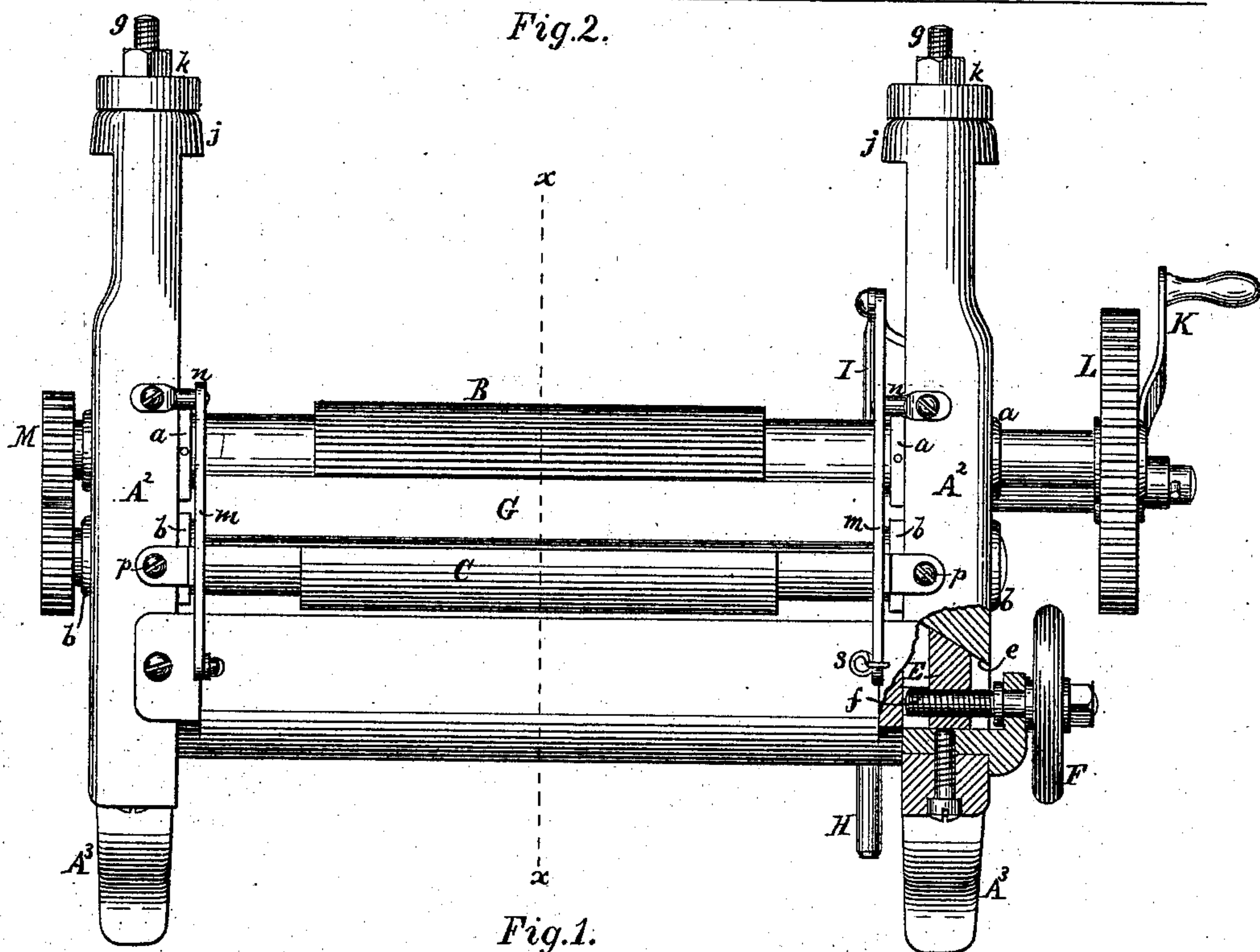
