

(No Model.)

2 Sheets—Sheet 1.

C. W. MEGGENHOFEN & A. S. COURTRIGHT.
BORING MACHINE.

No. 518,262.

Patented Apr. 17, 1894.

Fig. 1.

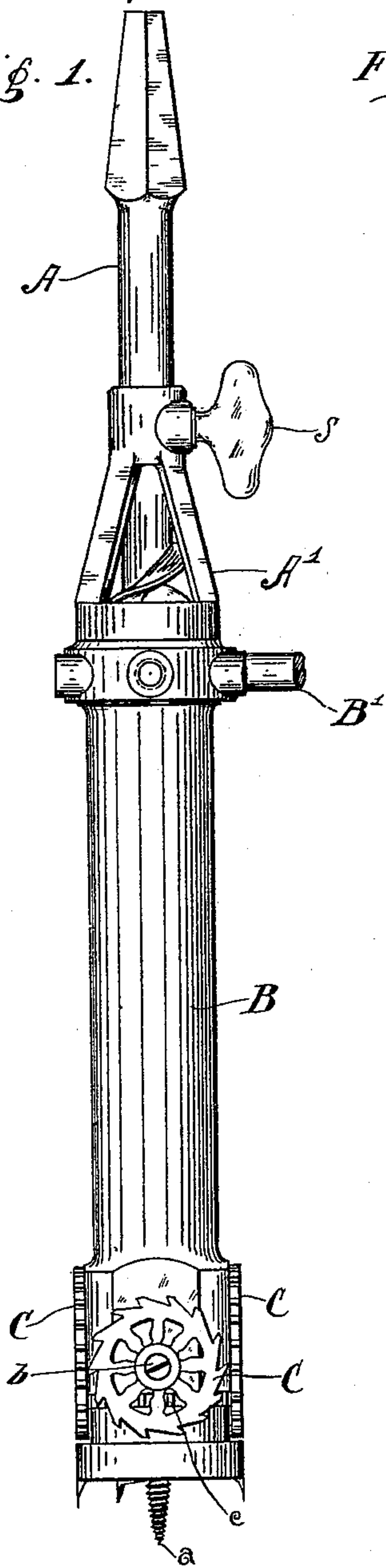


Fig. 2.

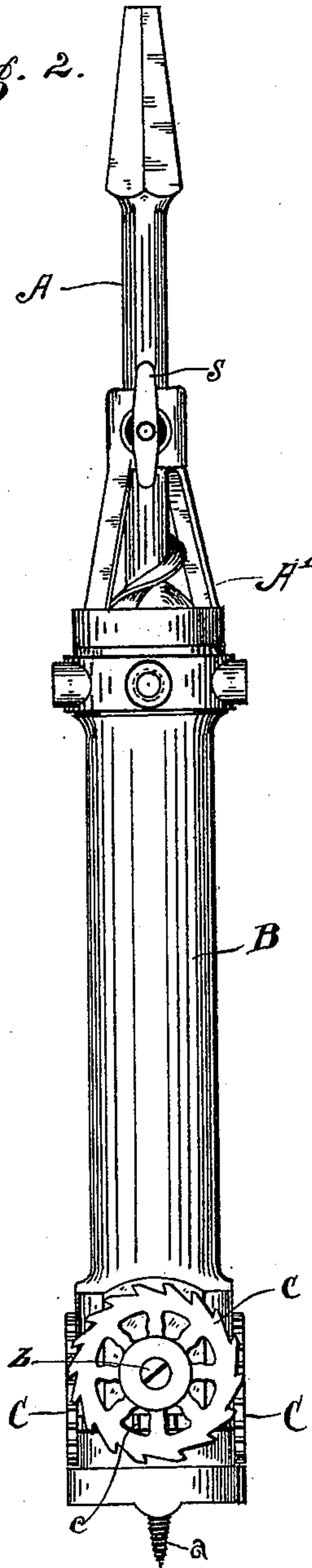


Fig. 3.

