No. 619,450.

Patented Feb. 14, 1899.

W. H. TURTON.

BORING BAR.

(Application filed Dec. 16, 1897.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1.

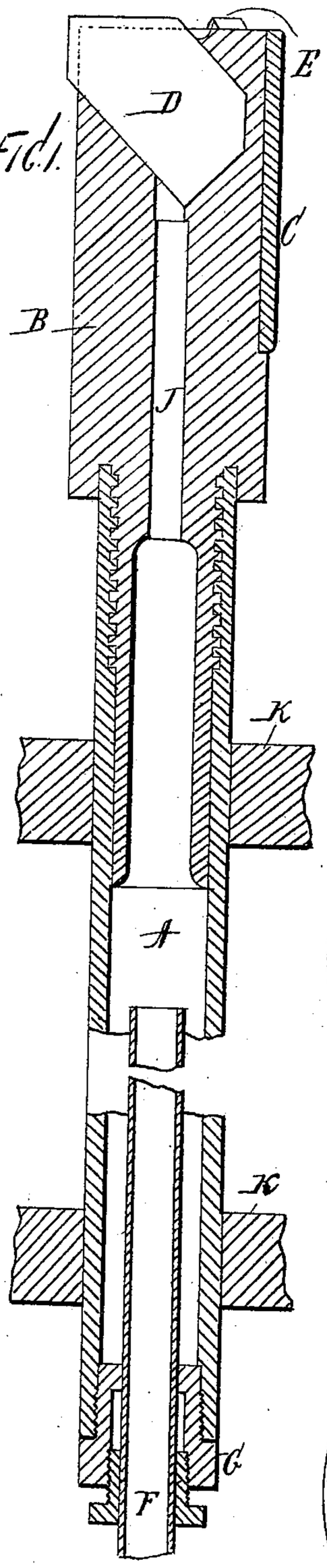


FIG. 4.

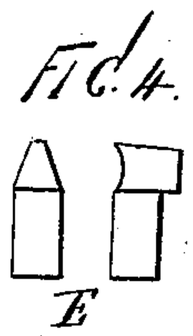


FIG. 5.

FIG. 3.

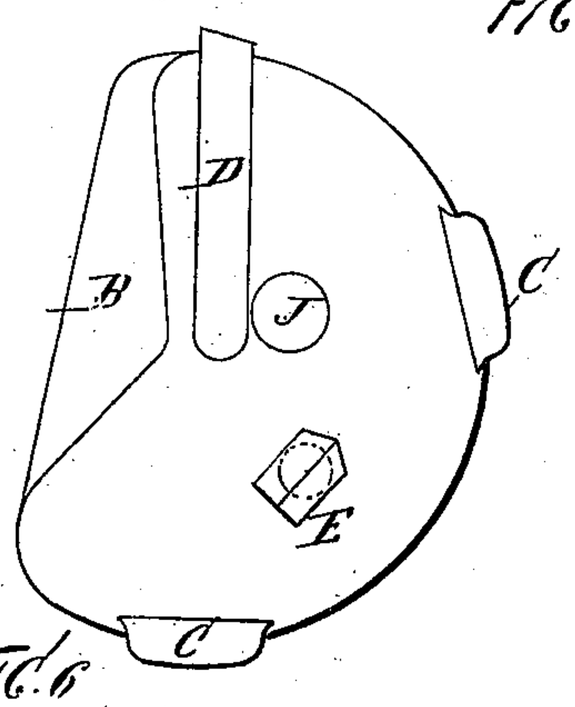


FIG. 6.

