(No Model.)

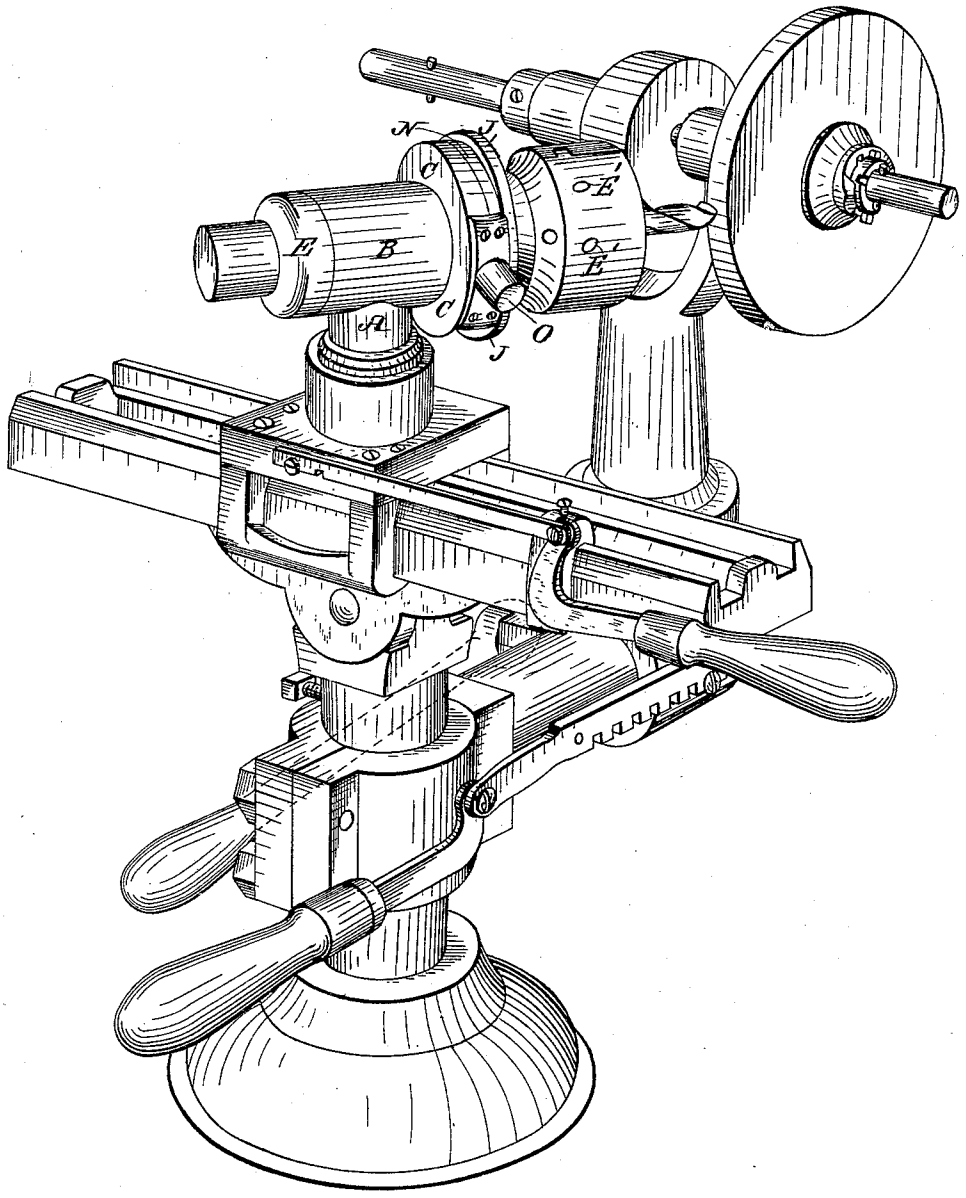
3 Sheets—Sheet 1.

P. MALTBY.

TOOL HOLDING DEVICE.

No. 264,726. Patented Sept. 19, 1882.

Fig. 1.



Witnesses:

W. B. Masson

L. A. Marceron

Inventor:

Philo Maltby

by his Atty J. R. Nottingham

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 3 Sheets—Sheet 2.

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Fig. 2.

