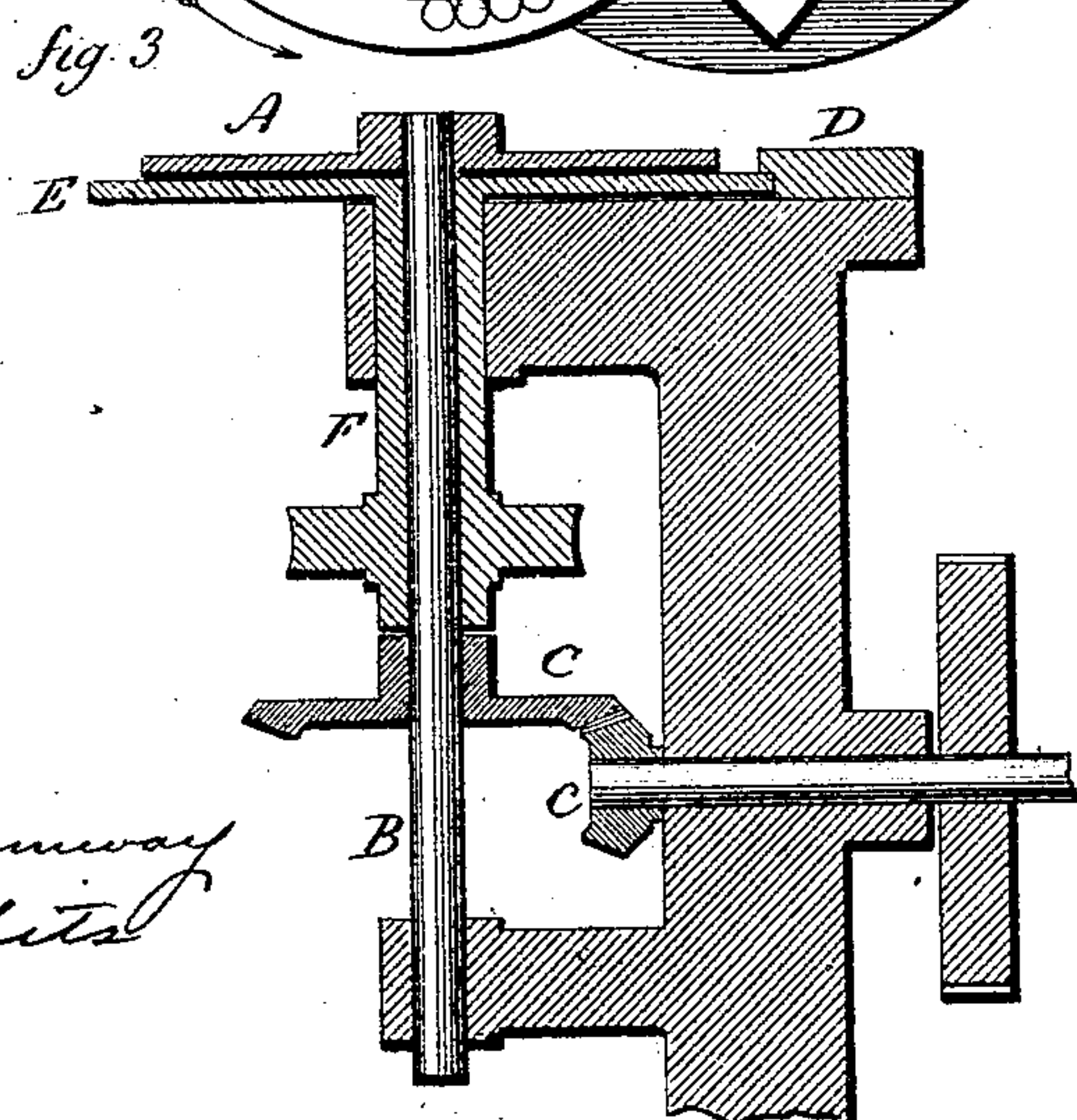
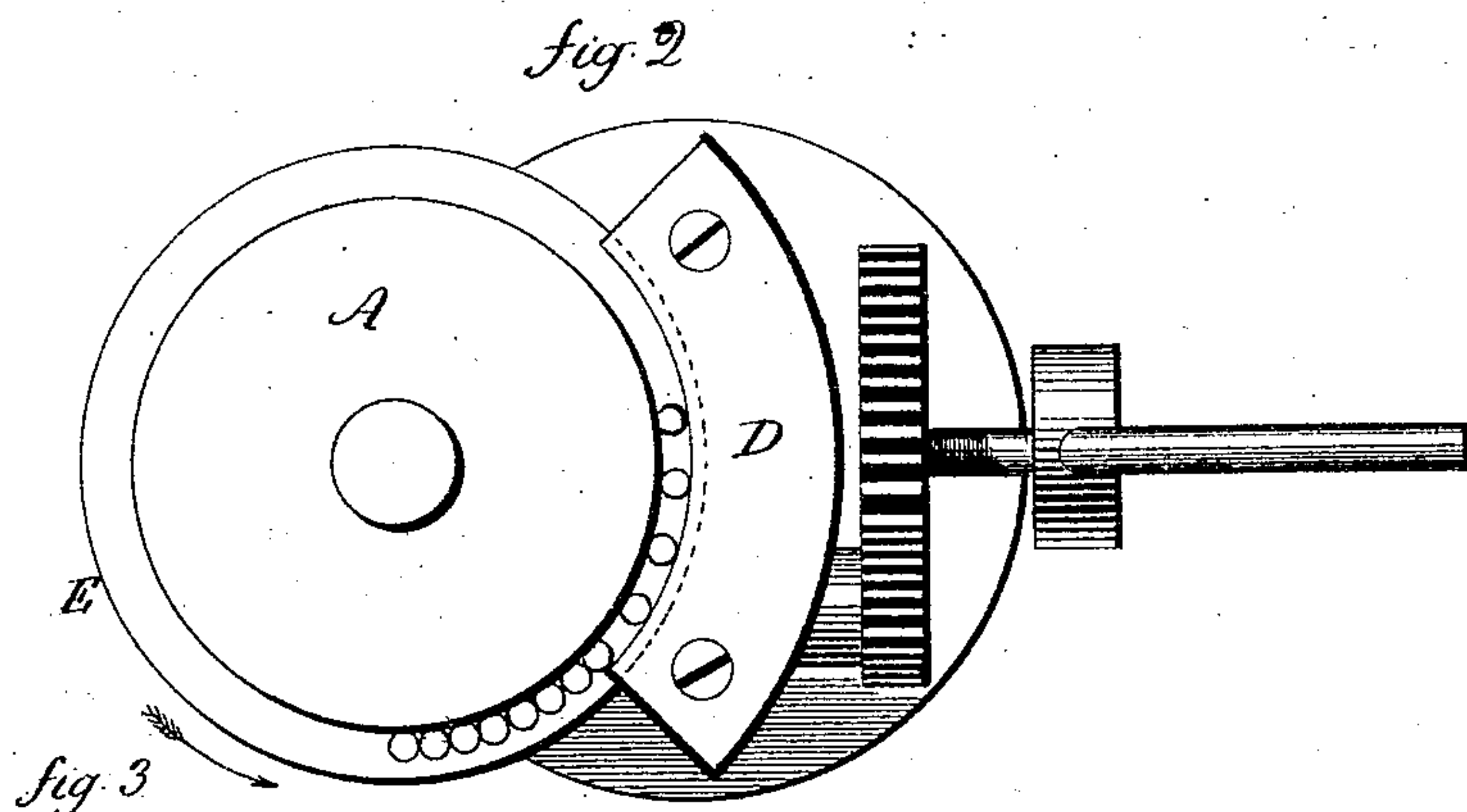