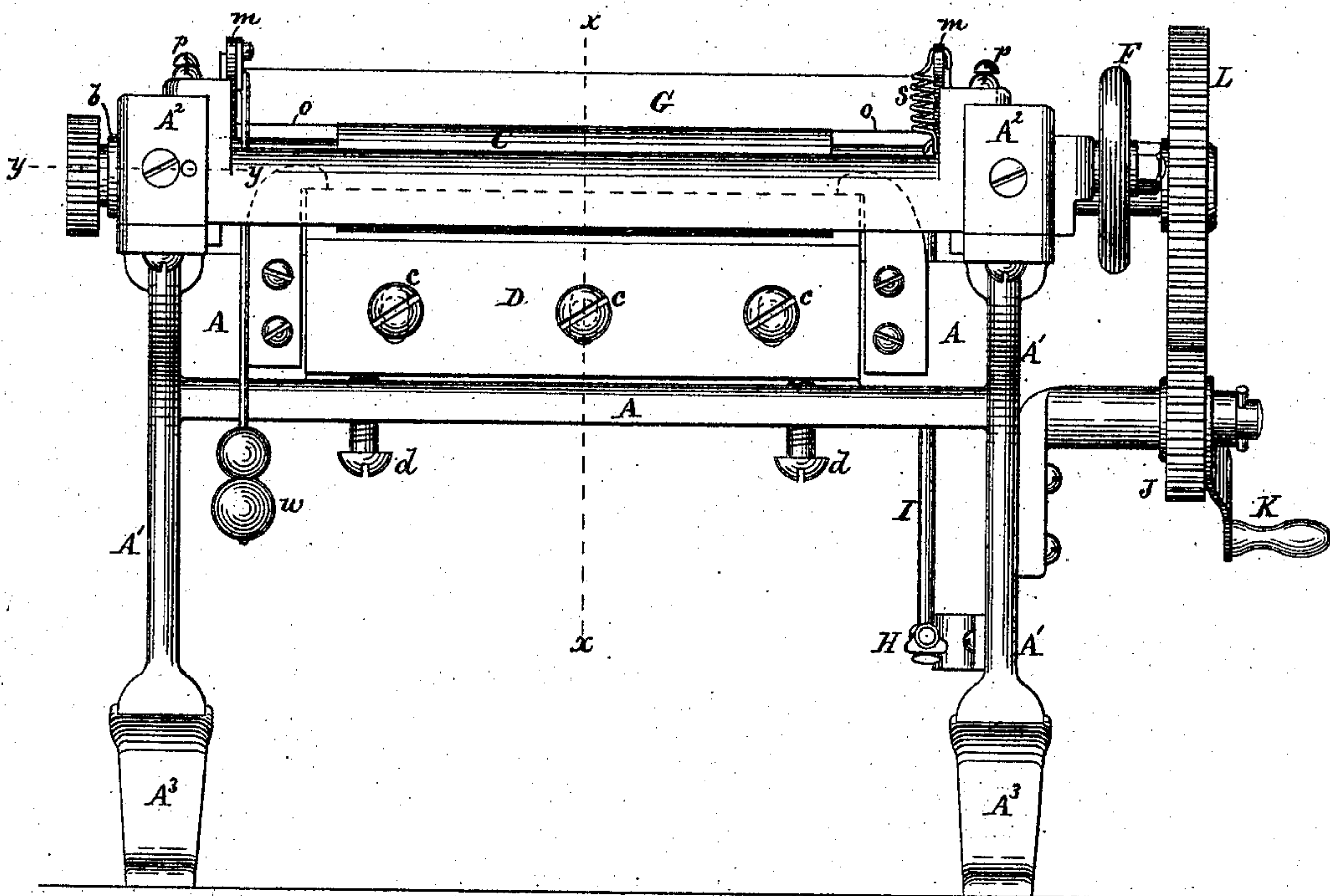


