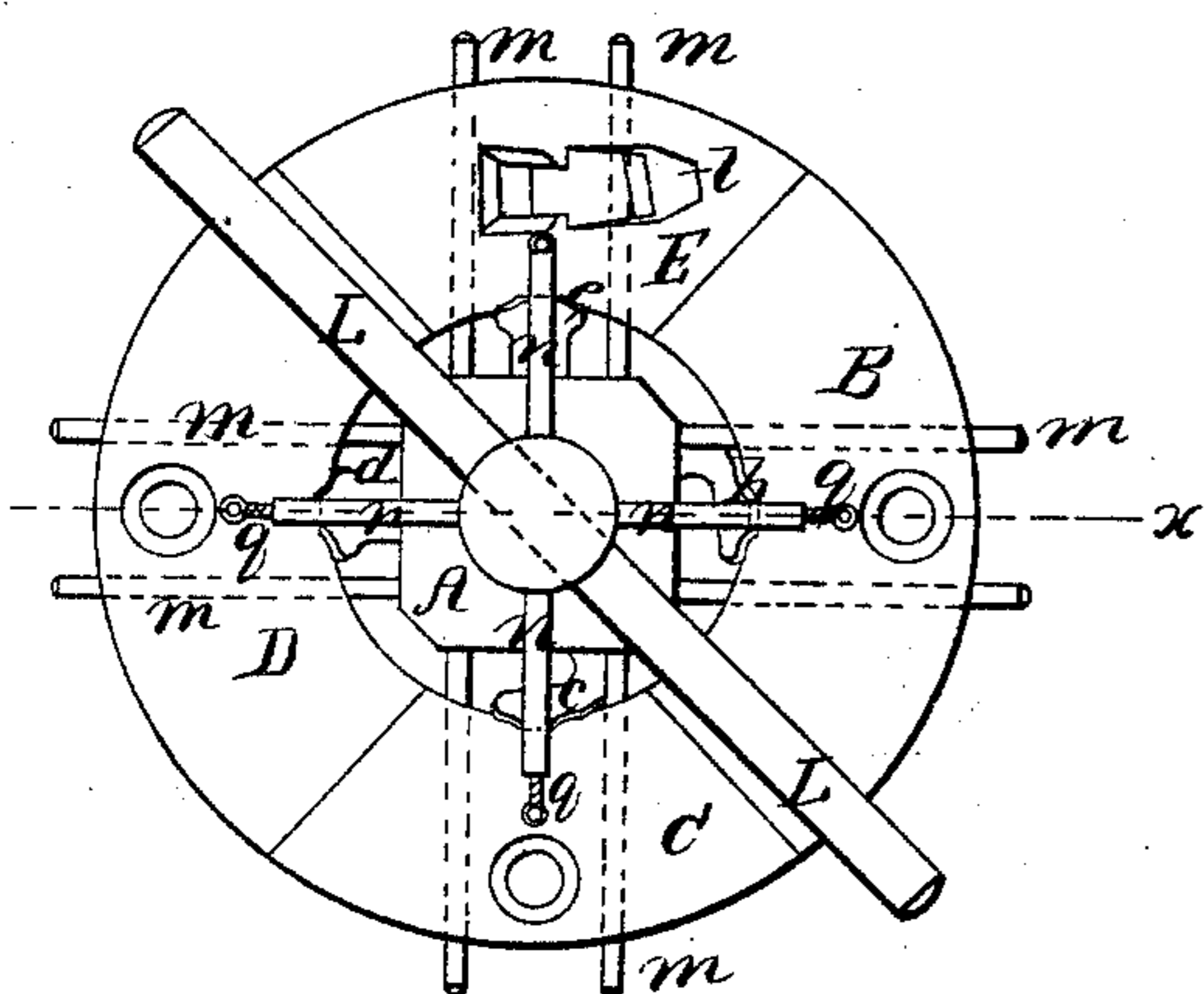


*H. S. Higgins,*  
*Crozing Stares.*

