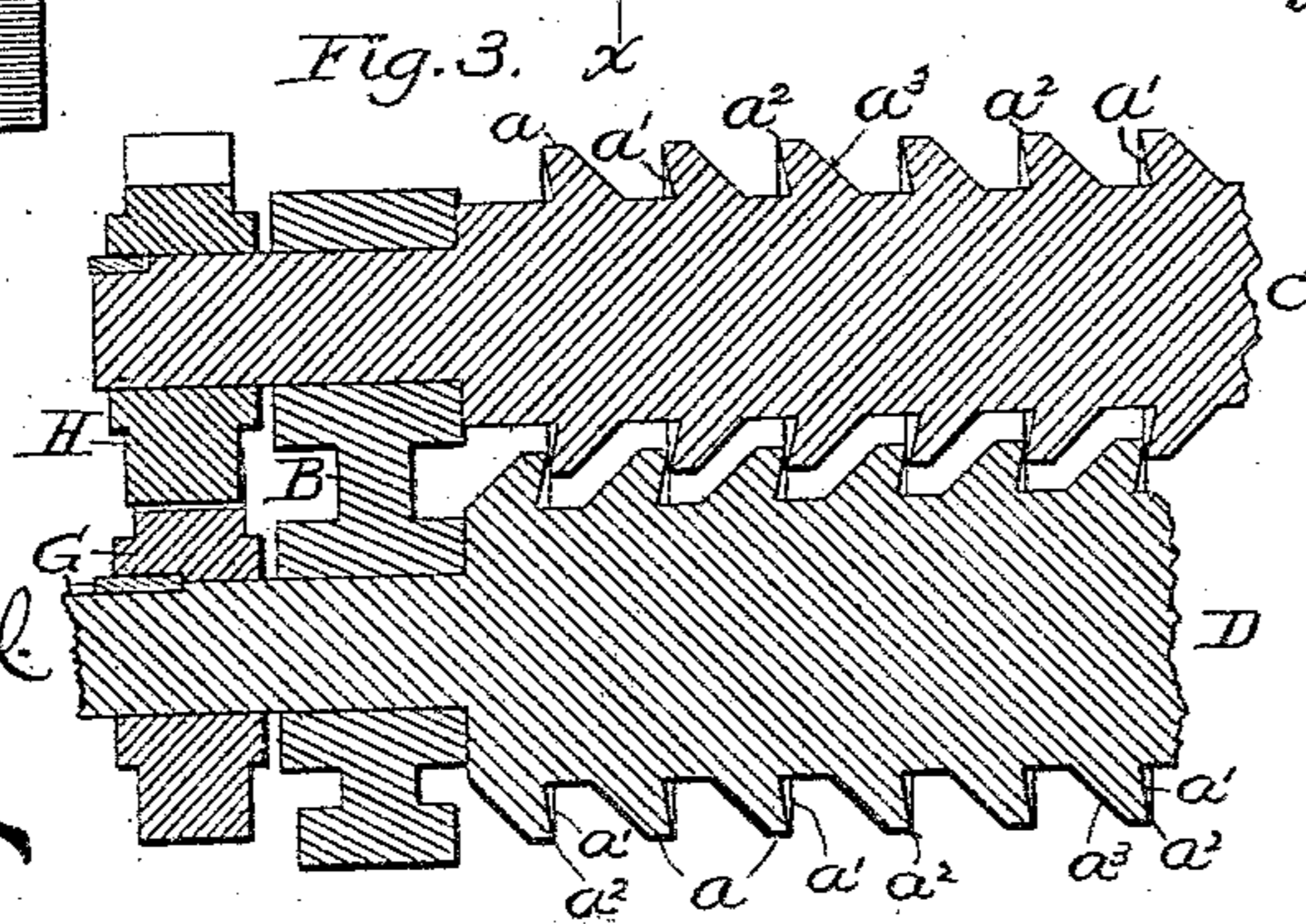
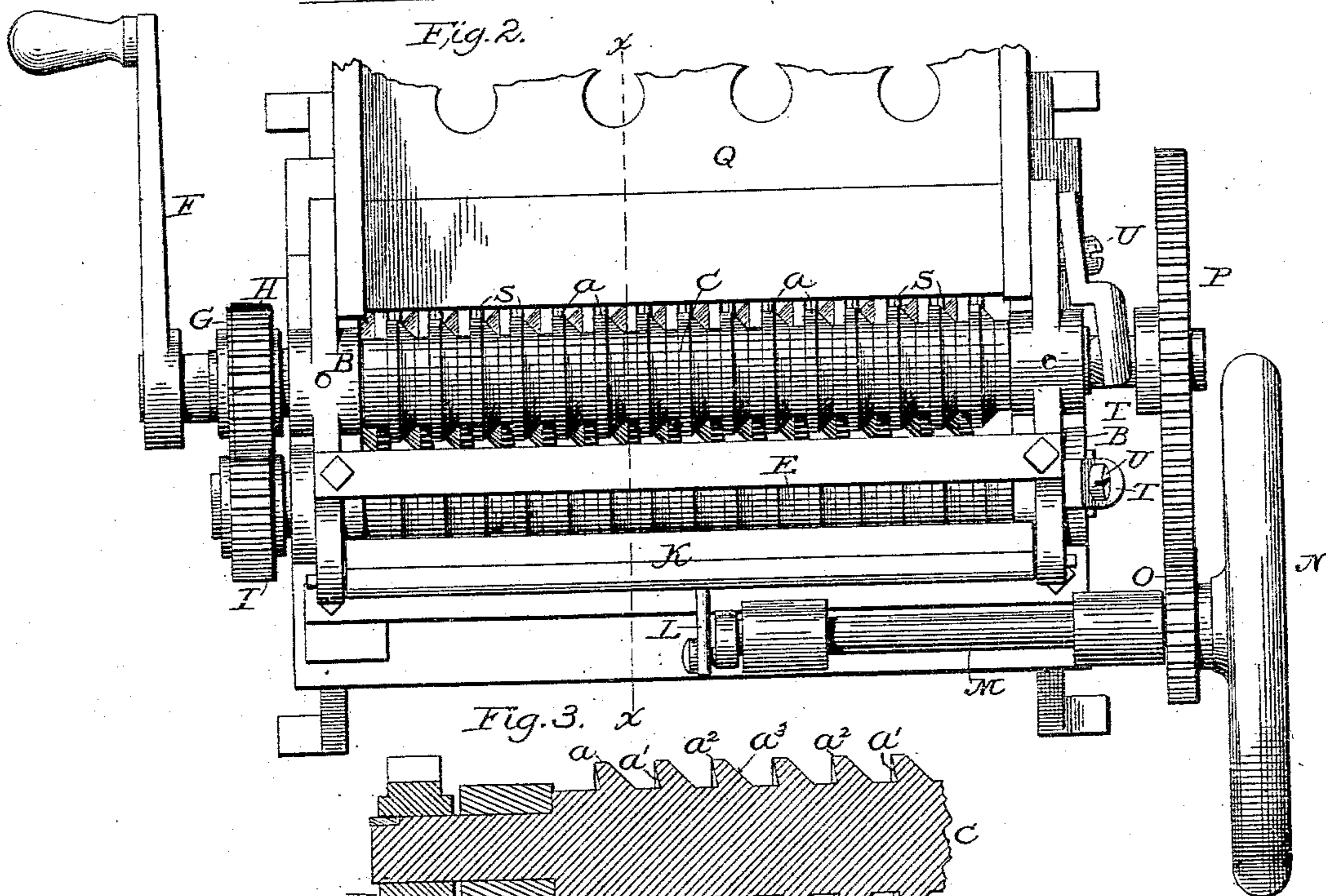
