



# UNITED STATES PATENT OFFICE.

JOSEPH H. TOMBRAGEL AND JOHN F. SCHUNDER, OF COVINGTON,  
KENTUCKY.

## ECCENTRICAL CUTTING-BIT.

No. 843,376.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed May 1, 1906. Serial No. 314,643.

*To all whom it may concern:*

Be it known that we, JOSEPH H. TOMBRAGEL and JOHN F. SCHUNDER, both citizens of the United States, and residents of Covington, in the county of Kenton and State of Kentucky, have invented a new and Improved Eccentric Cutting-Bit, of which the following is a full, clear, and exact description.

This invention relates to bits used in boring holes in wood or metal; and it is especially useful in connection with a device of this class, cutting a perforation of greater diameter than the normal dimensions of the bit.

The object of the invention is to provide novel details of construction for a bit of the character indicated which are simple, durable, and easily adjusted, enabling the lateral adjustment of the bit to the axis of its shank, whereby the bit will bore a hole of any desired diameter and depth within its capacity.

A further object of the invention is to provide a bit-stock that may be readily adjusted to hold the cutting-bit centered or alined with the axis of the stock or shank, so that it may be used to bore a hole equal in diameter to the size or width between the cutting edges of the bit.

The invention consists in the construction and combination of parts, to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a partly-sectional side view of the improved bit, showing the bit-shank and cutting-lead of the bit adjusted for boring a hole of greater diameter than that of the cutting-lead. Fig. 2 is a horizontal cross-section on the line 2 2 of Fig. 1. Fig. 3 is a view similar to Fig. 2, showing the parts in a different alinement; and Fig. 4 is a horizontal cross-section on the line 4 4 of Fig. 1.

Referring more particularly to the parts, we provide a cylindrical bit-stock 1, having a longitudinal eccentric bore 2 at the lower end and which has formed on the same end an exterior thread 3. The center line of the bore 2 is parallel to and slightly spaced from

the center line of the bit-stock. The bit-shank 4 is cylindrical and near the upper portion thereof is an integral radial shoulder or flange 5, which is adapted to abut against the lower side of the bit-stock 1. Extending above the flange 5 is a stud 6, smaller in diameter than the bit-shank 4. The other end of the bit-shank terminates in a cutting-lead 7, as shown. The coniform body of the cutting-lead 7 is longitudinally channeled at diametrically opposite points to provide two similar cutting lips or edges 8, and the concave lower end of the cutting-lead is formed of radial thin cutters 9, which cut a clearance-groove, this being essential if the bit is employed for forming flat-bottomed mortises, for instance, in wood material. The cutting-lead 7 is of ordinary form, and other shapes of the same may be substituted, the form described being shown merely to illustrate the application of the improvement.

Upon the stud 6 is mounted a sleeve 10, which has a longitudinal eccentric bore 11 for this purpose and which is adapted to fit into the bore 2 of the bit-shank. We provide a cylindrical member 12, which is provided with an interior thread 13 near the upper portion and is adapted to be screwed onto the bit-stock 1. The member 12 has a longitudinal bore 14 and interior shoulder 15, which is adapted to engage with the flange 5 of the bit-shank and force the latter against the bit-stock when the member 12 is screwed upon the bit-stock, thus jamming said flange in the position shown in Fig. 1, and thereby holding the bit-stock and the bit-shank relatively immovable. In the lower end of the member 12 are formed opposite kerfs 16 for the engagement of a suitable implement which will enable the turning movement of the member in either direction and also enable the holding of the same stationary while the shank or stock, or both, receive rotatable adjustment. Indicating-grooves 17 may be formed in the lower ends of the stock 1 and the sleeve 10, across the same, these marks defining the points of greater projection by the eccentric swells 18 and 19 on the members 1 and 10. The alinement of both sets of grooves indicates that the bit-shank and the cutting-head thereof are disposed a maximum degree to one side of the true axis of the bit-stock, as in that case the eccentric swells

are on the same side of the true axis and in alignment, thus placing the axis of the bit-shank a maximum distance from the axis of the bit-stock. Obviously if the swell 19 on the sleeve 10 is turned partly around and away from the degree-marks 17 on the stock and the latter is maintained without change in projection from the axis of the shank 4 the turning movement of the sleeve will reduce the lateral projection of the cutting-head correspondingly. It will be seen that by a turning adjustment of the sleeve and stock or either one independently more or less lateral disposal of the cutter-head on the bit-shank may be effected, and the eccentric action of the cutting-head will correspondingly increase the diameter of the hole bored by the said cutter-head.

It will be understood that in cutting a hole greater in diameter than the width of the cutter-head that but one edge of the head is used and that when this becomes worn or dulled the cutter may be simply reversed, first loosening the member 12 by unscrewing it and the other edge of the cutter-head then employed. The stock of the bit affords means for connecting the cutter-head with means for its rotation and longitudinal movement and is preferably formed as shown in Fig. 1. When the swell 19 on the side of the sleeve 10 is positioned directly opposite from the swell 18 on the stock 1, if said swells are suitably proportioned in thickness at their crowns the axis of the bit-shank 4 may be disposed centrally within the exterior wall of the stock 1, as shown in Fig. 3, whereby the connection of the latter with a rotatable chuck on the drilling-machine will adapt the cutting-head to rotate without lateral wobble, and consequently will bore a hole equal in diameter to the width of the cutter-head.

Having thus described our invention, we

claim as new and desire to secure by Letters Patent—

1. An eccentric cutting-bit comprising a shank having a cutter, a stock having an eccentric bore, an eccentric sleeve on said shank and within said bore, said shank having a flange extending laterally beyond the said sleeve and abutting against said stock, and means for jamming said flange against said stock.

2. An eccentric cutting-bit comprising a stock having a longitudinal eccentric bore, an eccentric sleeve in said bore, a shank having a stud in said sleeve, and a flange adapted to hold said sleeve in said bore and to abut against said stock, a member adapted to be screwed onto said stock, and having a shoulder adapted to engage with said flange to jam the same against said stock.

3. An eccentric cutting-bit, comprising a stock longitudinally and eccentrically bored and having a thread formed on an end thereof, an eccentric sleeve in said bore, a shank having a stud in said sleeve, a flange adapted to abut against said stock, a cutter, and a cylindrical member interiorly threaded and adapted to screw onto said stock and having an interior radial shoulder adapted to engage with said flange and jam the same against said stock, said member further having notches in one end to facilitate the turning thereof, said sleeve and said member having indicating marks to define the relative positions thereof.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOSEPH H. TOMBRAGEL.  
JOHN F. SCHUNDER.

Witnesses:

LEO SMITH,  
KITTIE E. HICKMAN.