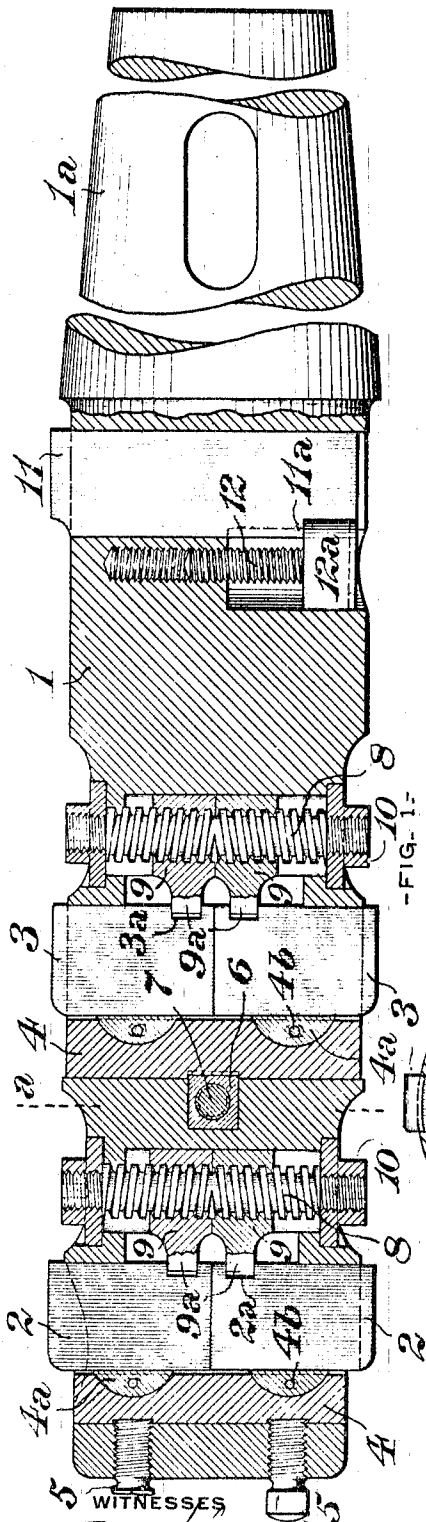


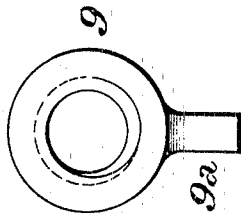
APPLICATION FILED JAN. 11, 1912.

1,059,408.

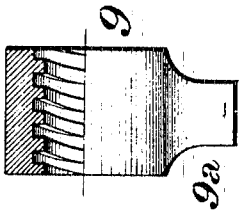
Patented Apr. 22, 1913.



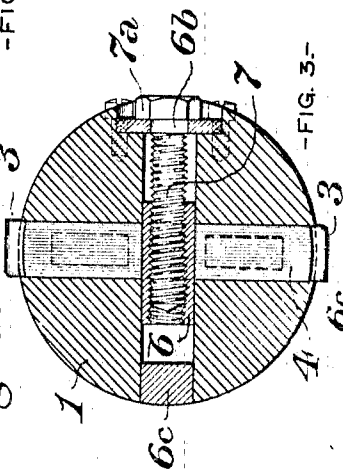
Edward Wright
St. R. Bell.



