(No Model.)

J. H. HENRY.

COUNTERSINKING BIT.

No. 554,443. Patented Feb. 11, 1896.

Fig. 1.

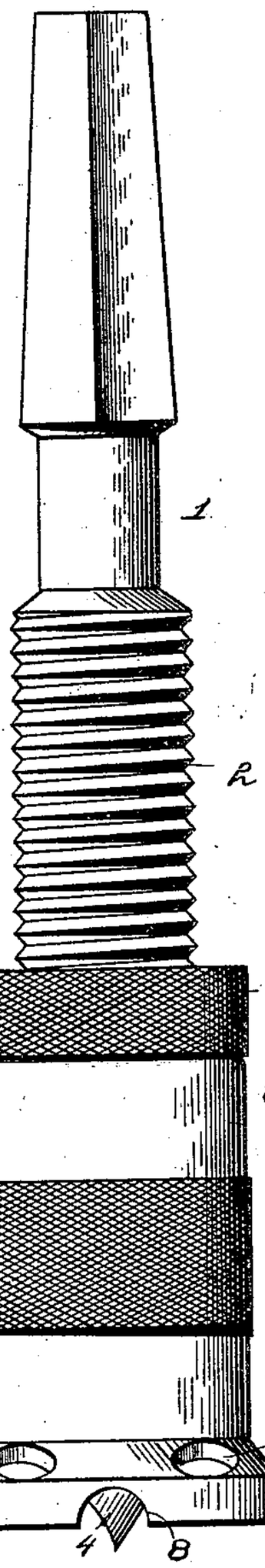


Fig. 2.

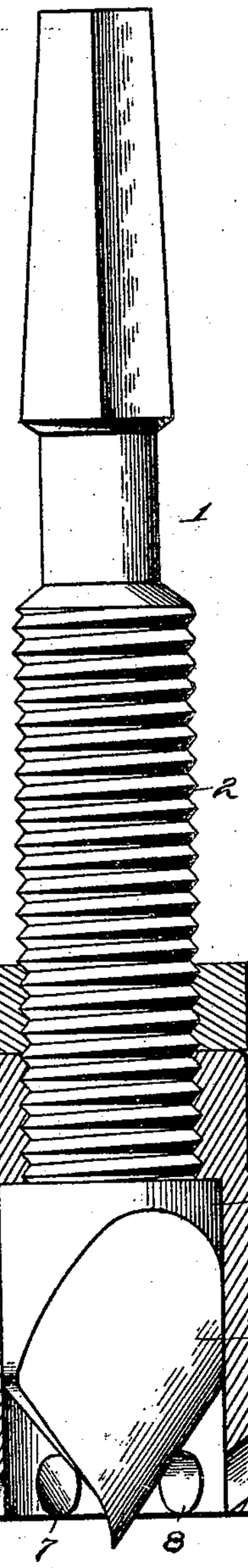


Fig. 4.