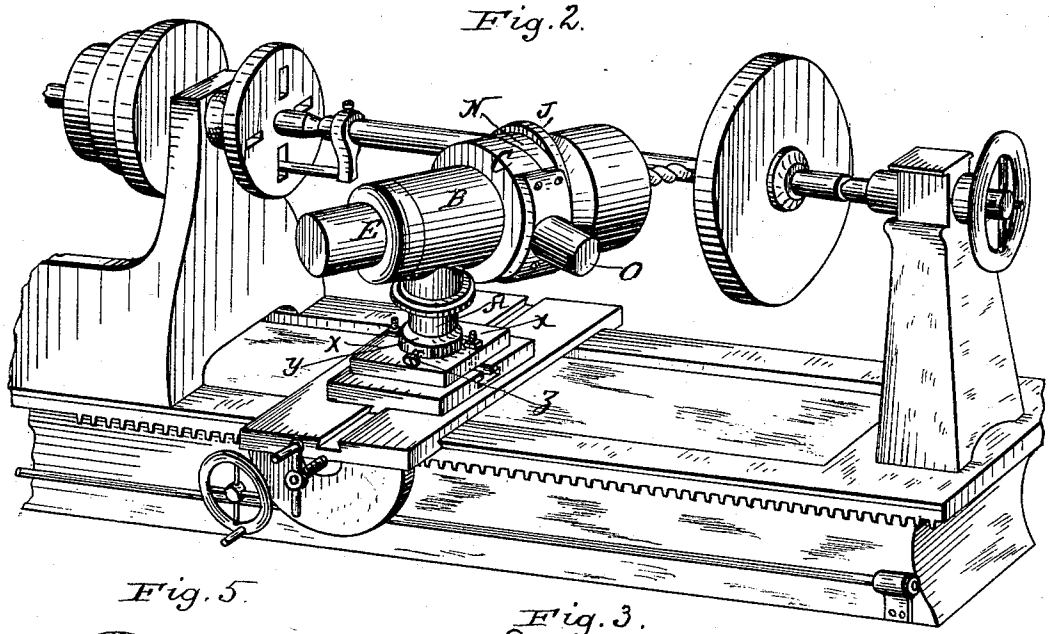


Fig. 5.

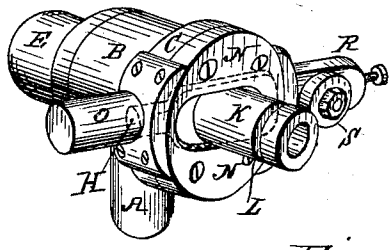


Fig. 3.

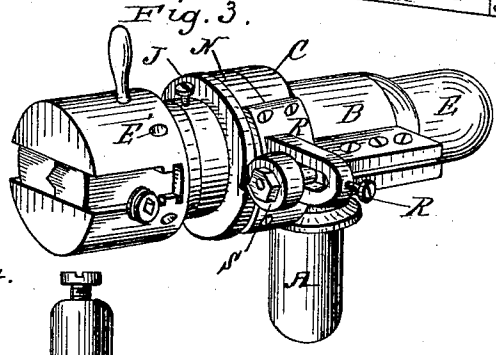
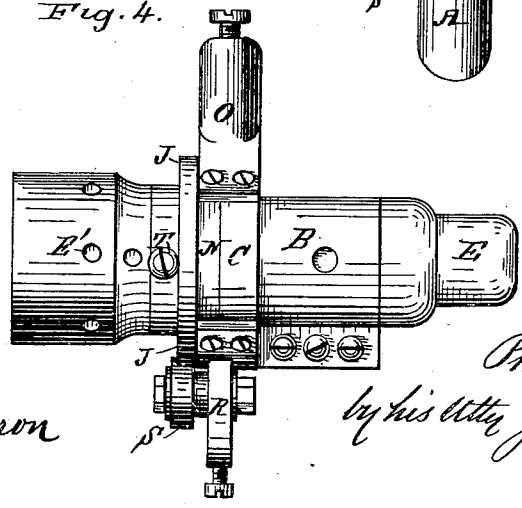


Fig. 4.



Witnesses:

W. B. Masson

L. A. Marceron

Inventor

Philo Maltby

by his Atty J. R. Nottingham

N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.) 3 Sheets—Sheet 3.