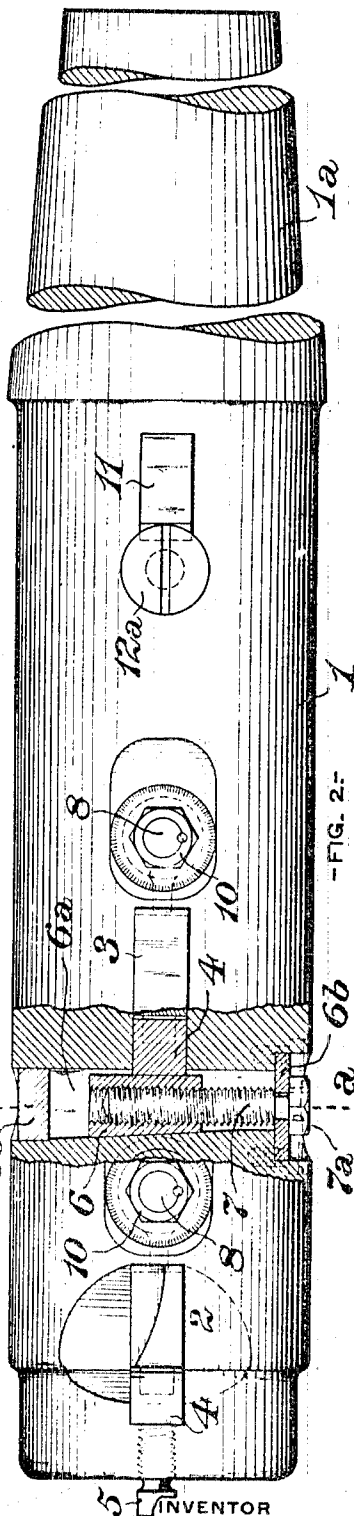
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-FIG. 4-



-FIG. 5-



Edward H. Smeley.
by J. W. Burden Att.
atty.

UNITED STATES PATENT OFFICE.

EDWARD H. SWEeley, OF RICHMOND HILL, NEW YORK.

BORING-BAR.

1,059,408.

Specification of Letters Patent.

Patented Apr. 22, 1913.

Application filed January 11, 1912. Serial No. 670,540.

To all whom it may concern:

Be it known that I, EDWARD H. SWEeley, of Richmond Hill, in the county of Queens and State of New York, have invented a certain new and useful Improvement in Boring-Bars, of which improvement the following is a specification.

My invention relates to bars or stocks used for holding metal boring tools, and its object is to provide means whereby boring tools or cutters of large size and ample strength may be firmly held in operative position in a boring bar, with the capacity of a wide range of adjustment for boring holes of different desired diameters, and the further capacity of convenient and expeditious removal and replacement, as may, from time to time, be desired.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings: Figure 1 is a longitudinal central section through a boring bar and its accessories illustrating an application of my invention; Fig. 2, a view, partly in elevation and partly in section, in a plane at right angles to Fig. 1, of the same; Fig. 3, a transverse section, on the line *a a* of Figs. 1 and 2; Fig. 4, a side view, partly in section, and on an enlarged scale, of an adjusting nut; and, Fig. 5, an end view of the same.

The boring bar in which my invention is herein exemplified, comprises, similarly to those heretofore known, a cylindrical body, 1, and a frusto-conical or tapered shank, 1^a, adapted to be secured in a socket on the end of a spindle, turret, or other member which carries the boring bar. A pair of roughing cutters, 2, 2, and a pair of finishing cutters, 3, 3, are fitted in transverse slots, located one above the other, in the body, 1, of the boring bar, the cutters contacting with the sides and one end of the slots, without the interposition of sockets or holders, and being secured therein and adjusted from and toward the axis thereof, for the boring of holes of greater or less diameters, as desired, under the construction and in the manner which will now be described.

The transverse slot in which each of the pairs of cutters is placed, is made of sufficient depth, that is to say, in its dimension in the axial plane of the boring bar, to receive a keying block, 4, which abuts against the adjacent pair of cutters, preferably, as shown, through the intermediation of short

bearing blocks, 4^a, which are pivoted to the keying block by pins, 4^b, the object of which is to provide a true and accurate bearing of the keying block upon each of the cutters which it adjoins. The keying block of the roughing cutters, 2, 2, which are located nearer to the outer or working end of the boring bar, is forced to a tight bearing against the cutters, by clamping screws, 5, which engage the keying block, parallel with its axis, and substantially in line centrally with the bearing blocks, 4^a. The keying block of the finishing cutters, 3, 3, is brought to the proper tight bearing against them by a wedge, 6, which is fitted in a correspondingly tapered slot, 6^a, extending through the body, 1, adjoining, and at right angles to, the slot in which the cutters, 3, 3, are fitted. The wedge, 6, fits in a recess in the adjacent keying block, 4, and is internally threaded to engage a tightening screw, 7, which projects through a removable cap, 6^b, closing one end of the slot, 6^a, the screw, 7, being provided with a head, 7^a, on its outer end, which bears on the boring bar, through the intermediation of the cap, 6^b, and is adapted for the application of a wrench. The opposite end of the slot is closed by a plug, 6^c.

