

(No Model.)

W. C. PARSELLS.  
GRINDING GLOBE VALVE SEATS.

No. 502,932.

Patented Aug. 8, 1893.

Fig 1.

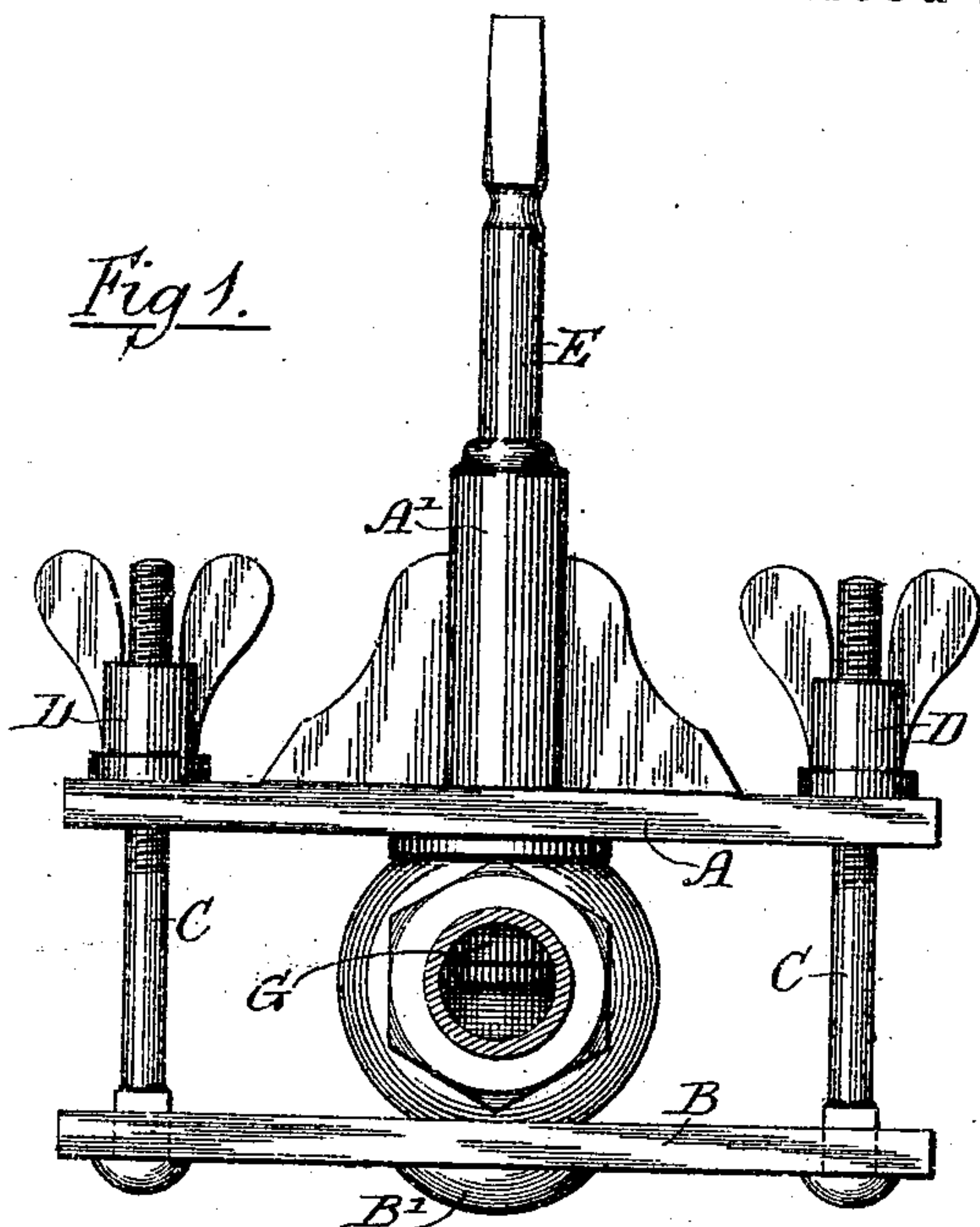


Fig 2.

