

(No Model.)

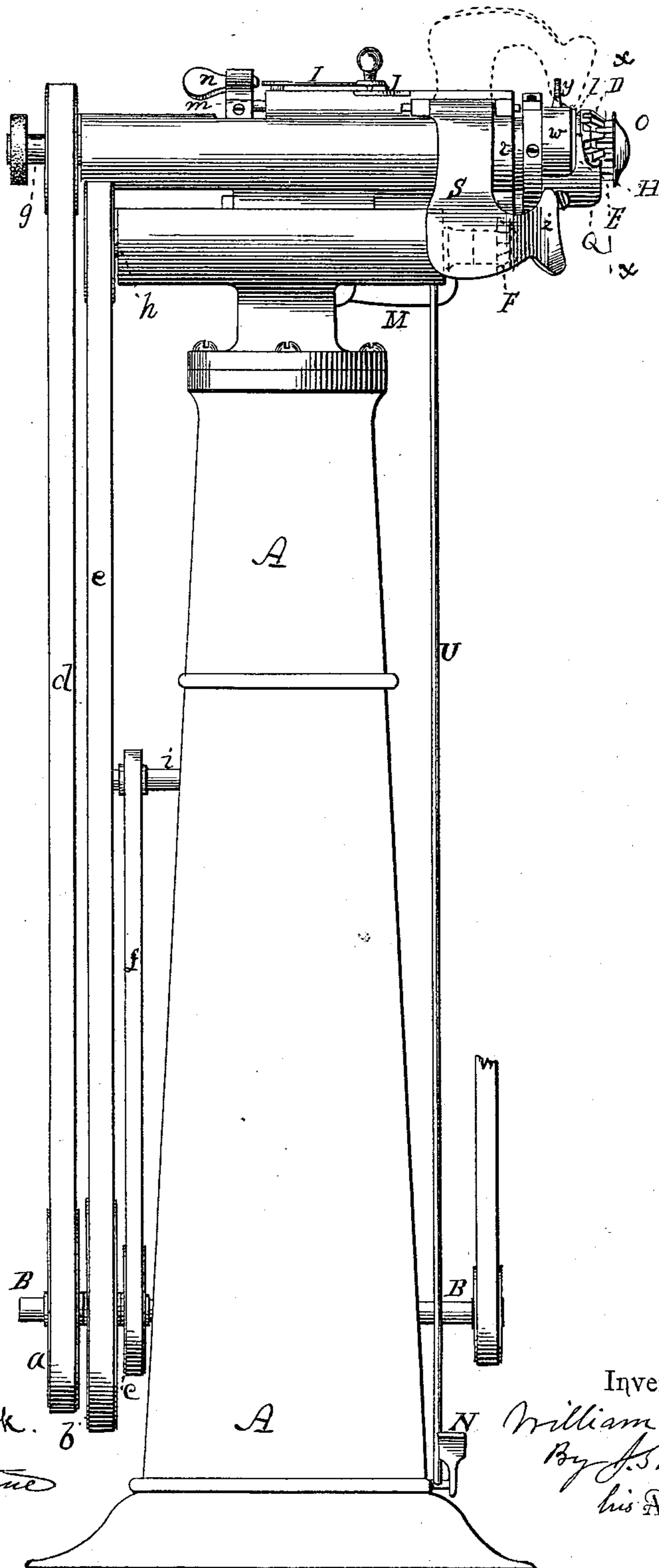
3 Sheets—Sheet 1.

W. MANLEY.
BOOT OR SHOE EDGE TRIMMING MACHINE.

No. 336,332.

Patented Feb. 16, 1886.

Fig. 1.



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(No Model.)

