No. 698,315. Patented Apr. 22, 1902.

E. S. SHIMER & H. A. PARDOE.

GRINDING MACHINE.

(Application filed Feb. 21, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

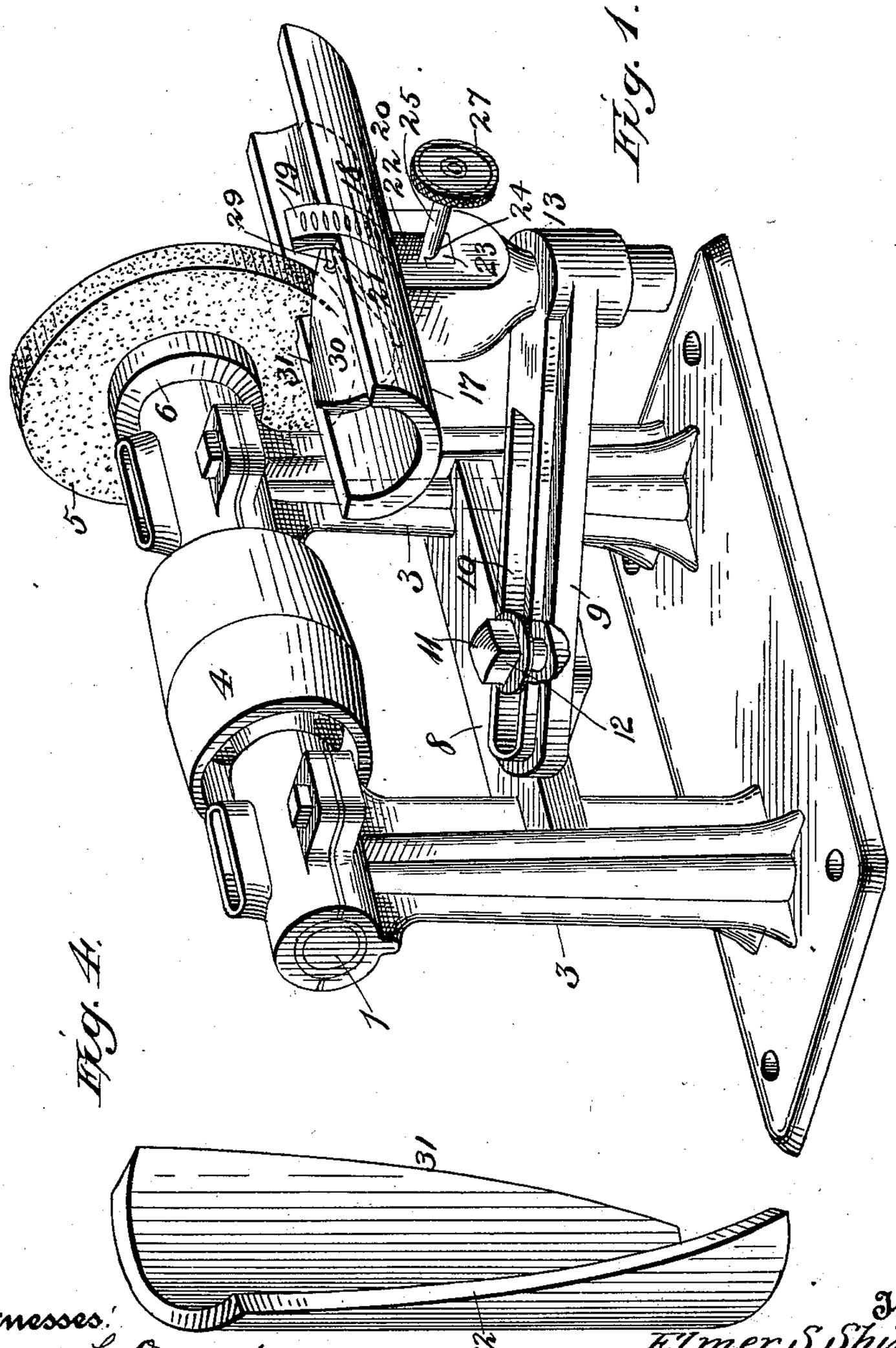

Fig. 4.

