

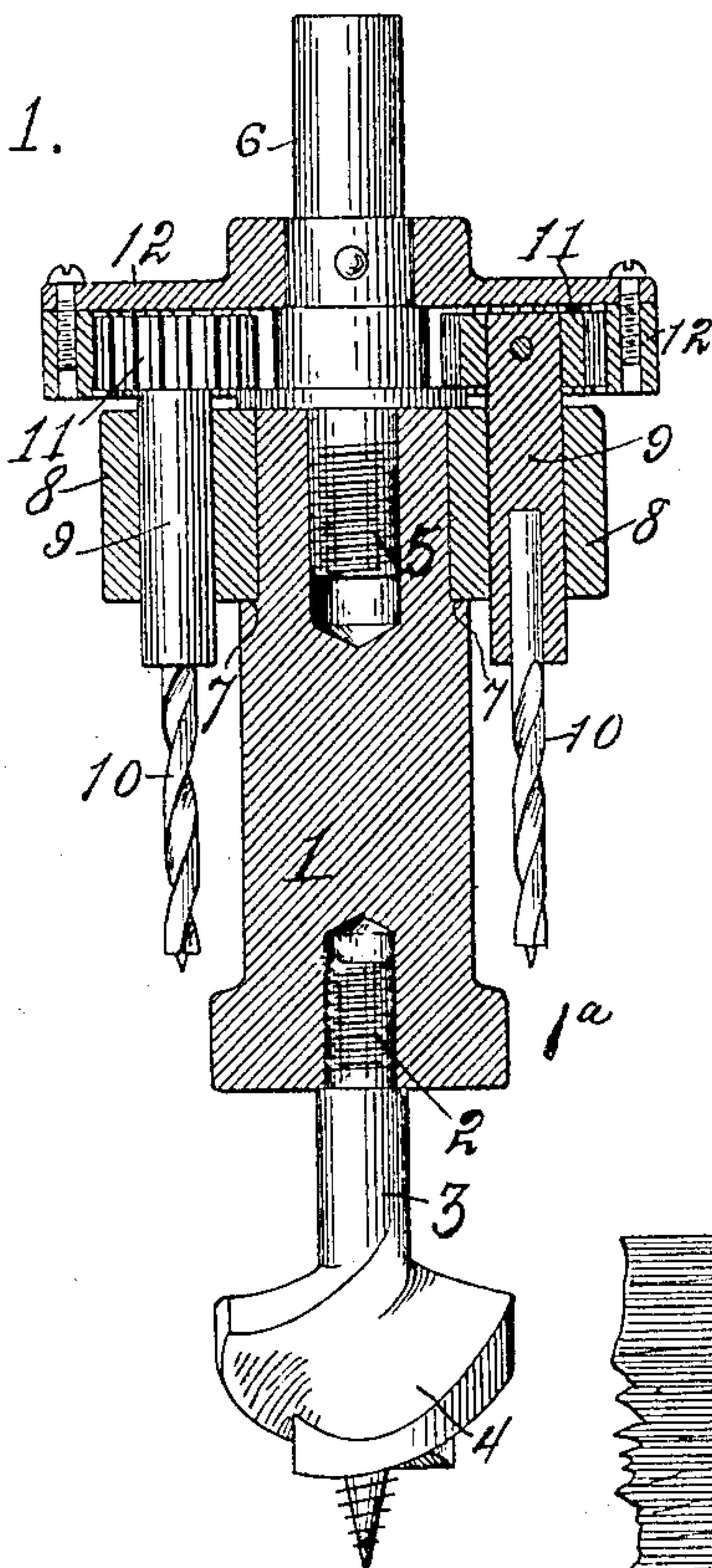
No. 869,504.

PATENTED OCT. 29, 1907.

