

Sheet 1-2 Sheets.

W. A. Fenn.

Blocking & Stretching Hats.
N^o 19138 Patented Jan. 19, 1858.

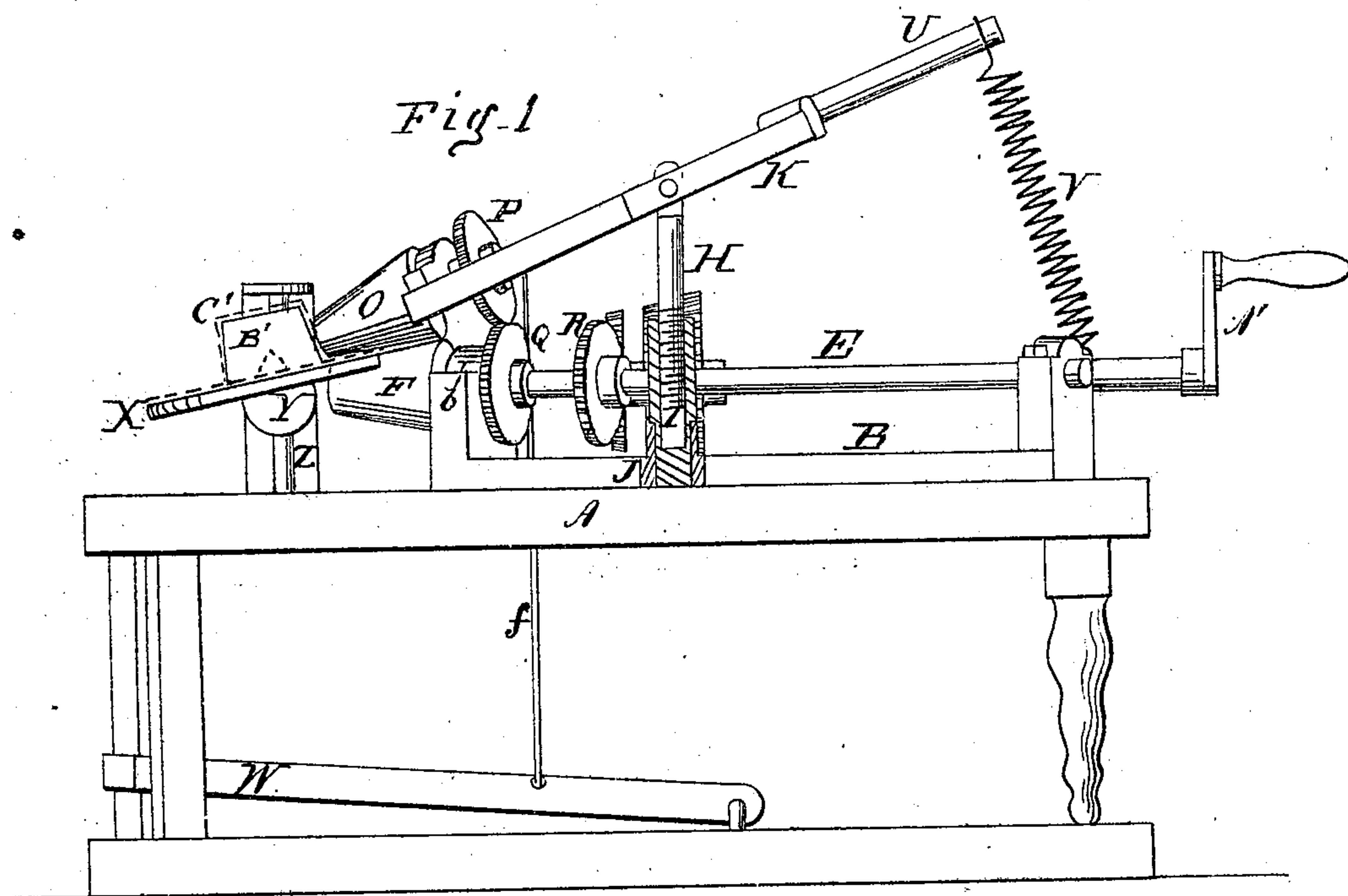
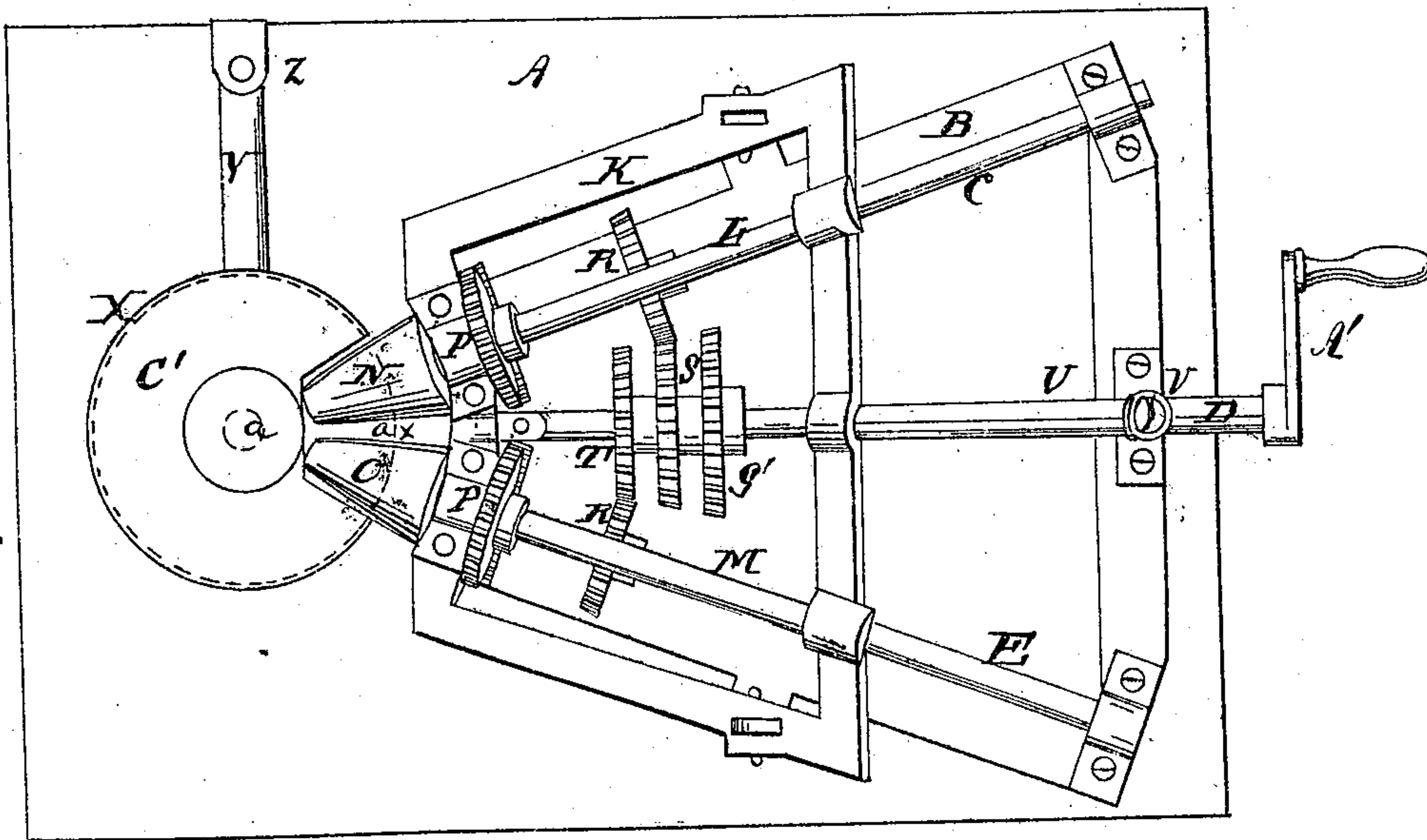


