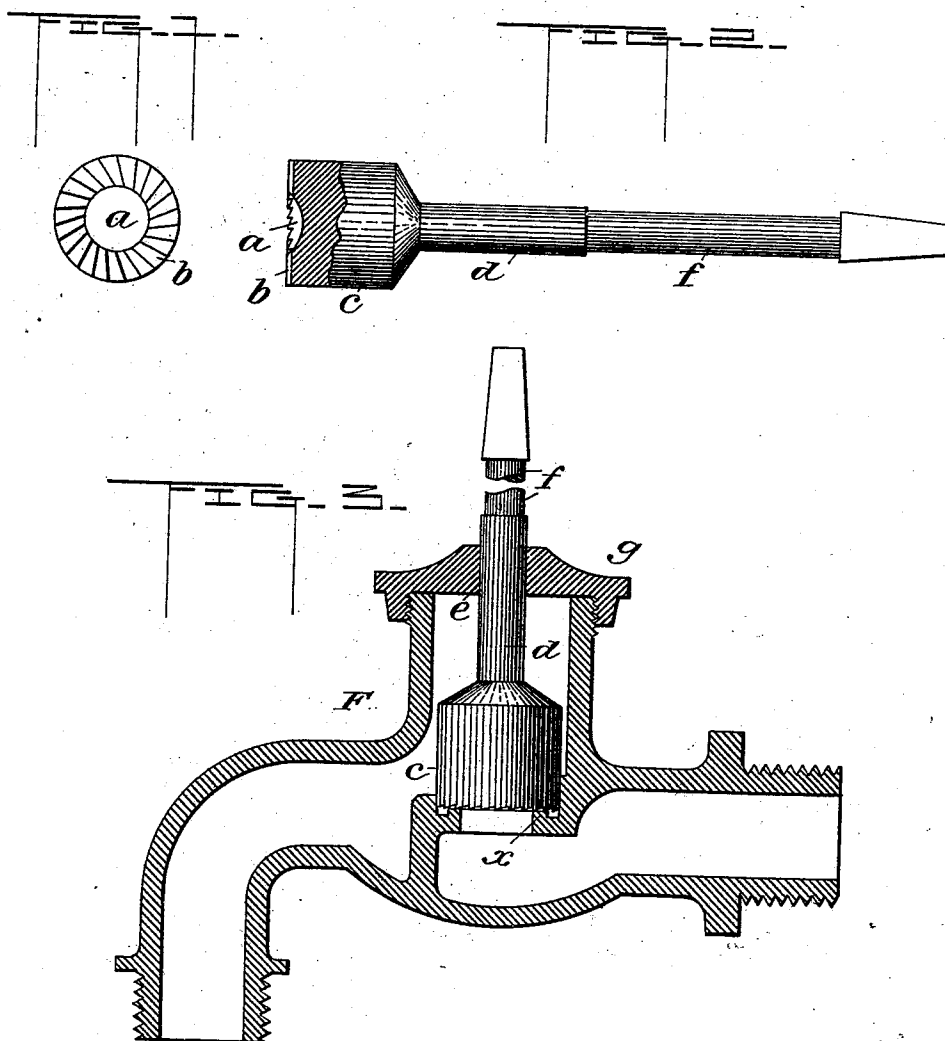


(No Model.)

H. D. SABIN.
VALVE SEATING TOOL.

No. 514,687.

Patented Feb. 13, 1894.



Witnesses
C. W. Smith
Fred L. Fishback

Harvey S. Sabin Inventor
By A. G. Gafford Attorney

UNITED STATES PATENT OFFICE.

HARVEY D. SABIN, OF ST. ALBANS, VERMONT.

VALVE-SEATING TOOL.

SPECIFICATION forming part of Letters Patent No. 514,687, dated February 13, 1894.

Application filed November 9, 1893. Serial No. 490,463. (No model.)