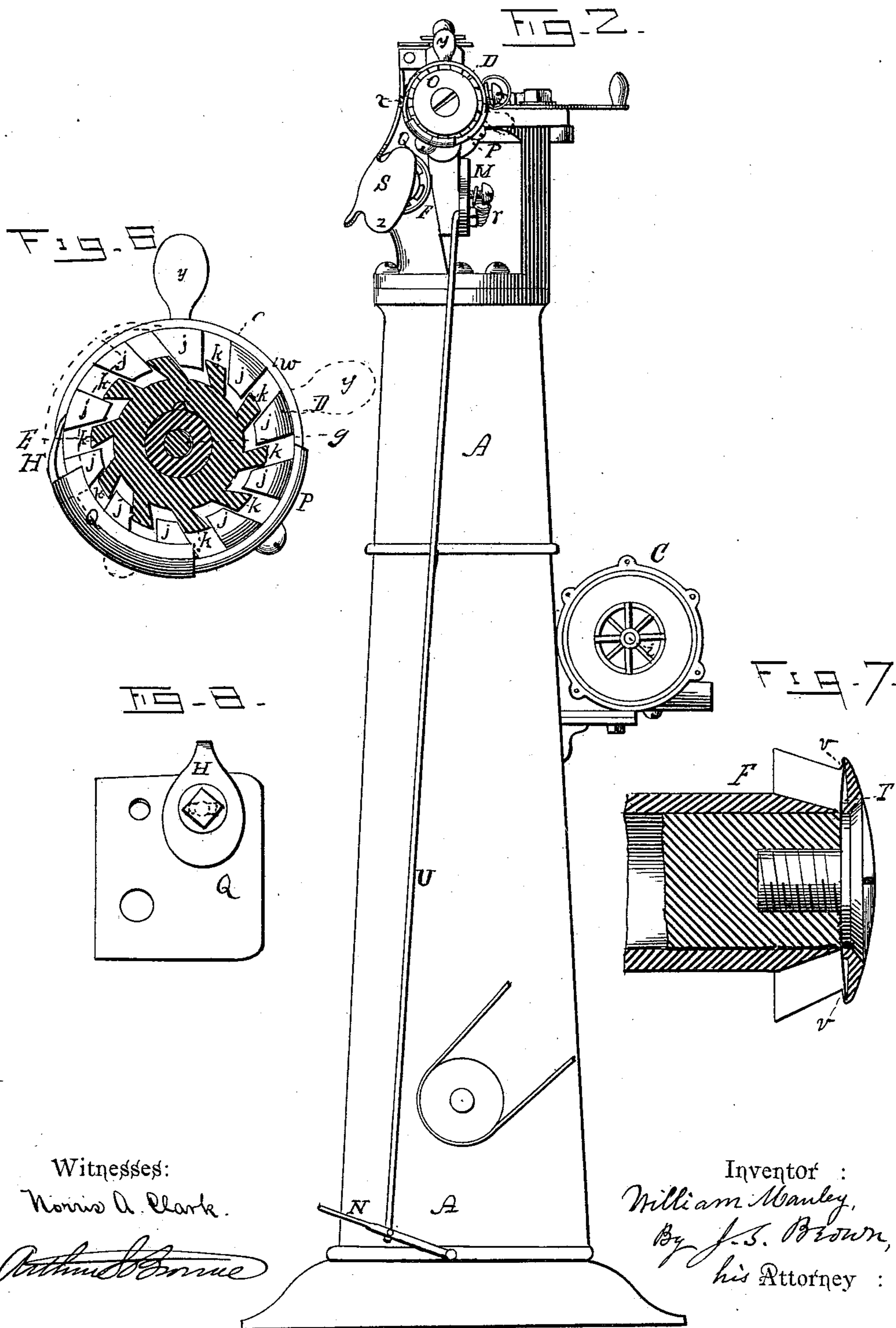
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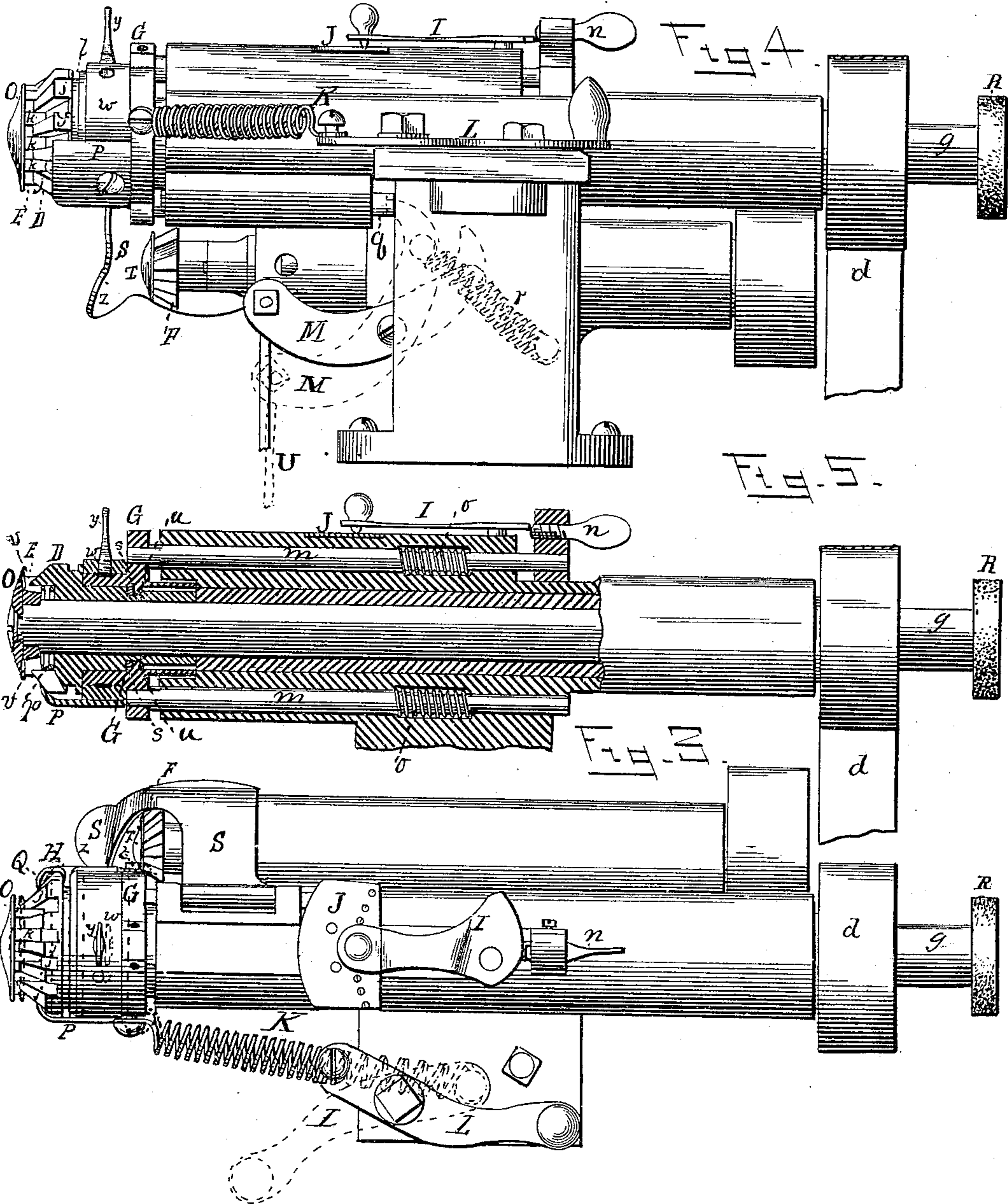
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UNITED STATES PATENT OFFICE.