J. A. SAFFORD.  
Leather-Splitting Machine.  
No. 211,187. Patented Jan. 7, 1879.



WITNESSES:

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E. A. Hemmenway.  
C. H. Dodd.

INVENTOR:

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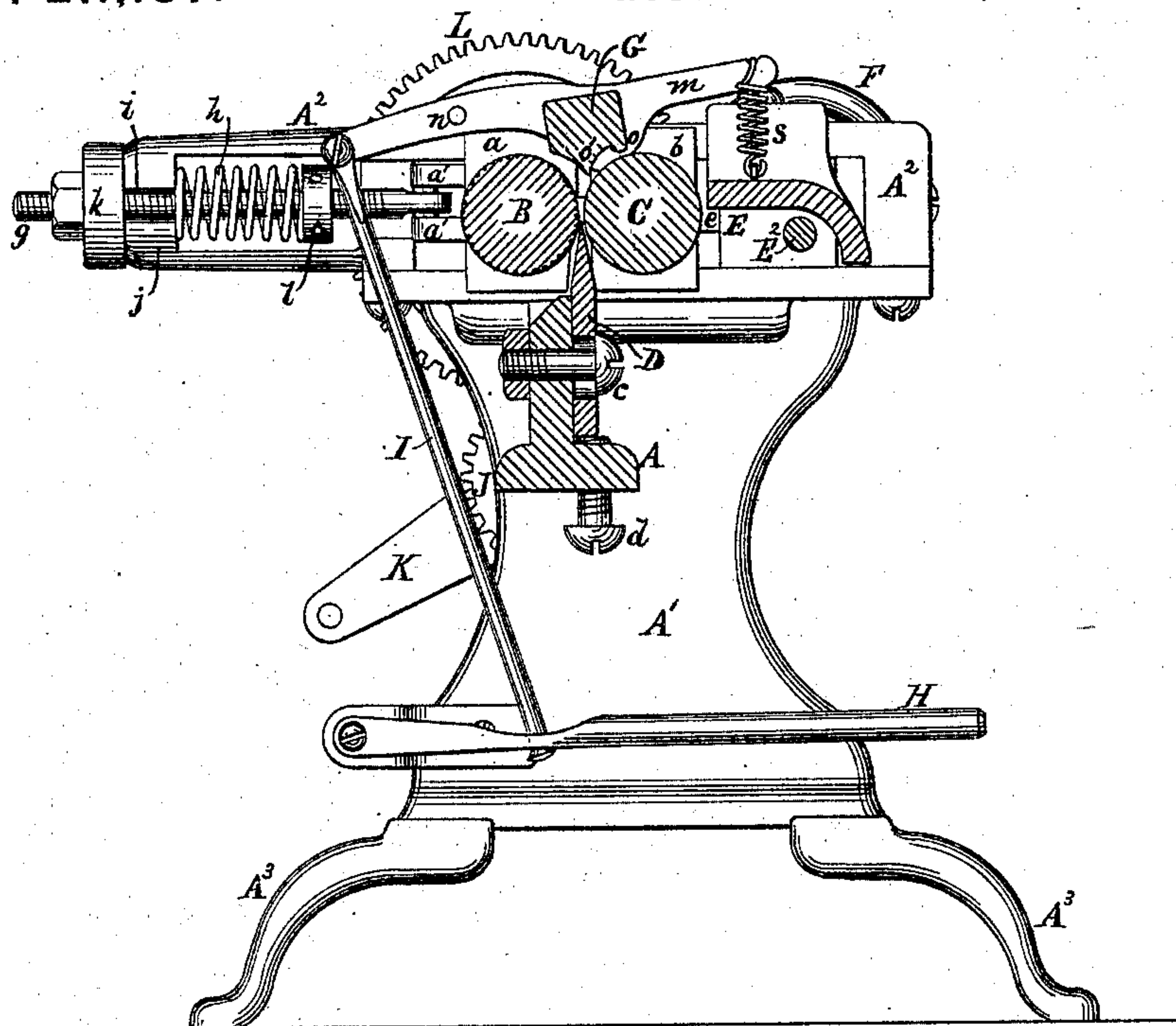


Fig. 3.