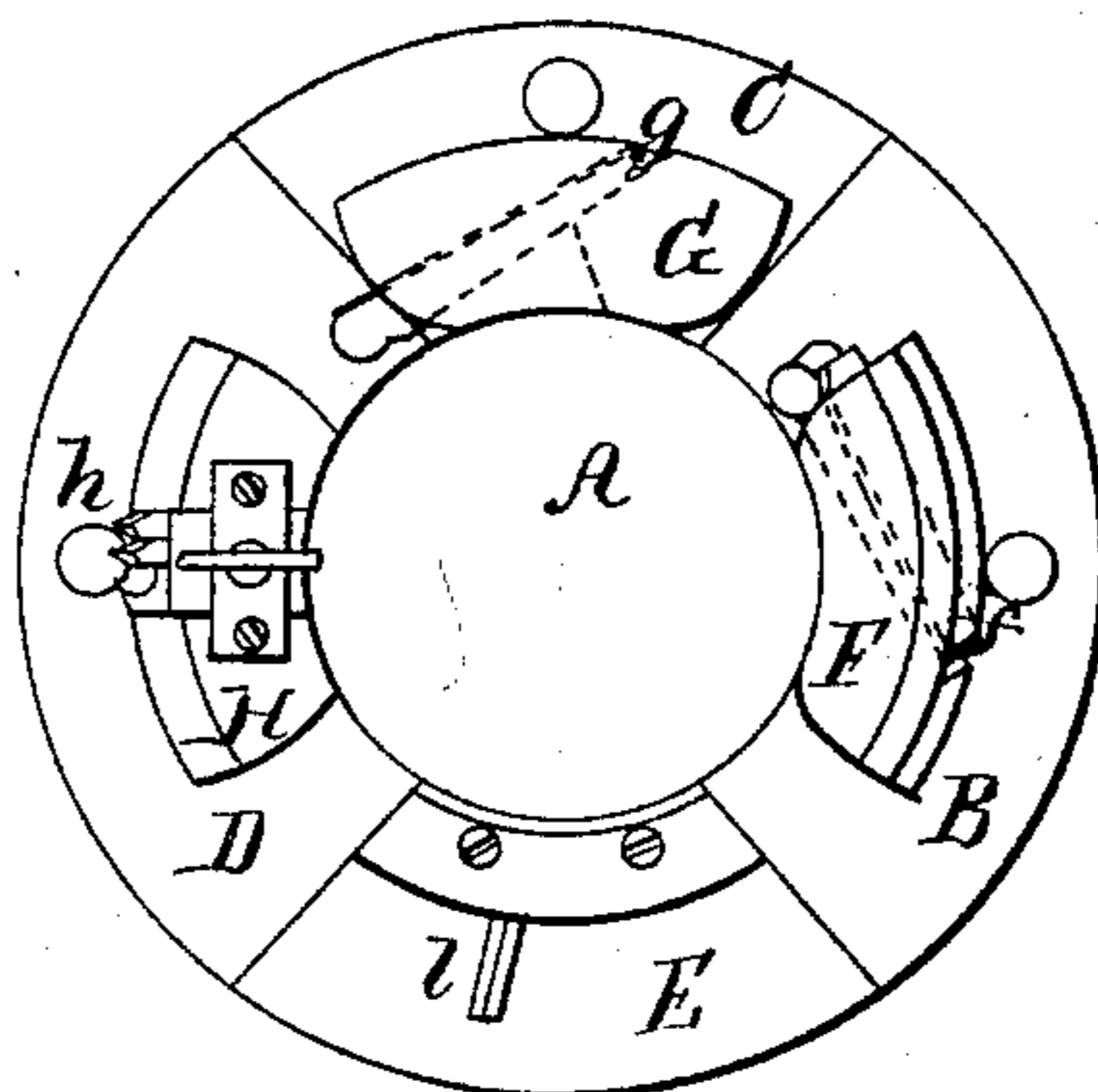
*No 11,894.*

*Patented Nov. 7, 1854.*

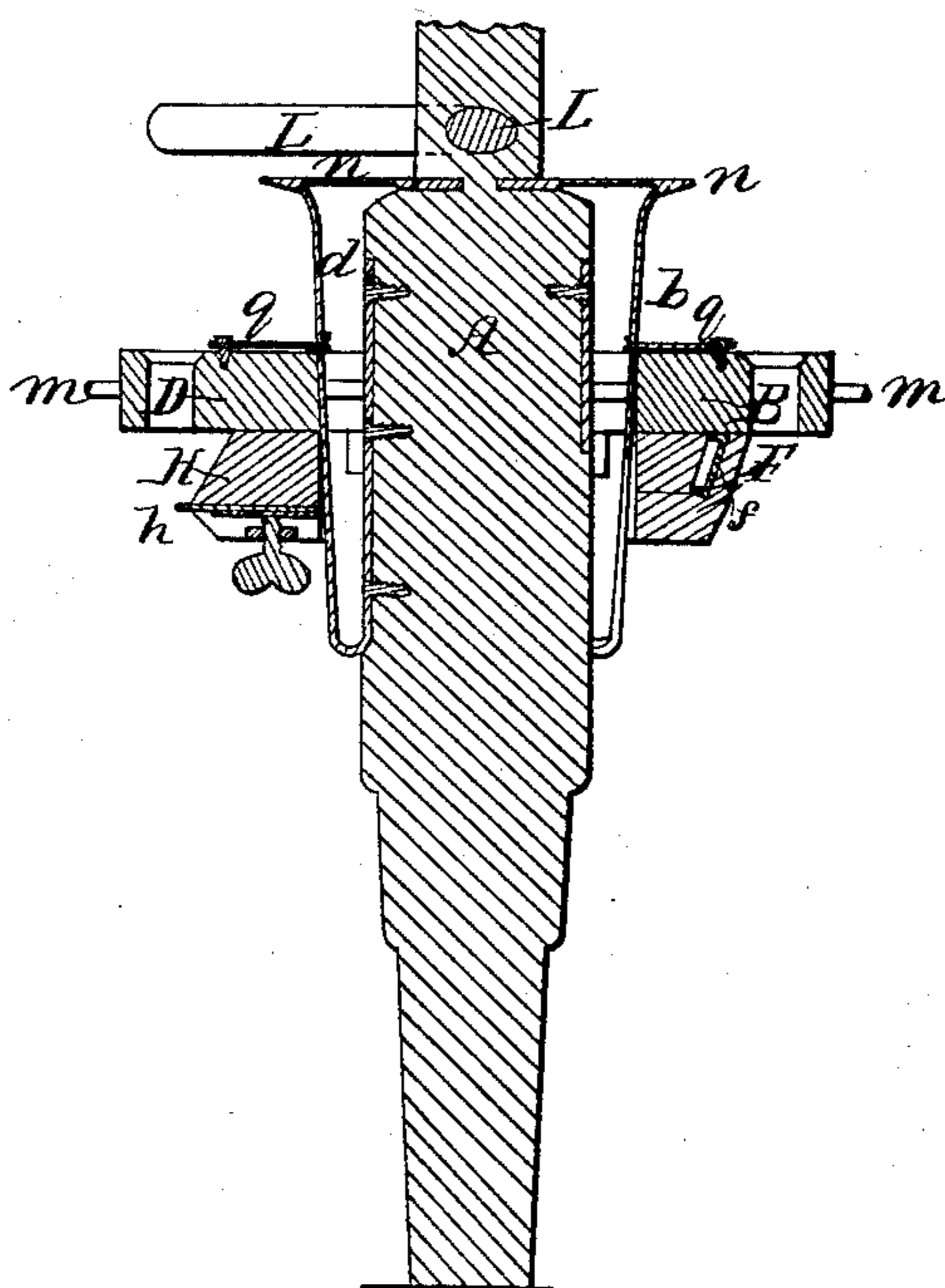
