May 1, 1928. 1,668,351

F. J. BLACK

BORING BAR

Filed May 10, 1923

Fig. 1.

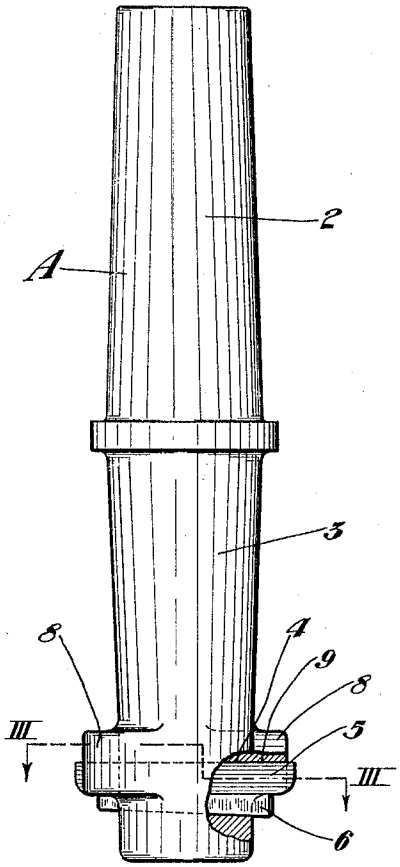


Fig. 2.

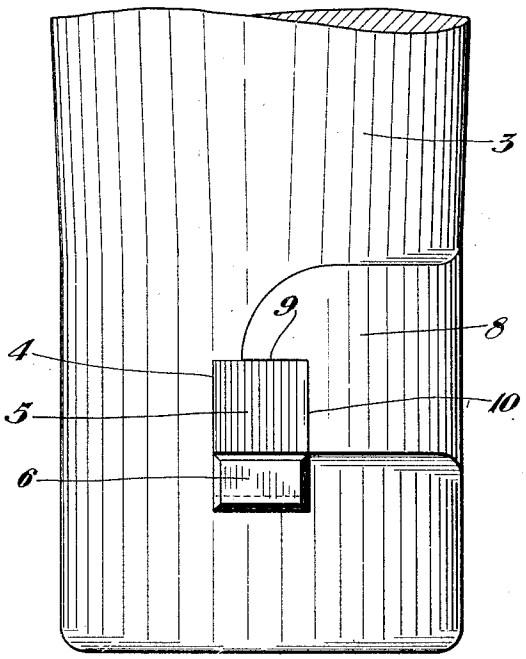
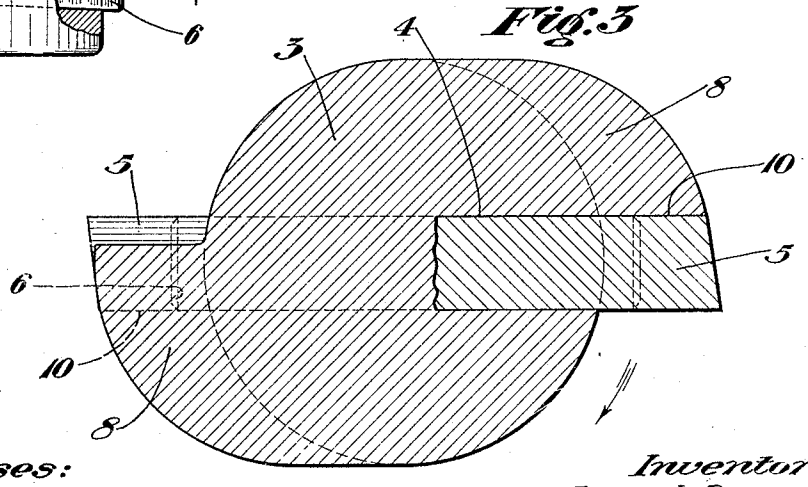


Fig. 3



Witnesses:

Edwin Trucb

Inventor:

FRANK J. BLACK,

by:

D. Anthony Usina

his Attorney

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UNITED STATES PATENT OFFICE.

FRANK J. BLACK, OF CRAFTON, PENNSYLVANIA.

BORING BAR.

Application filed May 10, 1923. Serial No. 637,973.

This invention relates to boring bars and more particularly to heavy duty boring bars such as are used in boring steel wheels and similar articles, and has for its object the provision of a boring bar of this class having means for reinforcing or supporting the cutting tool.

Another object is to provide a boring bar of the heavy duty type that will be composed of a minimum number of parts so as to eliminate as near as possible all breakage.

A further object is to provide a boring bar having the novel construction, design, and combination of parts hereinafter described and illustrated in the accompanying drawings.

In the drawings, Figure 1 is a side elevation of a boring bar constructed in accordance with my invention partly broken away to more clearly illustrate the construction.

Figure 2 is a side elevation of the lower portion of the bar of Figure 1, taken at right angles to Figure 1.

Figure 3 is a transverse section taken on the line III—III of Figure 2.

Referring more particularly to the drawings, the letter A designates the boring bar as a whole, which is composed of a "Morse" taper shank portion 2 adapted to fit into the spindle of an operating machine, and an integral body portion 3. The body portion 3 is provided with a transverse opening 4 adjacent its lower end for the reception of a cutting tool 5.

The bottom wall of the opening 4 is inclined so as to form a bearing surface for a wedge member 6, which is driven between the bottom wall of the opening 4 and the tool 5 to secure the tool 5 in position.

The tool 5 is of greater length than the diameter of the body portion 3, so that its ends project an appreciable distance beyond the sides of the bar body.

Suitable reinforcing lugs 8 are formed integral with the body portion 3 adjacent the ends of the opening 4. The lugs 8 are of inverted L shape and are arranged on opposite sides of the opening 4, and have the inner face of their top portion 9 in alinement with the top wall, and their side portion 10 in alinement with the side wall of said opening 4 so as to engage the top and opposite side walls of the tool 5. That is, the tool cuts when the bar is being rotated, so that the cutting edge is formed on opposite sides of the tool on opposite ends and, therefore, the lugs 8 are arranged to engage the opposite sides of the tool to support both ends of the tool on two sides at right angles when cutting.

When the boring bar and cutting tool are being used the lugs 8 support the tool against the thrust put on the tool by the downward movement of the tool through the hole in which it is working and oppose the force put on the tool by its rotary movement in engagement with the surface of the hole being bored.

It will be readily appreciated that a boring bar constructed in accordance with my invention is a great improvement over the art, in that the integral shank and body are formed of one single forging and the tool and its locking wedge are the only moving parts. The value of the lugs 8 will also be readily appreciated, since they reinforce the comparatively brittle steel cutting tool and prevent breaking thereof.

I claim:—

A boring bar comprising a body portion having a transverse opening therethrough, a cutting tool removably locked in said opening and having its both ends projecting outwardly beyond said body portion to form cutting faces, eccentric enlargements formed integral with said boring bar at diametrically opposite points, said enlargements extending over and being in engagement with the top and back faces of the projecting ends of said cutting tool so as to support said tool against the thrust put on the tool by the movement of the tool through the hole in which it is working and to oppose the strain put on the tool by its rotary cutting movement, and transmit said thrust and strains directly to the body of the bar.

In testimony whereof I have hereunto set my hand.

FRANK J. BLACK.