(No Model.

L. R. FAUGHT.

BORING BAR.

No. 289,522. Patented Dec. 4, 1883.

FIG. 1.

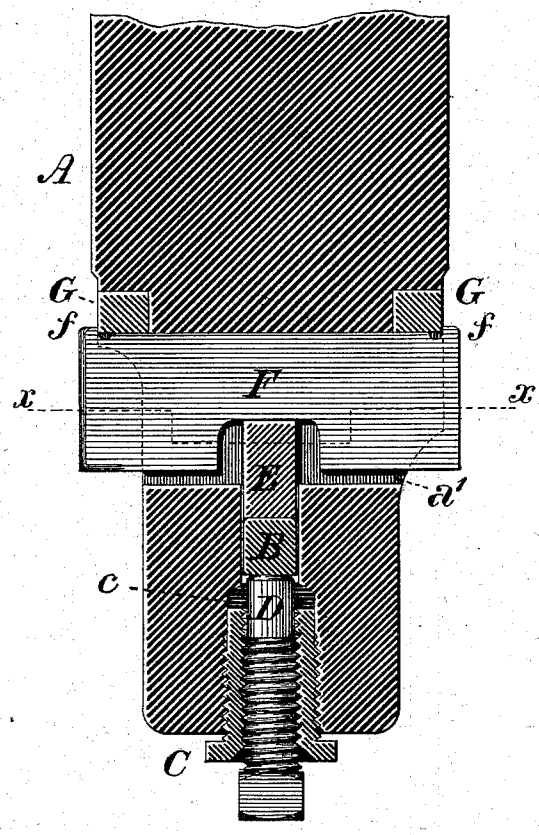


FIG. 2.

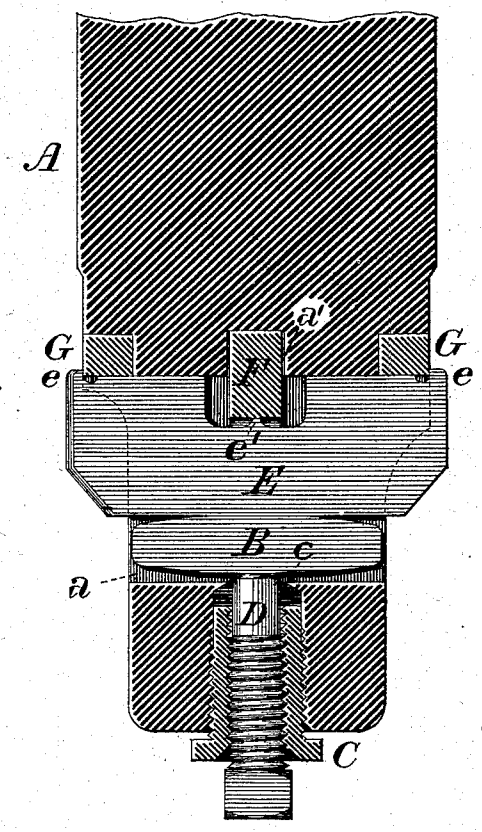


FIG. 3.

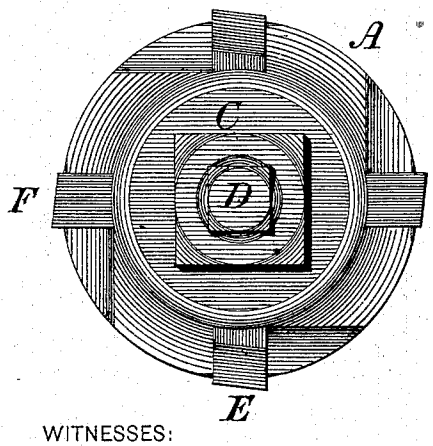
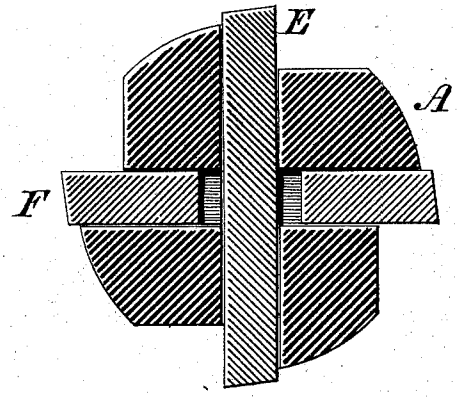


FIG. 4.



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UNITED STATES PATENT OFFICE.

LUTHER R. FAUGHT, OF PHILADELPHIA, PENNSYLVANIA.

BORING-BAR.

SPECIFICATION forming part of Letters Patent No. 289,522, dated December 4, 1883.

Application filed July 21, 1883. (No model.)

To all whom it may concern:

Be it known that I, LUTHER R. FAUGHT, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Boring-Bars, of which improvements the following is a specification.

My present invention is an improvement upon those for which Letters Patent of the United States Nos. 241,481 and 253,523 were granted and issued unto me under dates of May 17, 1881, and February 14, 1882, respectively; and its objects are to further simplify and reduce the cost of construction of the parts, and to facilitate the manipulation thereof in making such changes as may be from time to time required in boring operations.

To these ends my improvements consist in certain novel devices and combinations embracing a boring-bar having two transverse slots at right angles one with the other, two centrally-recessed cutters fitting in the slots of said bar, one of said cutters having a central rib or nipple adapted to bear against the other cutter, a flat set-block fitting in one of the recesses of the boring-bar and serving to hold the cutters in position a clamping-screw, by which the set-block is forced against and held to the surface of the adjacent cutter, and a packed gland or bushing surrounding the clamping-screw, and serving to prevent the access of borings or other foreign matter to its threads. The improvements claimed are hereinafter more fully set forth.

