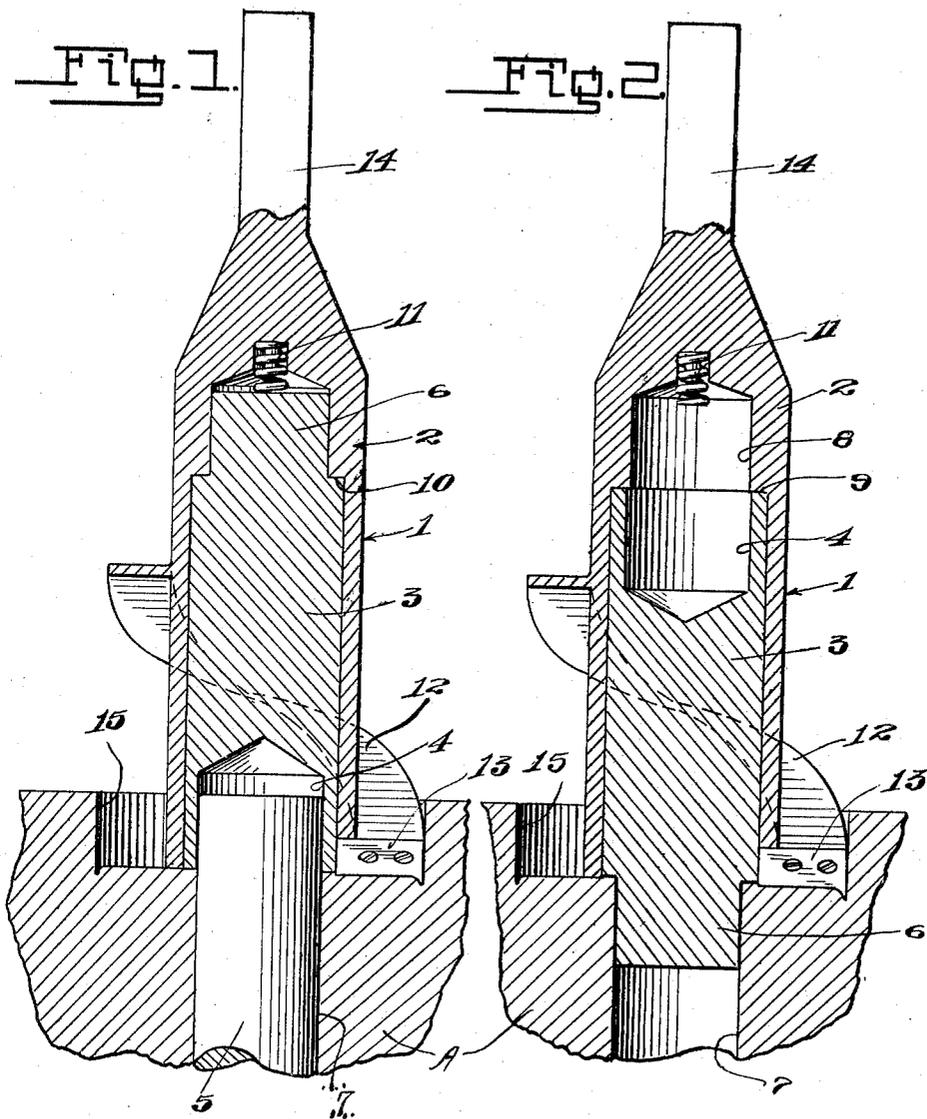


A. W. TACKE.  
COUNTERBORING TOOL.  
APPLICATION FILED AUG. 28, 1918.

1,316,201.

Patented Sept. 16, 1919.



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# UNITED STATES PATENT OFFICE.

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## COUNTERBORING-TOOL.

1,316,201.

Specification of Letters Patent. Patented Sept. 16, 1919.

Application filed August 23, 1918. Serial No. 251,847.

*To all whom it may concern:*

Be it known that I, ALVIN W. TACKE, a citizen of the United States, and a resident of Tampa, in the county of Hillsborough and State of Florida, have invented certain new and useful Improvements in Counterboring-Tools, of which the following is a specification.

This invention relates to a counterboring tool and more particularly to a tool designed for use in ship building, its specific function being to counterbore the fastenings of wood ships about the clench bolts to permit the setting of the clench rings flush with the outer surface of the fastening.

An object of the invention is to provide a counterboring tool as specified, which is simple in construction, and one by means of which the necessary counterbores may be made in a minimum length of time and with absolute accuracy.

More specifically, the invention comprehends a two-part counterboring tool, including a reversible thimble provided with a recess in one end for engagement over the clench bolts, when such bolt is in place, and with a projection upon its opposite end adapted to seat in the bore which receives the clench bolt when the latter is not in place, and a body shell carrying the cutter and shaving feed or worm, which fits about the reversible thimble and rotates thereon for cutting the counterbore.

