

(No Model.)

3 Sheets—Sheet 1.

W. A. SMITH.
FELT BOOT MACHINE.

No. 323,457.

Patented Aug. 4, 1885.

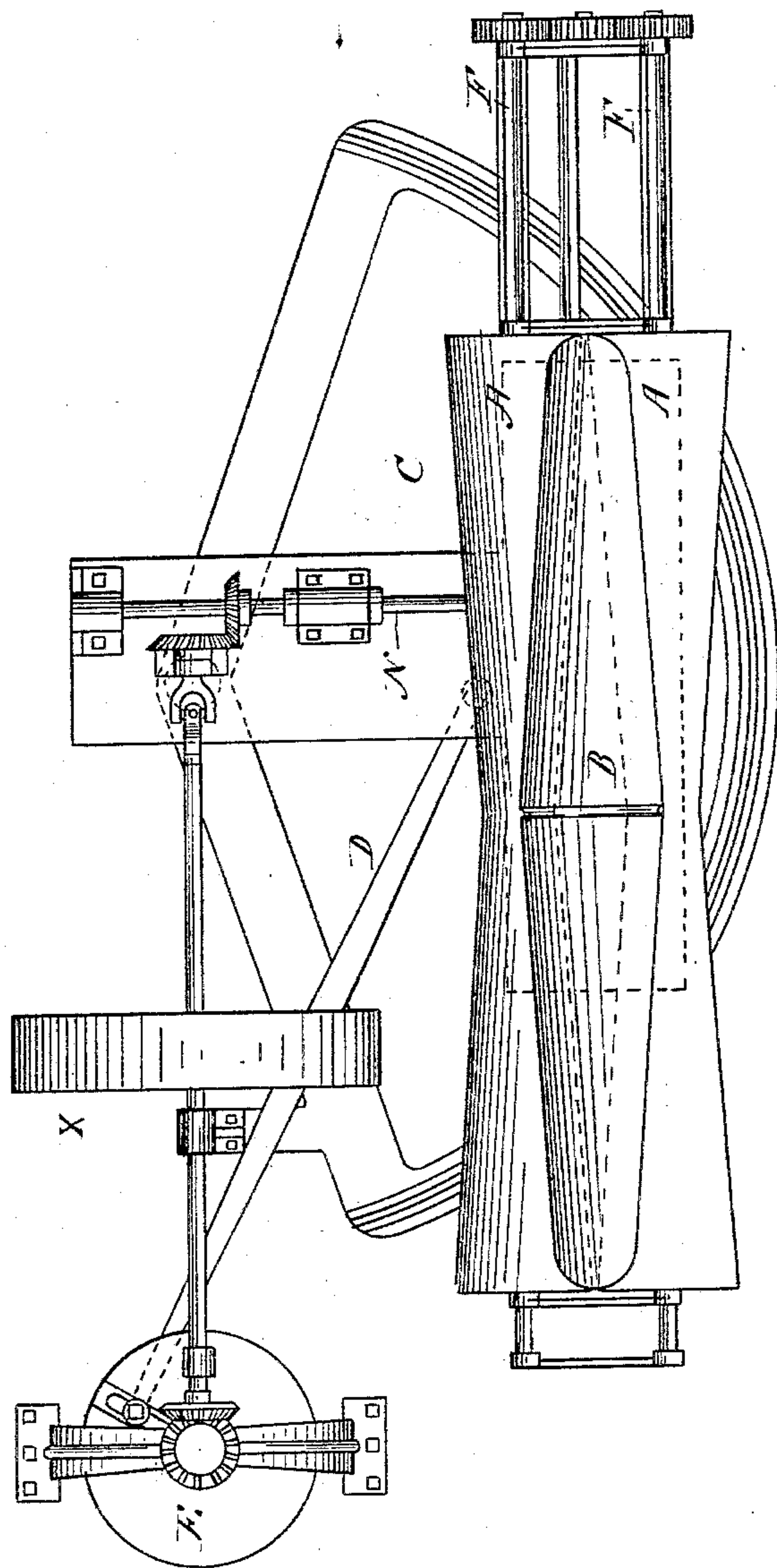


Fig. 1.

WITNESSES.

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James F. Bligh

INVENTOR.