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BOOT OR SHOE EDGE TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 336,332, dated February 16, 1886.

Application filed October 17, 1885. Serial No. 180,174. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MANLEY, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Boot or Shoe Edge Trimming Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

In this improved machine the cutters are arranged to operate on the right-hand side of the machine, the same as shown and described in Letters Patent No. 322,945, granted to me July 28, 1885, for an invention similar in purpose, and they are adjusted by a telescopic movement in the same way; but in the present machine the cutters have more trimming-knives than in the patented machine, and various improvements will be herein specified.

The main features of this invention are, first, means whereby a telescopic adjusting movement is imparted to the bevel-edge-trimming cutter while the machine continues running, so that the smallest or the largest or any intermediate width of beveled edges or square edges may be perfectly and rapidly trimmed without stopping the machine, and thus any kind of work may be done at will, and the operator can trim nearly twice as fast as with other machines in general use; second, the oblique or inclined form of the knives of the two cutters, which are telescoped together, thereby forming better cutting-edges on the knives and doing superior work therewith; third, a movable hand-rest for the trimming-cutters, which rest while trimming serves as a shield to cover the shank-edge trimmer, which is located below and somewhat in advance of the edge-trimming cutters; fourth, the reciprocating device or carrier by which the bevel-edge-trimming cutter during the continual motion of the machine is moved telescopically in relation to the square-edge and welt-trimming cutter for varying the width of the beveled edges, or for moving the said cutter at will when chips or shavings require to be expelled from the cutters; fifth, the bevel-edge and square-edge guards secured to the said reciprocating cutter-carrier; sixth, the peculiar device or means by which the said cutter-carrier is caused to move in either direction, and in

connection therewith an adjustable stop-lever to limit the forward movement of the carrier, and a graduated gage for accurately determining the forward adjustment of the cutter on the carrier.