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Frank G. Radelfinger.

Inventors:
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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Fig. 5.

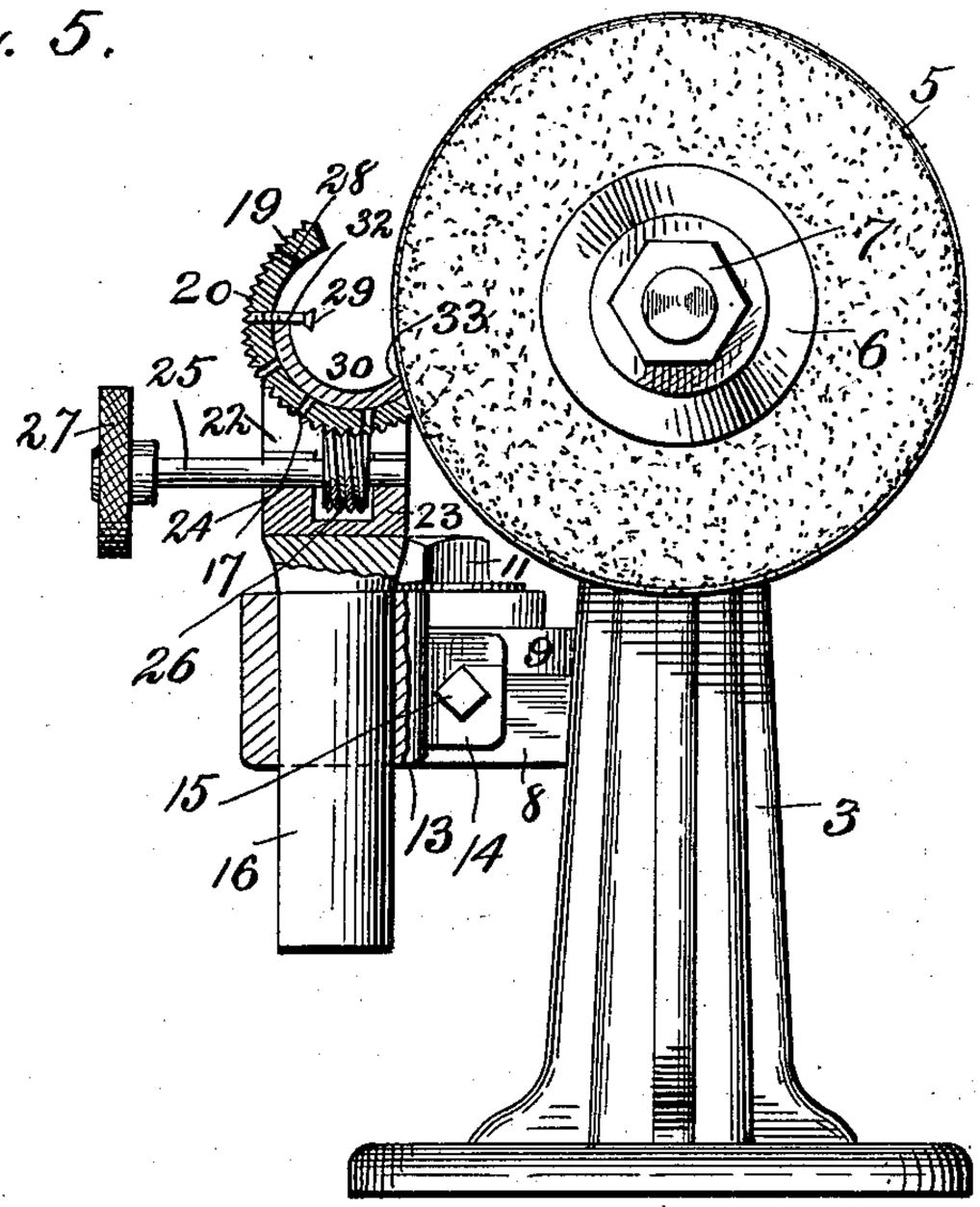
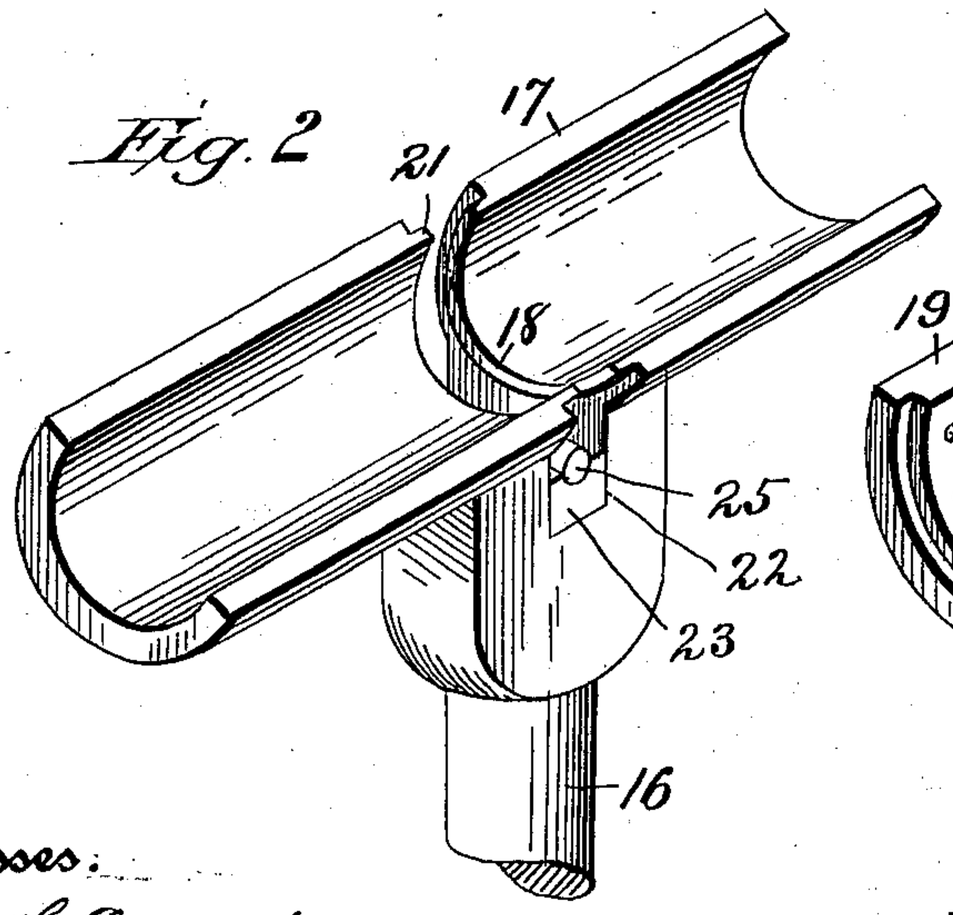