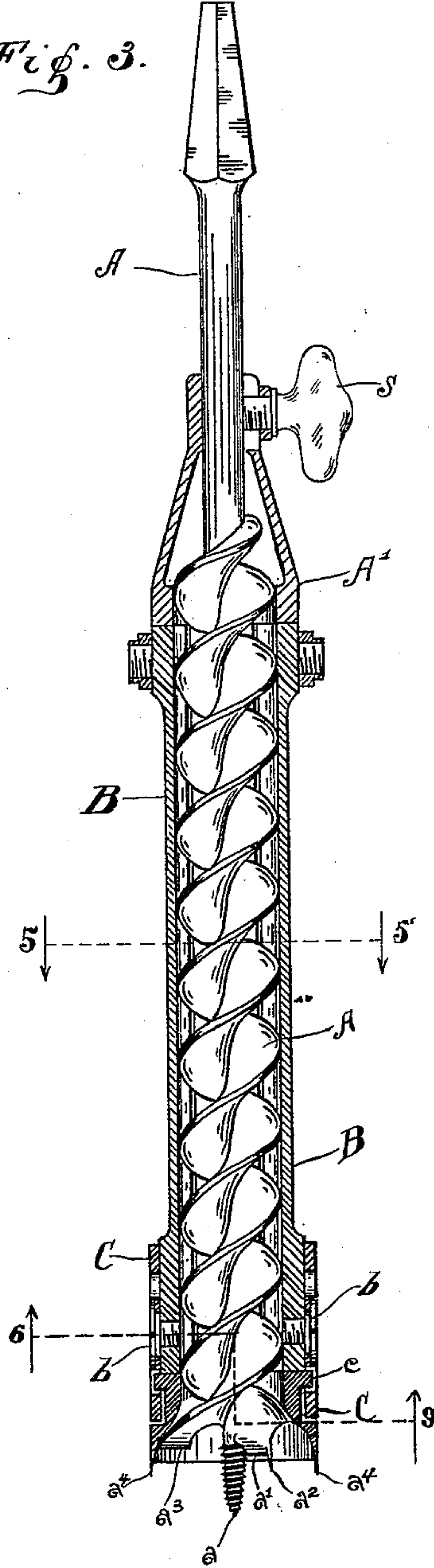
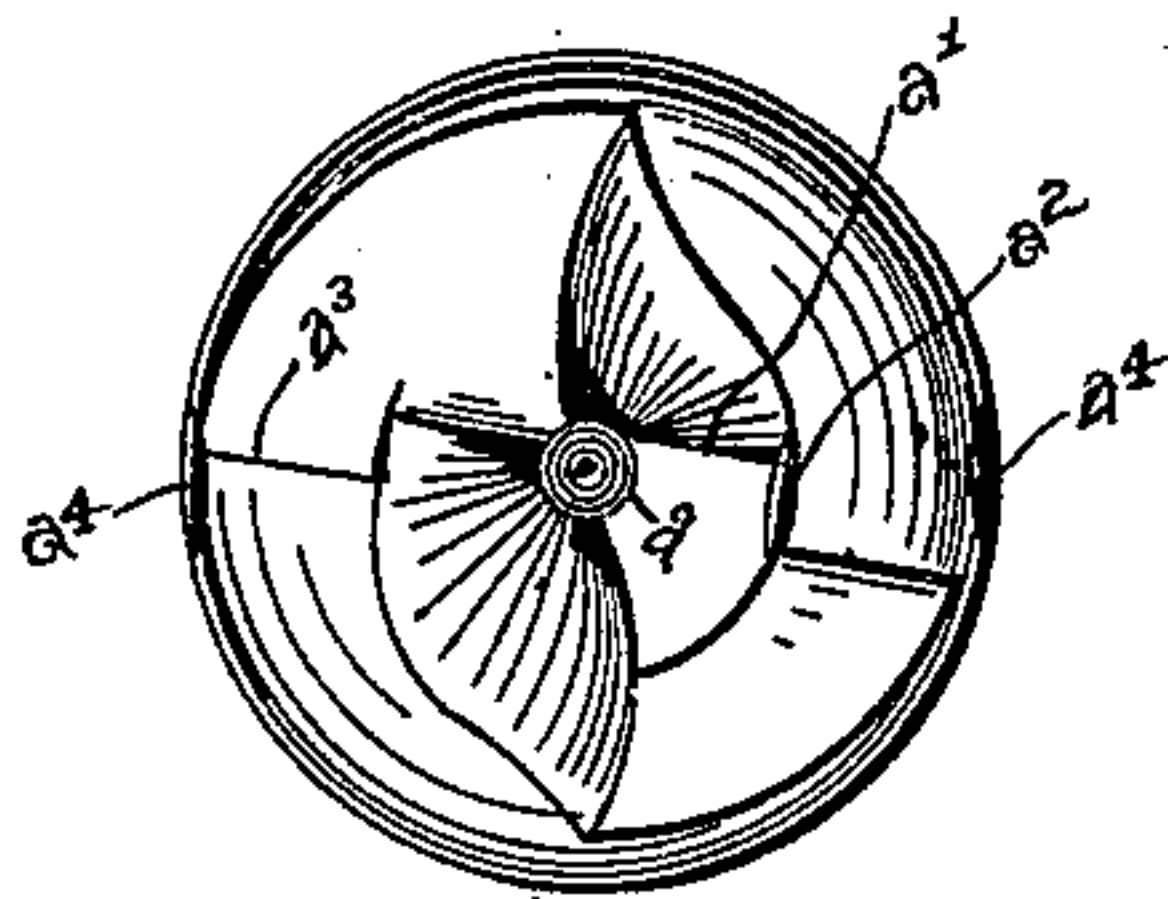


Fig. 4.



WITNESSES:

J. A. Walsh.
F. H. Warner.

INVENTORS.

Charles W. Meggenhofen.
Albert S. Courtright.
BY
Chester Bradford,
ATTORNEY.

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Fig. 5.