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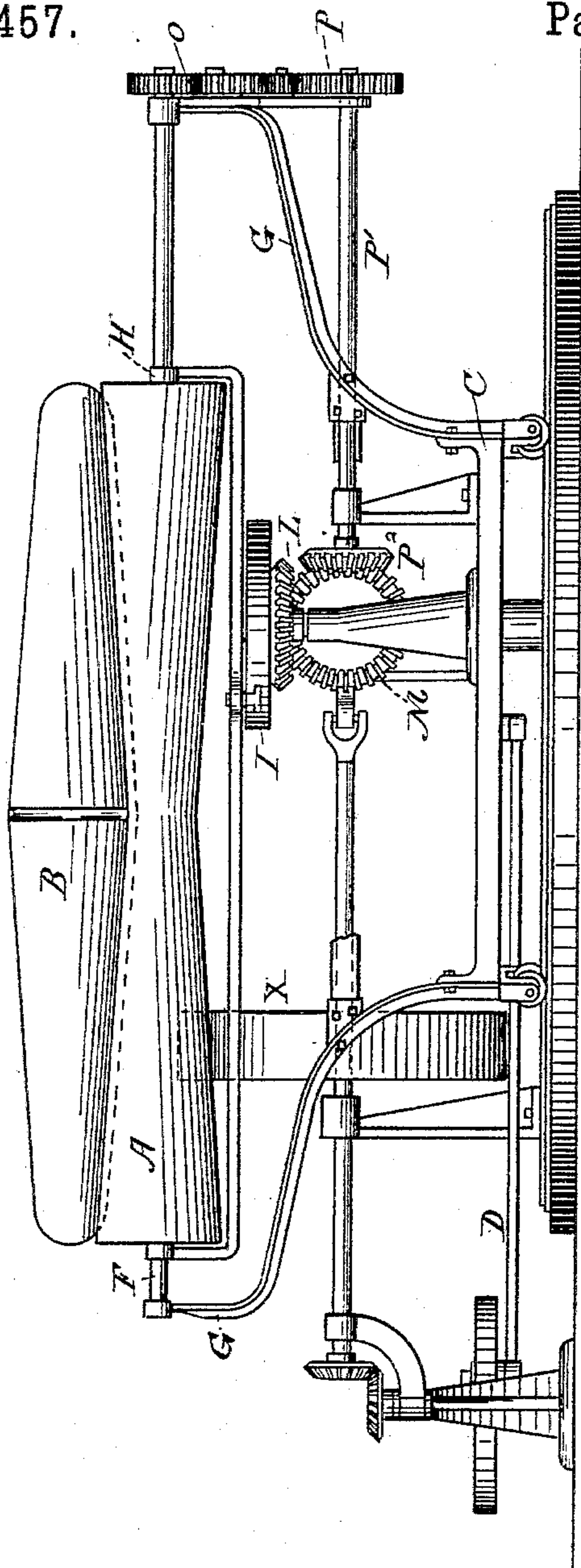


Fig. 2.

WITNESSES.

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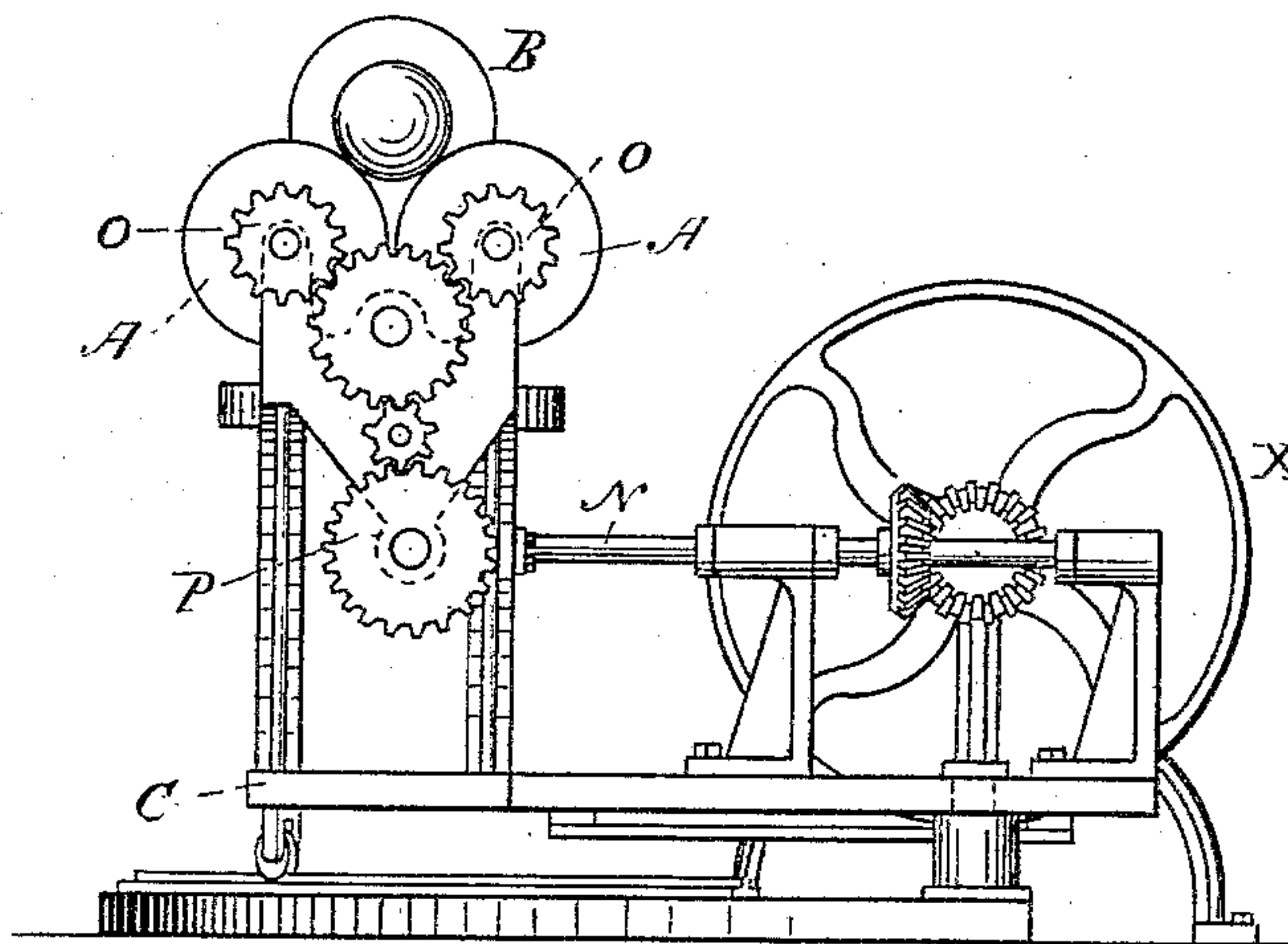