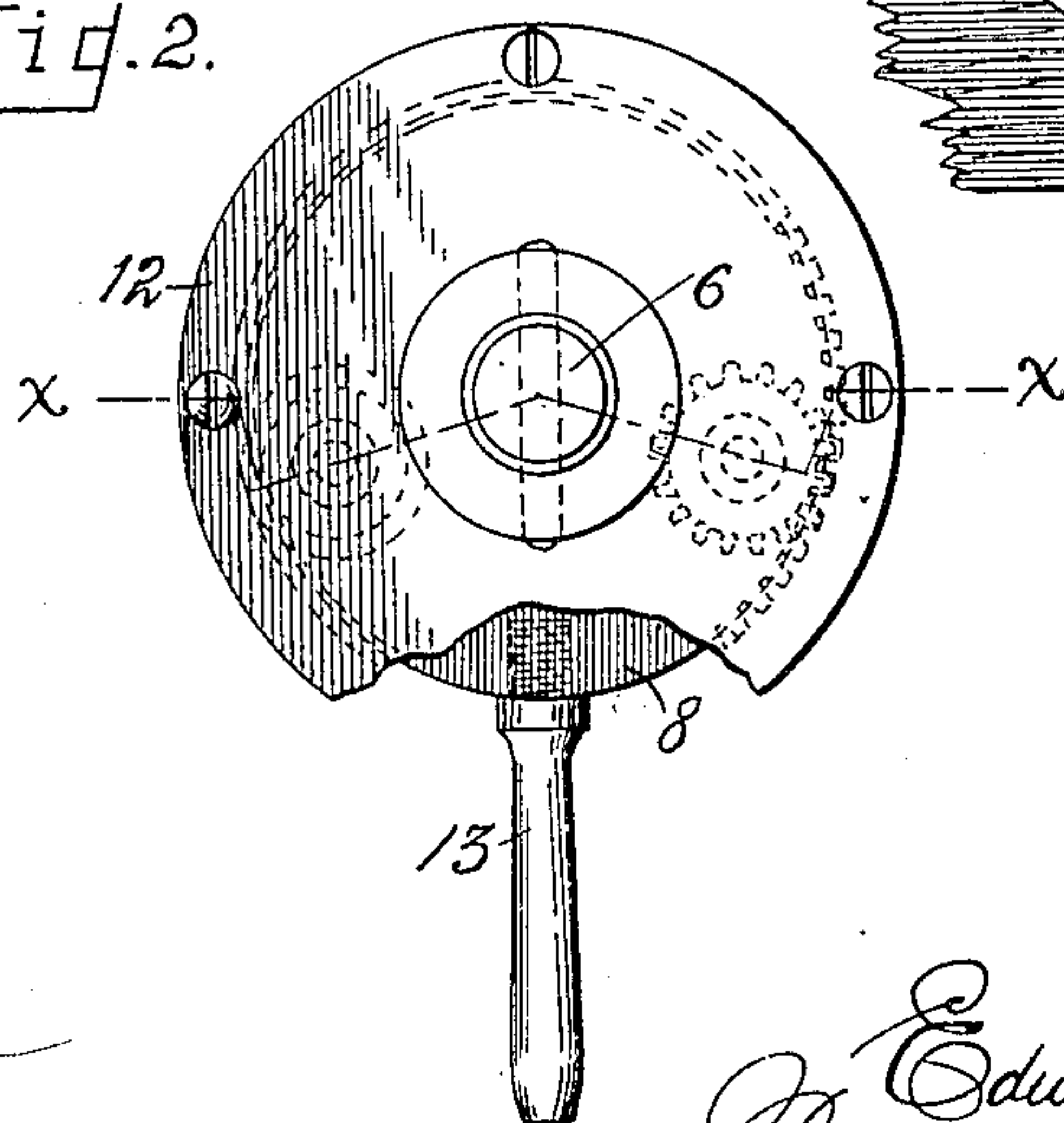
E. C. MUELLER.  
BORING MACHINE.

APPLICATION FILED MAY 14, 1906.