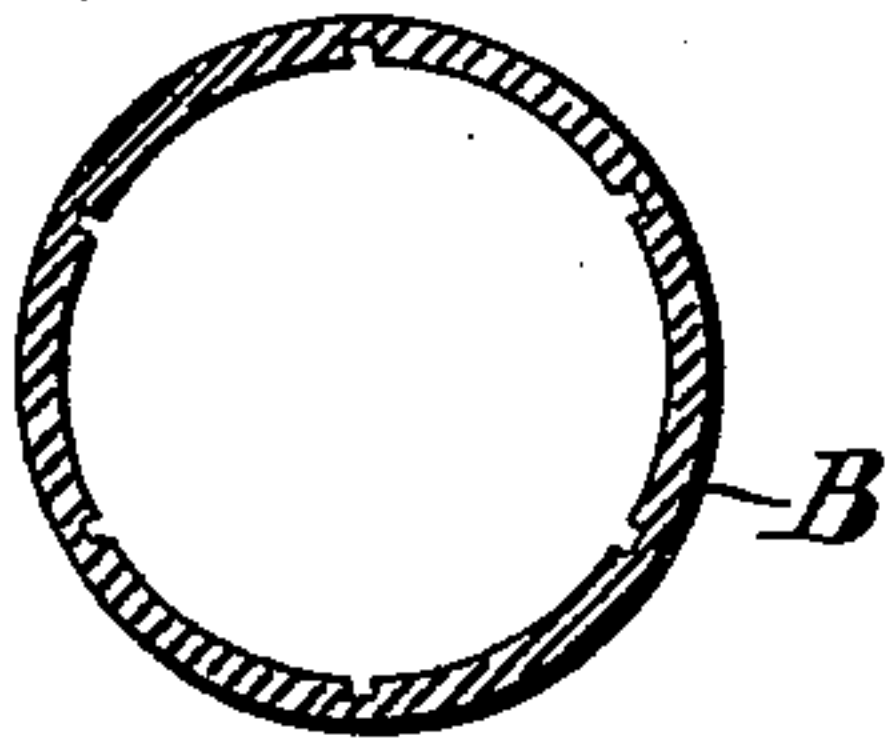


Fig. 9.

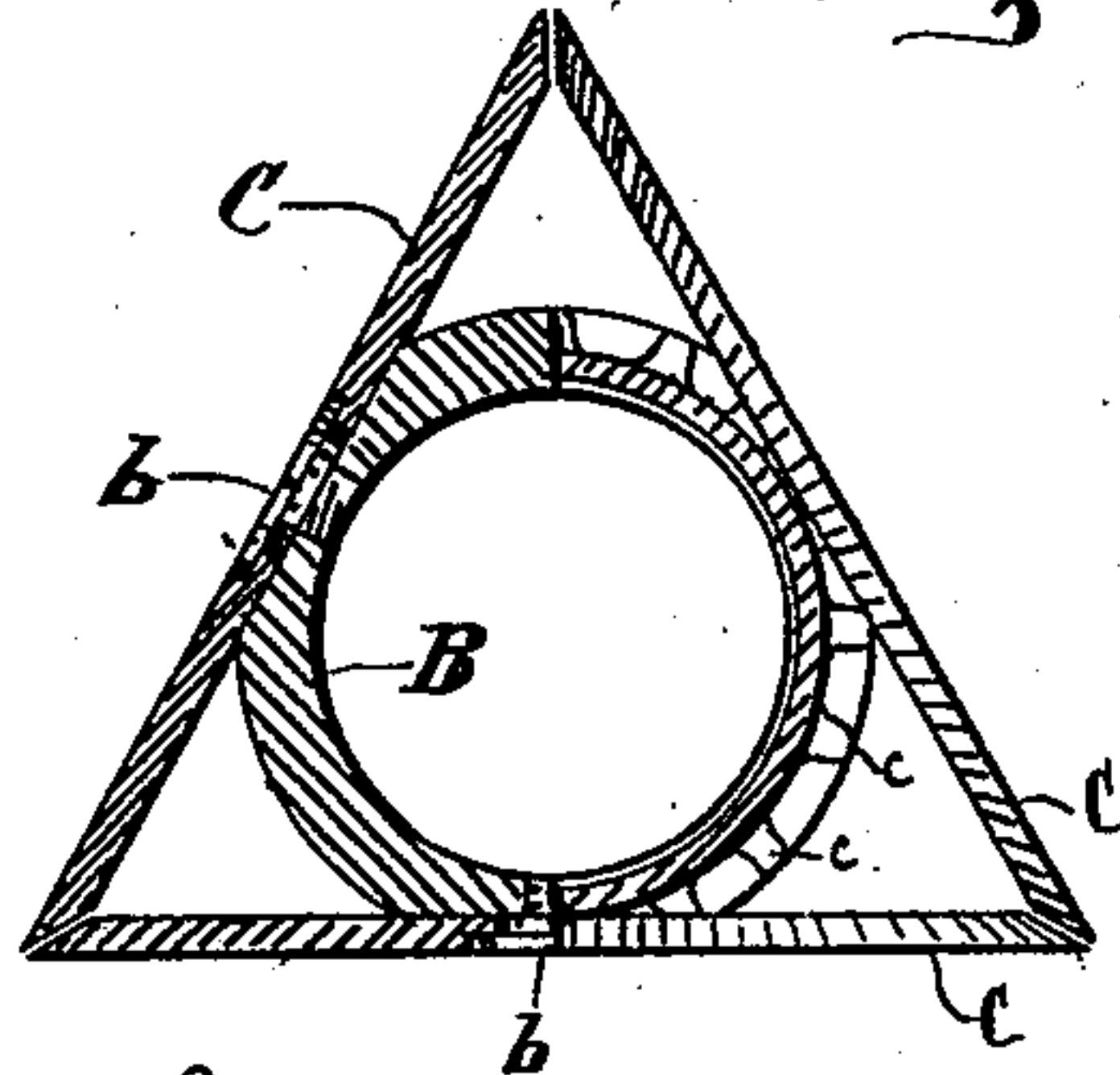


Fig. 6.