The roughing and finishing cutters are expanded and contracted, that is to say, moved outwardly and inwardly from and toward the axial line of the boring bar, for the purpose of adjustment for boring holes of greater or less diameters as may be desired, by adjusting screws, 8, each of which passes through a cylindrical opening in the body of the boring bar, adjoining and parallel with the slot therein, in which one of the pairs of cutters is fitted, and is provided with right hand and left hand threads, extending in opposite directions, respectively, from its middle to its ends. Said threads are engaged by correspondingly threaded nuts, 9, 9, upon each of which there is formed a lateral lug, 9^a, which engages a recess or notch, 2^a or 3^a, on the adjacent roughing cutter, 2, or finishing cutter, 3, as the case may be, a direct mortise and tenon engagement of the nuts with the cutters being thereby provided and intermediate connecting means avoided. It will be seen that the longitudinal movement of the nuts, effected by the rotation, in either direction, of an adjusting screw, will correspondingly move the adjacent cutters outwardly from, or inwardly toward, the axial

line of the boring bar, in accordance with the direction of rotation of the adjusting screw. It will also be obvious that the direct and positive engagement of the nuts with the cutters, and the fitting of the cutters directly in the slots in which they are carried, enables larger and stronger cutters to be used than are practicable with the sockets or clamp cutter holders, or the adjusting blocks, of prior practice. As a consequence, the working range of the boring bar becomes sufficiently wide to obviate the necessity of using two bars successively, which is presented when the capacity of the bar is limited to cutters of smaller size. The adjusting screws are turned by the application of a wrench to nuts, 10, engaging threads of smaller diameter than the main threads, at and adjacent to the ends of the screws, and bearing on flat faces at the ends of the openings in the body, 1, in which the adjusting screws are located. The extent of movement of the cutters is regulated in accordance with the indications of micrometer scales marked on the outer faces of the nuts, 10.

A filleting cutter, 11, is fitted in a transverse slot in the body of the boring bar, above the finishing cutters, 3, 3, and is held in position and moved outwardly as desired by an adjusting screw, 12, engaging an internal thread in the boring bar, and having a head, 12^a, which traverses in a recess in the boring bar adjoining the slot of the filleting cutter, and bears against a shoulder, 11^a, on the adjacent side thereof. The finishing cutter is readily removable and adjustable for the diameter of cut required, by proper manipulation of the screw, 12. The filleting cutter and its accessories, as just described, are not claimed as of my present invention, and will form the subject matter

of a divisional application to be filed in due season.

I claim as my invention, and desire to secure by Letters Patent:—

1. In a boring tool, the combination of a boring bar, two boring cutters, fitting in and contacting directly with a transverse slot in said bar and longitudinally movable in said slot, means for clamping said cutters in adjusted position against one end of said slot, an adjusting screw having threads of opposite lead and rotatable in a plane parallel with the cutters, nuts, each engaging one of the threads of the adjusting screw and having a lateral lug engaging a recess in the adjacent cutter, and a nut engaging an end thread on the adjusting screw and bearing laterally on the boring bar.

2. In a boring tool, the combination of a boring bar, two boring cutters fitting and longitudinally movable in a transverse slot in said bar, means for traversing said cutters toward and from the axial line of the boring bar, a keying block bearing on said cutters, and a wedge bearing on and movable transversely to, the keying block.

3. In a boring tool, the combination of a boring bar, two boring cutters fitting and longitudinally movable in a transverse slot in said bar, means for traversing said cutters toward and from the axial line of the boring bar, a keying block bearing on said cutters, a wedge fitting a slot formed in the boring bar transversely to the keying block and bearing on said block, and a tightening screw engaging said wedge and exerting its bearing pressure on the boring bar.

EDWARD H. SWEeley.

Witnesses:

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N. LAWSON DYER.