No. 767,036. PATENTED AUG. 9, 1904.

H. W. BORCHERS.

TOOL HOLDER.

APPLICATION FILED SEPT. 28, 1903.

NO MODEL.

Fig. 1.

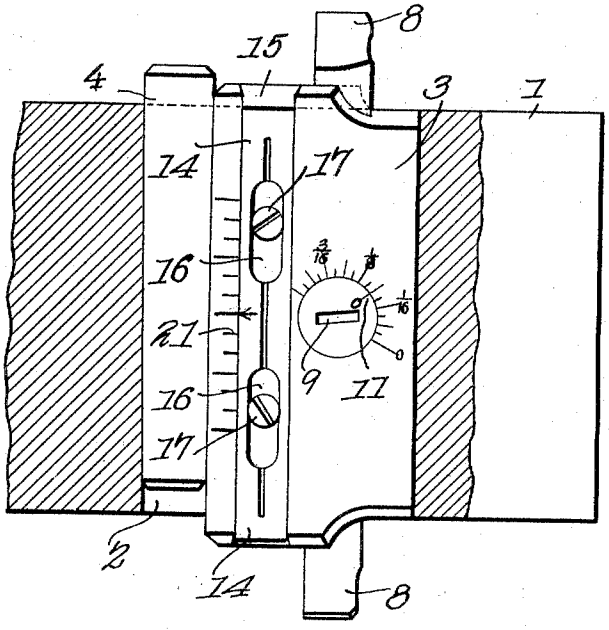


Fig. 2.

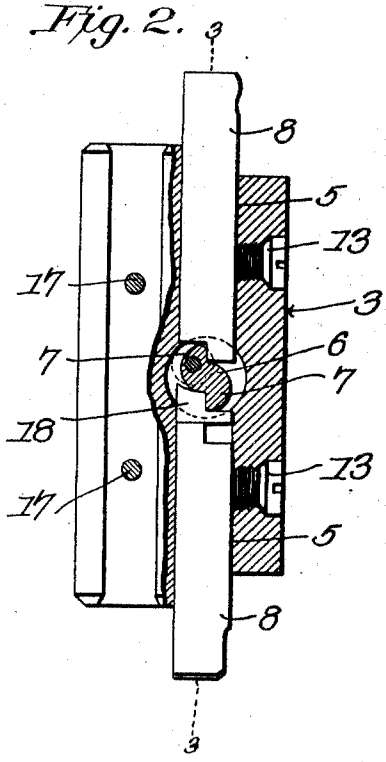


Fig. 3.

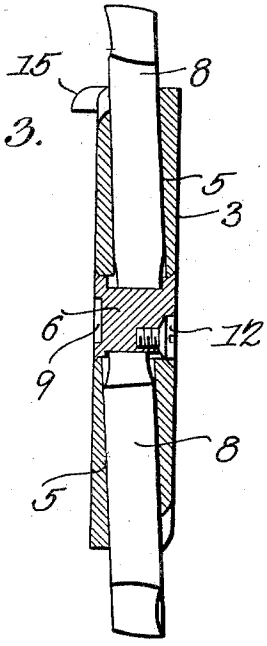


Fig. 4.

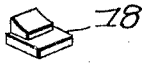
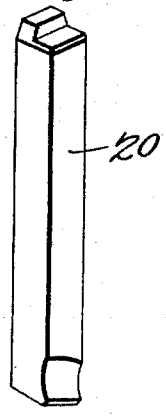


Fig. 6.



Fig. 5.



Witnesses

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No. 767,036. Patented August 9, 1904.

UNITED STATES PATENT OFFICE.

HENRY W. BORCHERS, OF PORTLAND, OREGON, ASSIGNOR OF ONE-HALF TO EDWARD TURNEY, OF PORTLAND, OREGON.

TOOL-HOLDER.

SPECIFICATION forming part of Letters Patent No. 767,036, dated August 9, 1904.

Application filed September 28, 1903. Serial No. 174,988. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. BORCHERS, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Tool-Holder, of which the following is a specification.

My invention relates to tool-holders designed especially for holding a pair of oppositely-acting tools in the bar of a boring or analogous machine, and has for its objects to produce a device of this character of simple construction in which the tools may be readily and accurately adjusted and will during such adjustment move uniformly and simultaneously a certain predetermined distance, one in which such movement will be accurately gaged, and one in which the holder and tools may be readily and accurately centered relative to the bar.

To these ends the invention comprises the novel details of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a sectional elevation showing my improved device applied to a boring-bar. Fig. 2 is a front side elevation, partly in section, of the holder removed. Fig. 3 is a sectional elevation on the line 3 3 of Fig. 2. Figs. 4, 5, and 6 are detail views.

Referring to the drawings, 1 indicates the rotary bar of a boring-machine. This bar, which is driven in the usual or any preferred manner, is provided with a central transverse opening 2, in which my improved tool-holder 3 is in practice secured, preferably, by a wedge-shaped bar or member 4, driven into place between the front edge of the holder and the adjacent wall of the opening.

The holder 3 is preferably in the form of a substantially rectangular metal block or body having a pair of longitudinally-extending tool-receiving sockets 5 disposed in endwise relation and somewhat to one side of the transverse center of the body, these sockets being square, as herein shown, or of other non-circular form in cross-section.

