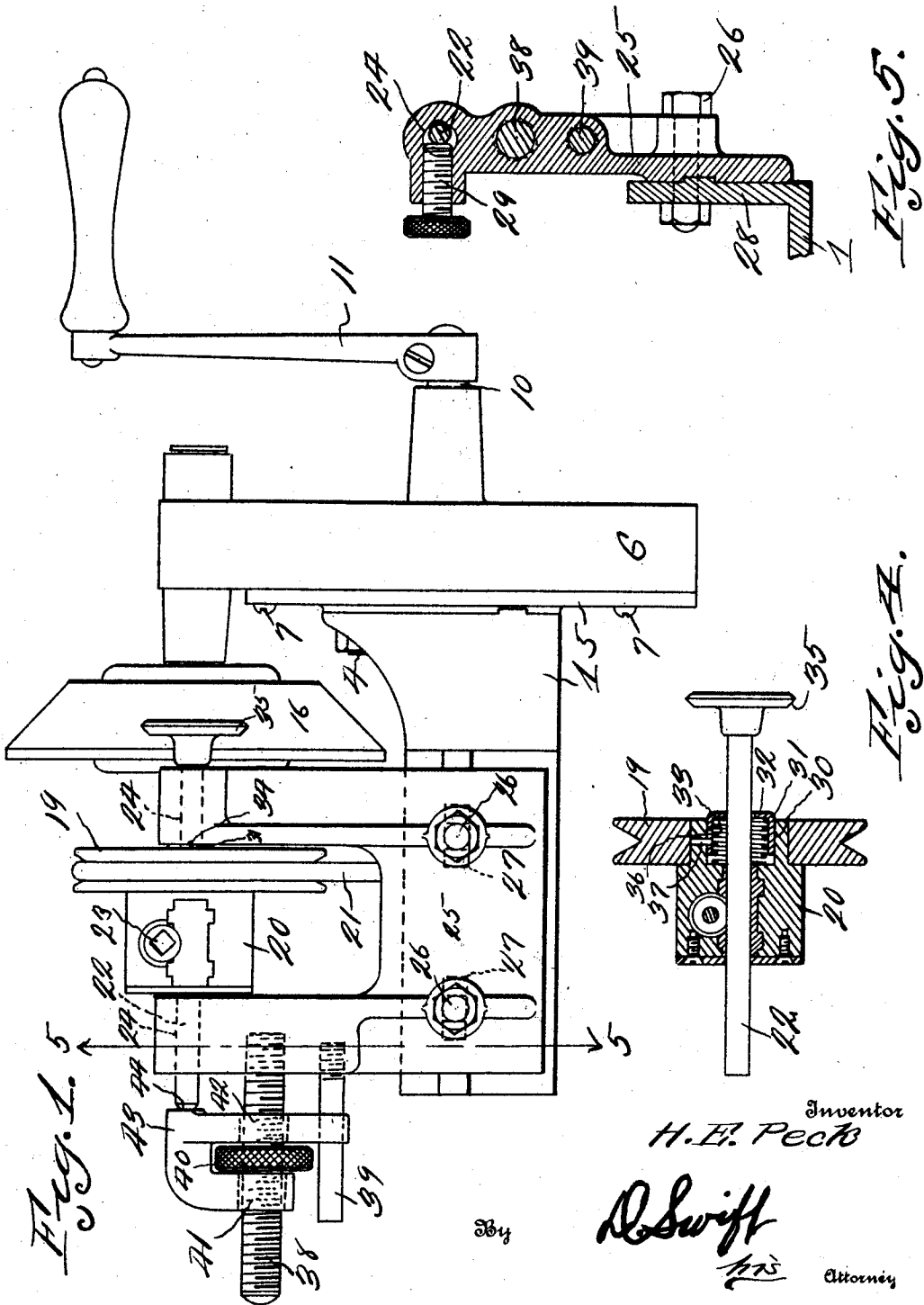


1,388,884.

Patented Aug. 30, 1921.
2 SHEETS—SHEET 1.