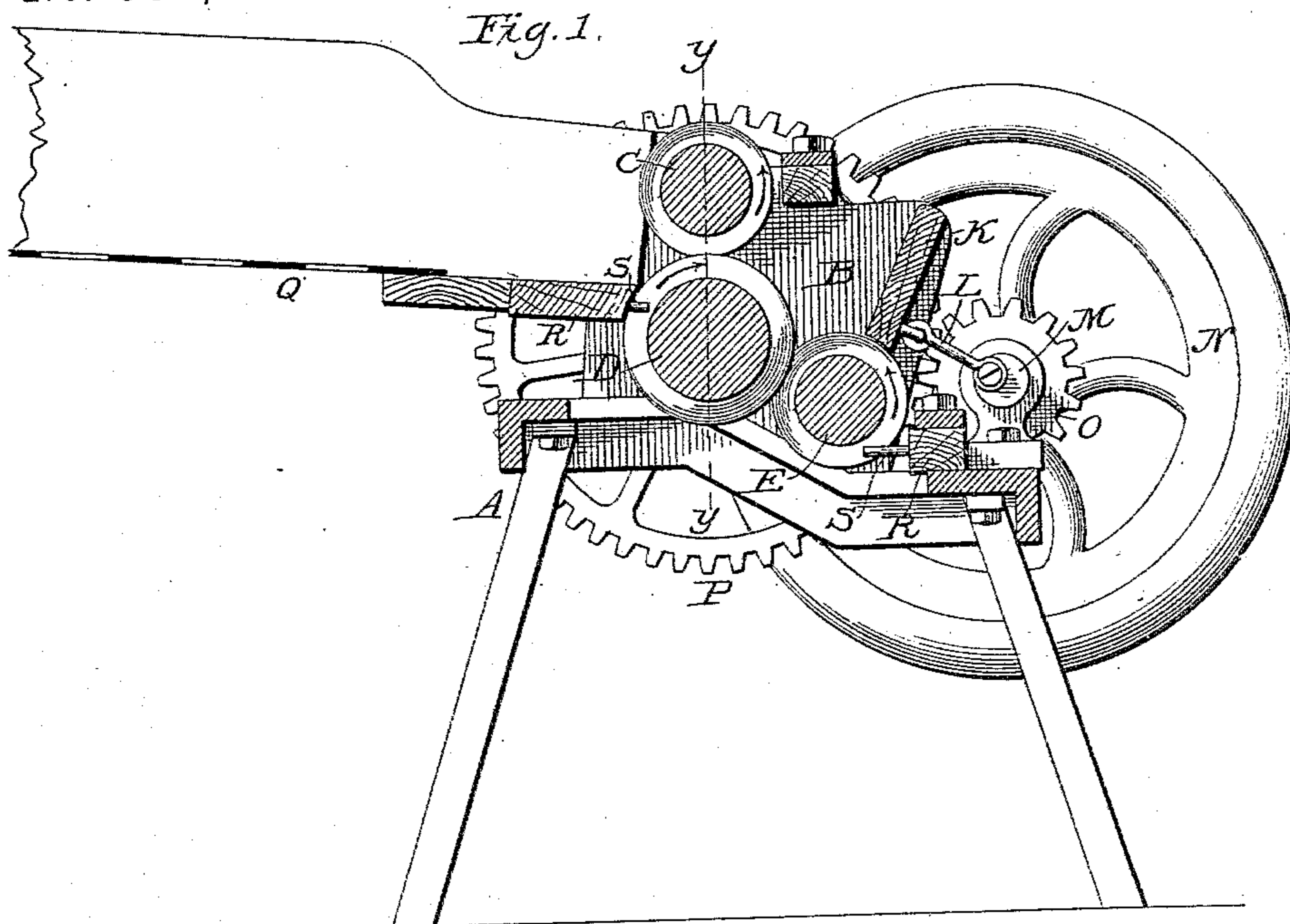