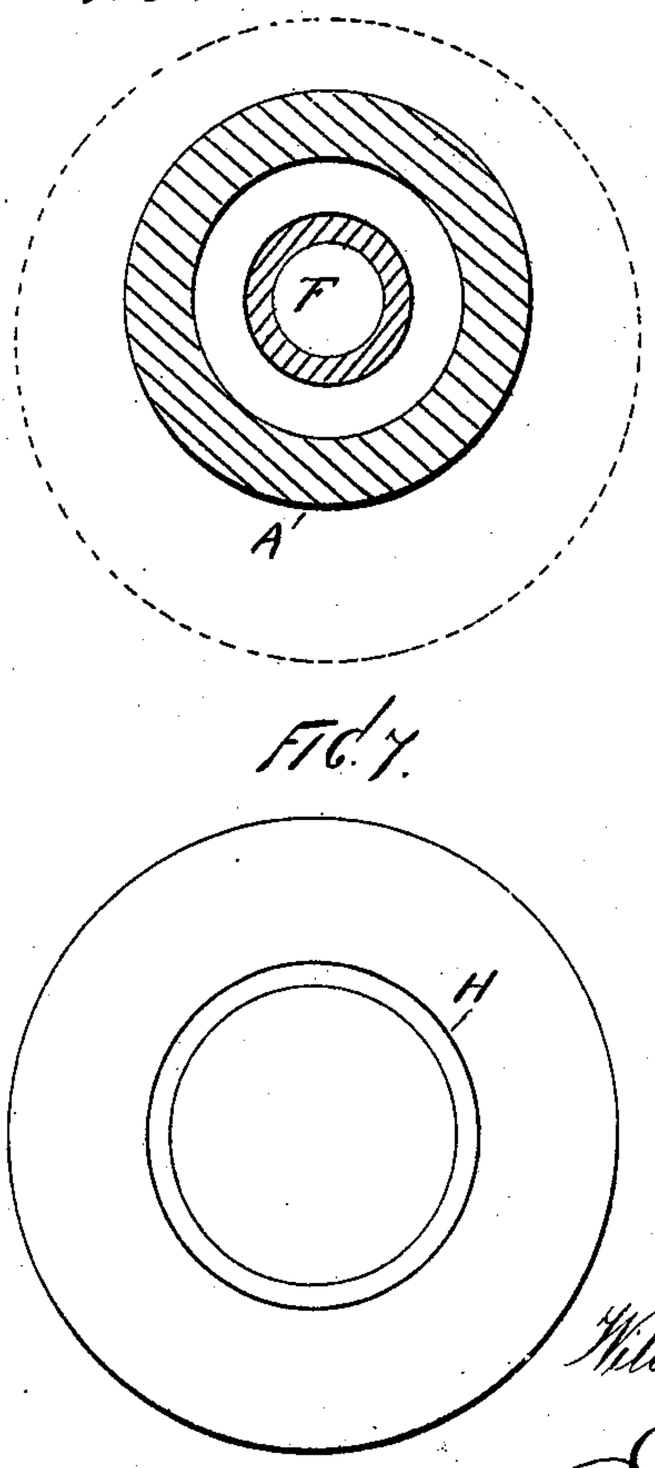
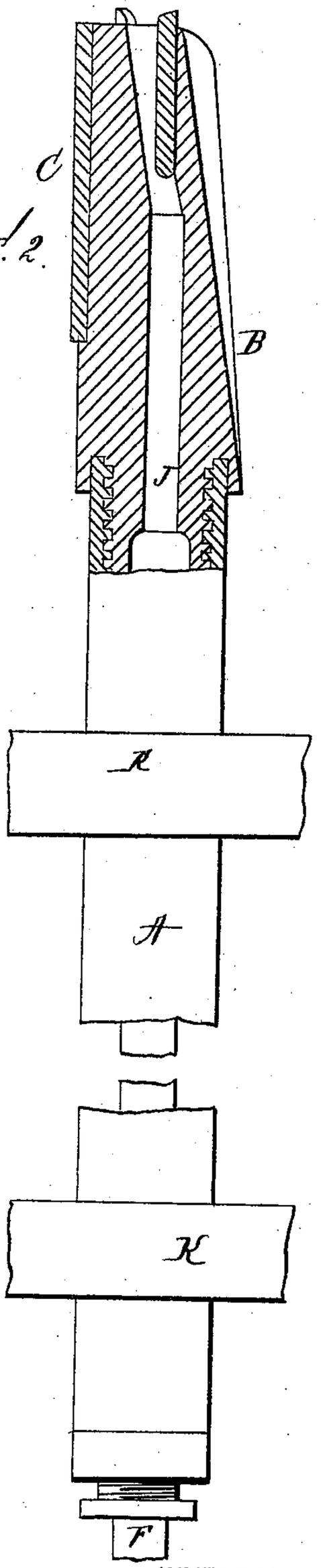