Inventor
H. E. Peck

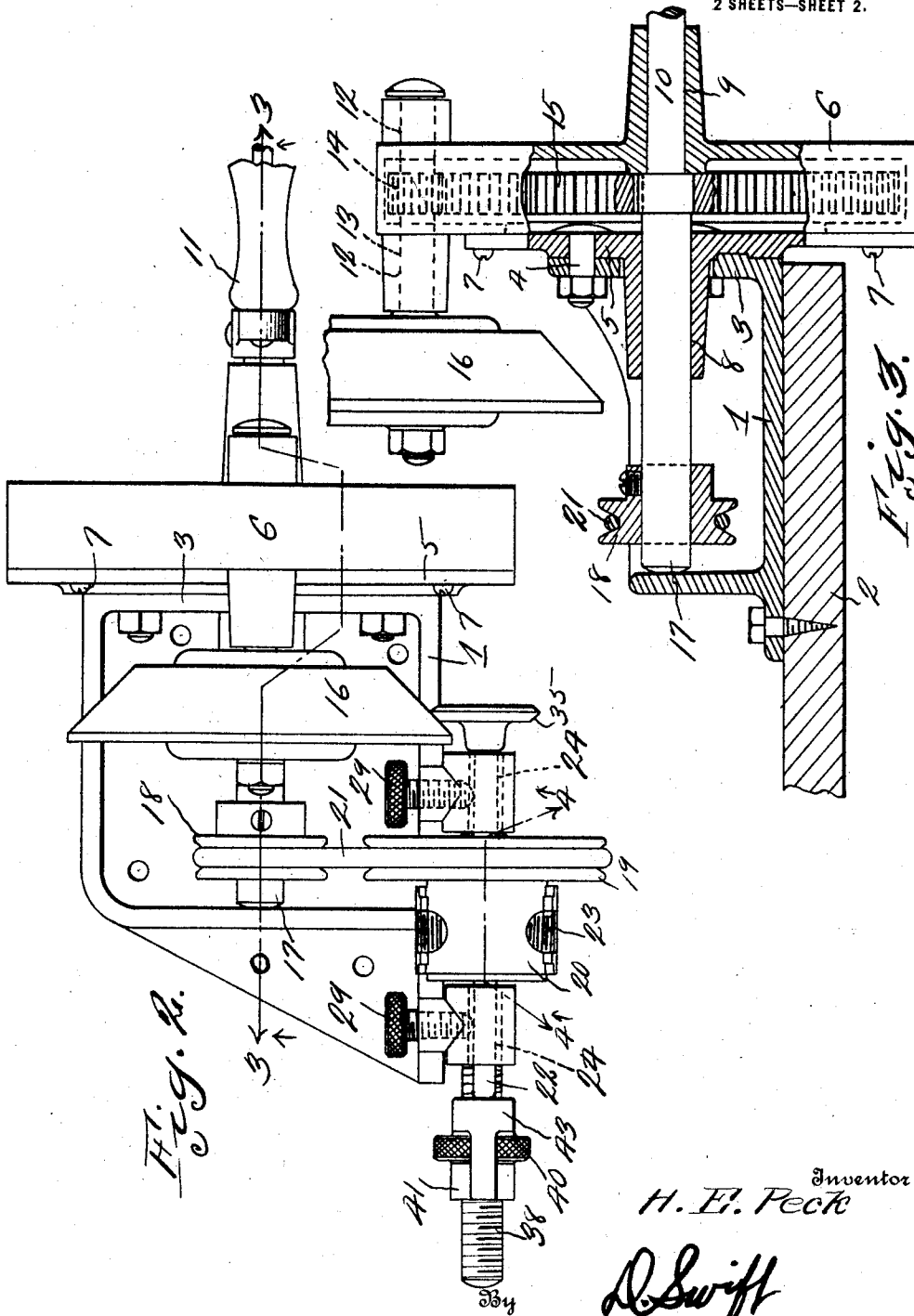
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H. E. PECK.
VALVE GRINDING MACHINE.
APPLICATION FILED SEPT. 30, 1920.