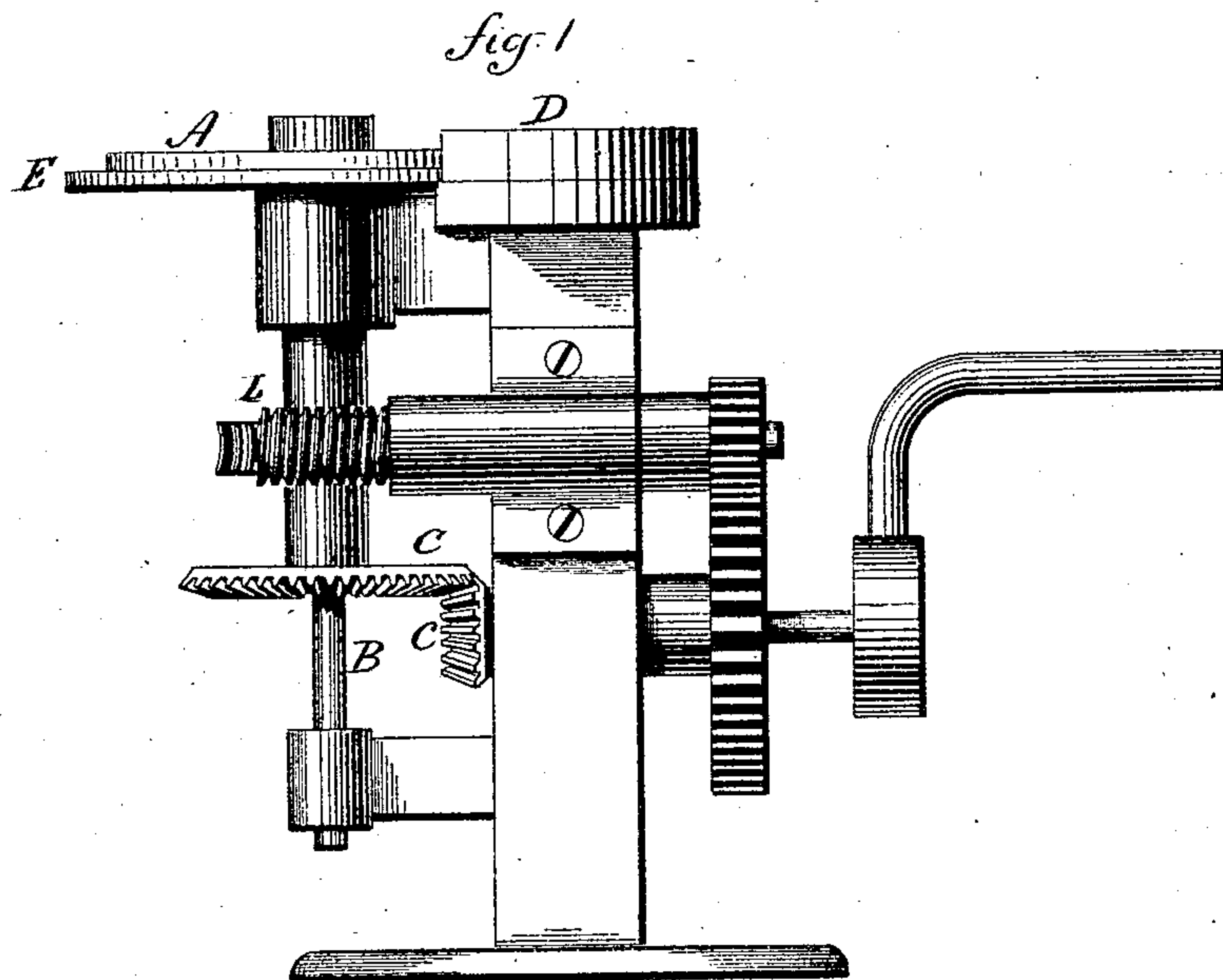