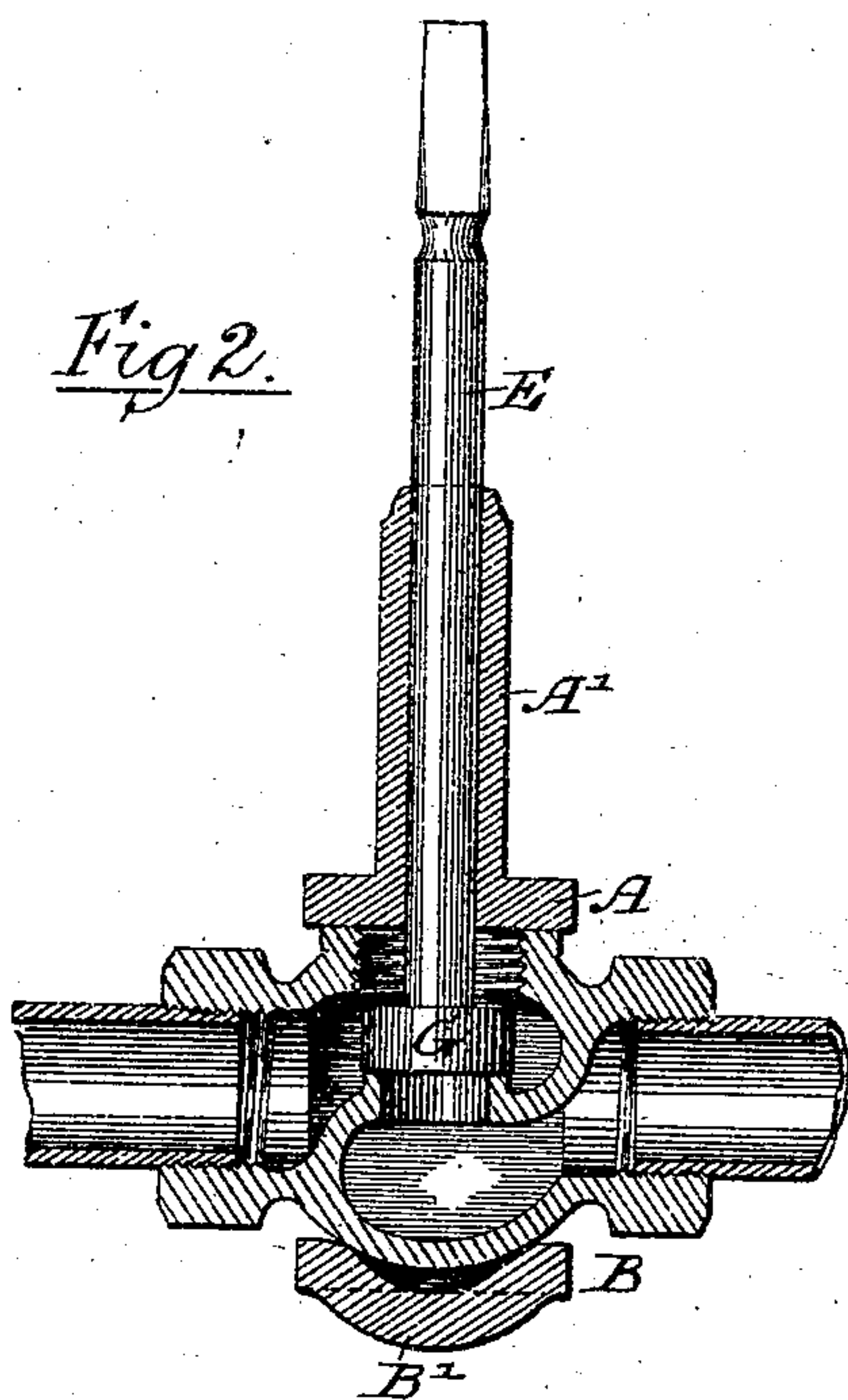


Fig 3.

