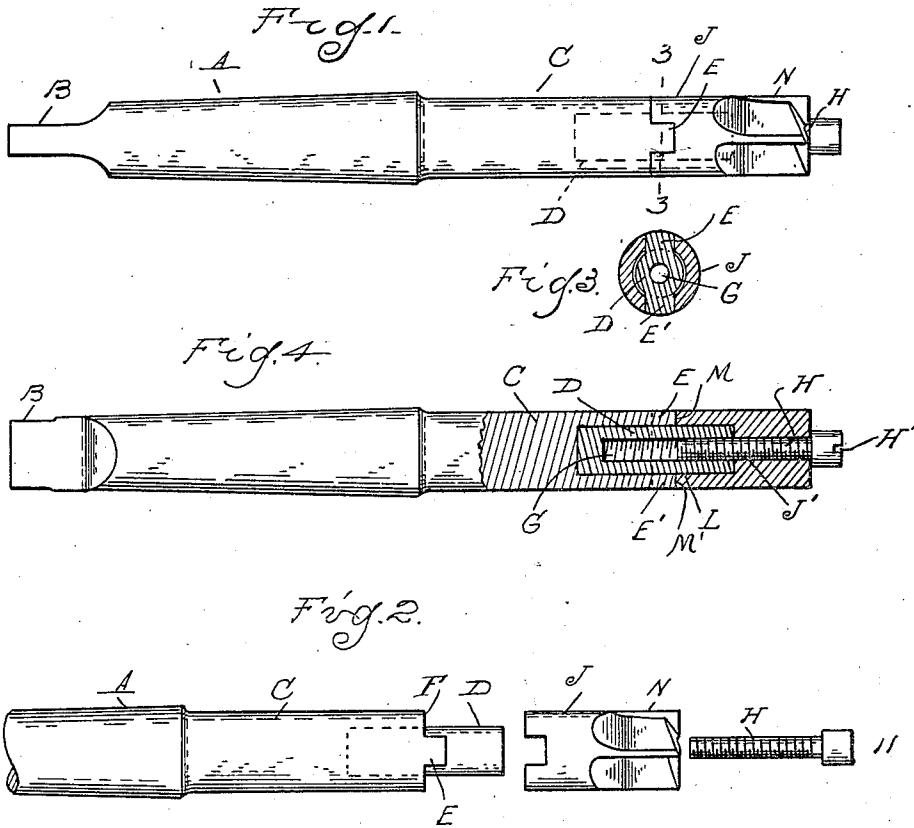


C. P. WINEMAN.
 INTERCHANGEABLE COUNTERBORE.
 APPLICATION FILED SEPT. 20, 1917.

1,285,869.

Patented Nov. 26, 1918.



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INTERCHANGEABLE COUNTERBORE.

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Specification of Letters Patent.

Patented Nov. 26, 1918.

Application filed September 20, 1917. Serial No. 192,281.

To all whom it may concern:

Be it known that I, CHARLES P. WINEMAN, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Interchangeable Counterbores, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to counter-bores and refers more particularly to a counter-bore having an interchangeable or replaceable end.

Among the objects of the invention are to provide an improved and simplified construction of counter-bore having an interchangeable or replaceable end, and especially to provide a construction having greater strength at the point of connection than tools of this same general character heretofore devised.

The invention also resides in the particular manner of constructing the counter-boring tool, and in such other features of construction and arrangements and combinations of parts as will more fully hereinafter appear.

In the drawings:

Figure 1 is a side elevational view of an interchangeable counter-bore embodying my invention;

Fig. 2 is a similar view showing the parts in detached relation;

Fig. 3 is a cross sectional view on the line 3—3 of Fig. 1;

Fig. 4 is a longitudinal sectional view.

Describing in detail the particular embodiment of my invention shown in the drawings, A designates the shank of the counter-boring tool, B the tang and C the main body portion. The latter, at its end opposite from the tang, is provided with a projecting pin D, at the sides of which there are located lugs or projections E and E' extending from the end F of the cylindrical body portion. This pin is preferably pressed or otherwise secured into the recess formed in the body portion, and at its outer end is provided with an internally threaded seat G for receiving the locking pin H. This pin extends through an opening J' in the removable counter-bore member J. The latter is provided with an axial bore L adapted to

closely fit over the pin D and has seats M and M' for interlocking with the projections E and E' on the end of the main body portion.

The counter-bore, at its outer end, is provided with suitable cutting edges N, although any form of counter-bore or other tool could be substituted. When the parts are in the assembled position, shown in Fig. 1, the counter-bore is not only caused to rotate with the main body portion C by means of the interengagement between the members E and E' and the seats M and M', but is held in rigid relation to the counter-bore by the inner engagement of the pin D with the seat L. This gives a long bearing surface which prevents the entire strain being placed upon the interlocking lugs. Also the novel construction of the joint between the main body portion and the removable counter-bore allows these parts to be accurately and economically formed.

When it is desired to replace the counter-bore or interchange it with another counter-bore, it is only necessary to remove the locking pin H, which preferably has its end provided with a slot H', and then withdraw the counter-boring tool from the pin D. Inasmuch as the head of the pin or screw H performs the functions of a pilot to guide and control the tool in the performance of its work, it will be understood that in changing from one counter-bore to another that if there is any difference in the size of the tool a pin will be selected having the proper sized head. Because of the shape and construction of the inner locking pin and recess, a very accurate connection between the shank or body portion of the tool and the removable counter-bore or other member can be made.

What I claim as my invention is:—

1. In an interchangeable tool device, the combination with a main body portion having projections on one end, a pin extending beyond such projections, a removable tool having a recess for receiving said pin and seats for receiving said projections, and means for locking said tool to said body portion, comprising a locking member extending through said tool and engaging a threaded seat in said pin.

2. In an interchangeable tool device, the

combination with a main body portion having a recess in one end, lugs projecting from said end of the main body portion at opposite side of said recess, a cylindrical pin retained in said recess and projecting therefrom, a removable tool having a recess for receiving said cylindrical pin and seats for

receiving the projecting portion of said lugs, and a locking pin having an enlarged head and a stem portion adapted to be locked from longitudinal movement with reference to said cylindrical pin.

In testimony whereof I affix my signature.

CHARLES P. WINEMAN.