*Fig: 1.*



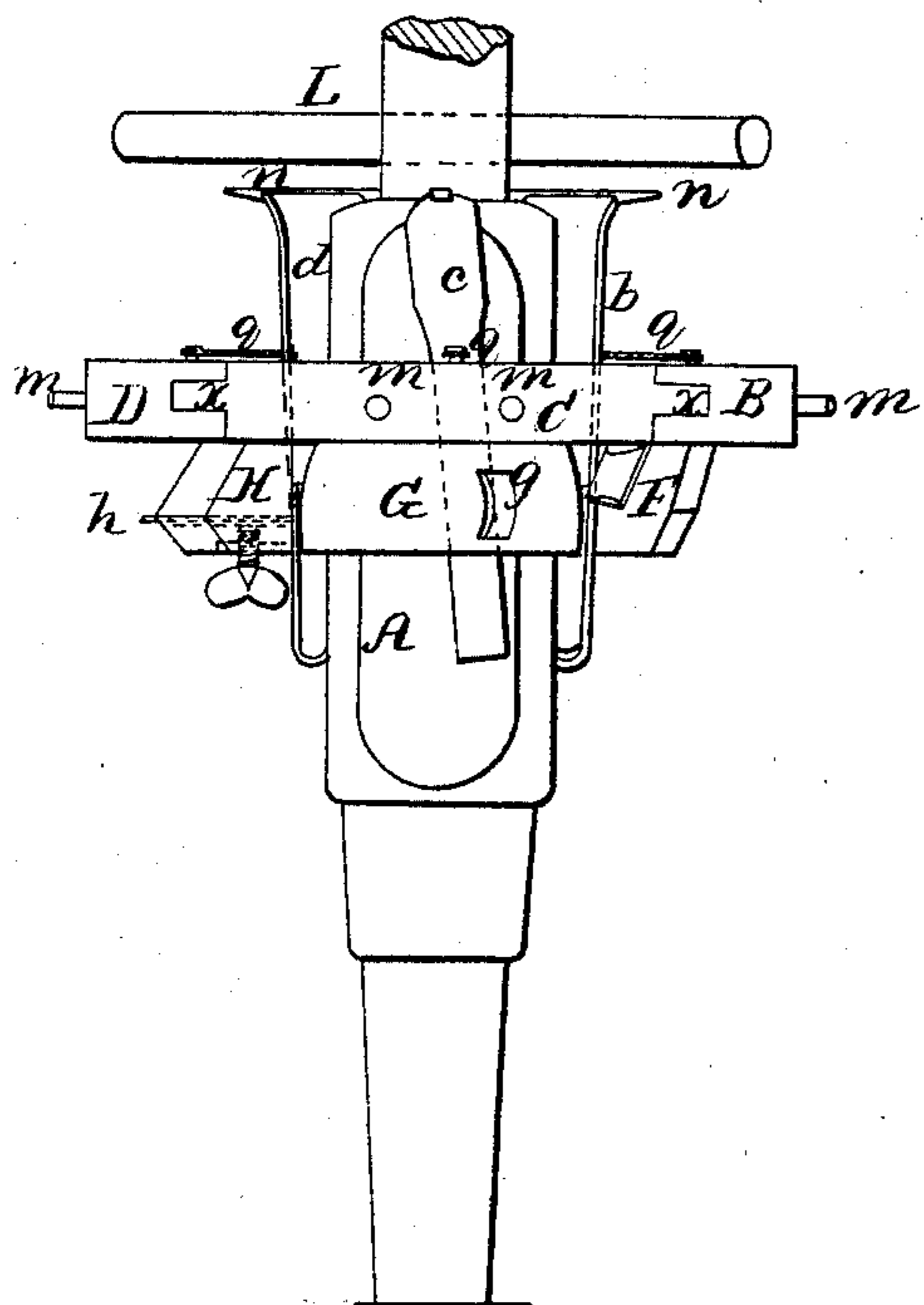
*Fig: 3.*



*Fig: 4.*



*Fig: 2.*



# UNITED STATES PATENT OFFICE.

HORACE S. HIGGENS, OF GRAHAM, INDIANA.