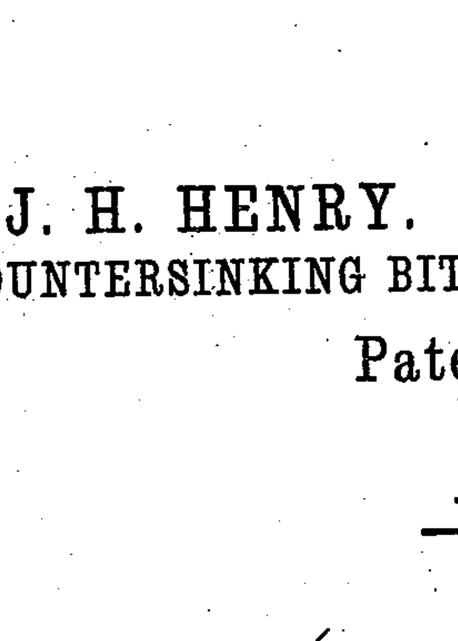
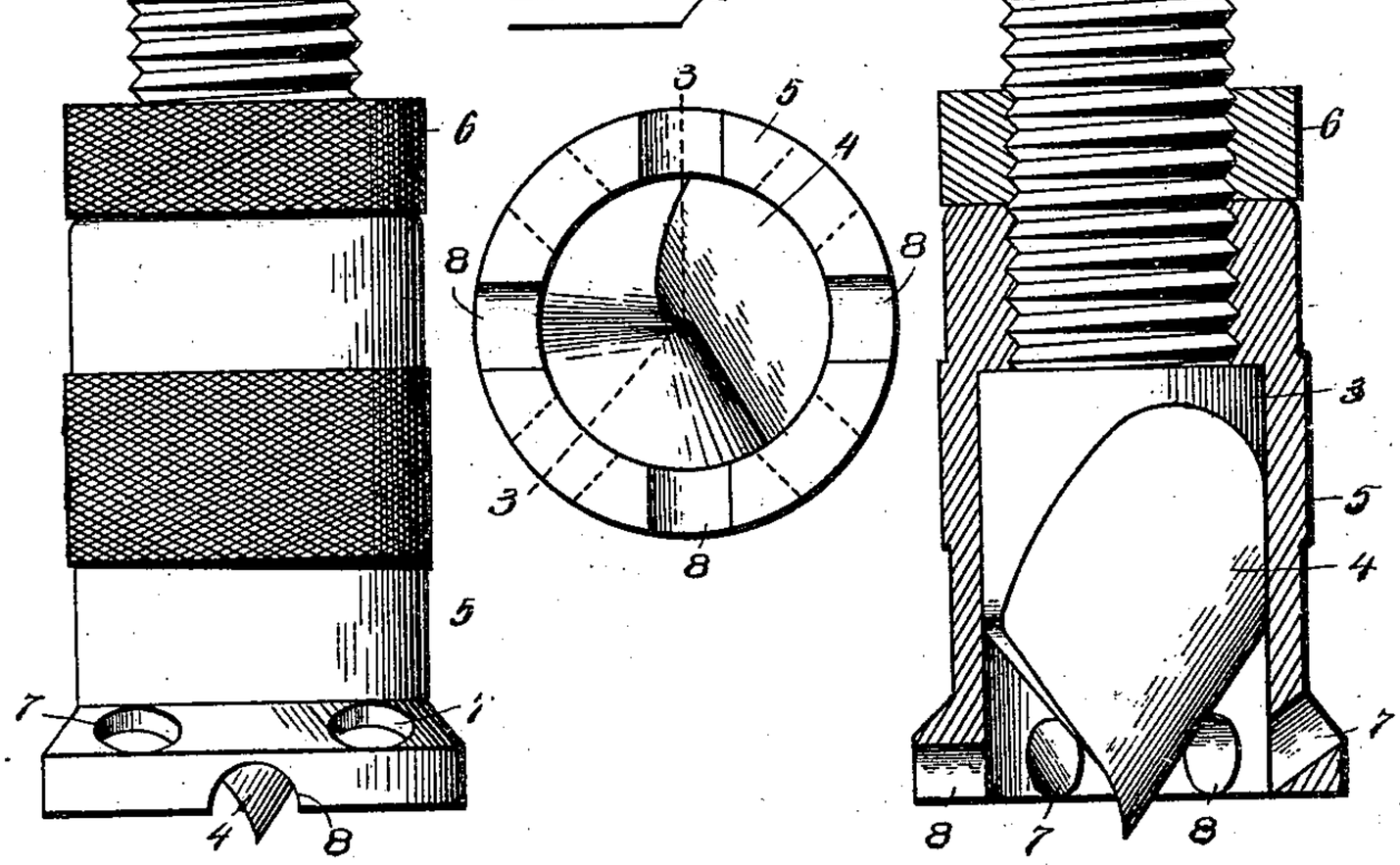


Fig. 3.



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COUNTERSINKING-BIT.

SPECIFICATION forming part of Letters Patent No. 554,443, dated February 11, 1896.