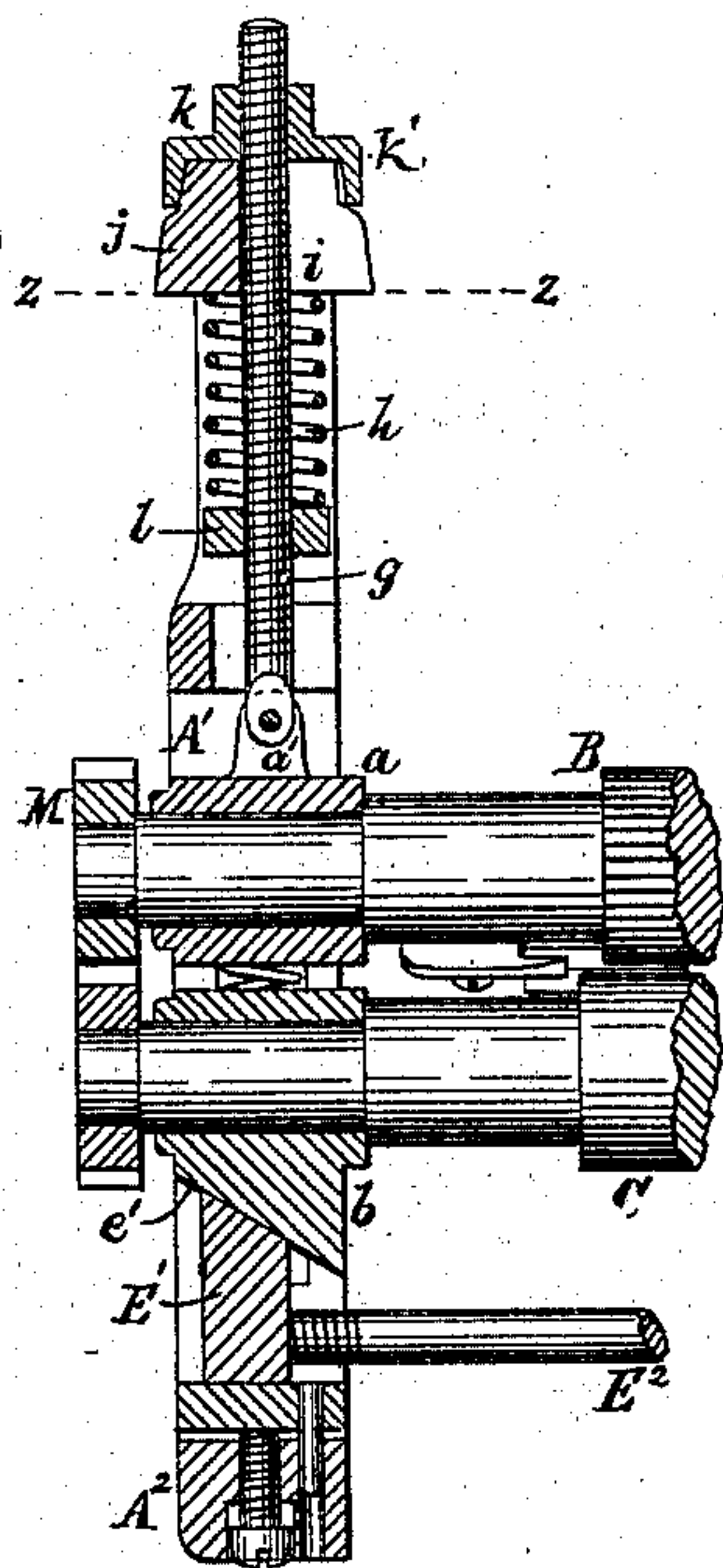


Fig. 4.

