

No. 845,360.

PATENTED FEB. 26, 1907.

M. JUNGling.
RECESS BORING TOOL.
APPLICATION FILED JULY 23, 1904.

Fig. 1.

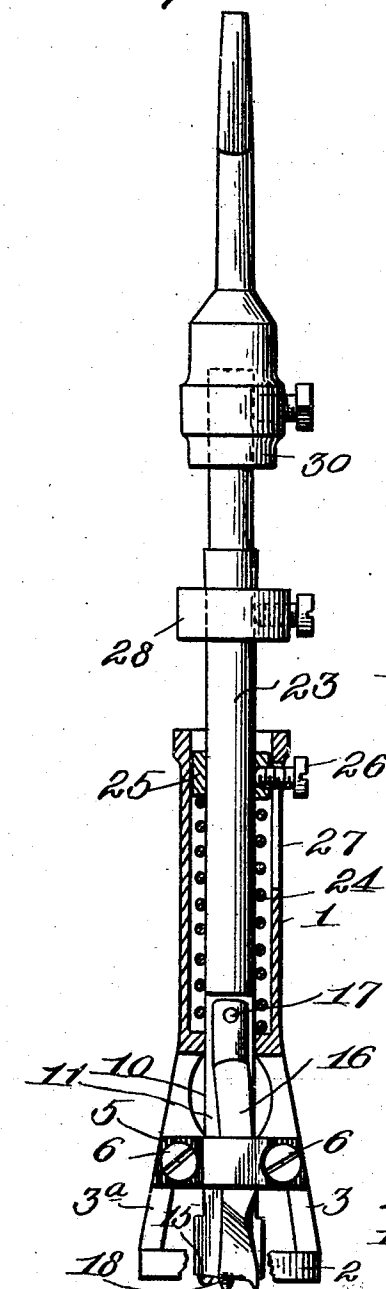


Fig. 2.

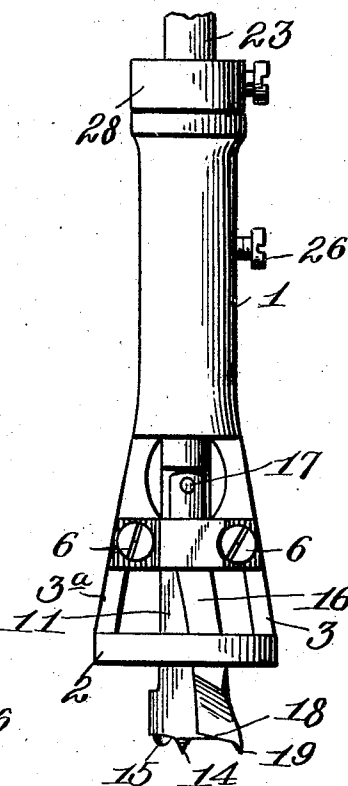


Fig. 4.

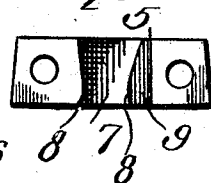
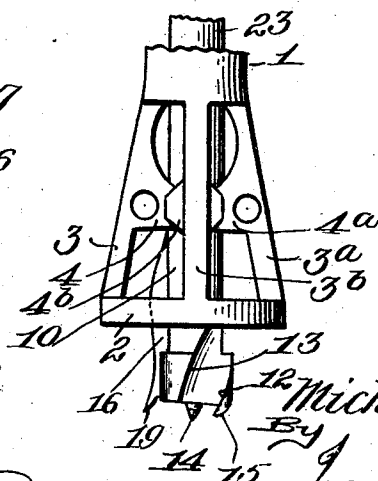


Fig. 3.



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UNITED STATES PATENT OFFICE.

MICHAEL JUNGLING, OF KINGWOOD, GEORGIA.

RECESS-BORING TOOL.

No. 845,360.

Specification of Letters Patent.

Patented Feb. 26, 1907.

Application filed July 23, 1904. Serial No. 217,894.

To all whom it may concern:

Be it known that I, MICHAEL JUNGLING, a citizen of the United States, residing at Kingwood, in the county of Colquitt and State of Georgia, have invented new and useful Improvements in Recess-Boring Tools, of which the following is a specification.