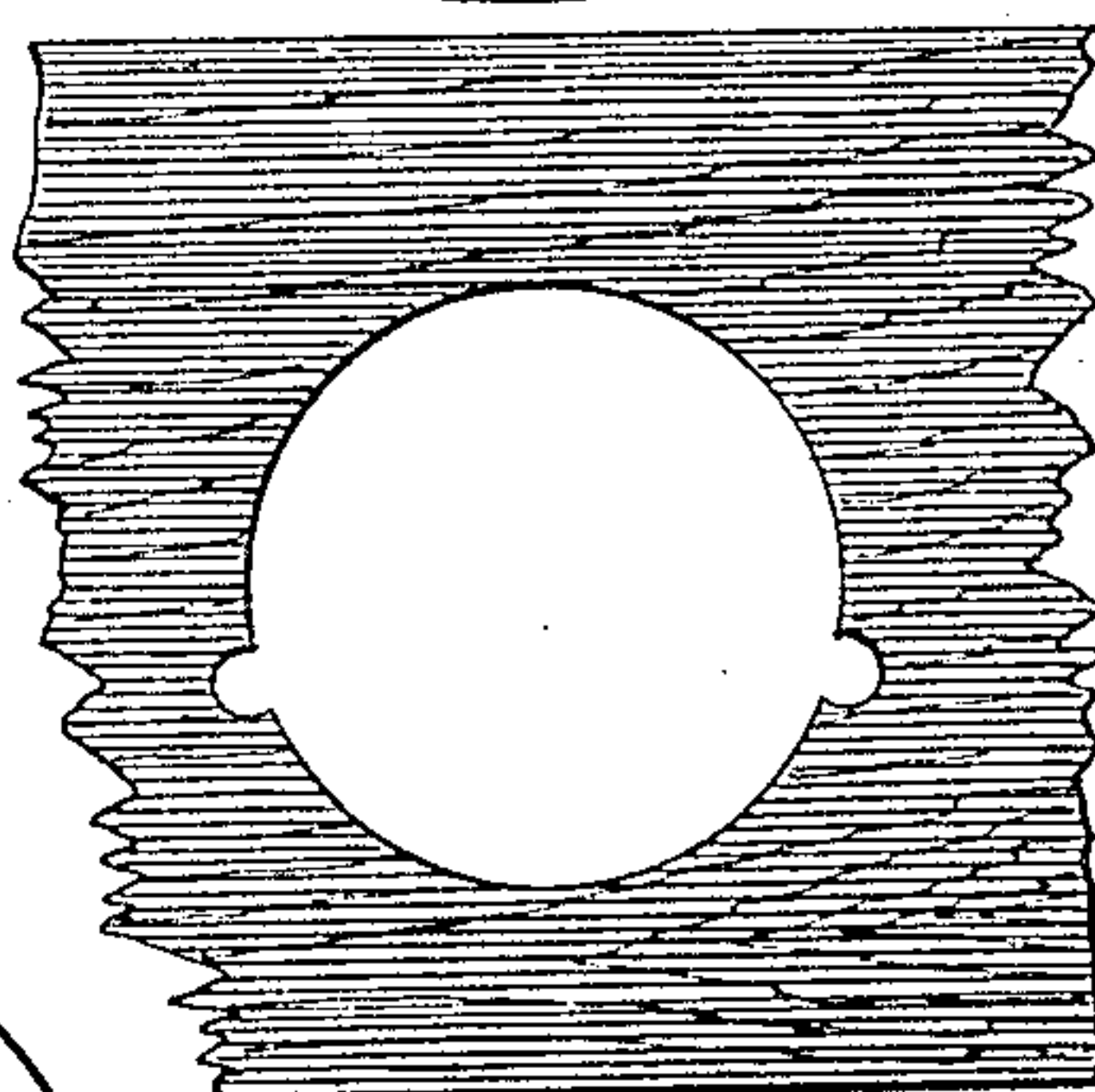
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



WITNESSES:

*D. C. Walter*  
*Ada Law.*

INVENTOR:

*Edward C. Mueller,*  
*J. H. Hall, Atty.*



# UNITED STATES PATENT OFFICE.

EDWARD C. MUELLER, OF TOLEDO, OHIO, ASSIGNOR TO THE TOLEDO BUSHING COMPANY,  
OF TOLEDO, OHIO, A CORPORATION OF OHIO.

## BORING-MACHINE.

No. 869,504.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed May 14, 1906. Serial No. 316,665.