6 indicates a rotary operating or adjusting member disposed at the longitudinal center of the holder, through which latter it extends laterally. This member is shaped to form a pair of oppositely-arranged cams 7, which lie within the holder in position to act upon a pair of tools 8, situated one in each of the sockets 5, these cams serving when the member is rotated to act upon the adjacent inner ends of the tools for moving the latter outward longitudinally of the sockets, it being apparent that inasmuch as the cams are identical in shape the tools will move simultaneously and a uniform distance. For rotating the member I form in the front end thereof a socket 9 to be engaged by a suitable tool, and for gaging the movement of the member to attain a certain predetermined movement of the tools I form upon the outer front face of the holder concentric with the member 6 a graduated scale 10 and upon the member a pointer or indicating-mark 11, designed to register with the scale-graduations as the member is rotated for thus readily and accurately obtaining the desired movement or adjustment of the tools. For locking the member in its adjusted position I provide a fastening member 12, preferably in the form of a screw tapped into the rear end of the member and disposed eccentrically thereof to bear upon the adjacent wall of the opening in which the member 6 is journaled.

13 indicates a pair of set-screws tapped through the rear edge wall of the holder and disposed for engagement each with one of the tools 8, whereby the latter may after being brought to the proper adjustment by the member 6 be fixed in such position.

14 designates a movable centering member or gage, preferably in the form of a bar, disposed in a longitudinal dovetail groove formed in the front face of the body of the holder, said bar being provided at one end with a right-angularly-disposed engaging head or finger 15 and in its body portion with a pair of longitudinally-disposed slots 16, which receive clamping-screws 17, tapped into the body of the holder and operable for securing the member in its adjusted position.

18 indicates a supplemental adjusting-block, which in practice may be inserted in the

socket 5 between the member 6 and the adjacent end of the tool 8 for securing a greater extension of the latter, while 19 is a similar member intended for a like purpose, but is somewhat greater in length than the block 18. In this connection it is to be understood that the holder will in practice be equipped with a pair of each of these blocks, whereby one of the blocks of either size may be used with each of the tools.

At 20 in Fig. 5 I have shown a tool identical in all respects with the tools 8, above described, except that it is of greater length, and in practice the holder will be equipped with a pair of these longer tools.

In operation, supposing a tool to be seated in each of the sockets 5 and the member 6 to occupy a position with its pointer registering with the zero graduation of the scale 10, rotation of the member from left to right will gradually expand the tools until the proper adjustment of the latter (indicated upon the scale 10) has been attained, when the set-screws 13 will be operated for locking the tools and the fastening member 12 for locking the member 6. If, however, a greater movement of the tools than can be obtained through the adjusting member 6 is desired, one of the smaller blocks 18 is placed in position between the member and one of the tools, while still greater adjustments may be attained by bringing successively into play the larger blocks 19 and finally the larger tools 20. After the desired adjustment of the tools has been secured the centering member 14, the head 15 of which engages the bar at one end of the opening 4, is adjusted for properly centering the holder and tools relative to the bar, it being understood in this connection that the face of the holder is provided with a scale 21, indicating the central points of the diameters of the various size holes which the tools will bore and upon the member 14 a pointer to be brought into register with the desired center mark.

From the foregoing it will be seen that I produce a device of simple construction which will be efficient in operation and one which is admirably adapted for the attainment of the ends in view. It is to be understood, however, that I do not limit or confine myself to the precise details herein set forth, inasmuch as various minor changes may be made therein without departing from the spirit or scope of the invention.

Having thus described my invention, what I claim is—

1. In a tool-holder, the combination with a borer-bar having a transverse opening, of a body adapted to be seated in said opening, a pair of tools carried by the body, means for simultaneously adjusting the tools, and means for centering the body in the opening of the bar.

2. In a tool-holder, the combination with a borer-bar having a transverse opening, of a body adapted to be seated in said opening, a pair of tools carried by the body, means for simultaneously adjusting the tools, and a centering member carried by the body for centering the latter in the opening of the bar.

3. In a tool-holder, the combination with a borer-bar having a transverse opening, of a body adapted to be seated in said opening, a pair of tools carried by the body, means for simultaneously adjusting the tools, and a centering member carried by the body, said member being movable in a direction transversely of and formed for engagement with the bar to center the body therein.

4. In a tool-holder, the combination with a borer-bar having a transverse opening, of a body adapted to be seated in the opening and having a groove extending in a direction transversely of the bar, a pair of tools carried by the body, means for simultaneously adjusting the tools, a centering-bar disposed for movement in the groove and formed for engagement with the borer-bar to center the body therein, and means for locking the centering-bar.

5. In a tool-holder, the combination with a borer-bar having a transverse opening, of a body adapted to be seated in said opening and having a pair of sockets disposed in longitudinal endwise relation, a pair of tools seated one in each socket, a movable member situated between the sockets and operable for simultaneously adjusting the tools, an adjusting-block disposed between one of the tools and the member, and means for centering the body in the opening of the bar.

6. In a tool-holder, the combination with a borer-bar having a transverse opening, of a body adapted to be seated in said opening, a pair of tools carried by said body, a movable member associated with the body and operable for simultaneously adjusting the tools, means for securing the tools in their adjusted position, and means for centering the body in the opening of the bar.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HENRY W. BORCHERS.

Witnesses:
H. H. NEWHALL,
W. J. LYONS.