To all whom it may concern:

Be it known that I, FRANZ O. ALBERTSON, a subject of the King of Sweden, residing at Sioux City, in the county of Woodbury and State of Iowa, have invented a certain new and useful Improvement in Valve-Refacing Tools, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to valve grinders of the type employed for grinding the peripheries of valve heads so that they will seat properly upon the valve seats.

The objects of the invention are:

First: to provide a valve grinder which is simple in construction and economical to produce;

Second: to provide a valve grinder in which the cutting tool is so located with respect to the valve head that there is no chattering of the valve head during the cutting operation; and

Third: to provide a valve grinder with means for holding the valve head in cutting relation with the cutting tool, which may be adjusted laterally of the valve head to always bring the pressure substantially upon the center of the valve head.

Other objects will appear as the description progresses, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved grinder showing a valve in position therein to be ground; Fig. 2 is an end elevation thereof; and Fig. 3 is a plan view.

Similar characters of reference refer to similar parts throughout the several views.

Referring to the drawings the reference character 5 indicates a body member which is provided with a bore 6, which should be somewhat larger than the stem of the valve which it is intended to grind. The body member comprises a cylindrically shaped projection 7 provided with a longitudinal bore 8 for receiving the cutting 9, which is square in section. The cutter 9 is secured in the bore 8 by means of a set screw 10. It will be noted from an inspection of Fig. 3 that the projection 7, as well as its bore, is inclined to the axis of the bore 6. I find that this is necessary in order to prevent chattering of the tool and valve head relative to each other during the cutting operation. The reference characters 11 indicate set screws which I employ for holding the valve stem 12 against one side of the bore 6. These screws are turned sufficiently 60 to hold the valve screw against the opposite side of the bore but not sufficiently to prevent rotation of the valve stem, by means of the handle 13, which is secured to the valve stem by means of the set screw 14, the valve stem 12 projecting through a suitable bore in the handle. A pressure arm 15 is pivotally secured to one end of the body member 5 at the lower side thereof by means of a screw 16, which passes through a suitable bore in the adjacent end of the arm 15. The head of the screw 16 serves to clamp the end of the arm 15 against the end of the projection 17 of the body member. A set screw 18 co-acts with a screw threaded bore 75 at the free end of the arm 15. This set screw is used to produce the necessary pressure upon the head 19 of the valve.

It will be noted that by pivoting the arm 15 to the body member so that it may swing in a plane at right angles to the axis of the bore 6 this arm may be adjusted to bring the end of the set screw 18 substantially into contact with the center of the valve head irrespective of the diameter of the stem secured to this head. It will of course be understood that on account of the fact that the set screws 11 clamp the valve stems against the opposite side of the bore 6 the centers of valve stems of different diameters will lie at different points in a plane passing through the set screws 11. By making the arm 16 movable in a plane at right angles to the bore 6 the set screw 18 can always be brought into substantial alignment with the axes of valve stems of different diameters. I provide the body member with a downwardly extending lug 20 which is of substantially the same thickness as the projection 17 and provides means in connection with the lug 17 for securing the body member 5 in the jaws of a clamp or vise shown in dotted outline and indicated by the reference characters 21.

The angular disposition of the cutter 9 with respect to the bore 6 or the head of the valve being ground is of very considerable importance for I have found by actual trial that if the cutter 9 is held parallel with the valve stem or at right angles to the head of 110
the valve, the cutter and valve will chatter relative to each other and cause the seating surface of the valve to have very slight corrugations formed thereon, which will prevent the proper seating of the valve.

While I have described the details of the preferred embodiment of my valve grinder, it is to be understood that it is capable of other adaptations and modifications within the scope of the appended claims.

Having thus described my invention, what I claim is:

1. A valve grinder comprising a body member provided with a bore for receiving the stem of a valve and having a second bore spaced from said first-named bore and disposed at an angle thereto, a cutting tool secured in said second bore, means for clamping the valve stem against one side of said first-named bore, and means for holding the head of the valve against the cutting edge of said tool.

2. A valve grinder comprising a body member provided with a bore for receiving the stem of a valve and having a second bore spaced from said first-named bore and disposed at an angle thereto, a cutting tool secured in said second bore, means for clamping the valve stem against one side of said first-named bore, and means for holding the head of the valve against the cutting edge of said tool.

3. A valve grinder comprising a body member having a longitudinally extending bore and projections extending in opposite directions from said bore, a cutting tool secured in one of said projections, and means pivotally secured to the other of said projections for holding a valve in said bore with its head in cutting relation to said tool.

In witness whereof, I hereunto subscribe my name this 10 day of July, 1918.

FRANS O. ALBERTSON.

Witnesses:
ALVAH L. CHERRY,
KATHLEEN C. DOWNS.

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