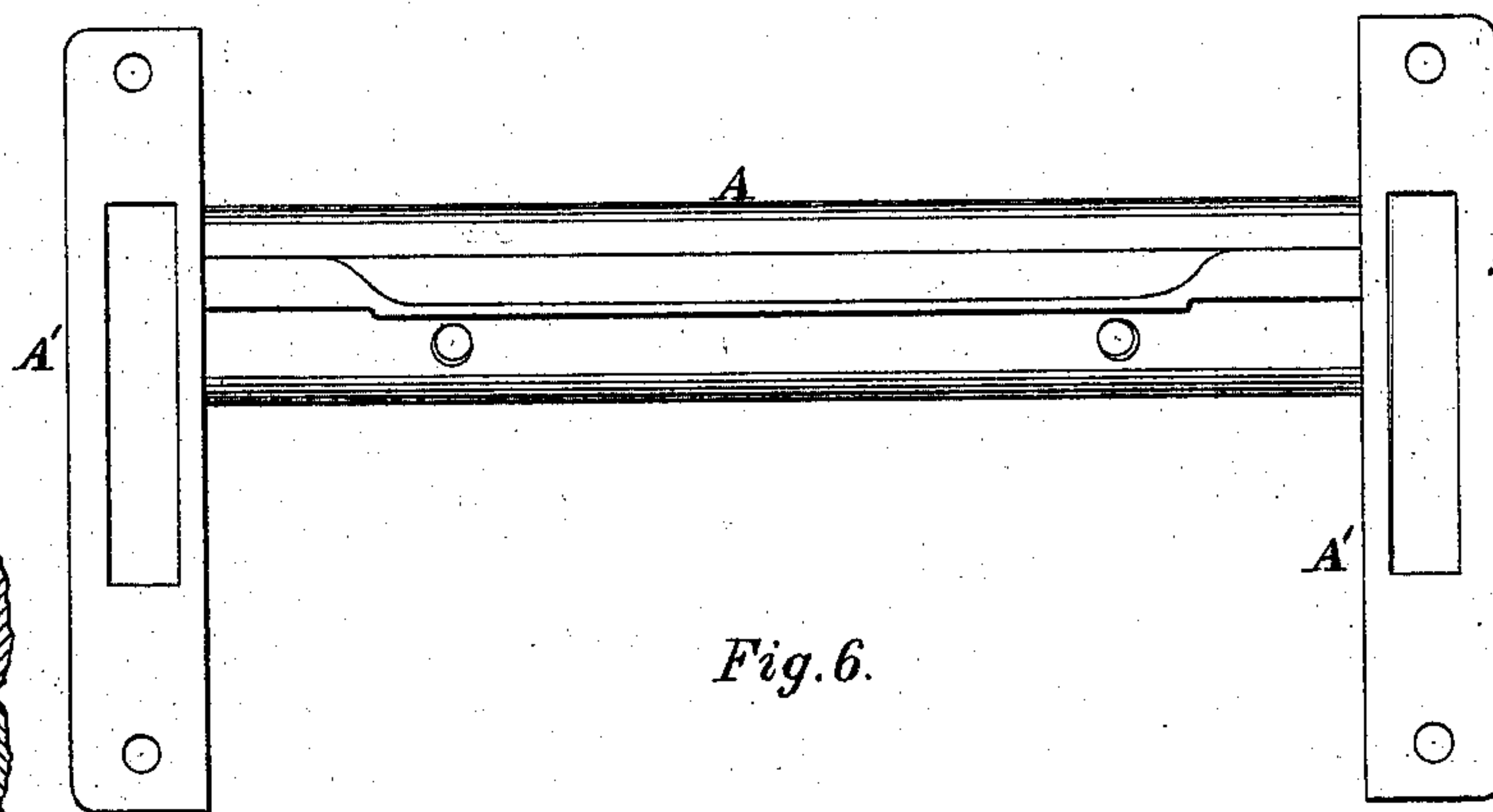


Fig. 6.

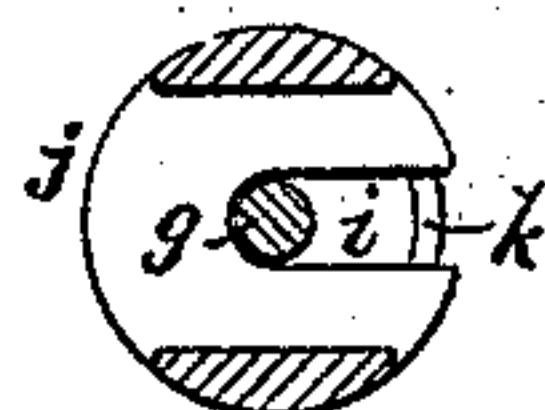


Fig. 5.