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UNITED STATES PATENT OFFICE.

HARRY E. PECK, OF WAVERLY, NEW YORK.

VALVE-GRINDING MACHINE.

1,388,884.

Specification of Letters Patent.

Patented Aug. 30, 1921.

Application filed September 30, 1920. Serial No. 413,813.

To all whom it may concern:

Be it known that I, HARRY E. PECK, a citizen of the United States, residing at Waverly, in the county of Tioga, State of New York, have invented a new and useful Valve-Grinding Machine; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to valve grinders and has for its object to provide a device of this character, particularly adapted for grinding puppet valves. Also to provide valve grinders comprising a rotatably mounted beveled grinding element and supporting means for the valve and its stem so that the valve will be supported in position for engagement with the grinding element and to provide means whereby as the grinding element is rotated the valve and its stem will also be rotated.

A further object is to provide supporting members for the valve and its stem, said members having transversely elongated bearings for the reception of various sizes of valve stem. Also to provide a drive wheel having a chuck through which chuck and drive wheel a valve stem extends and is held so that it will be rotated when the main drive shaft of the grinder rotates.

A further object is to provide spring means for exerting a longitudinal pressure on the valve stem for maintaining the valve in engagement with the grinding element as said valve and grinding element rotates.

A further object is to provide an adjustable member actuated by the adjusting screw and so positioned as to engage the end of the valve stem whereby the pressure of the valve on the grinding element may be regulated.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawings, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings:—

Figure 1 is a front elevation of the grinder.

Fig. 2 is a top plan view of the grinder.

Fig. 3 is a longitudinal sectional view taken on line 3—3 of Fig. 2.

Fig. 4 is a sectional view through the

chuck and its pulley taken on line 4—4 of Fig. 2.

Fig. 5 is a vertical sectional view through one of the valve stem supporting brackets taken on line 5—5 of Fig. 1.

Referring to the drawings, the numeral 1 designates a casting adapted to be secured to a support 2, such for instance as a bench. The casting 1 is provided with an upstanding flange 3 at its forward end to which upstanding flange is secured by means of bolts 4, a disk 5. The disk 5 is in turn secured to a gear casing 6 by means of screws 7. The disk 5 is provided with a bearing 8 which extends inwardly through an aperture in the flange 3 and is in alignment with the bearing 9 of the casing 6. Rotatably mounted in the bearings 8 and 9 the main drive shaft 10 of the machine and to the outer end of the shaft 10 the crank handle 11 is secured so that the shaft 10 may be rotated by the operator to operate mechanism hereinafter described. Rotatably mounted in bearings 12 of the upper end of the casing 6 is a grinder shaft 13 said grinder shaft having secured thereto a gear 14 which meshes with gear 15 which is keyed to the main drive shaft 10. As the main drive shaft 10 is rotated it will be seen that the large gear 15 which meshes with the small gear 14 of the grinder shaft 13 will cause said grinder shaft 13 to rotate at a considerably greater speed than the main drive shaft 10 thereby causing the bevel grinding element 16 to rotate rapidly for grinding purposes. Shafts 12 and 10 are in vertical registration and in parallel relation to each other, thereby allowing common gearing to be used and avoiding the use of bevel gearing.

Secured to the ends 17 of the main drive shaft 10 is a pulley 18, and around said pulley 18 and a larger pulley 19 which is carried by chuck 20, belt 21 extends. It will be seen that as the pulley 18 is rotated, that the pulley 19 will also be rotated, thereby causing the chuck 20 which is mounted on the valve stem 22 to also rotate. The chuck 20 is provided with a transversely disposed screw 23, which when moved transversely either holds the valve stem 22 or releases the same, however during valve grinding operation, the screw is moved so as to hold the valve stem 22 so that it will revolve with the chuck. The valve stem passes through enlarged apertures 24 in the adjustable bracket 25, said bracket being adjustable at right an-