H. BORCHARDT.
Machines for Grooving Bullets.

No. 153,310.

Patented July 21, 1874.



Witnesses:
J. N. Shumway
A. J. Tibbitts

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By atty. Inventor
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UNITED STATES PATENT OFFICE.

HUGO BORCHARDT, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE
WINCHESTER REPEATING-ARMS COMPANY, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR GROOVING BULLETS.

Specification forming part of Letters Patent No. **153,310**, dated July 21, 1874: application filed
July 6, 1874.

To all whom it may concern:

Be it known that I, HUGO BORCHARDT, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Machines for Grooving Bullets; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1 a side view, Fig. 2 a top view, and in Fig. 3 a vertical central section.

This invention relates to an improvement in machine for forming the grooves around the surface of bullets, but is applicable to similar work for other purposes.

This has heretofore been done by passing the bullet between a moving surface and a corresponding stationary surface, these surfaces causing the bullet to revolve as it passes along between them, and to receive upon its side an impression corresponding to these surfaces; but in feeding the bullets to such a device great care has to be exercised that the bullets are not set so close together that their surfaces may come in contact.

The object of this invention is a construction which will positively prevent the bullets or articles passing through from coming in contact with each other; and it consists in combining with a rotary disk and corresponding stationary surface a second or carrying disk revolving upon the same axis of the first disk, but at a less velocity, the second disk presenting the blanks to the entrance between the first disk and its corresponding working-surface, the first disk, by its greater velocity, at once taking the entering article and carrying it in advance of the next succeeding one, as more fully hereinafter described.

A is the principal or working disk, which is arranged upon a shaft, B, in suitable bear-

ings, and caused to revolve by means of gears C, or otherwise. D is a segment, corresponding disk A, larger in diameter than the disk, according to the diameter of the article to be wrought, and arranged relatively to each other, as shown in Fig. 2. E is the carrying-disk, arranged upon a hollow shaft, F, around the shaft B, but so as to revolve independent, and this is caused to revolve at a less velocity than the disk A, but in the same direction. The disk E is larger in diameter than the disk A, so as to form a ledge around the disk A, upon which the blanks may be set, as seen in Fig. 2.

The blanks may be placed upon the disk A as close together as possible, as seen in Fig. 2, the two disks revolving, as before described. The blanks will be carried by the disk E to the segment D, and entered between that and the disk A. So soon as the disk A engages the first blank it will impart to it a revolution corresponding to its own and carry it forward from the next. The second is then taken and in like manner advanced, and so on each successive blank as presented, thus preventing the possibility of the surface of one coming in contact with the surface of the next in advance, always insuring a space between successive blanks.

It will be understood that the edges of the disk A and the corresponding edge of the segment D shall be formed according to the impression desired to be made upon the bullet or article passed between them.

I claim as my invention—

The combination of the segment D and the two revolving disks A and E, the edge of the disk A corresponding to the segment D, and made to revolve at a greater velocity than the disk E, substantially as described.

H. BORCHARDT.

Witnesses:

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