WITNESSES:

E. A. Kemmenway.  
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# UNITED STATES PATENT OFFICE.

JOSEPH A. SAFFORD, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN LEATHER-SPLITTING MACHINES.

Specification forming part of Letters Patent No. **211,187**, dated January 7, 1879; application filed June 17, 1878.

*To all whom it may concern:*

Be it known that I, JOSEPH A. SAFFORD, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Leather-Splitting Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to the arrangement of the knife, feed and gage rolls, and pressure-bar, the means employed for adjusting and controlling the position of said devices, and an improved mode of presenting the leather to the action of the knife, whereby the wrinkles in the leather are more effectually removed before reaching the knife than heretofore; and it consists, first, in the combination of a knife set vertically, or with its cutting-edge upward, a gage-roll and a feed-roll located upon opposite sides of said knife, with their axes in the same horizontal plane, or nearly so, and a pressure-bar adapted to bear upon the leather at the upper side of the gage-roll, whereby the leather, which is fed to the machine in a horizontal direction, is turned around the gage-roll, and presented to the knife-edge while moving in a vertical direction, as will be further described.

My invention further consists in the employment of a pressure-bar having its under surface corrugated or grooved, so as to form two or more longitudinal ribs, adapted to bear upon the leather and press it into the gage-roll at two or more points.

My invention further consists in the combination, with the box or bearing of the feed-roll, of a threaded adjusting-bolt, pivoted to said box, and provided with an adjustable collar; a spring adapted to force the feed-roll toward the knife and the gage-roll; a slotted collar on the frame, the outer end of which is cylindrical; and a cupped nut fitted to said threaded adjusting-bolt, and adapted to embrace the cylindrical portion of said slotted collar, as will be described.

My invention further consists in casting the knife-bed, adapted to hold the knife in a vertical position, in one piece with the central portions of the two end frames, the upper edges of which form the support for the feed

and gage roll boxes, whereby the labor of fitting up the machine is very much reduced.

Figure 1 of the drawings is a plan of a machine illustrating my invention, a small portion of one corner of the machine being cut in section. Fig. 2 is a front elevation. Fig. 3 is a vertical transverse section on line *x x* on Figs. 1 and 2. Fig. 4 is a horizontal section through one of the frames on line *y y* on Fig. 2. Fig. 5 is a section on line *z z* on Fig. 4; and Fig. 6 is a plan of the knife-bed detached from the machine.

A is the knife-bed, cast in one piece with the central portions  $A^1$  of the end frames, the upper edges of which are planed to form supporting-surfaces for the boxes *a* and *b*, in which the feed and gage rolls B and C have their bearings, said boxes being held down by the housings  $A^2$ , bolted to the upper sides of the end pieces  $A^1$  of the knife-bed A.

The knife-bed A is supported upon the legs  $A^3$ , as shown in Fig. 3.

The knife D is secured to the side of the vertical rib of the knife-bed A by means of the bolts *c*, with its cutting-edge upward and its back or lower edge resting on the adjusting-screws *d d*, as shown in Figs. 2 and 3.

The gage-roll C is placed in front of the knife D, and has its bearings in the boxes *b b*, and may be moved horizontally to adjust its distance from the cutting-edge of the knife by means of the wedges E and  $E^1$ , connected together by the rod  $E^2$ , acting against inclined surfaces *e* and *e'*, formed upon the front sides of the boxes *b b*, said wedges being moved by the screw *f*, which may be operated by the hand-wheel F.

The feed-roll B is placed in the rear of the knife, with its axis in the same, or nearly the same, horizontal plane as the gage-roll C, and has its bearings in the boxes *a a*, from the rear sides of which project ears *a' a'*, to which is pivoted by a vertical pin the threaded bolt *g*, in such a manner that it may be oscillated about said pin in a horizontal plane for the purpose of removing or applying the spiral spring *h*.