*To all whom it may concern:*

Be it known that I, EDWARD C. MUELLER, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Boring-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

In the use of certain bung-hole bushings it is necessary to bore, in addition to the bung-hole, two small supplemental holes which form recesses in the margin of the bung-hole. The purpose of these supplemental holes or recesses is to permit the passage of the flange of one of the members of the bushing when it is introduced through the bung-hole into the barrel preparatory to its engagement with the other or outer member of the bushing. In boring these three holes it has been found difficult to establish their relative positions so exactly that the flange of the bushing-member will always coincide with the opening and pass through the stave without obstruction.

My invention relates to and its object is to provide a machine which shall overcome the difficulties here indicated, and, more particularly, to provide a boring machine which shall bore the three holes at one operation and always in exactly the proper relation to each other.

I attain these objects by means of the devices and arrangement of parts hereinafter described and shown, and illustrated in the accompanying drawings, in which—

Figure 1 is a vertical central sectional elevation of my device; Fig. 2, a top-plan view of the same, and Fig. 3, a top-plan view of a fragment of a barrel-stave showing the form of aperture produced by my machine.

Like numerals of reference indicate like parts throughout the drawings.

In the drawings, 1 is a shaft tapped and threaded axially at its bottom for the reception of the threaded end 2 of the shank 3 of the auger 4, which auger is of proper dimensions to bore the required bung-hole. The top of the shaft 1 is tapped and threaded axially to receive the threaded end 5 of a short reduced shaft or stud 6, the upper end of which is designed for engagement with the bit-stock or other suitable means for rotating the shaft. The bottom of shaft 1 has an enlarged portion 1<sup>a</sup>, of the diameter of the auger 1. The shaft 1 at top is somewhat reduced in diameter, thus forming a shoulder 7 upon which rests a ring 8, the shaft and the shoulder forming a bearing upon which the ring may be rotated. Through the ring 8, vertically, are two

holes for the reception of the shanks 9 of small augers or bits 10. At the top of each shank 9 is secured a pinion 11 engaged by the teeth of an internal gear wheel 12 rigidly secured to the shaft 6. Secured to the ring 8 is a handle 13 which projects horizontally and radially as shown in Fig. 2.

The operation of my device is as follows: The shaft 6 being connected with a suitable driving-mechanism, the point of the auger 4 is placed at the desired center and upon being given motion bores a circular hole through the stave. The instrument is supported in upright position and pressed downwardly by the handle 13 which also holds the ring 8 against rotation. As the auger 4 emerges from the inner side of the stave, the lower enlarged end 1<sup>a</sup> of the shaft 1 passes into and exactly fits the hole and furnishes a guide for the approaching points of the bits 10. These bits are so located as to bore two holes which intersect the margin of the principal hole, forming recesses therein as illustrated in Fig. 3. It will be seen that the ring 8 being held stationary and the pinions 11 being engaged with the rotating internally toothed gear 12, the bits are given rapid axial motion and the two supplemental holes are quickly bored in exactly the proper positions.

Having described my invention, what I claim and desire to secure by Letters Patent is,—

1. In a device of the described character, an auger, a pair of augers of smaller diameter arranged in such relation to the larger auger that their bores shall intersect the bore of the larger auger, a guide upon the shaft of the larger auger adapted to fit the bore of such auger and extending forward of the ends of the smaller augers, and gears intermediate of the larger and the smaller augers.

2. In a device of the described character, an auger, a pair of augers of smaller diameter arranged on either side of the larger auger, a cylindrical guide upon the shaft of the larger auger adapted to fit the bore of such auger and extending forward of the ends of the smaller augers, and gears intermediate the larger auger and the smaller augers.

3. A boring device comprising a main auger, an auger of smaller diameter disposed at the side of and in the rear of the main auger adapted to notch the edge of the bore of the main auger, and a guide disposed between the two augers arranged to enter the bore of the main auger and guide the smaller auger in its action.

4. A boring device having a plurality of augers, comprising a shaft for the central auger provided with an enlargement adapted to fit the bore of said auger, and auxiliary augers arranged at the side of the central auger, the ends thereof being behind said enlargement, whereby they will be guided thereby.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD C. MUELLER.

Witnesses:

CLAYTON MURPHY,  
ADA LAW.