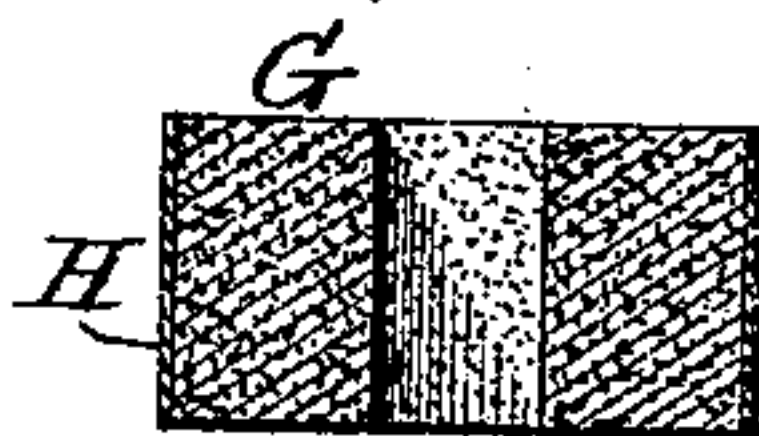


Fig 4.

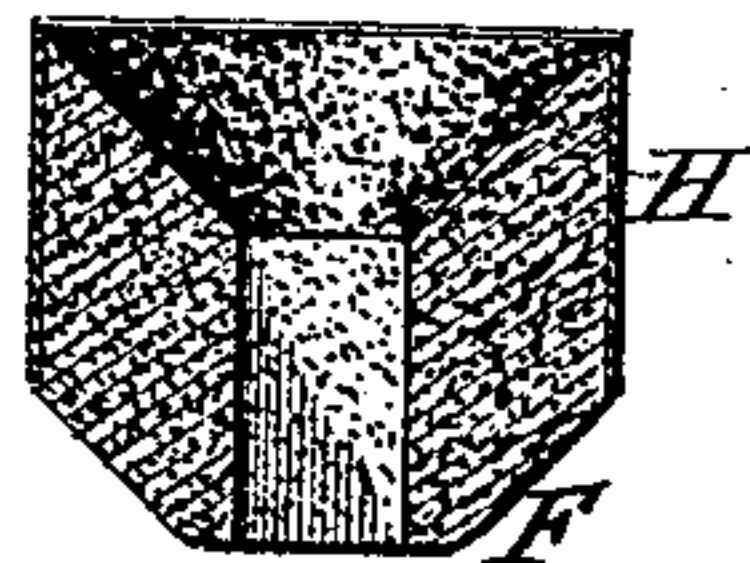
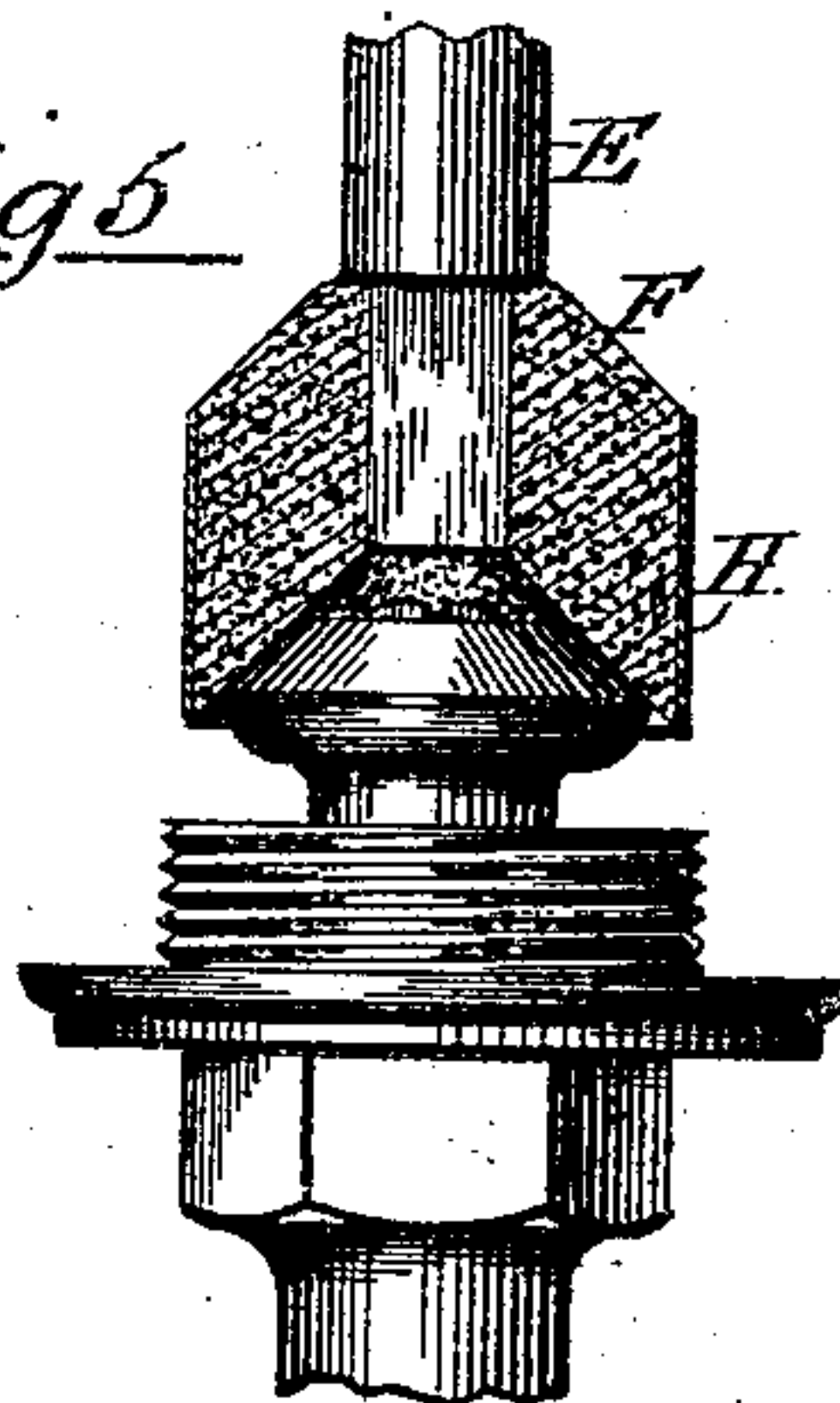


Fig 5.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## GRINDING GLOBE-VALVE SEATS.

SPECIFICATION forming part of Letters Patent No. 502,932, dated August 8, 1893.

Application filed August 10, 1892. Serial No. 442,665. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM C. PARSELLS, a citizen of the United States, residing at Waterville, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Devices for Grinding Globe-Valve Seats and Globe-Valve Stems; and I do hereby declare the following to be a full, clear, and exact description of my invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in devices for grinding and smoothing globe valve seats and globe valve stems, which have become roughened, and thereby unfit for use, by wear, and it consists in a device which will enable this result to be accomplished without the necessity of removing the valve seat from its position, which will be herein-after fully described, and particularly pointed out in the claim.

The object of my invention is to produce a regrinding tool for valve seats and valve stems which can be applied and accomplish its purpose without removing the valve seat from the pipe in which it may be situated, whose construction shall be such that there shall be no danger of marring the threads of the valve throat, which can be very quickly and easily placed in position for operation, and which shall be inexpensive, simple, and portable. This object I accomplish by the use of a grinding tool consisting of a cylinder of emery or corundum, irremovably secured in a soft metal band, and provided at its center with a square mortise, or hole, extending through it, in which may be placed bits of suitable size and shape, by which the said grinder can be revolved. The grinding tool is held in position on the valve seat by means of the bit working through an upright extension on the top clamp, of two clamps between which the pipe fitting, in which the valve stem to be trued is situated, is held, the lower of said clamps being formed with a spherical depression adapted to receive the rounded lower surface of said pipe fitting, and being connected to the top clamp by means of screws.