gles to the grinding wheel 16 by means of the bolts 26 and elongated slots 27 in the front flange 28 and casting 1. By providing enlarged apertures 24, it will be seen that the valve stem 22 may be disposed in the apertures and the adjusting screws 29 so tensioned that they will form a bearing in cooperation with the opposite sides of the apertures 24 so that the valve stem 22 will revolve but be free from side movement. By providing this particular construction it will also be seen that valve stems of various diameters will be received and held in the bearing apertures 24. One end of the chuck 20 is provided with an annular recess 30, in which recess a slidable sleeve 31 is disposed, said sleeve being provided with a flange 32, against which flange and against the bottom of the annular recess 30 the ends of a spiral spring 33 engage. The spiral spring 33 forces the slidable sleeve 31 outwardly and maintains the same in engagement with the surface 34 of the bracket 25 adjacent one of the bearings 24 thereby causing the beveled edge 35 to be maintained in grinding engagement with the grinding wheel 16 at all times as the valve and its stem is rotated and as the grinding wheel is rotated. The sleeve 31 is provided with an elongated aperture 36 for the reception of a pin 37 carried by the chuck block. Said pin and elongated aperture form means for limiting the outward movement of the annular sleeve 31 and also forming means for causing the annular sleeve 31 to rotate with the chuck. Extending rearwardly from the bracket 25 are spaced shafts 38 and 39, said shafts being in spaced relation to each other, the shaft 38 being threaded and has threaded thereon an adjusting screw 40, which screw is disposed between the arms 41 and 42 of an adjusting member 43. Said adjusting member is adapted to be moved into engagement with the end 44 of the valve stem 22 for controlling the grinding of the valve and also for limiting the amount of cut taken from the valve. By providing this adjusting member the grinding operation may be a rapid or a slow one and the grinding would be under the control of the operator at all times.

From the above it will be seen that a valve grinding device is provided which is positive in its operation and one wherein the grinding operation may be controlled as to rapidity and amount of cut by the operator.

When it is desired to place the valve stem in the bearings 24 and chuck 20 the chuck is placed between the bearings 24, then the valve stem 22 is passed through the bearings 24 and through the chuck 20, after which the screws 29 are adjusted so that side play is eliminated as the valve stem revolves. Then

the chuck 20 is moved so that the spiral spring 33 is compressed, after which the chuck screw 23 is set upon thereby holding the chuck on the valve stem and against longitudinal movement. The belt 21 is then placed on the pulleys 18 and 19, after which the adjusting member 43 is properly positioned in relation to the end 44 of the valve stem 22. To remove the valve and its stem from the grinder the operation is reversed.

The invention having been set forth what is claimed as new and useful is:—

1. A valve grinder comprising a main drive shaft having an operating handle and an auxiliary drive shaft, a beveled grinding element carried by the auxiliary shaft, gear connections between the main shaft and the auxiliary shaft, adjustable bearings for receiving and supporting rotatably a valve and its stem, a chuck adapted to be received by the valve shaft and rotate with said valve shaft, a pulley carried by the chuck, said pulley being belted to a pulley carried by the main shaft and spring means for imparting a longitudinal movement on the valve and its valve stem during a grinding operation for maintaining the valve in grinding engagement with the grinding element.

2. A valve grinder comprising a main drive shaft having an operating handle and an auxiliary drive shaft, gear connections between said shafts, a beveled grinding element carried by the auxiliary shaft, brackets disposed adjacent the main and auxiliary shafts and to one side thereof and provided with enlarged bearings of greater cross sectional area than the valve stem when placed therein, adjusting screws extending into the enlarged bearings for forming bearings for different sizes of valve stems, a chuck interposed between the bearings for receiving, holding and rotating with the valve stem, a spring actuated member carried by said chuck for engaging the bracket and causing the valve and its stem to move longitudinally during a grinding operation, a pulley carried by the chuck, a pulley carried by the main shaft, a belt extending around said pulleys, shafts disposed to the rear of the valve stem, an adjustable member slidably mounted on said shaft and screw means for moving said adjustable member inwardly and outwardly for varying and controlling the grinding action on the valve.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY E. PECK.

Witnesses:

JULIUS I. LANGE LAND,
FRANCIS A. JINKERSON.