This invention relates to a recess-boring tool; and the object thereof is to construct a recess-boring tool which will in one operation bore a recess having a portion of its length cylindrical in contour and the remaining portion tapering or conical in contour.

The invention aims to provide a recess-boring tool which can be used in a machine or with a carpenter's ordinary brace, and, furthermore, aims to provide the tool with means for automatically limiting the boring thereof and for automatically returning the boring-bit to its normal position.

The invention further aims to construct a recess-boring tool for boring at one operation a recess having a portion of its length cylindrical in contour and the remaining portion tapering or conical and which shall be simple in its construction, strong, durable, efficient in its use, and comparatively inexpensive to manufacture.

With the foregoing and other objects in view the invention consists of the novel combination and arrangement of parts hereinafter more specifically described, illustrated in the accompanying drawings, and particularly pointed out in the claims hereunto appended.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, wherein like reference characters denote corresponding parts throughout the several views, and in which—

Figure 1 is a sectional elevation of the tool. Fig. 2 is a side elevation showing the flaring cutter in its operative position. Fig. 3 is a rear view showing the abutment-cage, and Fig. 4 is an inverted plan view of the deflecting-bar.

Referring to the drawings by reference characters, 1 denotes a rotatable casing having an enlarged skeleton end. Said end is termed a "cage." The cage comprises a ring 2 of greater diameter than the casing 1, and said ring 2 is connected with the casing through the medium of a plurality of inclined

arms 3 3^a 3^b, which have intermediate their ends on their inner faces inwardly-extending integral protuberances 4 4^a 4^b. The protuberances have their inner ends segment-shaped in contour and which form a semi-cylindrical guide-passage for the sectional boring-bit, to be hereinafter referred to. The protuberances 4 4^a 4^b constitute what may be termed the "boring-bit guide." The protuberances 4 and 4^a of the arms 3 and 3^a are apertured for a purpose to be presently referred to, and mounted upon the said protuberances 4 and 4^a and the arms 3 and 3^a is a deflecting-bar 5 for a flaring cutter which forms a section of the boring-bit and which will be hereinafter referred to. Each end of the deflecting-bar 5 is provided with screw-threaded openings and through which extend retaining-screws 6, engaging in the openings of the protuberances 4 4^a of the arms 3 3^a for securing said deflecting-bar 5 in position to one side of the abutment-cage. The deflecting-bar 5 is cut away on its under face to form an angular guide-passage 7, through which travels the flaring cutter, to be presently referred to, the side walls 8 of the passage 7 tapering inwardly as well as extending in a diagonal manner, so as to cause the flaring cutter to move outwardly off the other section of the bit and causing the boring of the conical or tapering portion of the recess, such action not to be had until after the boring of the cylindrical portion of the recess. The guide-passage 7 is not arranged centrally of the deflecting-bar 5, but to one side of the center, and to prevent the engagement of the sectional boring-bit, to be hereinafter referred to, with the underneath face of the deflecting-bar 5 the same is cut away, as at 9, forming thereby an intervening space between the underneath face of the deflecting-bar and the upper face of one section of the boring-bit.

The reference character 10 denotes the cylindrical boring-section of the boring-bit and which has a flat side, as at 11. The cylindrical boring-section 10 is further provided with the cutting edges 12 13, the screw-point 14, and cutting edge 15. Mounted upon the flat side of the section 10 is the conical boring-section of the boring-bit and which is termed a "flaring cutter" 16. At its upper end the flaring cutter 16 is pivoted

to the section 10, as at 17, and at its lower end said cutter 16 is provided with a cutting edge 18 and a cutting-point 19. The flaring cutter 16 extends a portion of its length—
 5 that is, from its cutting end—downwardly at an inclination, then upwardly at an inclination, and then straight. These portions are designated by the reference characters 20, 21, and 22, respectively, and which form what
 10 may be termed an "inclined offset" and causes the flaring cutter 16 to extend at an angle with respect to the guide-passage 7 in the deflecting-bar 5. The normal position of the flaring cutter is such that it does not
 15 project over the edge of the flat side of the cylindrical boring-section 10 until the boring-bit has been in operation to form the cylindrical part of the recess.