P. MALTBY.

TOOL HOLDING DEVICE.

No. 264,726. Patented Sept. 19, 1882.

Fig. 6.

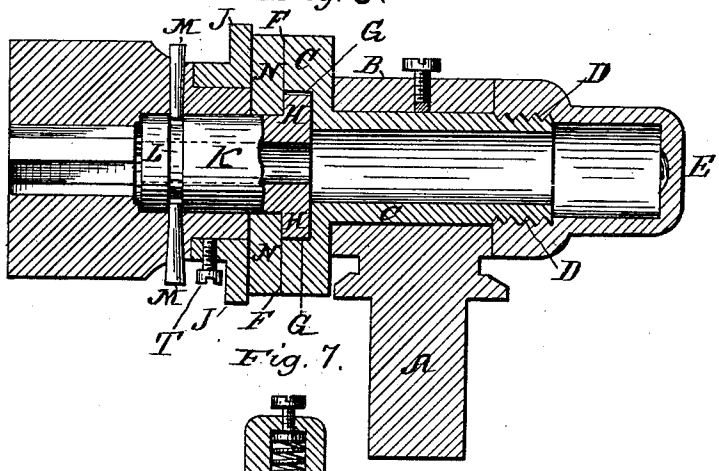


Fig. 7.

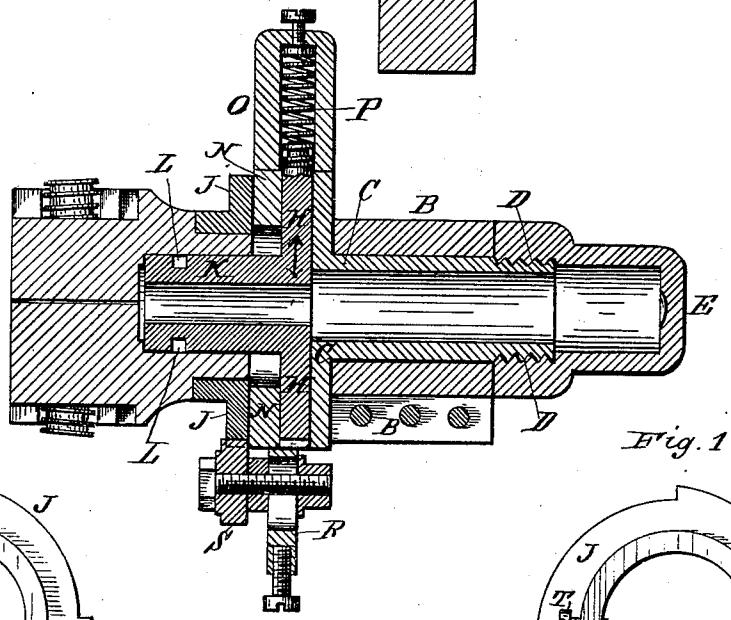


Fig. 9.

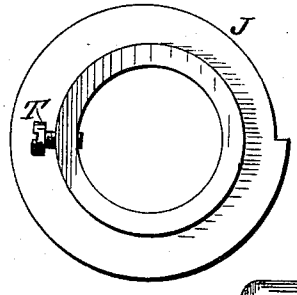


Fig. 10.

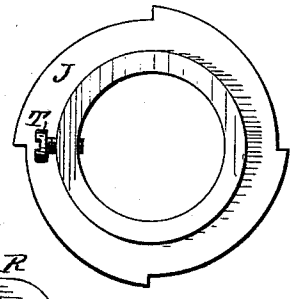
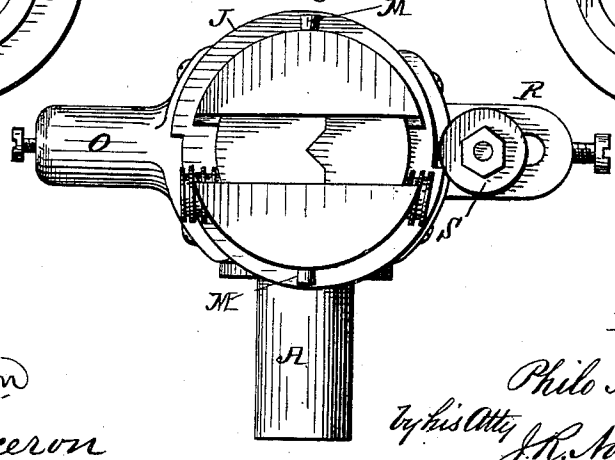


Fig. 8.