FIG. 7.

FIG. 2.



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No. 619,450. Patented Feb. 14, 1899.

W. H. TURTON.

BORING BAR.

(Application filed Dec. 18, 1897.)

(No Model.) 2 Sheets—Sheet 2.

FIG. 8.

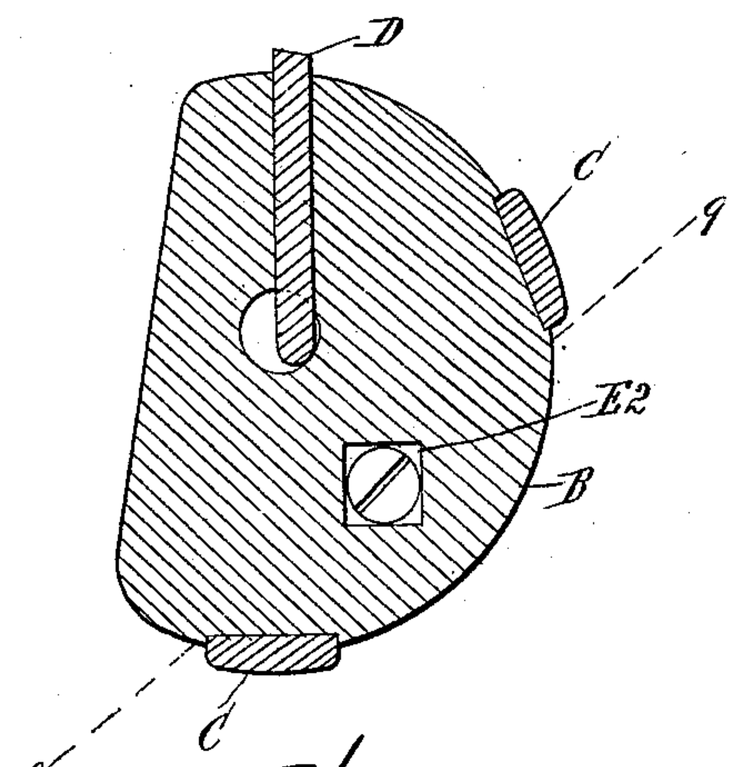
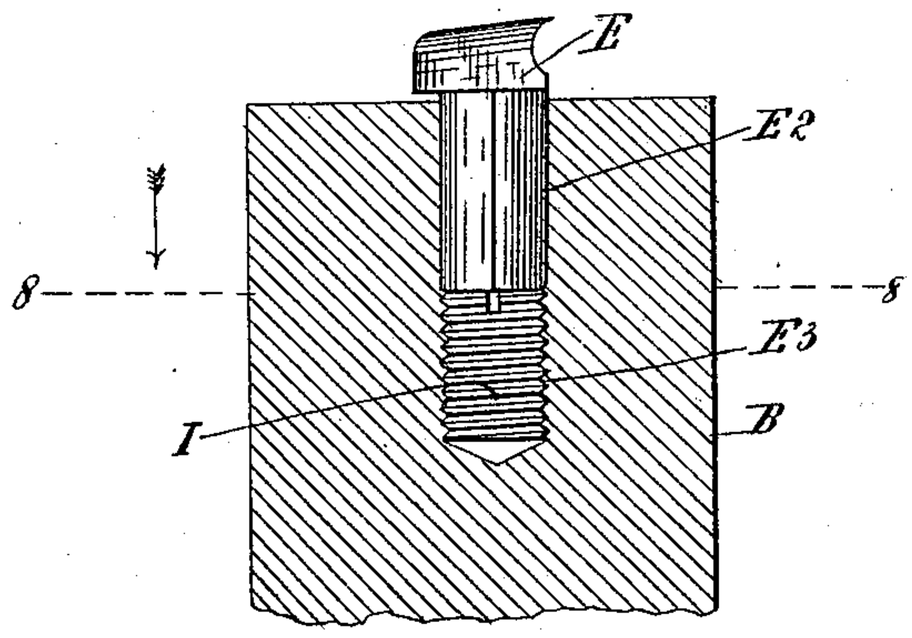