(No Model.)

P. E. SHIRK.  
TOBACCO CUTTER.

No. 356,603.

Patented Jan. 25, 1887.



Witnesses:

James D. O'Connell

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Inventor:

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By his Att'y

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# UNITED STATES PATENT OFFICE.

PETER E. SHIRK, OF BLUE BALL, PENNSYLVANIA.

## TOBACCO-CUTTER.

SPECIFICATION forming part of Letters Patent No. 356,603, dated January 25, 1887.

Application filed June 22, 1886. Serial No. 205,875. (No model.)

*To all whom it may concern:*

Be it known that I, PETER E. SHIRK, of Blue Ball, in the county of Lancaster and State of Pennsylvania, have invented certain Improvements in Tobacco-Cutters, of which the following is a specification.

At the present day there are known in the art various machines for cutting scrap-tobacco in order to adapt the same for use in cigar-making and for other purposes. As commonly constructed these machines are objectionable on account of their expense and because they require the material to be repeatedly passed therethrough in order to effect its reduction to the proper condition.

The aim of my invention is to provide a machine which shall be of cheap and simple construction, which will reduce the material at one operation to the required degree of fineness, and which will admit of its cutters being conveniently resharpened at will.

In the accompanying drawings, Figure 1 represents a longitudinal vertical section of my machine on the line  $x x$  of Fig. 2. Fig 2 is a top plan view of the machine. Fig. 3 is a longitudinal section on the line  $y y$  of Fig. 1, through one end of the cutting-rolls.

In the drawings, A represents a stationary bed or frame of any suitable form, giving support to two upright metal plates, B, which are bolted firmly to its opposite ends and provided with bearings for the journals of three horizontal rolls, C, D, and E. The journals are extended through the plates to the outside. At one end the middle roll, D, is provided with a hand-crank, F, or equivalent means of rotating the same, and with a pinion, G, which communicates motion to pinions H and I, applied to the ends of the adjacent rolls, whereby the several rolls may be driven positively in the directions indicated by the arrows.