Witnesses:

W. B. Masson

L. A. Marceron

Inventor:

Philo Maltby

by his Atty J. R. Nottingham

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

PHILO MALTBY, OF CLEVELAND, OHIO.

TOOL-HOLDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 264,726, dated September 19, 1882.

Application filed June 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, PHILO MALTBY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Tool-Holding Devices; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in tool-holding devices for grinding, polishing, and burnishing machines, and is designed as an improvement on the invention for which I applied for Letters Patent April 21, 1882, and in which application is described a grinding-machine having a grinding-wheel mounted on a shaft journaled in an upright frame, said frame being adjustably mounted in a carriage adapted to move on a horizontal arm secured to an adjustable sleeve upon an upright support, the upright support being provided with a suitable base. Hinged to a post socketed in said support is a frame which provides guideways for a sliding carriage, in the standard of which is adjustably mounted a tool-holding device. The grinding-wheel frame is provided with means for adjusting the wheel vertically, rotarily, and toward and from the tool-holder. The guideways being hinged to the post and the post socketed in the standard allows the tool-holder to be tilted at any angle and rotated in any direction at the will of the operator in order that the tool may be brought at the best position adapted for the ready grinding of the same. Suitable means are also provided for longitudinal adjustment of the tool across the periphery of the wheel. Set-screws are used for holding both the grinding-wheel and guideway supports at any desired position.

The objects of this invention are to provide a tool-holder which will grind a drill or other tool at a sharper angle than has heretofore been accomplished or is shown in my previous application, which is simpler and cheaper in construction, the parts more compact and less liable to get out of order and injured by the flying dust during the grinding operation; and with these objects in view my invention consists of a post provided with a cylinder in which rotates a flanged cylinder screw-threaded at one end to receive the usual nut. The face of this flange is recessed to receive the head of a T-shaped slide, the stem of which is provided with a groove to receive one end of a pin or pins passing through the chuck carrying the cam, and secures said chuck to the stem of the T-shaped slide, as will be more fully hereinafter described. A slotted disk fitting over the stem of the T-slide is secured to the face of the flanged cylinder. Secured to the peripheries of the slotted disk and flanged cylinder at opposite sides is a boss carrying a spring and a slotted arm, in which is fastened a shaft carrying a friction-roller. The constant force of the spring acting against the T-shaped slide serves to keep the cam in constant contact with the friction-roller.

The invention further consists in the combination, with the grooved T-slide and the cam to which the chuck is attached, of a set-screw which may be loosened so as to permit the cam and chuck to turn continuously to permit of the grinding of center-punches and other articles having conical points.

In the drawings, Figure 1 represents a perspective view showing a grinding-machine with my improvement applied thereto. Fig. 2 represents a perspective view of a lathe, showing my tool-holder applied to the slide-rest thereof. Fig. 3 represents a perspective view of the improved tool-holder and the chuck. Fig. 4 represents a top view of the same. Fig. 5 represents a perspective view showing the slotted disk and in dotted lines the shape of the T-slide head with the chuck and cam removed; Fig. 6, a longitudinal vertical sectional view of the tool-holder and chuck; Fig. 7, a horizontal sectional view of the same. Fig. 8 represents a front view of the tool-holder and chuck. Figs. 9 and 10 represent modified forms of the cam to be employed in grinding-tools having different numbers of lips.

The letter A indicates a post, provided with a cylinder, B, in which is located and adapted to rotate a flanged cylinder, C, screw-threaded at one end, as indicated by the letter D, to receive the nut E, as usual. The face of the flange of the cylinder C (indicated by the letter F) is recessed, as indicated by the letter G, to receive the head H of a T-shaped slide, the

stem K of which is provided with a groove, L, for the reception of pin or pins M, passing through the chuck, by means of which the chuck and cam J may be held upon the stem K.