## BARREL MACHINERY.

Specification of Letters Patent No. 11,894, dated November 7, 1854.

*To all whom it may concern:*

Be it known that I, HORACE S. HIGGENS, of Graham, in the county of Jefferson and State of Indiana, have invented a new and useful Improvement in Machines for Howeling, Chamfering, and Crozing Barrels, &c.; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing, forming part of this specification, in which—

Figure 1 is a top view of the machine. Fig. 2 is a side elevation of the same. Fig. 3 is a view of the movable rim inverted. Fig. 4 is a vertical section on the line  $x-x$  of Fig. 1.

Similar characters of reference in the several figures denote the same part of the machine.

This machine which is designed for shop use, consists essentially of a shaft and expanding rim, to the latter of which the several cutters are secured, and which is connected with the shaft as will be hereafter set forth. The shaft A is of an octagon cross section, with its extremities turned as shown in the drawing. Through the wide faces of said shaft run the rods or bars  $m$ , placed in pairs, and movable upon said bars, are the sections B, C, D, E of the circular cutter rim, the ends of the several sections being mortised and tenoned as seen at  $x$ , Fig. 2. Each of these sections is by a cord or chain  $g$ , attached to the elastic portion of a spring secured to one of the plane faces of the shaft A. These springs  $b, c, d, e$ , are held in a contracted position by catches  $n$  extending from the shaft A above the loose extremities of the said springs: so that when the catch is removed, the spring will by its expansion cause the section in front of it to traverse the rods  $m$  upon which the said section rests.

Secured to the under side of the section B is the curved plane stock F, containing the oblique bit  $f$ , which forms the chamfering tool. Under the section C is the stock G carrying the bit  $g$ , which constitutes the howeling tool. The crozing tool  $h$  which is similar to that in ordinary use, is contained in the stock H under the section D. The section E serves as a stock for a bit  $l$  for leveling the ends of the staves.

The operation of my improved machine is as follows: The barrel is secured in any

suitable manner upon the shop floor, over a small circular platform fastened to the floor, and containing a hole for the reception of the lower extremity of the shaft, while the upper end of the same passes through an opening in a beam above. The machine is raised by suitable means so as to pass clear of the barrel and descend into it until the circular rim rests on the end of the barrel, and the lower end of the shaft enters the hole in the permanent platform; the shaft  $t$  then being capable of turning around its bearings in the platform and the beam. The spring  $b$  is then loosened, causing the section B to move outward on the rods  $m$  and bring the bit  $f$  against the interior of the barrel. The operator then turns the shaft A a few times, by means of the lever L, and the chamfering is complete. The spring  $b$  is then pressed toward the shaft and secured as before, the connection  $g$  causing the section B to recede to its first position and resume its place in the circle. The section E is next thrown out causing the bit  $l$  by a few turns of the shaft, to level the ends of the staves. The howeling is next performed by the cutter  $g$  in the same manner, and after that the crozing by the tool  $h$ ; the sections being advanced and withdrawn as described for the section B. The barrel is then reversed, and the above described operations performed on the opposite end.

The operation of chamfering, leveling, howeling and crozing performed as above described is expeditiously and accurately accomplished, with far more ease to the operator than by the ordinary mode.

I do not claim any of the tools separately considered, but

What I do claim as new, and of my own invention and desire to secure by Letters Patent, is—

The combination of the shaft with the sectional expanding cutter rim, constructed, arranged, and operating substantially as herein before set forth.

In testimony whereof, I have hereunto signed my name before two subscribing witnesses.

H. S. HIGGENS.

Witnesses:

ELI A. HIGGENS,  
JAMES CRANK.