

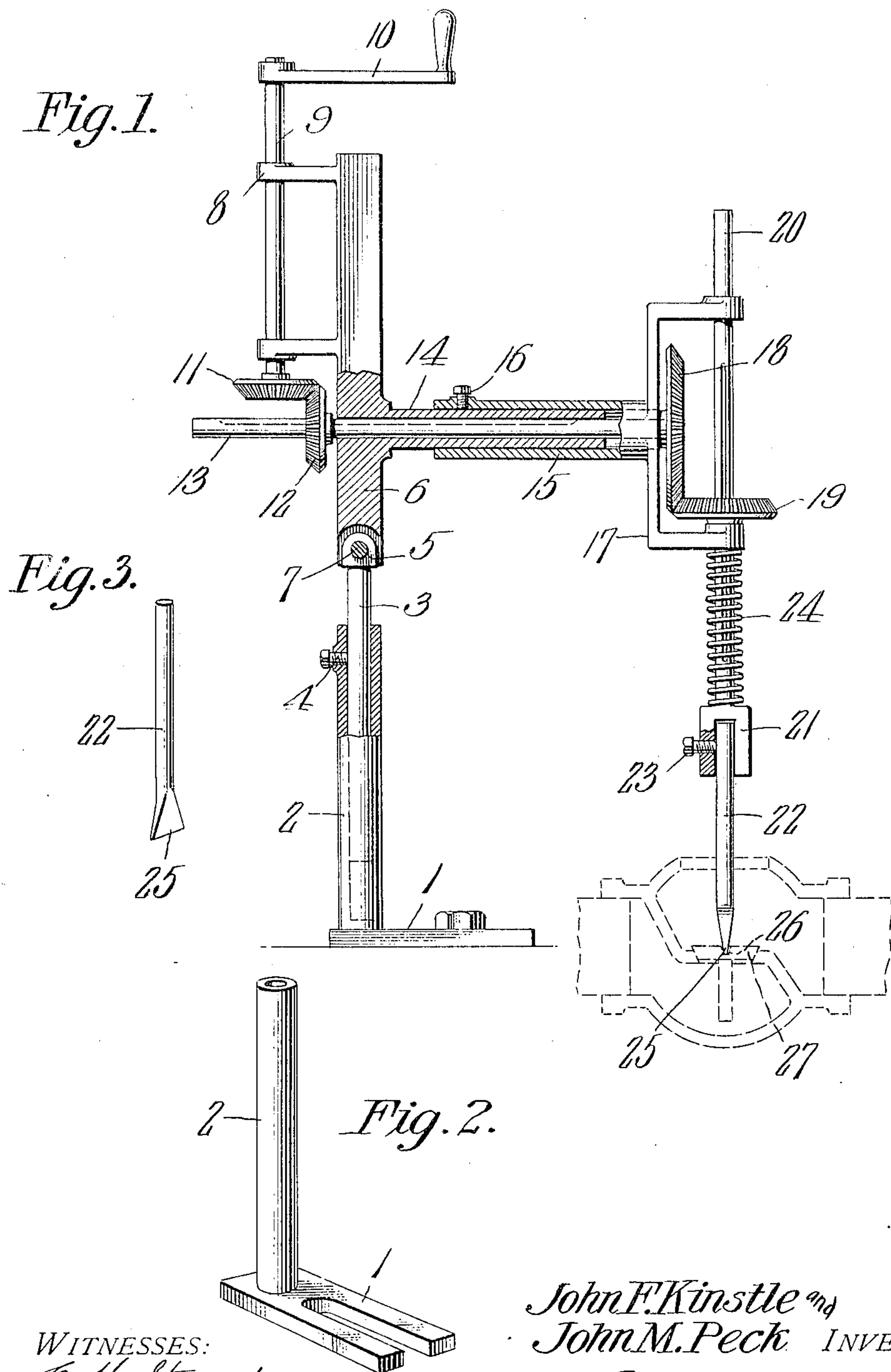
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PATENTED APR. 9, 1907.

J. F. KINSTLE & J. M. PECK.

GRINDING MACHINE.

APPLICATION FILED SEPT. 19, 1906.



WITNESSES:
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UNITED STATES PATENT OFFICE.

JOHN F. KINSTLE AND JOHN M. PECK, OF WARREN, INDIANA.

GRINDING-MACHINE.

No. 849,626.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed September 19, 1906. Serial No. 335,256.

To all whom it may concern:

Be it known that we, JOHN F. KINSTLE and JOHN M. PECK, citizens of the United States, residing at Warren, in the county of Huntington and State of Indiana, have invented a new and useful Grinding-Machine, of which the following is a specification.

This invention relates to machines for grinding valves; and its object is to provide a simple and inexpensive machine of this character which can be readily placed in engagement with a valve for the purpose of rotating the same to grind it.

Another object is to provide a machine which is easily adjustable to meet various conditions.