Fig. 3.



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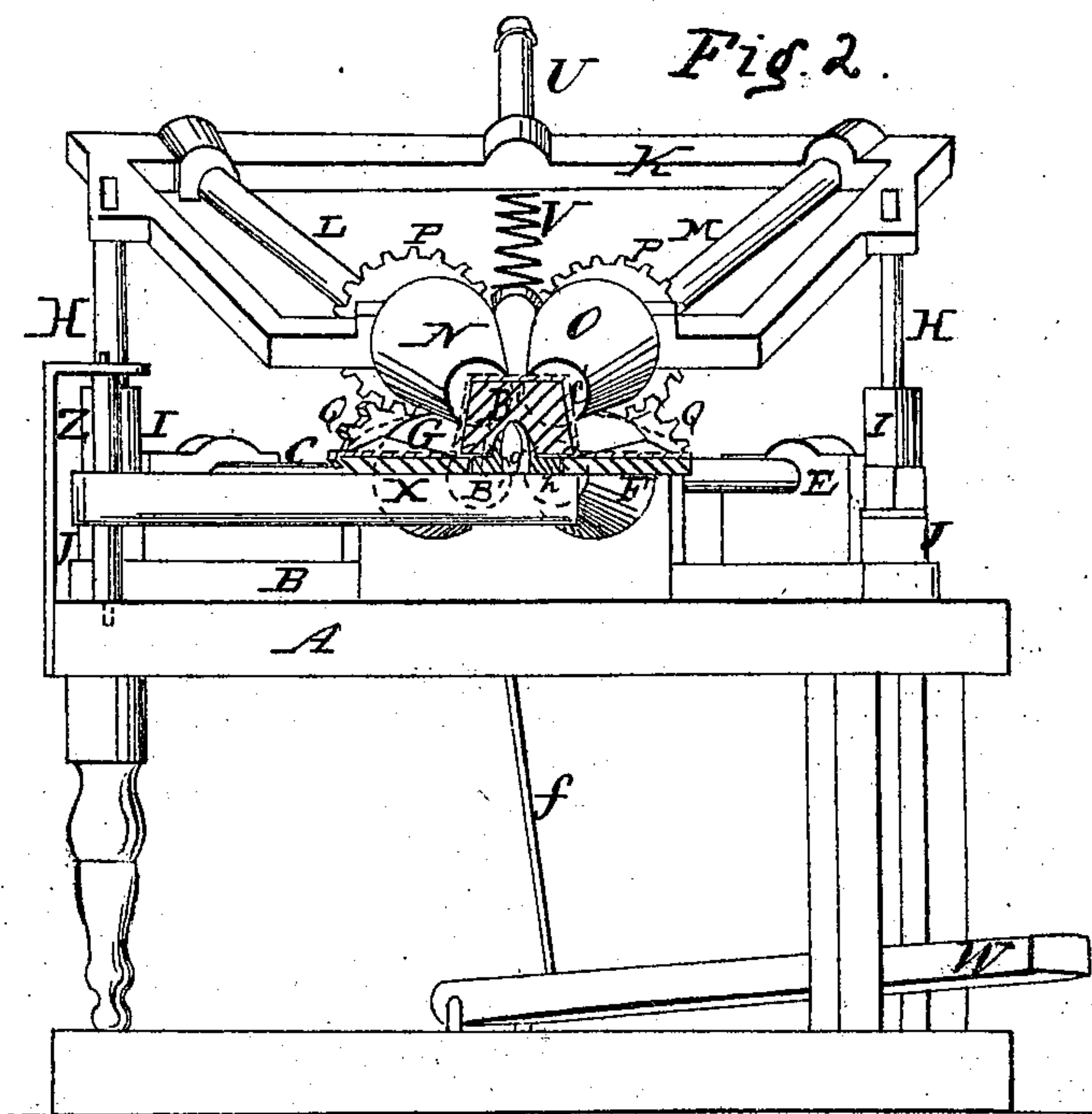
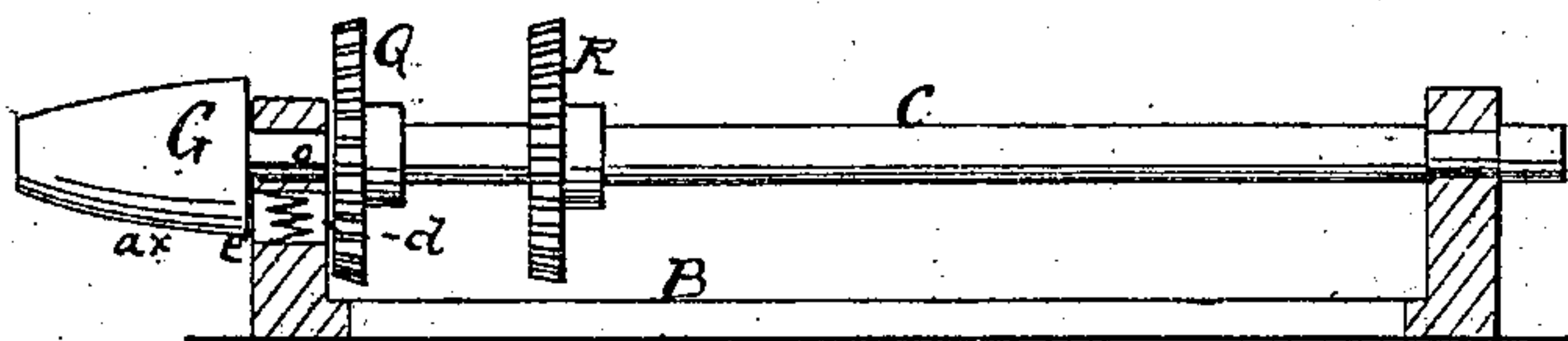