FIG. 9.



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WILLIAM HENRY TURTON, OF LONDON, ENGLAND.

BORING-BAR.

SPECIFICATION forming part of Letters Patent No. 619,450, dated February 14, 1899.

Application filed December 18, 1897. Serial No. 662,471. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENRY TURTON, a citizen of Great Britain, residing at 42 Heavitree road, Plumstead, London, in the county of Kent, England, have invented certain new and useful Improvements in Boring-Bars, (for which I have obtained British Patent No. 15,631, dated July 15, 1896,) of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to tools for boring long holes in steel or iron castings; and the object thereof is to provide an improved tool or drill of this class which is designed to overcome the difficulties occasioned by the jamming of the cuttings, which cause frequent racking or withdrawal and also renewals of the cutters and burnishers.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which—

Figure 1 is a horizontal section of my improved tool; Fig. 2, a side elevation and part vertical section thereof; Fig. 3, an end view of the head; Fig. 4, a side view of two different forms of the dividing-cutter; Fig. 5, a side view of the adjusting-screw under the dividing-cutter; Fig. 6, a section through the bar and water-tube; Fig. 7, a plan view of the steel or iron forging in which it is desired to bore a hole, said figure showing one groove in said forging cut by the dividing-cutter previous to or in advance of the main cutter; Fig. 8, a transverse section of the head on the line 8 8 of Fig. 9, and Fig. 9 a longitudinal section of said head on the line 9 9 of Fig. 8.

In the drawings forming part of this specification the separate parts of my improvement are designated by the same letters of reference in each of the views, and in the practice of my invention I provide a bar A, which consists of a tube of circular or other preferred form and is provided with a detachable drill-head or tool B, which travels endwise for "feeding" while the forging to be bored or drilled is revolved.

The bar A is screwed into or onto the shank of the head B or may be socketed in connection therewith by means of an ordinary cotter. The head B is fitted with two or more hardened-steel burnishers or bearing-pieces C, and the boring-cutter D is inserted into a pocket in the head at an angle of about forty-five degrees to the axis thereof and without set-screws or wedges, packings being sometimes employed, if necessary. I also provide one or more similar dividing-cutters, two different forms of which are shown in Fig. 4, and in practice one of these cutters E is fixed in the head B and is adjustable by means of a screw I for cutting a groove in the face of the forging which is being bored, one of which is shown at H in Fig. 7, and in advance of the main cutter, so that the shavings or chips are broken up into pieces, which fall down and are washed out of the work by a strong jet of water or soap and water supplied through the bore J. The water is conducted under pressure into and through the bar through a tube F, which passes through a gland and stuffing-box G, and the continuous flow of the water serves to keep the cutters and burnishers cool, as well as to wash away the cuttings. I have also shown at K a frame or saddles through which the bar A passes. The cutter E is set into a corresponding socket formed in the head B, as shown in Figs. 8 and 9, the shank of said cutter being angular in cross-section and the outer portion of said socket E^2 being also angular in form. The inner portion of said socket is cylindrical in form and screw-threaded, as shown at E^3, and the said screw I is mounted in the inner screw-threaded portion of said socket, and in order to adjust the dividing-cutter E it is removed from its socket, after which a suitable tool is inserted and the screw I is turned in the desired direction.