A slotted disk, N, fitting over the stem of the T-shaped slide, is secured to the face of the flanged cylinder, and on the peripheries of the flange of the flanged cylinder and the slotted disk, respectively at opposite sides, is a boss, O, carrying a spring, P, and a slotted arm, R, in which is fastened by a nut or otherwise a shaft carrying a friction-roller, S. The spring bears with a constant force upon the T-shaped slide and serves to keep the cam in constant contact with the friction-roller. The tension of the spring may be regulated by a set screw, as shown.

The letter T indicates a set-screw passing through the hub of the cam and adapted to bear against the chuck, so that when tightened it will cause the cam and chuck to travel together as the chuck is rotated.

In Fig. 1 the tool is represented as applied to a grinding-machine for which I have made application for Letters Patent of the United States, and in Fig. 2 as applied to the slide-rest of an ordinary lathe, the grinding-wheel, in the latter case, being applied to a mandrel secured between the centers of the lathe and carried by an ordinary dog secured to the face-plate of the revolving mandrel in the usual manner.

A plate, *x*, having a standard, *y*, in which rotates the tool-post A, is securely bolted to the slide-rest of the lathe.

A set-screw, *z*, holds the tool-holder in any position at which it is set. The tool-holder may be adjusted rotarily, and held by set-screw *z*, and longitudinally across the surface of the grinding-wheel and toward and from the wheel, as is desired, by means and mechanism for adjusting the slide-rest.

The operation of my invention is as follows: The tool to be ground is properly adjusted in the chuck, which may be of the ordinary or any approved construction, and by means of the adjusting mechanism of the grinding-machine or slide-rest of the lathe is advanced to the grinding-wheel and properly adjusted with respect thereto, as indicated in Figs. 1 and 2 of the drawings.

When using the machine illustrated in Fig. 1 the operation is as follows: The drill being properly secured in the chuck and the various parts of the machine brought into proper relative positions, as described in my previous application for Letters Patent for improvement in machines for grinding-drills, the chuck is adjusted so as to position the cam with one of its shoulders resting against the friction-roller, which brings one lip of the drill against the periphery of the grinding-wheel, the proper angle being secured by turning the chuck-carrying devices on the standard A, and fastening them when in position. The grinding-wheel being put in motion, the chuck carrying the cam is given a quarter of a revolution by means of the hand or a small handle inserted into one of the holes, E′, which operation effects the grinding of one lip from the back of the lip to the cutting-edge and gives the lip the desired clearance. By turning another quarter-revolution the other lip of the drill is brought into position to be ground, the grinding being effected in the same manner as the first-mentioned lip.

When the device is applied to the slide-rest of a lathe the rest is advanced to the grinding-wheel and properly adjusted with respect to the same, the operation of grinding being the same as above described.

A proper handle may be used for rotating the chuck and cam by inserting one end of it into the holes E′ of the chuck, or the operator may turn it with his hand.

In the modification shown in Fig. 9 the cam is shown with but one shoulder, and in Fig. 10 with four; but it is evident that the number may be varied according to the number of lips to the tool to be sharpened. Where a plain or single lipped tool—such as a center-bit—is to be ground the set-screw which binds the cam to the chuck is loosened, which permits the chuck and tool to be rotated continuously without reciprocating.

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

1. The combination of the post adapted to fit in the standard of a grinding-machine or the tool-rest of a lathe, and provided with a horizontal cylinder, the flanged cylinder fitting therein and provided with a screw and screw-cap, as described, the T-slide adapted to fit in a recess in the face of said flanged cylinder, the slotted plate, and the boss and arm, carrying respectively the spring bearing against the T-slide and the friction-roller, and the cam and chuck secured to the stem of the T-slide, the whole arranged to operate substantially as specified.

2. In combination with the post and its cylinder, the flanged cylinder and the T-slide, arranged as described, the boss and its spring, and the slotted plate and friction-roller, and the cam and chuck secured to the stem of the T-slide, the cam being provided with a set-screw, whereby the parts may be tightened to cause them to work together or loosened to permit the chuck to turn freely, substantially as and for the purposes set forth.

3. In combination with the T-slide provided with a groove on its stem, the boss and slotted plate carrying the spring and roller, respectively, and the chuck, provided with a pin adapted to set in the groove in the stem of the T-slide and hold the parts together, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

PHILO MALTBY.

Witnesses:
J. R. NOTTINGHAM,
L. A. MARCERON.