The reference character 23 denotes the
 20 shank of the sectional boring-bit and which extends through the casing 1, projects from the upper end of the casing 1, and is surrounded within the casing by a compression or extracting spring 24, the latter abutting
 25 at one end against the fixed collar 25 and at its other end against the lower end of the casing 1. The collar 25 carries a stop-pin 26, which extends through an elongated slot 27 in one side of the casing 1. The stop 26
 30 limits the return movement of the shank of the bit, while the forward movement of the shank 23 of the bit is limited through the medium of an adjustable stop-collar 28, fixed upon the shank 23. Said collar 28 on
 35 the forward movement of the bit engages the upper end of the casing 1, consequently arresting the boring operation. The shank of the bit can be attached to an operating part therefor of a boring-machine, but if used in
 40 connection with a carpenter's brace an extra socket 30 is employed.

The operation of the tool is as follows: The enlarged skeleton end of the casing 1 coming in contact with the piece of work which
 45 is to be bored, although revolving with the bit, owing to the arrangement of the stop-pin 26, stands in relative position, while at the same time the bit, which works freely up and down in the casing, is forced into the
 50 wood by an operating-lever therefor attached to a boring-machine or carpenter's brace, whichever the case may be, as it can be used in either. When the offset in the flaring cutter 16 comes into contact with the deflecting-
 55 bar 5, it forces the flaring cutter 16 against the side of the aperture being bored, thereby increasing the size of the hole gradually until stop-collar 28 comes in contact with the casing 1 at the top. At the same time the downward motion of the bit compresses the extracting-spring 24 by contact of the retaining-collar 25, which is held in position on the shank of the bit by the stop-pin 26. The pin working through the slot 27 in the casing 1 at

the same time holds the casing 1 and boring- 65 bit in their relative positions. Now by relieving the force exerted on the lever of the machine or the carpenter's brace, whichever is in use at the time, the bit is operated, the tension on the extracting-spring 24, exerting 70 its force on the retaining-collar 25, will force the boring-bit out of the hole before the casing 1 will leave its relative position from the piece of work which is being bored. At the same time the offset in the flaring cutter 16 75 in opposite or returning motion again comes in contact with the deflecting-bar 5, forcing the flaring cutter 16 back to its normal position before the casing 1 leaves its position, thereby assuring a smooth flaring hole 80 larger at the base than at the top.

The tool, which operates automatically, can be used either in a boring-machine running at as high a speed as two thousand and two thousand five hundred revolutions per 85 minute or in an ordinary carpenter's brace, which is worked by hand, if desired. A hole can be bored straight part of the depth—say three-eighths or one-half inch from the top of the hole—before the flare commences, 90 thereby giving the dowel or piece inserted a straight solid bearing, which will hold it more rigid than if the flare begins at entrance or top of the hole. Then by having a wedge inserted in the end of the piece which is to be 95 fastened into the recess it spreads same at the bottom and makes it impossible to pull out or work loose without the use of nails or glue.

It is thought the many advantages of a recess-boring tool constructed in accordance 100 with the foregoing description, taken in connection with the accompanying drawings, can be thoroughly understood, and it will furthermore be evident that changes, variations, and modifications can be resorted to 105 without departing from the spirit of the invention or sacrificing any of the advantages of the invention, and I therefore do not wish to restrict myself to the details of construction hereinbefore described, and as shown in 110 the accompanying drawings, but reserve the right to make such changes, variations, and modifications as come properly within the scope of the protection prayed.

Having thus fully described my invention, 115 what I claim as new, and desire to secure by Letters Patent, is—

A recess-boring tool comprising a rotatable casing having an enlarged skeleton end forming a cage provided with a guide-passage, a 120 deflecting-bar secured to said cage and provided with a passage opposing the passage in the cage, said passage in said deflecting-bar provided with inclined walls, and a bit rotating with said cage and formed of two sections, 125 one of said sections pivoted upon the other, said pivoted section provided with angularly-disposed portions, adapted to travel

through the passage in the deflecting-bar and
engage the walls of said passage, causing
thereby the deflecting of said pivoted sec-
tion, and the other of said sections of said bit
5 adapted to travel through the guide-passage
in the cage.

In testimony whereof I have hereunto set

my hand in presence of two subscribing wit-
nesses.

MICHAEL JUNGLING.

Witnesses:

W. W. ASHBURN,
D. F. ARTHUR.