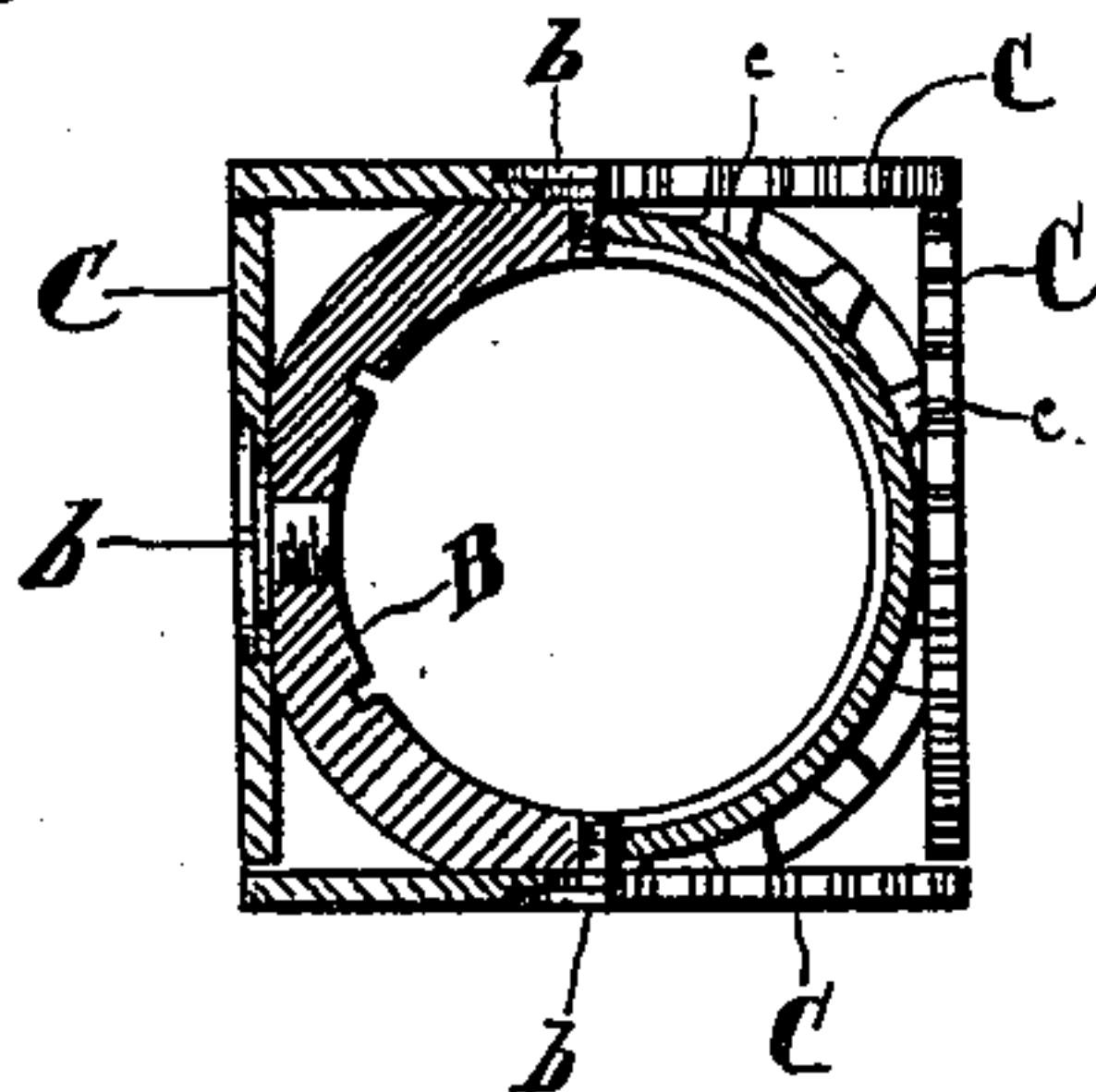


Fig. 10.