In the accompanying drawings, Figure 1 represents a front view of the machine mounted on its pedestal; Fig. 2, a right-hand side view of the same; Fig. 3, a top view of the cutter-head and the working parts thereof; Fig. 4, a rear view of the same; Fig. 5, an axial section of the edge-trimming cutters and parts immediately connected therewith; Fig. 6, a cross-section of one of the cutters, in a plane indicated by the line *x x*, Fig. 5, and looking toward the other cutter; Fig. 7, an axial section of the shank-trimmer; Fig. 8, a separate view of one of the cutter-guards, showing a modification of its construction.

Like letters designate corresponding parts in all of the figures.

The machine, as I construct it, is mounted on a pedestal, *A*, of suitable height and form. The driving-shaft *B* is preferably located near the base of the pedestal. A fan-blower, *C*, is located farther up thereon, while the main head of the machine is mounted on the top of the pedestal. Pulleys *a b c* on the main shaft carry, respectively, belts *d e f*, which turn, respectively, the shafts *g h i* of the trimming-cutters *D E*, the shank-trimmer *F*, and the fan-blower.

The various parts of the machine may be all conveniently located, as represented, and their positions need no further specification.

The bevel-edge-trimming cutter *D* and the square-edge-trimming cutter *E* are arranged to telescope together, as set forth in my former patent above named, the square-edge-trimming cutter being secured fast to its shaft *g*, and the bevel-edge-trimming cutter *D* being movable telescopically in relation to the other cutter. This, as set forth in the said former application, is rendered effectual by means of longitudinal spaces between the knives of each cutter, into which the knives of the other cutters run.

Now, in my present invention I provide means by which the movable cutter *D* is moved or adjusted outward or inward to vary the width of the bevel edges of boot or shoe soles during the running of the machine, and

without any delay at all. The special construction shown in the drawings by which this operation is effected is as follows: The square-edge-trimming cutter E being secured to the end of its driving-shaft *g*, and the bevel-edge-trimming cutter D being adapted to slide upon the shaft, it is rotated by means of a groove in the eye of the cutter and a key or spline on the driving-shaft, or by any equivalent means which does not interfere with the sliding of the cutter on the shaft. The endwise movement or adjustment of the movable cutter D is effected through the means of a carrier, G, surrounding the cutter and clutched thereto by a clutch, H, running in a peripheral groove, *l*, of the cutter. The carrier is held from turning by a guide pin or pins, *m m*, projecting inward therefrom parallel with the cutter-shaft and having bearings in the main head of the machine, in which they have a longitudinal movement to the right or left. One of these pins also serves as a limit or stop to the outward movement of the cutter, in connection with a gage, I, and preferably, also, an adjusting-screw, *n*, in a nut-block on the rear end of the pin. The gage I, as shown, consists of an eccentric lever, against the eccentric end of which the adjusting-screw *n* or other attachment of the guide-pin strikes to limit the motion, and the long arm of which swings over an index plate, J, having points or marks indicating the degree of adjustment, as shown in Fig. 3. The lever is preferably a spring-lever, having a pointed pin on the under side, to spring down into depressions or holes in the graduated plate to hold the lever in place.

I employ a spring or springs for automatically moving the cutter outward on its shaft as far as required. For this purpose a light coiled spring, *o*, may be placed on each of the guide-pins *m m* in any suitable way; also, a light spring, *p*, is or may be placed around the driving-shaft between the hubs or cores of the two cutters D E, as shown in Fig. 5, the said cutter-hubs being sufficiently grooved or recessed in their adjacent ends to receive the spring. This spring serves to keep the movable cutter close in its carrier and relieves the clutch H of much of its friction, and might take the place of the clutch, which, however, I prefer to use. The inward movement of the cutter-carrier is effected by means of a counter-spring, K, (shown as located on the rear side of the main head,) one end of which spring is secured to the carrier, and the other end is attached to the short arm of an adjusting lever, L, by the turning or adjustment of which the force of the spring may be reduced below that of the springs *o o*, which move the carrier outward, or be increased sufficiently to overcome those springs and move the carrier inward. Thus by changing the force of the spring K the carrier, with the movable cutter, may be moved out or in at will. Any equivalent of the adjusting-lever L to produce the same effect with the spring K may be employed.

All the above-described movements may be effected while the cutters D E are revolving at full speed, and without interfering with their operation.

