No. 655,600. Patented Aug. 7, 1900.

J. BROWN & T. HADDOCK.

EXPANSIBLE BORING BAR.

(Application filed Nov. 6, 1899.)

(No Model.) 2 Sheets—Sheet 1.

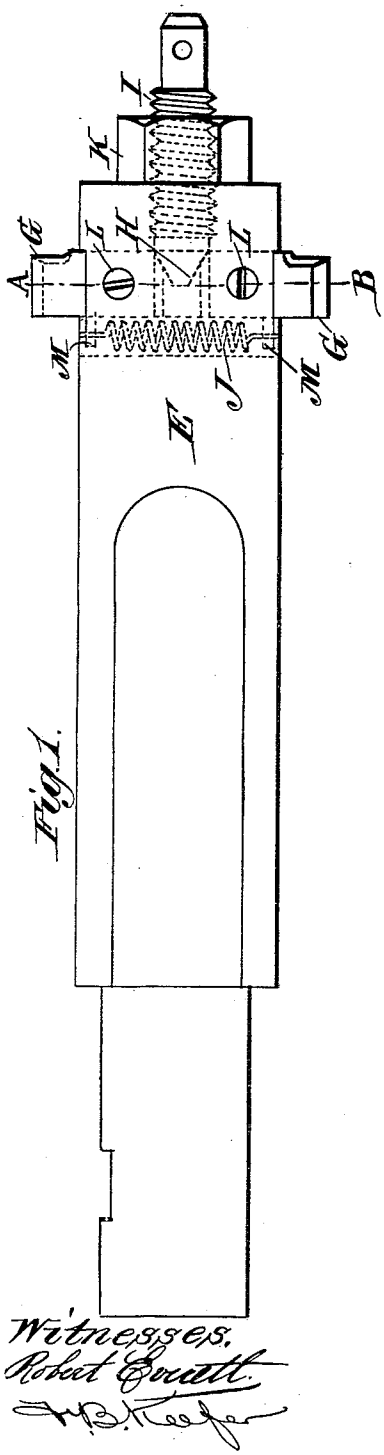


Fig. 1.

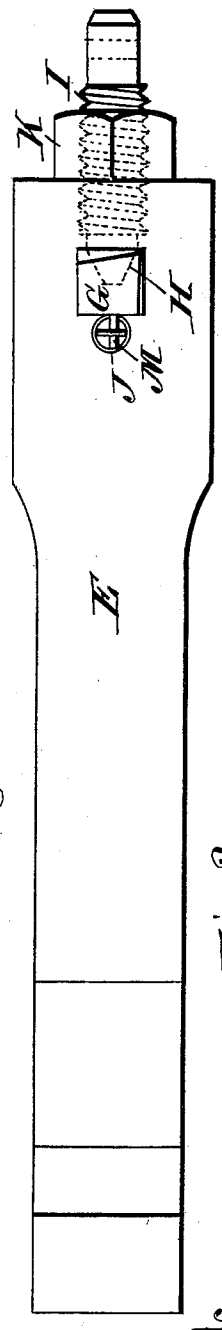


Fig. 2.

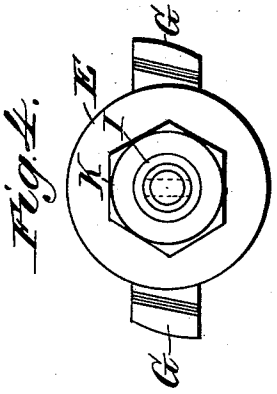


Fig. 4.

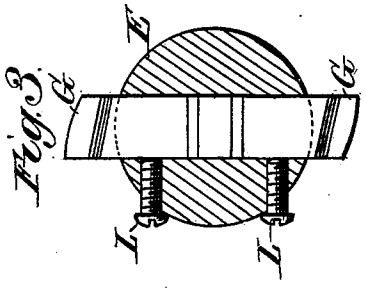


Fig. 3.

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

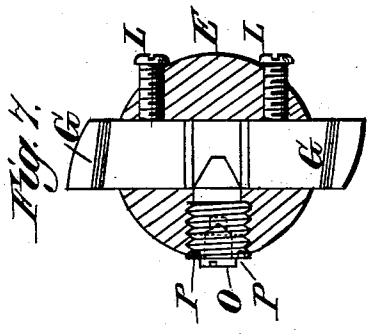
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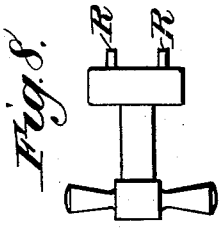
J. BROWN & T. HADDOCK.