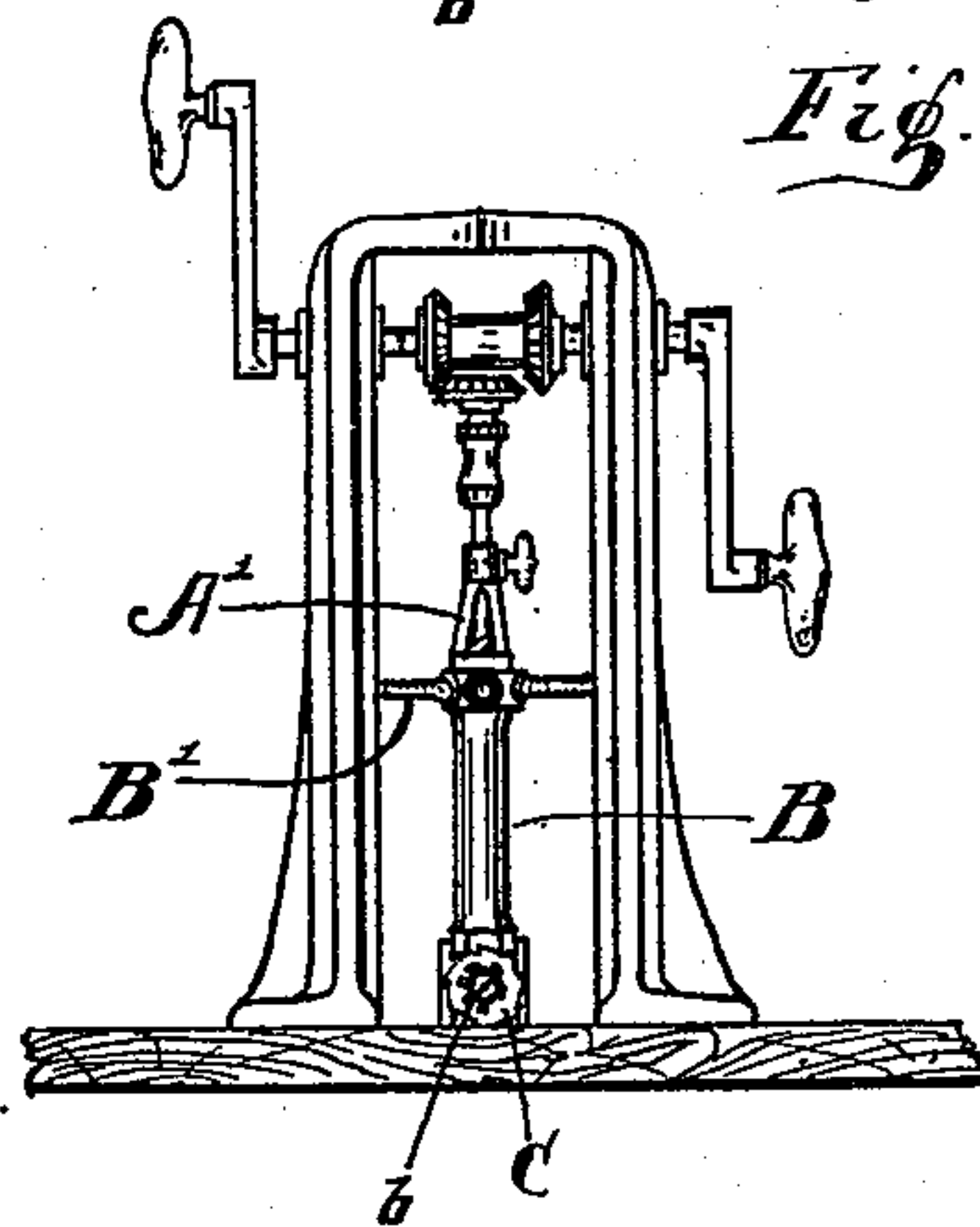


Fig. 7.