Fig. 4.



UNITED STATES PATENT OFFICE.

WILLIAM A. FENN, OF BROOKFIELD, CONNECTICUT.

MACHINERY FOR FORMING THE BRIMS OF FELT HATS.

Specification of Letters Patent No. 19,138, dated January 19, 1858.

To all whom it may concern:

Be it known that I, WILLIAM A. FENN, of Brookfield, in the county of Fairfield and State of Connecticut, have invented a new and Improved Machine for Forming the Brims of Felt Hats; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side view of my improvement the nut of one of the uprights of the vibrating roller frame being bisected vertically. Fig. 2, is an end view of ditto, the bed and rotating plate on which the hat block is placed being bisected vertically through the center. Fig. 3, is a plan or top view of ditto. Fig. 4, is a detached view of one of the lower rollers.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in the employment or use of two pairs of conical rollers, the upper rollers of both pairs being placed in a vibrating or movable frame, and the lower roller of one pair allowed a certain degree of vertical play or movement, the two pairs of rollers having different speeds and arranged with an adjustable bed and rotating plate as hereinafter shown, whereby the desired work is performed expeditiously and perfectly.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a bed or platform supported at a suitable height and having a metallic frame B, secured to it, said frame having three shafts C, D, E, placed on it in suitable bearings. The shafts C, D, E, are placed radially in the frame B, the central one D, being at equal distances from the other two C, E, (a) being the center of a circle of which the shafts are the radii, see Fig. 3. On the converging ends of the two shafts C, E, there are placed conical rollers F, G, one on each. The bearing (b) of the shaft E, adjoining the roller F, is permanent or fixed, but the bearing (c) of the shaft C, is allowed a certain degree of vertical play, said bearing being fitted in an oblong slot (d) and having a spiral spring (e) placed underneath it as shown in Fig. 4, the spring (e) having a tendency to keep the bearing against the upper edge of the slot (d).

H, H, are two vertical shafts which are attached one to each side of the frame B. These shafts have screw threads formed on their lower ends and they fit in nuts I, I, which are placed in sockets J, on the frame B. By turning the nuts I, the rods H, may be raised or lowered to the desired height.

To the upper ends of the rods H, H, a frame K, is pivoted and is allowed to move or work freely on its pivots. In the frame K, two shafts L, M, are placed and fitted in permanent bearings. The shaft L is directly over and in the same plane with shaft C, the shaft M, being in the same plane with shaft E. To the converging ends of the shafts L, M, rollers N, O, are attached. These rollers are of conical form corresponding to the lower ones F, G, and are of course in the same planes with them. The peripheries of the rollers may be finely roughened or corrugated.

On the shafts L, M, near the rollers N, O, toothed wheels P, P, are placed, and corresponding wheels Q, Q, are placed on the shafts C, E, at corresponding points, similar wheels R, R', are also placed on the shafts C, E, the wheel R on shaft L, gearing into a wheel S, on shaft D, and the wheel R', on shaft M, gearing into a wheel T, on shaft D, smaller than S, see Fig. 3. A larger wheel S', is also placed on shaft D.

