "soft drinks," fruit-juices, and other acids which are liable to induce corrosion of the ordinary cocks. We provide a glass nozzle attached for the delivering portion of the cock and have devised peculiarities in the construction of the other portions which allow it to serve usefully not only in that special use, but also for many or all other purposes.

The accompanying drawings form a part of this specification and represent what we consider the best means of carrying out the invention.

Figure 1 is a central vertical section in the plane of the receiving-nozzle. It shows the valve open to its extreme limit—the condition for delivering a current of liquid of the full capacity of the delivering-nozzle. Fig. 2 is a horizontal section on the line 2 2 in Fig. 1. Fig. 3 is a section of a portion corresponding to Fig. 1, but with the screw depressed, so that the valve is tightly closed.

Similar letters of reference indicate like parts in all the figures where they appear.

A is the body or casing, certain portions being designated by supernumerals.

A' is a raised rim around the exit or delivery-orifice, adapted to make a tight joint with a plane surface.

B is a block of hard rubber having a plane lower face and mounted in a box D over the delivery-nozzle. In the closed condition of the valve the lower face of the block B is pressed upon the rim A'. The dense character and elasticity of hard rubber promote a tight fit. The water or other liquid entering through the receiving-nozzle A² fills the space around the box D and presses upward against the tightly-fitted elastic disk M. Care is taken in the manufacture of this important element of the structure to use for this disk an elastic material, as hard brass or German silver, and to stamp or otherwise bring it to

a slightly-dishing form. It is so conditioned that the pressure of the liquid, which is restrained by our cock, is applied under the disk to lift it, and consequently to lift the block B and open the valve. The adjustment should also be such that the elasticity of the disk M is exerted in the same direction, lifting the block B away from its tightly-fitting seat on the rim A'.

In the construction of the box D the upper portion is formed into a "rivet" D². Around the lower portion of this rivet is a small elevation or offset D'. The disk M is formed with a sufficient hole to receive the rivet D² and to rest fairly and tightly on the offset D'. It is pinched strongly in this position by a clench-ring E, held down tightly and permanently by the riveting of the upper portion of D².

The rim of the elastic disk M fits down tightly upon the annular bearing-surface D'. The junction may be made with tightness by grinding the metal together; but we prefer for ordinary practice an annular thin gasket of soft rubber G. The rim of the disk is pressed down firmly upon this gasket by a ring H, the upper edge of which ring receives a strong pressure from the removable top C of the casing.

The ring H has a number of internal radial arms H' connecting it with a large and thick hub H². In this latter is a square hole nicely finished, inclosing a corresponding piece of hard rubber. This piece is marked I. It is free to move up and down, but cannot turn. The lower edges of the several spokes or radial arms H' are treated in a lathe or otherwise to dress them evenly. They are so formed and placed relatively to the dishing form of the disk that these arms receive the disk when it is forced upward to induce the full open position of the cock and prevent it from being ever overstrained.

The closed or partially-closed condition of the cock is induced by means of the screw K, which has a large and prominent screw-thread and is operated by a hand-wheel above. (Not shown.) There is no occasion for a stuffing-box around this operating-stem, because the liquid is always effectually stopped by the disk M. The piece I is intermediate between the smooth rounded lower end of the screw K and

the riveted top of the box carrying the block B. There is a liability that the torsional friction due to the turning motion of this screw may disturb the union of the disk M with the block B and its carrying-box D and rivet D².
 5 The interposition of the square piece I, which has a capacity to rise and sink, but not to turn, relieves the parts from all torsional strain. The disk is pressed down to induce tight closing or allowed to rise by its elastic action and
 10 by the force of the liquid under it always by direct rising and sinking motions.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention.
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We can use any non-corrosive metal or other hard material in lieu of the hard rubber for the piece I.

We have shown the rim A' as separable from the main body of the casing A and prefer this construction; but those parts may be made integral. We have shown the screw-threads K' as prominent, extending out beyond the diameter of the cylindrical portion,
 20 necessitating the introduction of this part of the apparatus from below; but this may be varied. It is only important that there be a stout and well-cut screw-thread matching in a correspondingly-threaded interior of the
 25 neck of the top C.

The nozzle for the discharge may be of other material instead of glass, or it may be made integral with the body. The form of the exterior may be varied within wide limits.

35 We claim as our invention—

1. In a faucet having an elastic disk and means for operating such to control the flow, a block B of yielding material, the box D enclosing and retaining such block leaving its lower face exposed, such box having a contracted bearing D' giving a limited contact
 40 with the disk, and the rivet D² and clench-ring E for engaging the parts at the center, and the ring H arranged to receive pressure from the top C for tightly holding the periphery of the disk combined substantially as herein specified. 45

2. In a faucet having an elastic disk and means for operating such to control the flow, a block B of yielding material, the box D enclosing and retaining such block leaving its lower face exposed, such box having a contracted bearing D' giving a limited contact
 50 with the disk, and the piece I capable only of endwise motion and the operating-stem K K' in combination with each other and with the ring H having radial arms H' and hub H² adapted to perform the double functions of transmitting pressure from the top C and thus tightly holding the periphery of the disk, and
 55 also guiding the piece I all substantially as herein specified. 60

In testimony that we claim the invention above set forth we affix our signatures in presence of two witnesses.

FELIX STAEDELI.
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Witnesses:

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