Each roll is constructed, as shown, with a series of parallel circumferential collars or shoulders,  $a$ , which are undercut on one side, as shown at  $a'$ , brought to a sharp cutting-edge, as shown at  $a''$ , and inclined backward on the opposite face, as shown at  $a'''$ .

The top and bottom rolls, C and E, present their cutting-edges toward the left, while the intermediate roll presents its cutting-edges in the opposite direction.

The several rolls are so adjusted in relation to each other that the cutting-edges of the middle roll, D, overlap and pass closely by the edges of the other two. The result of this arrangement is that the rolls C and D co-operate and form, in effect, one pair of rotary shears, while the rolls D and E co-operate and form a second pair of shears.

Above the roll E, which is somewhat below the level of the middle roll, I arrange a longitudinal vibratory feeding-board, K, hung on horizontal pivots and operated by a pitman, L, connecting its lower edge with a crank-shaft, M. This crank-shaft is provided with a large fly-wheel, N, and also with a small pinion, O, through which it receives motion from a gear-wheel, P, applied to the journal of roll D. By this arrangement the fly-wheel may be given a high velocity, so that it will insure a steady motion of the rolls.

In advance of the rolls is located a feed table or hopper, Q, having a perforated bottom to permit the discharge of the dust and waste material. This hopper is arranged in position to deliver the material between the rolls C and D. In order to prevent the material from adhering to the cutting-rolls, I provide opposite each roll a cross-bar, R, having a series of fingers, S, which project between the cutting-flanges of the adjacent roll, acting as scrapers or clearers to loosen the material which may be carried around thereon.

The operation of the machine is as follows: Motion being imparted to the rolls in the direction indicated by the arrows, the tobacco is fed from the table Q between the upper rolls, C and D. In its passage between these rolls it is threaded or divided by their numerous cutting-edges, and delivered on top of the roll E and against the vibratory board K. This board, acting in conjunction with the rolls D and E, causes the material to pass downward between said rolls, where it is subjected to a second cutting operation, and thus reduced to a proper condition for use.

I am aware that in a tobacco-cutting machine two rolls with annular cutting-flanges have been arranged for joint operation; but I believe myself to be the first to construct a machine in which an intermediate cutting-roll is arranged to co-operate directly with two

rolls on opposite sides thereof, so that the tobacco in passing once through the machine is subjected to two distinct reductions.

Owing to the fact that the flanges *a* are undercut on their active faces they may be quickly and accurately sharpened by grinding them away on their side faces. This particular form of the flanges is also advantageous, in that the material is immediately released, so that it will not adhere to the faces.

In order that the cutting-edges of the adjacent rolls may be brought in the proper relation to each other, and to compensate for the wear or their reduction by grinding, I arrange the rolls *C* and *E* to play endwise in their bearings to a slight extent; and secure to the frame, adjacent to each of these rolls, a plate, *T*, bearing at one end against the frame and at the opposite end against the journal of the roll, and secure the same by a bolt, *U*. By tightening this bolt the roller may be forced endwise, so that its flanges will bear with more or less pressure against those on the adjacent roll.

Having thus described my invention, what I claim is—

1. In a tobacco-cutting-machine, the combination of two rolls provided with circumferential knives or edges facing in one and the same direction, and an intermediate roll provided with circumferential knives facing in the opposite direction, the knives of said intermediate roll being arranged to co-operate directly with the knives of both the other rolls, where-

by the tobacco slit or shredded by the first and second rolls is again divided by the second and third rolls.

2. In combination with the upper roll, *C*, the lower roll, *E*, and the intermediate roll, *D*, each provided with circumferential cutting-edges, the plate *K*, located above the lower roll, and mechanism, substantially as described, for imparting a constant vibratory motion to said board.

3. In combination with the intermediate roll, *D*, provided with pinion *G* and crank *F*, the co-operating rolls *C* and *E* and their pinions, the crank-shaft *M*, the gears connecting the same with the roller *D*, and the vibratory board *K*, connected with the crank-shaft.

4. In combination with the roll *D*, provided with circumferential cutting-edges, the two rolls *C* and *E*, provided with circumferential cutting-edges, and both arranged to co-operate with the roll *D*, and adjusting devices *T* *U*, substantially as described, for adjusting the rolls *C* and *E* endwise independently of each other, whereby the edges of the roll *D* may be maintained in close connection with the edges of both the companion rolls.

In testimony whereof I hereunto set my hand, this 1st day of June, 1886, in the presence of two attesting witnesses.

PETER E. SHIRK.

Witnesses:

DAVIS WARFEL,  
GEO. H. RANCK.