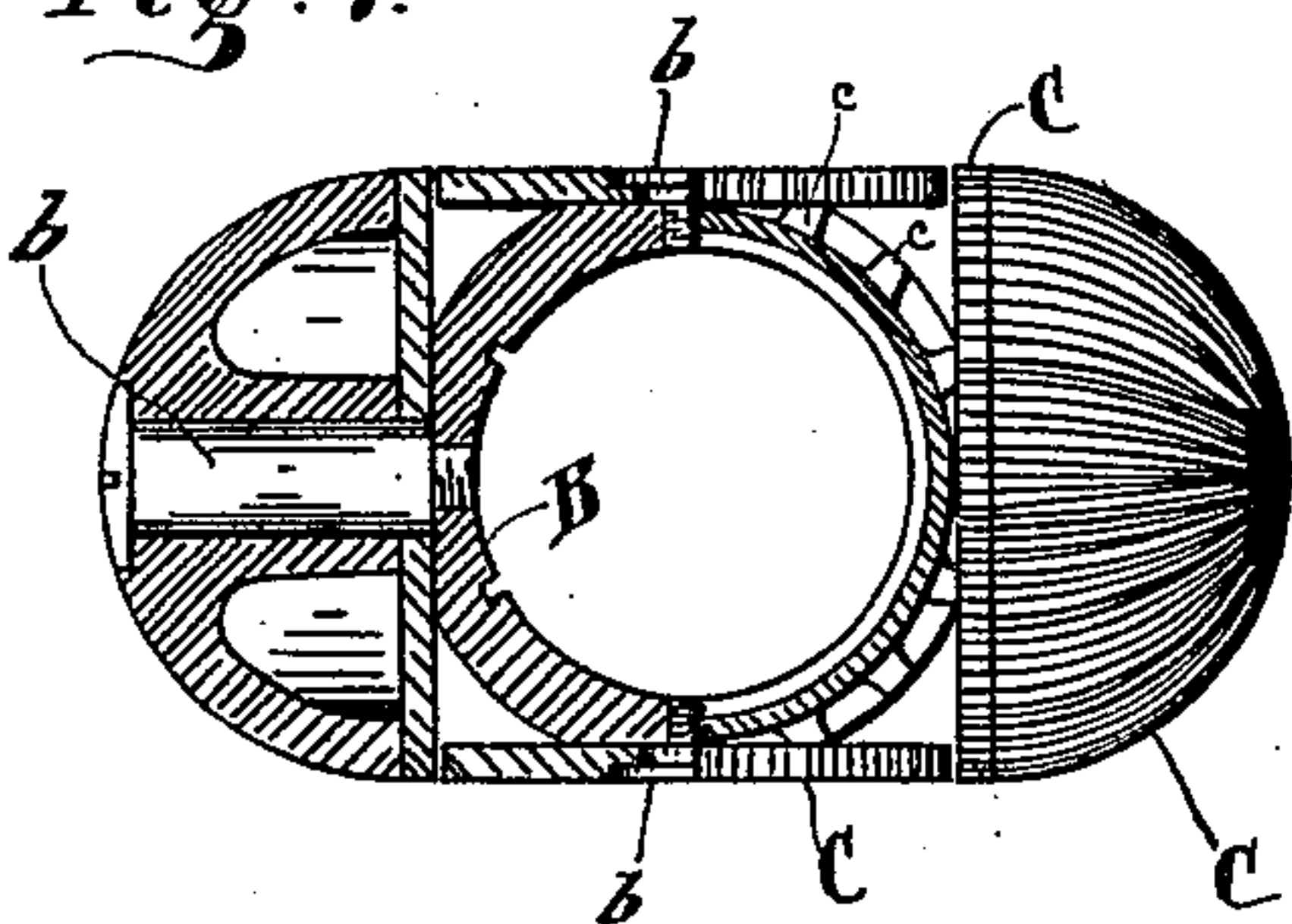


Fig. 11.

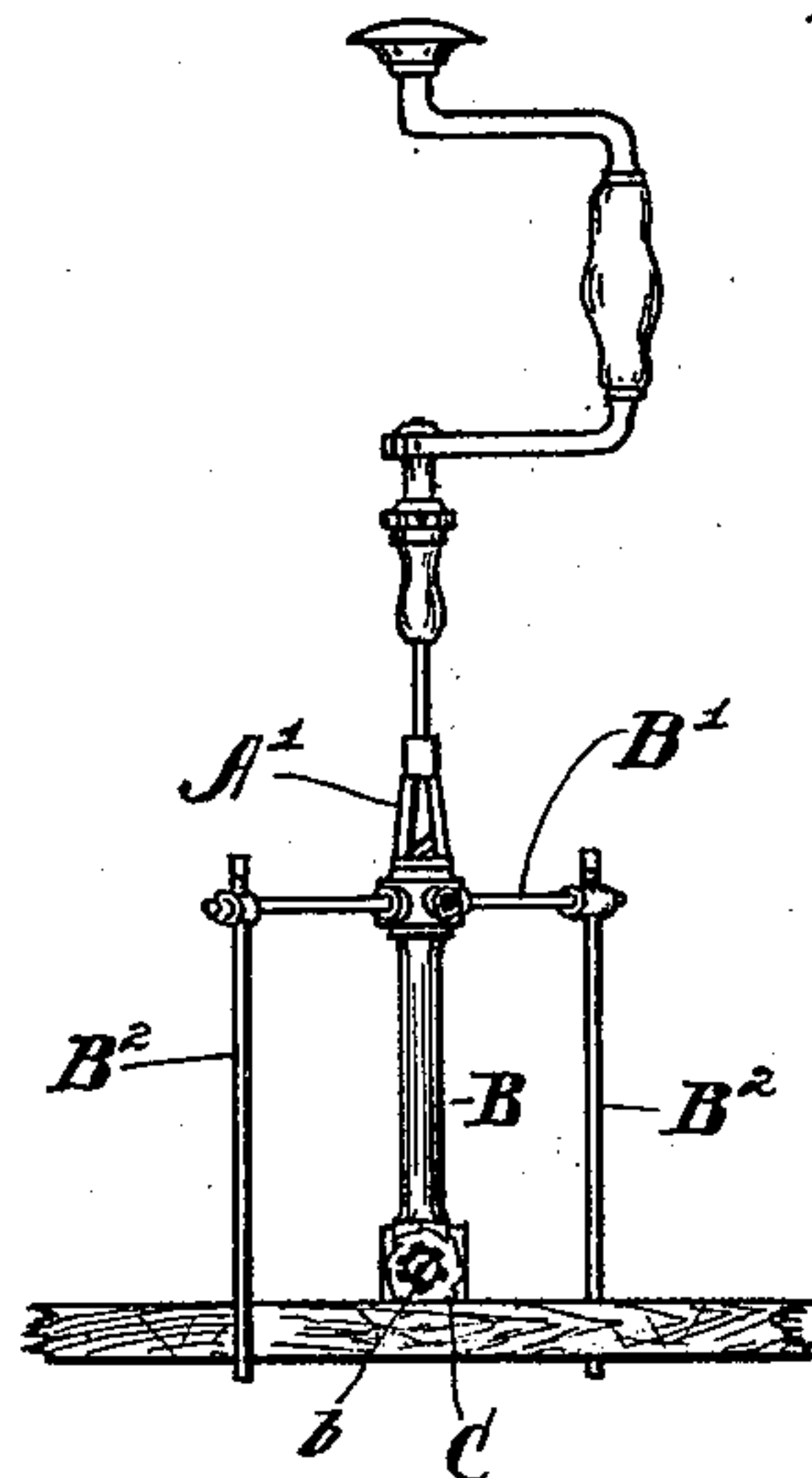
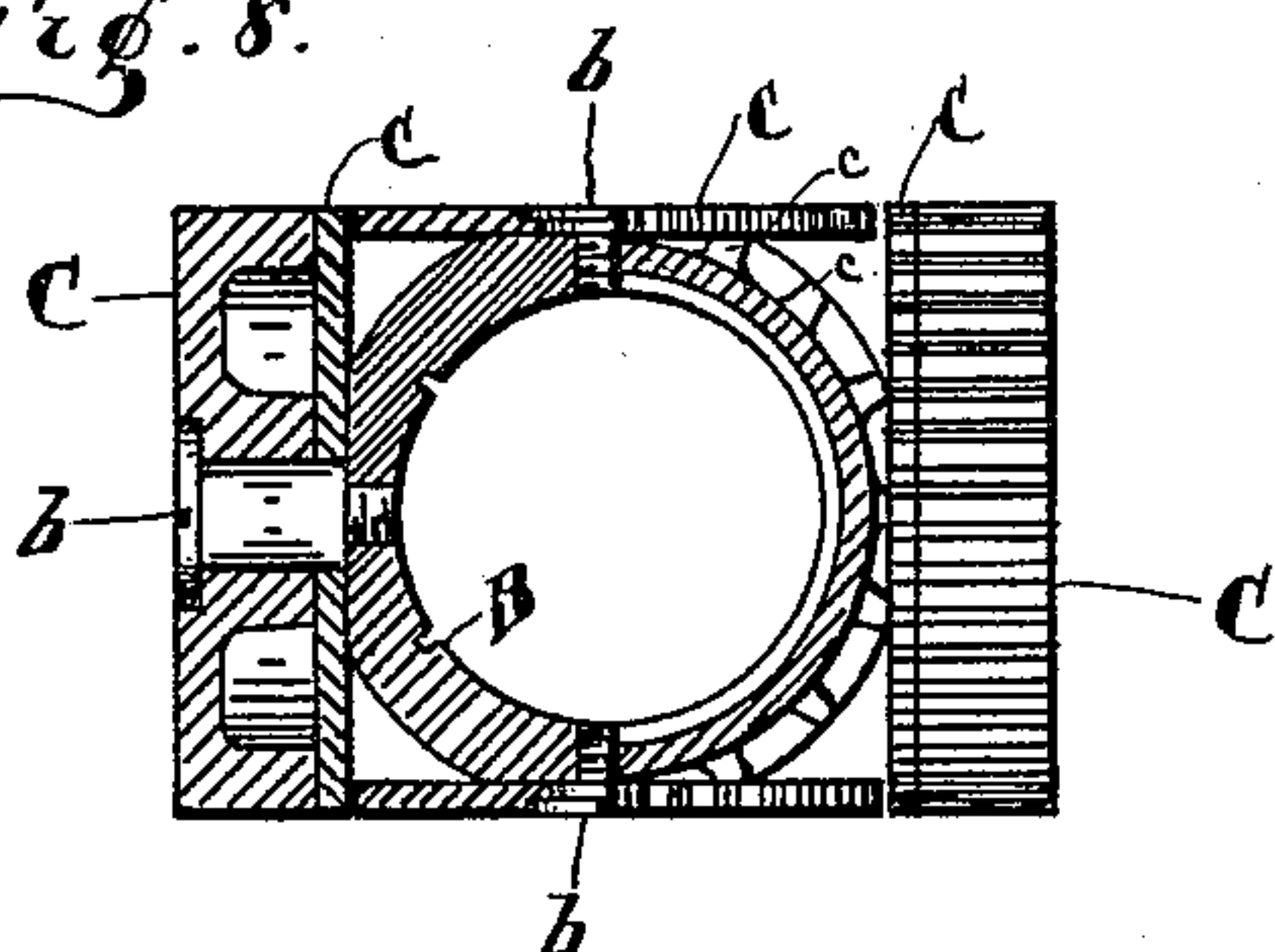