In the accompanying drawings, Figures 1 and 2 are vertical longitudinal central sections at right angles one with the other, respectively, through the lower portion of a boring-bar embodying my invention; Fig. 3, a view in elevation of the lower end of the boring-bar, and Fig. 4 a transverse section through the same at the line *x x* of Fig. 1.

In the practice of my invention the boring-bar A accords, substantially, with that of my Letters Patent No. 241,481 aforesaid, in the particular of having adjacent to its lower end two transverse or diametric slots at right angles one to the other, the width of said slots being sufficient to admit easily the boring-tools or cutters, and their depth being greater than the depth of said cutters, so as to allow of the introduction, clamping, and removal thereof, as required. In lieu, however, of securing the cutters independently in their positions—the one by a cylindrical set-block and clamping-screw and the other by a central set-screw, as in said Letters Patent No. 241,481—I employ under my present invention one clamping-screw only, which acts simultaneously upon both the cutters, as presently to be described.

The boring-tools or cutters E and F, which are inserted in the slots *a* and *a'*, respectively, of the boring-bar A, have suitable cutting-edges upon each of their ends, and are each reduced in depth at and adjacent to their centers—the upper cutter, F, by a recess in its lower side, and the lower cutter, E, by a recess in its upper side, the lower cutter being likewise beveled or relieved upon each of its lower corners. Shoulders *e f* are formed upon the upper sides of the cutters E and F, and bear against hardened dies G, fitted in the bar A at each end of the upper sides of the slots *a* and *a'*. A central rib or nipple, *e'*, is formed in the recess of the cutter E, said rib acting as the bearing of the cutter E against the cutter F when in position. The nipple *e'* is formed with curved sides, and the ends of the recess are also curved, so as to avoid sharp corners, which would tend to induce breakage of the cutter in stretching under the hammer, and the nipple may either be reduced in height, after the cutter is hardened, or peaned up with a hammer, as may be required to insure its proper bearing upon the upper cutter, F, without interfering with the bearing of the cutter E on the dies G at the top of the slot *a*.

The cutters E and F are firmly secured in their adjusted positions in the slots *a* and *a'* by a clamping-screw, D, which engages a central female thread in a bushing, C, the latter having an external thread engaging a corresponding thread in the lower end of the boring-bar. The upper end of the clamping-screw D, which is not threaded, projects through the bushing C into the slot *a*, and bears against the lower side of a set-block, B, of substantially rectangular form, fitting in said slot and serving to transmit the thrust of the screw D to the cutters. The set-block B is slightly beveled or curved from its center to each of its ends, so as to insure a truly central bearing upon the cutter E, and by its interposition the space

which must be left in the slot for the preliminary adjustment of the cutters is properly filled, and the loss of time and wear of the clamping-screw, which would otherwise be involved in causing the screw to traverse said space, are avoided, with the further advantage of enabling the pressure of the clamping-screw to be quickly released, as only about a single turn is required for the purpose, after which the set-block and cutters are free to be removed from the slots. The bushing C, which acts as the nut of the clamping-screw D, has no external thread at and adjacent to its upper end, and the corresponding portion of the recess of the boring-bar within which it fits, which is angular or tapering at top, is also without a thread, and serves to receive a packer, *c*, of fibrous and elastic material, or a metallic ring, which surrounds the unthreaded portion of the screw D, and acts to prevent the access of borings or other foreign matter to the threads of said screw. The packer *c* may be compressed to any degree of tightness required upon the screw D by screwing up the bushing C, which is properly squared at bottom for the purpose, and the provision of an adjustable packer, in addition to the protection of the screw-threads, as above stated, enables the screw to properly accommodate itself to the cutter in the event of any spreading under pressure.

It will be obvious that, if preferred, the bushing C might be extended upward, so as to surround the screw D nearly up to its end, being in such case tantamount to a solid gland, within which a recess for the reception of packing can be formed.

In operation the cutter F is inserted in the slot *a'* and the cutter E in the slot *a*. Both cutters are then raised, the set-block B inserted, and the clamping-screw D brought to a tight bearing upon the set-block, by which its thrust is transmitted to the cutter E, and thence to the cutter F, both cutters being thus held firmly and securely in position. The removal of the cutters is effected in a similar manner by a reversal of the procedure.

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

1. The combination, substantially as set forth, of a boring-bar having two diametric slots at right angles one to the other, a tool or cutter fitting in each of said slots, said cutters abutting one against the other, a set-block fitting in one of said slots and adapted to bear against the cutter thereof, and a clamping-screw bearing upon said set-block.

2. The combination, substantially as set forth, of a boring-bar having two diametric slots at right angles one to the other, two centrally-recessed tools or cutters, one of which is provided with a rib or nipple acting as a bearing upon the other, and a clamping-screw engaging a thread in the boring-bar and exerting its thrust upon one of the cutters.

3. The combination, substantially as set forth, of a transversely-slotted boring-bar, a tool or cutter fitting in a slot in said bar, a clamping-screw by which said cutter is held in position in the slot, and a ring or packer surrounding said screw at or near its bearing end.

4. The combination, substantially as set forth, of a boring-bar having two diametric slots at right angles one to the other, two tools or cutters fitting in said slots and abutting one against the other, a set-block fitting in one of said slots and abutting against the cutter thereof, a clamping-screw bearing on said set-block, an externally-threaded bushing engaging a female thread in the boring-bar and serving as a nut for the clamping-screw, and a ring or packer surrounding the clamping-screw and held in position by the bushing.

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