My invention is fully represented in the drawings accompanying and forming a part

of this application, in which the same reference numerals refer to the same or corresponding parts, and in which—

Figure 1 is a front elevation of my improved valve grinding device applied to a valve. Fig. 2 is a cross section thereof. Figs. 3 and 4 are detail views of the grinders, showing different forms thereof. Fig. 5 is a fragmentary detail view of the valve stem, showing the application of grinder F.

Referring to the drawings, A represents the top clamp, and B the bottom clamp of the two clamps between which the pipe fitting, in which the valve to be trued is situated, is held.

C represents the bolts connecting the two clamps, which bolts are provided on their upper ends with screw threads, on which work the thumb screws D.

E represents the brace bit, the lower end of which is squared to enter into the mortise formed in the grinders F and G, which are composed of emery or corundum, and are encircled by soft metal bands H.

The top clamp A, the lower surface of which is designed to rest against the throat of the valve seat, is formed with the extension A', which is bored at a perfect angle with the said bearing face of the clamp A. The lower clamp B is formed with the globular depression B', adapted to receive the globular portion of the valve, and thereby furnish a bed with sufficient building surface to withstand the strain incident to screwing the clamps together when applied to the valve. As globe valves are always turned accurately true at the throat, and in line with the stem of the valve, it will be seen that by the simple arrangement of clamps thus described, the grinding tool is certain to operate on the valve seat at the proper position and angle, and to leave the seat true for the valve stem, when the same is replaced.

The grinding tool, which may be in either of the forms designated as F and G, is made of emery or corundum, and is irremovably cast into the encircling band H, which is made of some soft metal such as brass. The tool may either be made with a flat surface, as shown by G which form is used when grinding flat valve seats, or it may be formed, as



represented by F, with a convex end and a concave end, the concave end to be applied to the valve stem of valves which are formed with wedging surfaces, and the convex end to be applied to the corresponding valve seat, thus enabling both valve stem and valve seat to be properly smoothed by the same instrument. As both forms of valves are formed with a square mortise or hole extending through them, adapted to receive the squared end of the shank E, a simple inversion of the grinding tool is all that is necessary to enable the same to be used either on a valve stem or a valve seat. The grinders will in course of time be worn by use, but they can then be smoothed down to their proper condition again by the use of proper turning tools. The object of making the encircling band H of soft metal is to prevent the threads of the valve throat being injured by the rotation of the grinder, should it strike against the same. When valves are but slightly worn in their seat, the grinders can be used without the clamps, for the metal bands being smooth, and guided by the throat of the valves, they are held in position while the grinders do their work upon the stem of the valve. Since the grinders are rimmed with smooth metal, the thread inside of the throat of the valve will not be marred by the band flying against them while in operation. When, however, the valves are seriously cut by wear, and need to

be lined up or trued, the clamps A and B should be put in position, and the thumb screws D turned until the pipe fitting is securely held in position, the grinder having first been inserted through the throat of the valve, and placed on the valve seat. The projecting end of shank E is then turned by a bit as if boring.

It is evident that the grinding tools will have to be made of different sizes for different sizes of valves. The clamps will not need to be made in as many different sizes as the valves, as one clamp can be used with several different sizes of valves.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination with the bottom clamp B, provided with the globular depression B', the top clamp A, having its lower surface accurately faced, and provided on its top surface, and at perfect angle with said faced surface, with the hollow extension A', and means for holding said clamp pieces in position on a pipe fitting, of a grinder provided with a stem working through said extension A', substantially as described.

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Witnesses:

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ED. L. HANLON.