Other objects of the invention will appear in the following detailed description, taken in connection with the accompanying drawing, forming a part of this specification, and in which drawing:

Figure 1 is a sectional view through the improved counterboring tool showing the same applied when used with a clench bolt in place.

Fig. 2 is a sectional view similar to Fig. 1, showing the tool as used when the clench bolt is not in place.

Referring more particularly to the drawing, 1 indicates the improved tool as an entirety, which comprises the main body shell 2 and the interior reversible thimble 3. The thimble 3 is formed of suitable metal, and is cylindrical in shape, being provided with a recess 4 extending inwardly from one end of the same, which recess is shaped to snugly fit a clench bolt indicated at 5, such as are employed in the fastening of wooden ships construction. The reversible thimble 3 also

has a projection 6 projecting outwardly from its end opposite to the end which is provided with the recess 4 and this projection or shank 6 is adapted to be inserted into the bore, indicated at 7 which receives the clench bolt when the latter is not in place, so as to permit the use of the counterboring tool either after or prior to the application or insertion of the clench bolt 5 into the bore 7.

The main body 1 of the tool, comprises a shell recessed to snugly fit about the thimble 3 and which recess is reduced at its uppermost portion, as shown at 8, forming a shoulder 9 against which the shoulder formed upon the thimble 3, at the junction between the thimble and the shank 6, rests when the counterboring tool is used while the clench bolt 5 is in place, and as shown in Fig. 1 of the drawing. A spiral spring 11 is positioned within the interior of the body shell 2, and it engages the upper end of the shank 6, for forcing the thimble 3 downwardly or urging it outwardly to facilitate the starting of the operation of the tool. A spiral shavings auger or conveyer 12 is formed upon the shell 2 and it has a bit or cutter 13 detachably connected to its lower end. This cutter may be of any well-known construction.

The upper end of the shell 2 tapers inwardly, and has a shank 14 formed integrally therewith, by means of which the tool may be connected to a brace, air motor or other suitable operating device.

When the clench bolt 5 is in place, the thimble 3 is positioned with the recess 4 downwardly, and this recess is positioned over the end of the clench bolt. In case the end of the clench bolt is flush with the surface of the fastening or portion of the ship construction indicated at A, the thimble is given a slight blow with a hammer to properly position the same and start its operation. After the thimble is properly positioned, the shell 2 is mounted thereon, and operated in the same manner in which ordinary counterborers or bits are employed for cutting the countersink or counterbores indicated at 15, which receives the clench ring.

In case the clench bolt 5 is not in place, the thimble 3 is reversed from the position shown in Fig. 1, so that the shank 6 will extend into the bore 7 which receives the clench bolt. This shank 6 is of sufficient

diameter to snugly fit within the bore and properly center the body shell 2 of the tool so as to permit the cutting of a concentric counterbore 15. The wood immediately surrounding the bore 7, or the bolt 5 will be carried upwardly with the shavings, owing to the fact that it will be broken off during the drilling of the counterbore. The action of the wood above mentioned immediately surrounding the bore 7 or bolt 5 will be augmented by the action of the bolt 5, when the latter is in place, particularly in view of the fact that a bolt of substantially one-sixteenth of an inch greater diameter than the diameter of the openings insert therein; for example a one inch bolt is driven or forced into a fifteenth-sixteenth of an inch hole or opening, thus forcing the wood outwardly and assisting the tool in carrying the relatively thin piece of wood upwardly with the shavings cut.

Changes in details may be made without departing from the spirit of this invention, but:

I claim:

1. In a counterboring tool as specified, the combination, of a reversible thimble provided with a recess extending inwardly and to one end of the same, a shank formed upon the opposite end of the thimble, a body shell for rotatable mounting upon said thimble, and a cutter carried by said body shell.

2. In a counterboring tool, the combina-

tion, of a reversible thimble provided with a recess extending upwardly and to one end of the same, a shank formed upon the opposite end of said thimble, a body shell for rotatable mounting upon said thimble, a shoulder formed within said body shell for engagement with said thimble, and means for urging said thimble outwardly, and a cutter carried by said body shell.

3. In a counterboring tool as specified, the combination of a reversible thimble provided with a recess extending inwardly and opening out at one end of the thimble, a shank formed upon the opposite end of said thimble, a body shell for rotatable mounting upon said thimble, and means within said body shell and engaging said shank when the shank is positioned inwardly in the shell for normally urging the thimble outwardly.

4. In a counterboring tool as specified, the combination, of a reversible thimble provided with a recess extending inwardly and opening out at one end of the thimble, a shank formed upon the opposite end of said thimble, a body shell for rotatable mounting upon said thimble, means on said body shell to limit the insertion of the thimble thereinto when the recessed end of the thimble is positioned inwardly in the body shell to maintain the shank projected beyond the end of the body shell.

ALVIN W. TACKE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."