Application filed March 28, 1895. Serial No. 543,507. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. HENRY, a citizen of the United States, residing at Brightwood, in the county of Hampden and State of Massachusetts, have invented a new and useful Countersinking-Bit, of which the following is a specification.

My invention relates to a countersinking-bit, and has for its object to provide a simple, inexpensive, and efficient device of the class named having a gage for limiting the penetration of the bit to suit screw-heads of different sizes or diameters, to provide means for preventing the accumulation of cuttings under the end of the gage, and to provide means for observing the progress of the bit without removing the same.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings, Figure 1 is a side view of a bit constructed in accordance with my invention. Fig. 2 is a vertical section of the same on line 3 3, Fig. 3. Fig. 3 is a bottom plan view. Fig. 4 is a side view of a modified form in which the gage is plain.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the shank of the improved bit having an enlarged body portion 2 and a head 3 provided with a concave cutting-face 4, and threaded upon said body portion is a cylindrical gage 5, which may be adjusted downward or toward the point of the bit so as to expose only the extremity of the latter beyond the end of the gage to form countersinks for screws of the smallest size. Threaded upon the body portion of the shank above the gage is a jam-nut 6, of which the function is to prevent displacement of the gage after adjustment to suit the side of the screw-head to be countersunk.

The gage is provided in its lower edge with a series of radial clearance-channels 8 to prevent the accumulation of cuttings under the gage, and hence the obstruction of the latter in approaching the surface in which the countersink is formed, and above the plane of these clearance-channels is formed a series of inwardly and downwardly inclined observation-openings 7, through which the point of the bit may be seen and the progress of the boring observed. Said clearance-channels are arranged horizontally and radially, or with their axes in radial positions in the lower edge of the body portion of the gage, said channels being approximately semicylindrical in cross-section, whereby the walls thereof intersect the lower edge of the gage to form abrupt angles which serve as scrapers to gather chips or shavings and cause them to accumulate in the channels.

From the above description it will be seen that the improved bit is simple in construction and may be adjusted with facility to adapt it for forming countersinks for screws of any desired size, the gage being firmly locked in place after adjustment by the jam-nut provided for that purpose, and in addition thereto the obstruction of the tool during the operation is prevented and the progress of the boring may be seen without removing the tool from the work.

In the drawings the gage is shown applied to a woodworking-bit; but it is obvious that the usefulness of the device is not limited to woodworking-tools, but can be applied with equal facility and efficiency to metal-working tools. The special construction of the bit, beyond the fact that it is provided with a threaded shank, forms no part of my invention.

The clearance-channels 8 being formed in the lower edge of the gage have open lower sides which intersect the lower edge of the gage in abrupt angles, which have the effect of carrying clippings or cuttings, and thus removing them from the surface of the object in which the countersink is being formed. Said cuttings are gathered by the clearance-channels during the operation of the tool and without attention upon the part of the operator.

The advantage derived from the use of the observation-openings will be understood by those skilled in the art to which the invention appertains, especially when the countersink which is being formed is of small diameter and when the lower edge of the gage approaches the surface of the object in which the countersink is being formed. Said open-

ings allow the operator to observe whether the tool is cutting properly or whether the accumulation of cuttings is clogging or otherwise interfering with the operation. Furthermore, said openings allow the operator to blow away the cuttings in order that clogging of the cutting-tool may be avoided.

It is obvious, furthermore, that various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

In a device of the class described, in combination with the threaded bit-shank carrying a countersinking-bit; of a cylindrical gage-body receiving the bit and provided with a threaded upper end adjustably engaging said shank and with a lower open end, said cylindrical gage-body being further provided in its lower edge with a series of spaced radially-disposed clearance-channels 8, having opposite scraper-edges, and in its sides adjacent to its lower edge with a series of downwardly and inwardly inclined openings 7, alternating with the channels 8, and performing the combined function of inspection-openings, and blow-holes whereby chips or shavings can be readily blown out through the clearance-channels 8, and a jam-nut threaded on the bit-shank above the gage-body, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN H. HENRY.

Witnesses:

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A. H. WARNER.