FIG. 3.

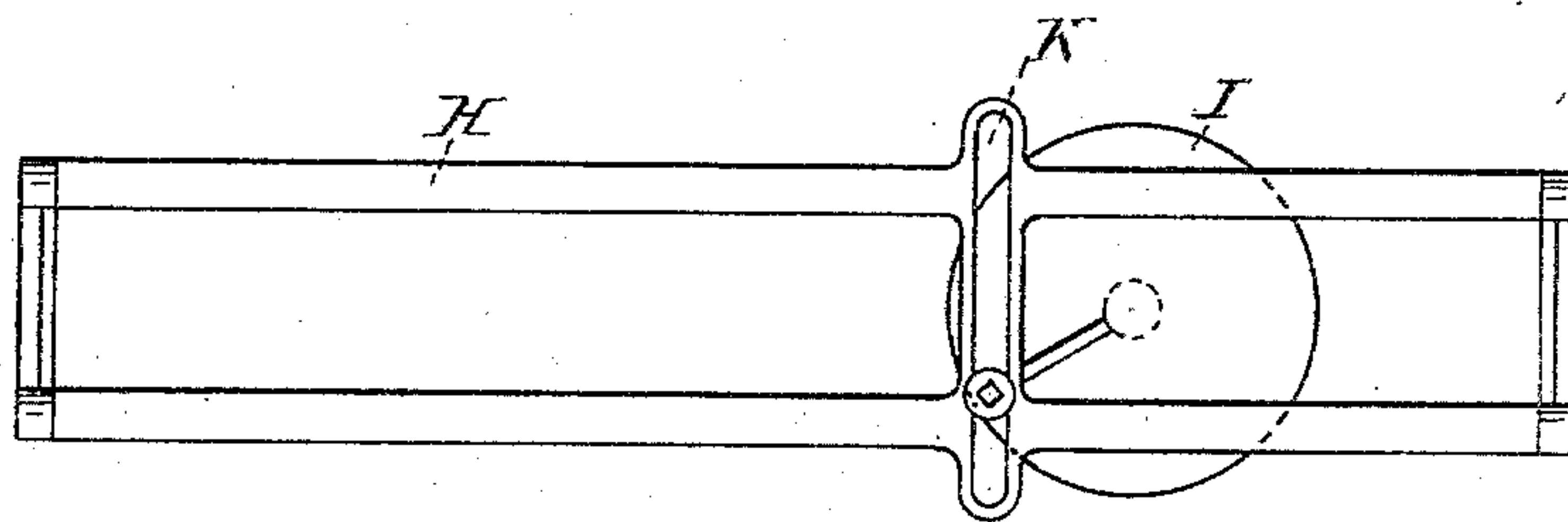


FIG. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM A. SMITH, OF LAWRENCE, ASSIGNOR TO THE LAWRENCE FELTING COMPANY, OF MILLVILLE, MASSACHUSETTS.