Fig. 2



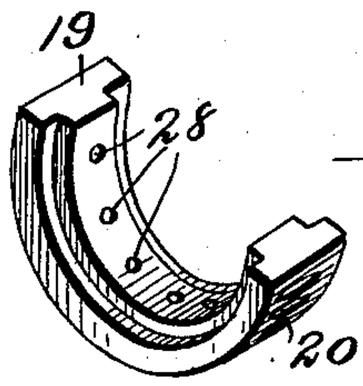


Fig. 3.

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UNITED STATES PATENT OFFICE.

ELMER S. SHIMER AND HENRY A. PARDOE, OF MILTON, PENNSYLVANIA, ASSIGNORS TO SAMUEL J. SHIMER AND SONS, OF MILTON, PENNSYLVANIA.

GRINDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 698,315, dated April 22, 1902.

Application filed February 21, 1902. Serial No. 95,109. (No model.)

To all whom it may concern:

Be it known that we, ELMER S. SHIMER and HENRY A. PARDOE, citizens of the United States, residing at Milton, in the county of Northumberland and State of Pennsylvania, have invented new and useful Improvements in Grinding-Machines, of which the following is a specification.

Our invention relates to grinding-machines; and the object of the same is to construct a device for holding and guiding cylindrical bits for cutter-heads to grind them to the proper curvature.

The novel construction employed by us in carrying out our invention is fully described in this specification and claimed, and illustrated in the accompanying drawings, forming a part thereof, in which—

Figure 1 is a perspective of our complete device. Fig. 2 is a perspective of the bit-holder. Fig. 3 is a detail of the guide-bearing rack. Fig. 4 is a perspective of one of the bits. Fig. 5 is an end elevation, partly in section, of the complete device.

Like numerals of reference designate like parts in the different views of the drawings.

The numeral 1 designates a shaft journaled in boxes mounted on standards 3. The shaft 1 bears a pulley 4, keyed thereon, and an emery-wheel 5, held by plates 6, clamped by means of a nut 7, fitted on the threaded end of the shaft 1. A cross-bar 8 connects the two standards 3 and supports an arm 9, having a slot 10 therein which is engaged by a bolt 11, seated in the bar 8 and having a threaded body bearing a head 12. The outer end of the arm 9 has a split clamping-ring 13, formed integral therewith and having perforated ears 14 thereon, through which a bolt 15 passes. The clamping-ring 13 embraces a spindle 16, formed integral with a semicylindrical bit-holder 17, extending at right angles to the spindle 16.

A slot 18 cuts the holder 17 transversely, and slidingly mounted in the slot 18 is a semicircular rack-bar 19, which has teeth 20 on its outer surface. Ribs 21 on the sides of the slot 18 form guides for the rack 19. The head of the spindle 16 is traversed by a groove 22, which extends parallel to the slot 18, and seated in the bottom of the grooves 22 is a block 23, hollowed out to form bearings 24 for a shaft 25, provided with a worm 26, which meshes with the rack 19. A milled head 27 serves as means for operating the shaft.

There is a series of apertures 28 in the rack 18, in one of which is mounted a guide-pin 29, which serves as a guide for the heel of a bit in the operation of sharpening it.

Our device is particularly useful for sharpening bits of the form shown in Fig. 4, which has a cylindrical body 30, having a curved cutting edge 31 and a curved heel 32, which is ground on a curve parallel to the curve of the edge 31 when said edge is in proper shape. To grind this form of bit in our machine, it is only necessary to place it in the holder 17, with the heel 32 in contact with the guide-pin 29 and the edge 31 projecting beyond the inner end of the rack 19. In case the bit is too narrow to make this possible the guide-pin 29 is inserted in another one of the apertures 28 nearer the end. The arm 9 is then adjusted until the edge of the bit is brought in contact with the emery-wheel 5, when it is clamped and the bit reciprocated back and forth and the edge ground to the desired form, which is a counterpart of the heel.

We do not wish to be limited as to details of construction, as these may be modified in many particulars without departing from the spirit of our invention.

Having thus described our invention, what we claim as new, and wish to secure by Letters Patent, is—

1. In a grinding device, a cylindrical holder adapted to hold a cylindrical bit during the process of grinding, and a guide for the heel of said bit, substantially as described.

2. In a grinding device, a cylindrical holder adapted to support a cylindrical bit having a curved heel, during the process of grinding and an adjustable guide for the heel of said bit, substantially as described.

3. In a grinding device, a semicylindrical bit-holder, a semicircular rack-bar slidingly mounted in a transverse slot in said holder,

a guide-pin mounted in said rack, and means for operating said rack, substantially as described.

4. In a grinding device, the combination with an emery-wheel, of an adjustable arm bearing a clamp, a cylindrical holder provided with a spindle embraced by said clamp, and an adjustable guide mounted on said holder, substantially as described.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

ELMER S. SHIMER,
HENRY A. PARDOE.

Witnesses:
W. H. BECK,
JOHN A. KURTZ.