The rear end of the bolt *g* rests in the slot *i*, formed in the side of the collar *j* of the housing  $A^2$ , and is held in position therein, and may be



adjusted endwise to set the feed-roll, by means of the nut *k*, provided upon its inner side with an annular rim, *k'*, which surrounds or incloses the rear cylindrical portion of said collar, as clearly shown in Fig. 4.

The spiral spring *h* surrounds the bolt *g*, between the collar *j* of the housing *A*<sup>2</sup> and the adjustable collar *l* on said bolt, the tension of said spring acting to force the feed-roll toward the knife, and yielding to adapt the position of said feed-roll relative to the gage-roll to the varying thickness of the leather being acted upon.

The collar *l* is made adjustable on the bolt *g* for the purpose of regulating the tension of the spring *h*. If the spring *h* breaks or becomes set, by simply unscrewing the nut *k* and swinging the bolt *g* to one side, so as to remove it from the slot *i*, the spring may be removed and another put in its place without disturbing the feed-roll or the housing in which it has its bearings.

*G* is a pressure-bar, having formed upon or secured to each end thereof an arm, *m*, projecting therefrom in opposite directions, and pivoted at *n* to the housing *A*<sup>2</sup> in such a position that said bar will bear upon the leather at the upper side of the gage-roll *C*, near its highest point, the under side of said bar being formed with two longitudinal ribs, *o* and *o'*, projecting downward therefrom, so as to present two lines of bearing to the leather as it is fed to the machine in a horizontal, or nearly horizontal, direction, and passes partially around the gage-roll, and is seized by the feed-roll and presented to the action of the knife while moving in a vertical plane.

By this arrangement of the parts, whereby the leather is spread or wrapped partially around the convex surface of the gage-roll while moving into the machine and the narrow rib or scraper-like bearings of the pressure-bar, the wrinkles are all effectually removed from the leather when it reaches the knife, which has heretofore been found impractical, especially in splitting flanks and skirt-pieces.

A further advantage is that the even portion of the leather is delivered from the machine at the front of the machine, where the operator can examine it without moving from his position or interfering with the feeding of the leather to the machine.

The pressure-bar *G* may be held down onto the work by the spring *s*, or by pendent weights *w*; or the bar itself may be made heavy enough to give the desired pressure, and it may be raised to permit the insertion of the leather by means of the treadle-lever *H*, connected by the link *I* to the rear end of one of the arms *m*, as shown in Fig. 3.

The bar *G* is limited in its downward motion by the adjustable stops *p*.

*J* is the driving-pinion, which may be operated by the crank *K* or a pulley and belt, and meshes into and imparts motion to the spur-gear *L* on the feed-roll *B*, upon the opposite end of which is secured the spur-wheel *M*, which meshes into a similar wheel on the gage-roll *C*.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of the knife *D*, secured in position with its cutting-edge upward, the feed-roll *B*, and gage-roll *C*, located upon opposite sides of the knife, with their axes in the same, or nearly the same, horizontal plane, and the pressure-bar *G*, adapted to press upon the leather at or near the highest part of the gage-roll *C*, substantially as and for the purposes described.

2. The pressure-bar *G*, provided with two or more ribs, *o* and *o'*, extending longitudinally thereof, and adapted to bear upon the leather at different points as it passes partially around the periphery of the gage-roll, substantially as and for the purposes described.

3. The combination of the feed-roll *B*, box *a*, threaded bolt *g*, pivoted to said box and provided with the adjustable collar *l*, spring *s*, slotted collar *j* of the housing *A*<sup>2</sup>, and the cupped nut *k*, all arranged and adapted to operate substantially as and for the purposes described.

4. The knife-bed *A*, adapted to hold the knife in a fixed vertical position, cast in one piece with the main portions of the two end frames, the upper edges of which form the supports for the bearing-boxes of the feed and gage rolls, substantially as described.

Executed at Boston, Massachusetts, this 13th day of June, A. D. 1878.

JOSEPH A. SAFFORD.

Witnesses:

N. C. LOMBARD,

E. A. HEMMENWAY.