Fig. 8.



WITNESSES:

J. A. Walsh.

J. H. Warner.

INVENTORS.

Charles W. Meggenhofen

Albert S. Courtright.

BY

Chester Bradford,

ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES W. MEGGENHOFEN, OF FRANKLIN, AND ALBERT S. COURTRIGHT,
OF INDIANAPOLIS, INDIANA.

BORING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 518,262, dated April 17, 1894.

Application filed July 31, 1893. Serial No. 481,968. (No model.)

To all whom it may concern:

Be it known that we, CHARLES W. MEGGENHOFEN, residing at Franklin, Johnson county, and ALBERT S. COURTRIGHT, residing at Indianapolis, Marion county, Indiana, citizens of the United States, have invented certain new and useful Improvements in Boring-Machines, of which the following is a specification.

The object of our said invention is to produce a machine or auger by which holes of various shapes may be bored or cut, such as triangular, oval, elliptical or rectangular.

A machine or apparatus embodying said invention will be first fully described and the novel features thereof then pointed out in the claim.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a side elevation of a bit or auger embodying the principal features of our said invention; Fig. 2 a similar view from another side; Fig. 3 a central sectional view thereof; Fig. 4 an under side plan view, on an enlarged scale, of the cutting end of the bit or auger; Fig. 5 a transverse sectional view on the dotted line 5 5 in Fig. 3; Figs. 6, 7, 8 and 9 transverse sectional views at the points indicated by the dotted line 6 9 in Fig. 3; Fig. 10 a general view of a boring machine embodying our said invention, and Fig. 11 a general view of the same when operated by a common bit brace.