To the outer end of the frame K, a rod U, is attached and a spring V, is secured to its end. This spring has a tendency to keep the inner end of the frame thrown upward. The inner end of the frame is connected by a rod (f) with a treadle W.

X, represents a bed which is of circular form a section being removed from it to receive the lower rollers F, G, when the bed is adjusted so that the rollers may receive the hat brim. This bed X is attached to an arm Y, the outer end of which is attached to a vertical shaft Z, on the bed A, which shaft is allowed to turn in its bearings. At the center of the bed X, which coincides with the point (a) where the bed X, is adjusted to the rollers N, O, a vertical pin (g) is placed, and on this pin a circular plate (h) is placed loosely so that it may turn around or on said pin, the plate resting on the arm Y, and fitting in a circular recess cut through the bed X at its center. To the outer end of the shaft D, a crank A' is attached.

The operation is as follows: The hat body

is blocked and the crown joined by the usual machine or in any manner, and the hat block with the body upon it is placed on the pin (g) the block resting on plate (h) see Fig. 2, in which B', represents the block, and C', the hat body. The bed X is moved out from the rollers when the block is adjusted upon it and moved toward them when the block is centered on pin (g). The lower part of the body C', is placed between the two pairs of rollers O, E, N, G, and the upper rollers N, O, are brought down upon the lower ones F, G. The shaft D, is then rotated in any proper manner and the hat brim is formed by the rollers O, E, which press it and also stretch it into proper shape, as said rollers rotate a trifle slower than the rollers N, G, owing to the difference in the size of the driving wheels previously described, this diversity of speed causing the body to be stretched while the pressure is obtained in consequence of the attendant pressing with his foot on treadle W, the rollers N, G, in consequence of the lower one G, being on a shaft C, having an elastic or yielding bearing, merely press sufficiently on the hat brim to feed it around or rotate it, the block B' turning on the pin (g). The hat body is rotated several times before the brim is completed and as different portions of one hat body will often vary as regards hardness, one portion being much harder than another, and as the hard portions require to be acted upon more than the softer portion in order to form a perfect brim, it is essential that suitable provision be made so that the pressure of the rollers O, F, may be applied to certain parts, and other parts relieved of the pressure at any time as may be necessary. This is effected by the vibrating frame K, and yielding roller G. The operator at any time by relieving the treadle W, of the foot allows the upper rollers N, O, to rise and as the lower roller F, is permanent or has no vertical movement as the roller G, the brim will be relieved of the pressure of the rollers O, F, but the roller G for the reason above alluded to will follow its fellow roller N, upward and the brim will therefore be subjected to sufficient pressure by said rollers to be rotated. The hat body therefore will have a constant feed, while the pressure rollers may be made to act upon

the brim and the brim be freed from them at any time as may be desired.

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The rollers O, F, N, G, are not perfect frustums of cones, they have slightly convex peripheries, as shown clearly in Fig. 3, the most prominent part of the rollers being at the centers, or, midway between both ends, as shown at (a^x). Hat brims of course vary in width and it is essential in all cases to have the greatest pressure at the extreme edge of the brim whether it be wide or narrow. This is accomplished by having the rollers of the form shown and described in connection with the adjustable uprights H, by which the relative position of the upper and lower rollers by turning the nuts I, may be varied so as to bring the "bite" of the rollers at any desired point on the peripheries.

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This machine has been practically tested and operates well, performing its work expeditiously and perfectly.

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I do not claim in the abstract the employment or use of conical pressure rollers for they are used in various ways for similar or analogous purposes; but—

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is:

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1. The employment or use of the two pairs of rollers O, F, N, G, arranged as shown, to-wit, the upper rollers O, N, of each pair being fitted or placed in an adjustable frame K, and the two pairs of rollers rotated with varying speed whereby the hat brim is stretched and at the same time subjected to the necessary pressure as described.

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2. I further claim giving the roller G, a certain degree of elasticity or, allowing it to yield or give vertically to a certain extent, by any proper arrangement, when said roller G thus arranged, is used in combination with the other within described parts, whereby the pressure of the feed rollers N, G, is rendered constant and at the same time the pressure of the rollers O, F, allowed to be regulated as desired for the purpose of forming an even and perfect brim as set forth.

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WILLIAM A. FENN.

Witnesses:

CHARLES WILSON,
JOHN B. ISBELL.