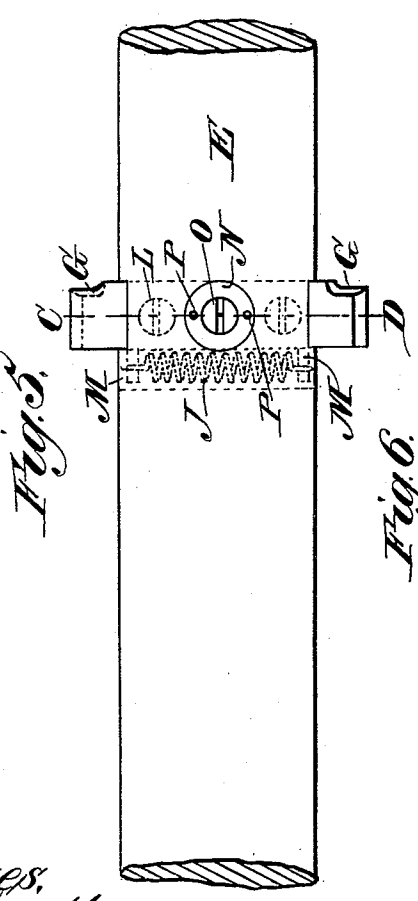
EXPANSIBLE BORING BAR.

(Application filed Nov. 6, 1899.)

(No Model.) 2 Sheets—Sheet 2.









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UNITED STATES PATENT OFFICE.

JOHN BROWN AND THOMAS HADDOCK, OF BOLTON, ENGLAND.

EXPANSIBLE BORING-BAR.

SPECIFICATION forming part of Letters Patent No. 655,600, dated August 7, 1900.

Application filed November 6, 1899. Serial No. 735,936. (No model.)

To all whom it may concern:

Be it known that we, JOHN BROWN, machinist, of 8 Hartley street, and THOMAS HADDOCK, fitter, of 80 Kay street, Bolton, in the county of Lancaster, England, subjects of the Queen of Great Britain, have invented certain new and useful Improvements in Expansive Boring-Bars, of which the following is a specification.

This invention refers to a new or improved expansive boring-bar and in apparatus connected therewith, and is applicable for lathes, horizontal and vertical boring-machines, drilling-machines, and the like; and it consists in providing means whereby the adjustable metallic cutters may be regulated to the greatest nicety with a minimum of labor. This we carry into effect by means of a bar provided with openings or slots in which are disposed suitable cutters, which can be adjusted or regulated and expanded as desired by means of a cone on the end of an operating-screw, the latter being provided with means for locking the same. The cutters are provided with pins or projections which fit in slots to prevent turning and maintain a uniform moving position of the said cutters. Springs are provided for the purpose of contracting or moving the cutters in an inward direction.

In the drawings, Figure 1 is a longitudinal side view of our new or improved expansive boring-bar for vertical boring and drilling machines; Fig. 2, a longitudinal plan of Fig. 1; Fig. 3, a transverse section through line A B in Fig. 1; Fig. 4, an outside end view of Fig. 2; Fig. 5, a longitudinal side view of our invention applied to a boring-bar applicable for lathes, horizontal and vertical boring-machines, and the like; Fig. 6, a longitudinal plan of Fig. 5, and Fig. 7 a transverse section through line C D in Fig. 5. Fig. 8 is a detail view of the key or spanner.

In all the figures the same letters are employed to indicate corresponding parts.

E represents a boring-bar; G, cutters; H, cone; I, operating-screw; J, spring for contracting or moving cutters in an inward direction; K, nut for locking operating-screw, and L setting or locking screws for cutters.

The boring-bar E is provided with openings or slots in which are disposed the cutters G, which are adjusted or regulated and expanded as desired by means of the cone H on the end of the operating-screw I, the latter being locked in position by means of the nut K. The cutters G are provided with the pins or projections M, connected by means of the spiral spring J for the purpose of contracting or moving the cutters G in an inward direction when the inner edges are released from the setting action of the conical end H on the inner end of the operating-screw I. After the cutters G have been set to the desired position, according to the diameter of the hole to be bored, they are secured or locked by the setting-screws L. In the boring-bar E for horizontal and vertical boring-machines and the like (shown in Figs. 5, 6, and 7) the cone H is mounted in the screw N and is actuated by the screw O for adjusting the cutters G. The screw N is provided with the holes P to allow of the same being operated by means of a specially-formed key or spanner, as shown in Fig. 8, the prongs R fitting into the holes P in the outer end of the screw N.

What we claim is—

In a boring-bar, the combination with a body provided with a transverse opening, of a plurality of cutters movably seated in said opening, each of said cutters provided with a lateral pin moving in a slot, and a spiral spring connected at its opposite ends to said pins and tending to draw the cutters into the transverse opening in the body, an expanding-screw arranged in the body at right angles to the transverse opening therein and provided with a conical point which enters between the cutters and operates to move the same outwardly in the transverse opening, and setting-screws passing through the body and impinging on the cutters to retain the same in the desired position of adjustment, substantially as described.

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

JOHN BROWN.
THOMAS HADDOCK.

Witnesses:
EDMUND CHADWICK,
JAS. STEWART BROADFOOT.