J. H. PHELAN.
Valve-Grinder.

No. 210,433. Patented Dec. 3, 1878.

Fig. 1

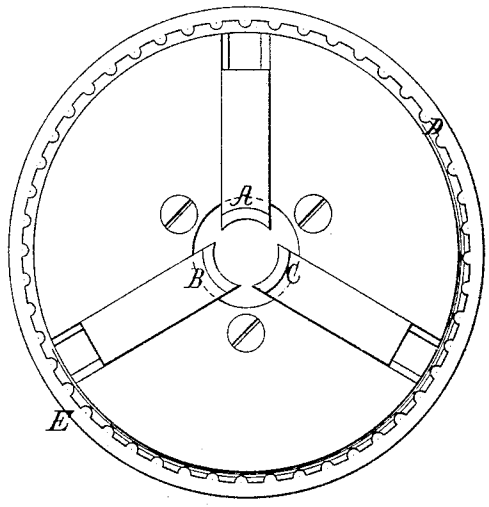
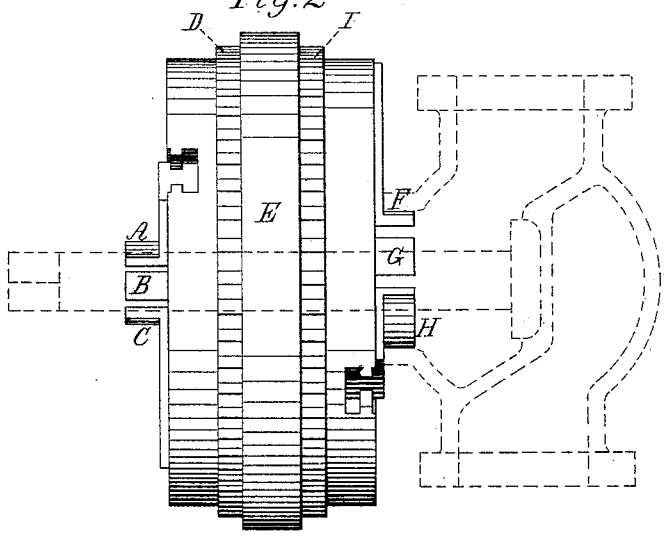


Fig. 2



Witnesses:
Ernst Bilhuber.
H. W. Fuller.

Inventor:
John H. Phelan
by Earle H. Smith
Atty.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN H. PHELAN, OF NEW YORK, N. Y.

IMPROVEMENT IN VALVE-GRINDERS.

Specification forming part of Letters Patent No. **210,433**, dated December 3, 1878; application filed September 19, 1878.

To all whom it may concern:

Be it known that I, JOHN H. PHELAN, of the city, county, and State of New York, have invented a new and useful Device for Refitting Valves, whereof the following is a specification:

My invention relates to valves which have a central stem and a circular valve-seat; and consists of a tool or fixture carrying several bearing-points capable of motion toward and from a common axis, to serve as an artificial bearing for the valve-stem in the process of refitting the valve, with which is combined means for centering said axis within the bonnet-way and over the valve-seat.

In the annexed drawing, which shows an apparatus embodying my invention, Figure 1 is a face view, and Fig. 2 is a side view, also illustrating the mode of using the device.

The method of refitting in which the present invention is employed is that of grinding the valve to its own seat.

A B C represent a series of posts or studs constructed and arranged for moving and being moved toward and away from a common center or axis—after the manner and by any of the usual means of operating the jaws of a lathe-chuck, for example—being suitably connected for this purpose with a plate, D, that is capable of rotating freely upon the main body E of the fixture. The object of A, B, and C is to form a temporary or artificial bearing for the valve-stem in which to turn the valve by its stem in the grinding and refitting process, for which purpose the said posts are preferably grooved or hollowed out, as shown, to conform approximately to the contour of the valve-stem.

In the refitting process it is necessary to bring the axis or axial line before mentioned, to which the posts A B C converge, directly in line with the center of the valve-seat. To this end I combine with the artificial bearing for the valve-stem, which I have described, a competent means of readily and quickly centering the said axis with the center of the valve-seat and of securing the fixture to a valve-bonnet. As such means I have shown in the drawing another set of posts, F G H, similarly moved and operated, but which, in application of the tool to use, are caused to diverge from a common axis, which latter is precisely in line with the axis of A, B, and C. The posts or studs F G H are operated by a revolvable plate, I, corresponding to plate D.

For refitting a valve, I take off the "bonnet," and having removed the valve I insert its stem between the posts A B C, and place the fixture or tool in front of and with its rear side against that of the valve-bonnet, and so that the studs or posts F G H or centering means are within the bonnet-way. Then, upon rotating the plate I and moving the posts last named outward, their outer surfaces are caused to impinge against and hug the inner periphery of the bonnet-way, holding the fixture securely thereto and stationary therewith. At the same time the center of the valve is brought directly over the center of its seat, whereupon the operator proceeds to grind the valve to its seat by rotating it upon its seat in the usual way—that is, by affixing a lever or crank to the valve-stem whereby to turn it—removing the valve for examination from time to time as the work progresses, which is easily done by relaxing the hold of the fastening posts or jaws in the bonnet-way and taking away the fixture or tool.

In the above invention I do not confine myself to any special way of moving the parts that form the temporary bearing for the valve-stem while grinding or refitting the valve to cause such parts to converge upon said valve-stem, as there are many such ways known to those skilled in machinery; nor do I confine myself to the precise means I have specified for centering the fixture as to the valve-seat.

I claim as my invention—

In a tool or fixture to aid in grinding valves to their seats, the combination of a series of studs capable of radial motion to and from a common axis, to form an artificial bearing for the valve-stem, with like means for securely attaching and centering the fixture to the bonnet or bonnet-way, and valve-seat therein.

J. H. PHELAN.

Witnesses:
EARLE H. SMITH,
A. H. KELLOGG.