With the above and other objects in view the invention consists of a longitudinally-adjustable standard to which a bar is pivotally connected, said bar carrying a rotatable shaft and means for operating it. The yoke is adjustably connected to the bar, and the shaft is movable therewith and provided with means for transmitting rotary motion to a chuck in which a valve-engaging tool is adapted to be fastened.

The invention also consists of certain other novel features of construction and combinations of parts, which will be hereinafter more fully described, and pointed out in the claims.

In the accompanying drawings is shown the preferred form of the invention.

In said drawings, Figure 1 is a view, partly in elevation and partly in section, showing the apparatus in position for grinding a valve. Fig. 2 is a detail view of the base and standard, and Fig. 3 is a similar view of the valve-engaging tool.

Referring to the figures by characters of reference, 1 is a longitudinally-slotted base having a tubular standard 2 integral therewith. A rod 3 is slidably mounted within this standard and is adapted to be held in adjusted position by means of a set-screw 4 or in any other suitable manner. A head 5 is formed at the outer end of the rod 3 and is pivoted within one end of a bar 6 and upon a set-screw 7, by means of which the bar may be held at any desired angle to the rod 3. Arms 8 extend laterally from the bar and constitute bearings for a guide-shaft 9, having a crank-arm 10 at one end and a gear 11 at its other end. This gear meshes with a gear 12, which is feathered upon a shaft 13. This shaft is slidably mounted within the bar 6 and extends through a tubular arm 14, pro-

jecting laterally from the bar. A sleeve 15 is slidably mounted on the arm 14 and is adapted to be locked in adjusted position by means of a set-screw 16 or other suitable device. This sleeve extends laterally from a yoke 17, in which the shaft 13 is journaled, and a gear 18 is secured upon the end of the shaft 13 and meshes with another gear 19, feathered upon shaft 20, which is rotatably and slidably mounted within the end portions of the yoke 17. A chuck 21 is disposed at one end of shaft 20 and is adapted to receive a tool 22, which may be fastened therein by means of a set-screw 23 or in any other preferred manner. A spring 24 is disposed upon the shaft 20 and bears at opposite ends against the yoke and the chuck, respectively, so that a longitudinal pressure may be exerted thereby upon the chuck during the operation of the machine. The free end of the tool 22 is flattened to produce an edge 25, adapted to be inserted into a slot 26, formed in the valve 27 to be ground.

In using the machine herein described base 1 is clamped in position in any preferred manner, as by placing a bolt within the slot of said base. The valve 27 is placed within the valve-seat and the machine is adjusted so as to permit the insertion of the tool 22 into the valve-casing with its edge 25 seated in the groove 26. In adjusting the machine to this position the spring 24 is partly compressed, so as to exert a constant longitudinal pressure upon the chuck. A vertical adjustment of the machine is permitted by the manner of assembling the rod 3 of the standard 2, an angular adjustment is permitted by reason of the pivotal connection between the rod 3 and bar 6, and a lateral adjustment is permitted by the arm 14 and sleeve 15. In view of these adjustments the tool 22 can be easily moved in various directions from the base 1 in order that it may be brought into proper position upon a valve. After the parts have been placed in the manner described the crank-arm 10 is rotated and motion is transmitted through the various gears, shaft 20, and chuck 21, and the valve is therefore caused to rotate upon its seat, and a smooth fit will therefore be produced. As the shaft 20 is movable longitudinally through the gear 19, the spring 24 will exert a constant pressure against the valve, so as to automatically take up the wear produced upon the valve and valve-seat by the grinding operation.

The machine is very simple and inexpensive in construction, and by disconnecting the adjustable portions thereof it can be placed in a compact bundle convenient for storage or transportation.

It will of course be understood that when desirable the crank 10 may be attached directly to the shaft 13 instead of to the shaft 9.

The preferred form of the invention has been set forth in the foregoing description; but we do not limit ourselves thereto, as we are aware that certain modifications may be made therein without departing from the spirit or sacrificing the advantages thereof, and we therefore reserve the right to make such changes as fairly fall within the scope of the claims.

What is claimed is—

1. In a machine of the character described the combination with a bar and supporting means therefor, said bar being pivotally mounted and adjustable longitudinally; of a yoke adjustably connected to the bar, a rotatable tool-engaging device carried by the

yoke, actuating mechanism upon the bar, and means for transmitting motion from said mechanism to the tool-engaging device.

2. In a machine of the character described the combination with a base having a tubular standard; of a rod adjustably mounted within the standard, a bar pivotally connected thereto, a shaft slidably and rotatably mounted within the bar, means upon the bar for rotating the shaft, a yoke adjustably connected to the bar and constituting a bearing for the shaft, a shaft rotatably and slidably mounted within the yoke, means for transmitting rotary motion from one shaft to the other, and a spring-pressed tool-engaging device upon the last-mentioned shaft.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

JOHN F. KINSTLE.

JOHN M. PECK.

Witnesses:

JOHN F. HUSTON,

JOHN I. WILLIAMS.