In said drawings the portions marked A represent the auger forming part of our invention; B a tube surrounding the same, and C rotary cutters mounted on the lower end of said tube. The auger or bit A is in many respects of an ordinary form. As shown in Figs. 3 and 4, however, it is constructed to cut its borings or shavings in two parts, one of which is adapted to ascend out of the hole upon one side thereof, and the other upon the other. The screw a is central, as is usual, and upon one side thereof is a narrow cutting bit a' having a scoring bit a^2 at its outer side, which cutting and scoring bits project below the outer ones, and are adapted first to cut a narrow shaving or boring next the screw and send it up upon one side of the auger through

or between one division of the conveyer flights thereof. The other cutting bit a^3 is somewhat behind or higher up than the cutting bit a' , and cuts the shaving or boring from the point where the scoring bit a^2 is located to the outside of the hole, where the scoring bits a^4 are, and these shavings or borings ascend through or between the other opening or division between the conveyer flights on the auger.

It is necessary, in order that the bit shall enter the wood, that the portion thereof bearing the conveyer flights shall be considerably smaller than the cutting portion, which must, of course, extend to the outside of the hole being bored into which not only the upper portions but also the surrounding tube must enter. Cuttings or borings of the full size could not, therefore, ascend, and for this reason they are divided, as above described. Just above the cutting portion of the bit or auger, and rigid therewith, is a collar or portion having cogs c , which, in effect, form a spur gear, by which the rotary cutters C are driven as the bit or auger is revolved, as will be presently more fully described.

The tube or sleeve B surrounds the conveyer portion of the bit or auger and extends down to near the lower end thereof, close to the cogged portion. Its lower end has flattened sides, upon which the rotary cutters are mounted. It is held from revolving, in operation, by some suitable means, such as a transverse bar B', which is adapted to engage in the case of the boring machine with slide-ways in the frame of said machine, as shown in Fig. 10, and in the case of a bit with the work being operated upon, as shown in Fig. 11,—rods B² being shown as the means of engagement,—it being of course necessary that this part should remain stationary, while the auger itself revolves. To relieve the strain upon the working parts, a bearing A' is secured to the auger shank, and extends down to and rests upon the upper end of this tube or sleeve B. This bearing is secured in place by a set screw S or otherwise. The cross bar B' preferably consists of a hub and two arms, and is secured to the upper end of the sleeve B in any desired manner. The interior of the sleeve B necessarily comes in contact with the

shavings or borings as they ascend from the cutting portion of the tube. We have found by experiment that if this interior is left smooth, such shavings or borings are apt to clog somewhat in their ascent, and we have found that this is corrected by rifling or grooving the interior of this sleeve, as shown most plainly in Fig. 5.

The cutters C are practically small saws, and are secured to the flattened sides of the lower end of the sleeve B by short shafts *b* thereon, which are preferably machine screws with flat smooth heads, which pass through the central holes in said cutters, said holes being preferably countersunk for the reception of said flat heads, so that there shall be no projecting parts to interfere with the operation of the tool, all as shown most plainly in Fig. 3. Where there are four of these cutters, as shown in most of these views, two are of a diameter equal to the extreme diameter of the hole to be cut, and the other two are sufficiently less in diameter so that they pass between the edges of the other two, and thus all four sides of the holes are smoothly cut, the larger cutters operating to the extreme corners of such holes. These cutters have cogs by which they are driven, which cogs are in the shape of short spokes, swelled somewhat in the center where the cogs in the gear on the head of the auger come in contact therewith so that as the parts revolve they shall slide easily past each other. The form is illustrated in Figs. 1 and 2.

We have found that to use an ordinary miter gear is impracticable, for the reason that the cogs will get choked up with the cuttings or borings; but by making the cogs open or spoke-like, as we have done, this is obviated, and the device rendered practicable.

To bore a square hole, which is perhaps the

use to which our invention will most commonly be put, the four cutters are preferably thin disks or saws, and arranged as shown in Figs. 1, 2, 3 and 5. When, however, it is desired to cut holes of a different shape, these cutters are either thickened or changed in form or arrangement to produce the desired result.

In Fig. 7 is illustrated a form of cutters where the two sides of the hole are to be straight and the ends rounding. This form is produced by making two of the cutters semi-spherical in form, as shown.

In Fig. 8 is illustrated a construction where the hole is elongated, but still rectangular, and this result is secured by simply thickening two of the cutters.

An elliptical or oval hole could be secured by rounding all the cutters to the desired degree, and a triangular hole is secured by using three cutters instead of four, as shown in Fig. 9, all as will be readily understood.

Having thus fully described our said invention, what we claim as new, and desire to secure by Letters Patent, is—

The combination, in a boring machine, of an auger having a spur gear formed therewith or secured thereto, a surrounding sleeve, and a series of cutters mounted on said sleeve and provided with spoke-like open cogs engaging with and driven by said gear, whereby a hole corresponding to the shape of said cutters is produced, substantially as set forth.

In witness whereof we have hereunto set our hands and seals, at Indianapolis, Indiana, this 15th day of July, A. D. 1893.

CHARLES W. MEGGENHOFEN. [L. S.]

ALBERT S. COURTRIGHT. [L. S.]

Witnesses:

CHESTER BRADFORD,

JAMES A. WALSH.