To all whom it may concern:

Be it known that I, HARVEY D. SABIN, a citizen of the United States of America, residing at St. Albans, in the county of Franklin and State of Vermont, have invented certain new and useful Improvements in Valve-Seating Tools, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to that class of mechanical tools which are used to trim down to a smooth level, the upper surfaces of valve seats in ordinary water faucets, and other analogous appliances.

Referring to the accompanying drawings, wherein the same indicating letters point out the same parts in each figure,—Figure 1, is a plan view of the cutting part of the tool, having a shallow central concave depression, *a*, and the serrated edge consisting of the cutting teeth, *b*. Fig. 2, is a view in perspective of the tool itself, a portion of the lower part being cut away to show the central concavity, *a*, and it is provided with the larger cylindrical enlargement, *c*, the smaller cylindrical enlargement, *d*, and the spindle, *f*. Fig. 3, is a cross-sectional view of an ordinary water faucet, *F*, showing the valve seating tool in place, the valve seat being shown at *x*, and also showing its removable cap, *g*, provided with the central perforation, *e*.

The shallow concave depression, *a*, in the central portion of the bottom of the larger solid cylindrical enlargement, *c*, is made deep enough to receive the chips which may be removed from the valve seat in the process of trimming the same down to a smooth level, its diameter may be conveniently constructed at one half of the diameter of the bottom of the tool. The spaces between the cutting teeth, *b*, open into the concavity, *a*, and the cutting edges of said teeth commence at equi-distant points in the circumference of that concavity and are carried to the outer circumference of the bottom of the tool at an obtuse angle to the radii which may be supposed to be drawn from points where the teeth commence to the center of the circle comprising the bottom of the tool; this deflection of the course of the cutting edges is important because such con-

struction gives to said teeth a shears-like action, and prevents the clogging of the tool, for the chips when removed first fall into the interstices between the teeth and as they accumulate crowd each other backward into the concavity, *a*; it is apparent therefore, that the concavity, *a*, serves a double purpose, first it provides a receptacle for the removed chips and secondly it permits the deflection of the course of the edges of the teeth so as to give them the greatest cutting power and prevent their becoming clogged in the operation, otherwise the edges of the teeth would have to meet at a common center, but in the tool I have described having the concavity, *a*, the teeth can commence at equi-distant points in the circumference of that concavity, and be properly deflected. The enlargement, *c*, upon the bottom outer edge of which the teeth, *b*, are cut, has a diameter a little smaller than the valve cavity; the enlargement, *d*, has a diameter exactly the same as that of the perforation, *e*, of the removable cap, *g*, the object of thus constructing it is to have the walls of the perforation, *e*, act as an automatic guide to the tool when in operation; the diameter of the spindle, *f*, may be conveniently a little smaller than that of the enlargement, *d*.

Ordinarily, faucets and other analogous appliances are cast in sand molds and such castings as they come from the mold are numerous indented, retaining the roughness of the casting sand, and unless trimmed down to a smooth surface are not adapted to use as valve seats, it is also a matter of common experience that such seats often become unevenly abraded in use, and for these reasons require to be "seated," or "re-seated," as the case may be. Such "seating," or "re-seating," is easily accomplished in a proper manner by the use of the tool I have above described, for suppose that the valve seat, *x*, of the faucet, *F*, to be an uneven surface, the removable cap, *g*, is taken off, the valve removed, and the tool inserted in its place, the cap, *g*, is then replaced over the spindle, *f*, and the enlargement, *d*, and screwed into place, a rotary motion is then given to the tool under pressure and the teeth, *b*, impinge upon the valve seat, *x*, the uneven surface is trimmed off, the chips

falling into the interstices between said teeth and are carried backward into the concavity, *a*.

What I claim, and desire to secure by Letters Patent of the United States, is—

A milling tool having the solid cylindrical enlargement *c*, the lower surface of which is provided with the cutting teeth *b* formed as

set forth and with the shallow central concave depression *a* substantially as described. 10

In testimony whereof I affix my signature in presence of two witnesses.

HARVEY D. SABIN.

Witnesses:

MELVILLE E. SMILIE,
JAMES T. SABIN.