The cutter-head B is cut away at one side, as shown in Figs. 2, 3, and 8, so as to afford additional means for the escape of the water and chips or cuttings.

The cutter-head B is made of greater diameter than the bar A in order to facilitate the operation of the device, and my improved tool or drill is simple in construction and operation and perfectly adapted to accomplish the result for which it is intended, and it will be apparent that changes in and modifications of the construction herein described

may be made without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A boring-tool or drill, consisting of a tubular bar having a tubular drill-head secured thereto, said drill-head being provided with a main cutter which is set therein at an angle to the longitudinal center thereof, and with means for supplying water through said bar and through said drill-head, said drill-head being also provided with a dividing-cutter which is adapted to move in advance of the main cutter, substantially as shown and described.

2. A boring-tool of the class herein described, comprising a tubular bar provided at one end with a tubular cutter-head, said cutter-head being provided with a main cutter which is set in the end thereof, and at an angle thereto, and with a detachable dividing-cutter set in front of the main cutter, said head being also provided with longitudinal burnishing-pieces secured to the sides thereof, substantially as shown and described.

3. A boring-tool of the class herein described, comprising a tubular bar provided at one end with a tubular cutter-head, said cutter-head being provided with a main cutter which is set in the end thereof, and at an angle thereto, and with a detachable dividing-cutter set in front of the main cutter, said head being provided with longitudinal burnishing-pieces secured to the sides thereof, and means for supplying water through said bar and through said cutter-head, substantially as shown and described.

4. A boring-tool constructed as herein described, and comprising a tubular bar, a tubular cutter-head secured thereto of greater diameter than said bar, said cutter-head being provided with a main cutter which is set in the end thereof, at an angle thereto, and with a dividing-cutter, and means for supplying water through said bar and through said cutter-head, substantially as shown and described.

5. A boring-tool constructed as herein described, and comprising a tubular bar having a tubular cutter-head of greater diameter than said bar, said cutter-head being provided in the end thereof with a main cutter which projects at an angle to the axis of the cutter-head and beyond the side thereof, said cutter-head being also provided with a dividing-cutter, and means for supplying water through said bar and through said cutter-head, substantially as shown and described.

6. A boring-tool constructed as herein described, and comprising a tubular bar, a tubular cutter-head connected therewith, said cutter-head being provided with a main cutter which is set at an angle to the axis thereof, and which projects beyond the side thereof, and also with a dividing-cutter which is set in front of said main cutter, and means for adjusting said dividing-cutter, and for supplying water through said bar and through said cutter-head, substantially as shown and described.

7. A boring-tool constructed as herein described, comprising a tubular bar, a tubular cutter-head connected therewith, said cutter-head being provided with a main cutter which is set at an angle to the axis thereof, and which projects beyond the side thereof, and also with a dividing-cutter which is set in front of said main cutter, and means for adjusting said dividing-cutter, and for supplying water through said bar and through said cutter-head, and said cutter-head being also provided with burnishers which are secured thereto longitudinally thereof, substantially as shown and described.

8. A boring-tool constructed as herein described, comprising a tubular bar A, a tubular cutter-head B secured to the end thereof, a main cutter D sunk into the end of said head at an angle to the axis thereof, and projecting at one side and beyond the end thereof, a dividing-cutter E fixed in said head in front of said main cutter, burnishers C secured to the sides of the cutter-head, and means for supplying water through said bar and through said cutter-head, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 29th day of November, 1897.

WILLIAM HENRY TURTON.

Witnesses:

WASHINGTON HUDSON,

HORATIO ARTHUR ERITH DE PINNA.