W. G. CHURCH.

EXPANSIBLE REAMER OR SIMILAR TOOL.

APPLICATION FILED MAR. 5, 1912.

1,066,796. Patented July 8, 1913.

Fig. 1.

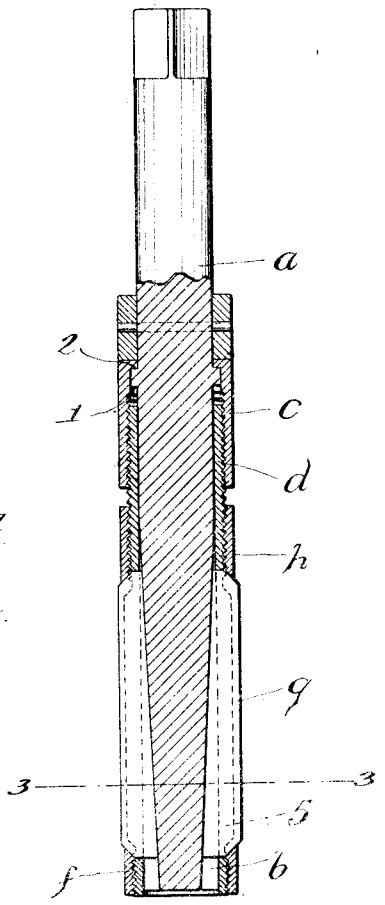


Fig. 3.

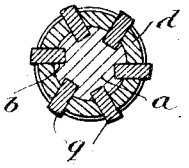
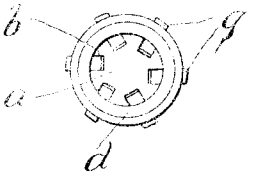


Fig. 2.



WITNESSES

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EXPANSIBLE REAMER OR SIMILAR TOOL.

1,066,796. Specification of Letters Patent. Patented July 8, 1913.

Application filed March 5, 1912. Serial No. 681,809.

To all whom it may concern:

Be it known that I, WILLIAM G. CHURCH, a citizen of the United States, and resident of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Expansible Reamers or Similar Tools, of which the following is a specification.

The object of this invention is to produce an article of the character described having features of novelty and advantage.

An embodiment of the invention is illustrated in the drawings in which—

Figure 1 is a central vertical section, and Fig. 2 is an end view. Fig. 3 is a transverse section on the line 3, 3 of Fig. 1.

Referring to the drawings *a* denotes a spindle having a plurality of longitudinal slots *b* tapering to provide the greatest depth at the end of the spindle. *c* is an adjusting collar rotatably mounted on the spindle but held against movement longitudinally of the spindle by the shoulders 1—2, the sleeve being interiorly threaded to receive the threaded end of the cage *d* which fits closely upon the spindle, the spindle of course, being of even diameter throughout except for the tapered grooves. The cage is slotted as at 5 to correspond to the grooves in the spindle and has reduced and threaded ends. The inner end is engaged by the adjusting sleeve *e* and the outer end by the pilot *f*. Cutters *g* having their lower edges tapered to correspond to the taper of the bottom of the grooves in the spindle rest in these grooves and project through the slots in the cage. The ends of the cutters are chamfered off to an angle of about forty-five degrees and are engaged at their outer ends by the undercut pilot and on their inner ends by a lock sleeve *h*.

The adjustment is secured by loosening the lock sleeve and then turning the adjusting sleeve in either direction which causes the spindle to move in or out of the cage, thus raising or lowering the cutters; when adjusted to a sufficient degree the lock sleeve is turned up to hold the cutters in position.

The set of cutters shown provides for a variation of about one-sixteenth of an inch in diameter but with the same device another set of cutters of greater depth can be used so as to provide for an increased size. When the size of the cutters is changed the pilot is usually changed to correspond so that for hand operation it will act as a guide.

Features that will be particularly noted are; that the faces of the cutters lie in radially disposed planes; that the spindle is supported by the cage against any tendency to spread; the construction is such that there is no part projecting from the front of the tool making it possible to ream out bottomed holes; and the cutters are supported both in the spindle and in the cage making it possible to bring the support up near to the cutting edge and so prevent any spring in the cutters. I desire to secure herein such modifications as come fairly within the scope of the claims.

I claim as my invention:—

1. In an article of the character described, a driven spindle having longitudinally extending and tapered grooves, a cage closely fitting said spindle and having corresponding slots, cutters, having their bottom faces tapered to correspond with the taper of the grooves in the spindle, seated in said grooves and projecting through the slots in the cage, means for moving said spindle and cage longitudinally with respect to one another to cause radial movement of the cutters, and means adjustably engaging the cage for holding said cutters securely in position.

2. A spindle having longitudinally extending and tapered grooves, a cage closely fitting upon said spindle and slotted to correspond with grooves in the spindle, reduced and threaded end portions on said cage, a pilot secured to the outer end of the cage and a lock sleeve secured to the inner end of the cage, cutters seated in the grooves in the spindle and projecting through the cage and engaged by said pilot and lock sleeve to hold them in position, an adjusting sleeve rotatable on the spindle and engaging the cage whereby the spindle and cage are moved longitudinally relative to one another for the purpose specified.

3. In an article of the character described a spindle having a plurality of longitudinal grooves whose bottoms taper toward the end of the spindle, a cage fitting closely upon said spindle and slotted to correspond with the grooves therein, cutters whose bottom faces are inclined to correspond with the tapering of the grooves, said cutters being

seated in said grooves and projecting through the slots in said cage, means mounted on the cage and engaging the ends of the cutters to hold them in position in said cage and an adjusting sleeve rotatable on said spindle and engaging said cage whereby said spindle is moved longitudinally with respect to said cage and cutters, the plane of one face of each cutter being radially disposed.

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