FELT-BOOT MACHINE.

SPECIFICATION forming part of Letters Patent No. 323,457, dated August 4, 1885.

Application filed February 4, 1885. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. SMITH, of Lawrence, in the county of Essex and State of Massachusetts, a citizen of the United States, have invented certain new and useful Improvements in Felt-Boot Machines, of which the following is a specification.

My invention relates to machines in which a "sliver" of wool or felting material is formed into a bat to be subsequently manufactured into a felt boot, shoe, or stocking; and it consists in improvements in the mechanism whereby this operation of forming the bat is carried out.

In the drawings, Figure 1 is a top plan view, and Fig. 2 a front view in elevation, of a machine embodying my present improvements. Fig. 3 is a vertical end view of the same; and Fig. 4 is a plan view of a portion of the apparatus, to be hereinafter more specifically described.

In machines of this class there are commonly employed a pair of revoluble rollers, each being in contour as if composed of a pair of truncated cones, as shown at A A, upon which there rests and revolves a double cone or former, B. To these rollers and the cone which rests upon them there is given a radial motion derived from the radial motion of a table, C, with which they are in connection, and also a lateral or reciprocating motion. Furthermore, these rollers are revolved by means of suitable gearing connecting them with the main source of power. My present improvement relates particularly to improvements in the devices whereby these movements are obtained.

The table C, I prefer to make segmental in form. It has a center of motion at or near the inner apex of the segment, and it is caused to oscillate or swing around this center in alternate directions by means of a connecting-rod, D, operating by a rotating disk, E, which is mounted upon a shaft connected by beveled gears and shafting with the main source of power X. To obtain the lateral motion of the rollers A A, I mount each upon a shaft, F, journaled in a supporting bracket or standard, G, attached to the table C, the rollers being splined to their shafts and the shafts being made enough longer than the rollers to allow them to slide thereon a distance equal to the

lateral motion required. To produce this lateral or sliding motion of the rollers upon their shafts, I provide a slide or bracket, H, of which a plan view is given at Fig. 4. Lateral motion is given to this slider by means of a stud carried upon a rotating disk, I, and adapted to travel crosswise of the slider in a slot, K, formed therein. Rotary motion is given to this disk I by a beveled gear, L, connected with the disk and meshing with a similar gear, M, upon a shaft, N, which in turn is connected by beveled gears with the shaft driven by the main source of power.

The rotary motion of the rollers A A, which rotate in the same direction, is obtained by gears O O at the ends of the shafts F F, these gears being connected by intermediate gearing with a gear, P, upon a shaft, P', which also carries a beveled gear, P², which meshes with the gear M on the shaft N, before described.

By my present invention, as will be seen, I have simplified the machinery heretofore used in this class of work, and by the construction and arrangement of the sliding rollers and their operating mechanism I obtain a continuous to-and-fro movement of the rollers without the employment of any reversing device or any special or additional mechanism for changing the direction of their movement.

I also obtain by my present invention an important advantage over machinery heretofore used, of which the Letters Patent No. 293,766 contains an example, wherein the to-and-fro motion of the rollers is obtained by reciprocating not only them, but also their axles, the standards which carry them, and all the parts required to drive them. In such machines, as will be seen, considerable power is required to overcome the inertia and momentum of all these parts. By my present invention, however, I move practically nothing except the rollers or formers themselves, and thus I am enabled to do away with the necessity of moving a number of heavy parts, and the efficiency of the machine is thereby materially increased.

I claim—

1. In a felt-boot-forming machine, the rollers A A in splined or sliding connection with their revoluble shafts F F, said shafts being

journaled in a standard, G, attached to and moving with an oscillating table, C, substantially as herein set forth.

2. The combination, in a felt-boot-forming machine, with the rollers A A in splined or sliding connection with their supporting-shafts F F, of a slider, H, and suitable mechanism for imparting a continuous to-and-fro motion to the slider and thus to the rollers A A, all substantially as herein set forth, and for the purpose herein specified.

3. In a felt-boot-forming machine, the combination of the shafts F F, the rollers A A,

splined thereon, the slotted slider H, disk and pin I, and suitable gearing and shafting, substantially such as herein described, whereby rotary motion is transmitted to the disk I, substantially as set forth.

In testimony whereof I have hereunto subscribed my name this 30th day of January, A. D. 1885.

WILLIAM A. SMITH.

Witnesses:

EDGAR S. RIDEOUT,
GEORGE L. WEIL.