Another use of the reciprocating movement of the carrier G and its cutter D is to quickly clear out chips or shavings as they may collect between the knives of the cutters D E, and since their clearing action should be independent of and not disturb the operation of the cutters or the adjustment of the movable cutter, I employ separate means for suddenly moving the cutter D outward for the purpose, and then to allow it to instantly return to its proper position. The means represented consist of a separate loose pin, *q*, mounted in the main head of the machine and bearing at its outer end against the carrier, so as to push the same outward when the pin is moved in that direction. This movement of the pin is effected by a curved or bell-crank lever, M, pivoted to the main head of the machine. The inner end of the lever is arranged to bear against the inner end of the pin *q* when the outer end of the lever is forced downward, and this movement is conveniently effected with the foot of the operator pressed upon a treadle, N, pivoted to the foot of the pedestal of the machine and connected by a rod or cord, U, directly with the said lever, as shown. The lever is retracted by a spring, *r*, which ordinarily holds the lever entirely away from the pin *q*, except when beveled edges are being trimmed, as then the bevel-edge trimmer is held in a fixed position as adjusted during the trimming of any size of beveled edges by means of the said pin, the lever M, and the treadle mechanism, so that this clearing device does not in the least interfere with the regular operative movements or adjustments of the carrier G and its cutter D. The inner end of the cutter-carrier G bears against a tempered steel washer, *s*, held against a shoulder in the interior of the carrier by a screw, *t*. When the cutter and carrier are moved inward to the extreme limit, the inner edge of the cutter or of its hub bears against a shoulder, *u*, on the driving-shaft.

The knives *j j* of the bevel-edge cutter D are located and adapted to slide endwise in the alternate spaces between the knives *k k* of the square-edge cutter E, as in the aforesaid patent. The special improvement in the present construction of the knives is that they are oblique to the radial planes of the cutter inclining forward, and the forward surfaces of the knives of both cutters are more oblique than the rear surfaces, as shown in Fig. 6. By this construction a sharper angle is given to the cutting-edges of the knives, their cutting action is more easy and does smoother and better work.

The square-edge-trimming cutter E has a feather-edge-trimming rim, *v*, projecting from its outer face, and the outer face is concave and covered by a concave disk, O, all as described in a former application filed by me

August 5, 1885, and numbered 173,195. The inner end of this cutter is recessed in the hub part inside of the knives to afford additional space for the adjustment of the cutter D and for the spring between the knives.

My next improvement consists in stationary guards P Q, arranged in connection with the two cutters D E, for producing more exact and uniform trimming both of the square and bevel edges of the soles, one guard, P, for the bevel-edge-trimming cutter D, and the other guard, Q, for the square-edge-trimming cutter E. The bevel-edge-cutter guard P is turned inward at its outer end nearly even with the periphery of the cutter and projecting a little beyond its cylindrical part, thus forming a shoulder for the tread-surface of the sole to bear against during the trimming operation, and the square edge-cutter guard Q extends nearly to the outer edge of the bevel-edge-trimming knives, leaving just enough of the lower ends of the said knives to trim off the feather edge of the tread-surface of the sole. These guards are both secured to a collar, *w*, which surrounds the bevel-edge cutter D, or its carrier, between flanges thereof, but is adjustable around the periphery of the same and secured in any position by a set-screw, *y*. Then both guards move out and in with the said cutter, and always maintain the same position in relation thereto, but movable over the cutter E, which, however, is not affected in its action thereby. One of the guards, as Q, has the clutch H formed therewith, as shown in the main figures of the drawings, or detachable therefrom, as shown in Fig. 8. This latter construction enables the clutch to be adjustable on the guard, so that as it wears away it can be properly readjusted to the inner edge of its groove. On the left-hand end of the cutter-shaft *g*, Fig. 1, there may be an emery-wheel, R, for sharpening the knives of the cutters at any time without resorting to a separate instrument for this purpose.

My next improvement consists in a movable or swinging shield, S, serving also as a hand-rest, as follows: It is secured by any suitable means to the main head of the machine in a proper position, as shown, or otherwise, so that it can be turned up out of the way of the shank-trimming cutter F when that is to be used, and then turned down so as to hang over the said cutters to shield the same and the hand from the same while trimming the sole-edges by the cutters D E, in which operation it serves also as a hand-rest for the operator, the back of the left hand or fingers resting on the part *z* of the rest to keep the hand firm and steady.

The shank-trimmer F has a concave outer face reaching from the outer edge or rim close into the hub of the cutter, which is narrowed down to a thin edge at the outer end of the shaft, and the projecting disk T has a slight hub projection on its surface to bear against and protect the thin core just around

the shaft as a safeguard to the thin feather-edge-trimming knives, all as shown in Fig. 7.

I am aware that cutters with intermeshing knives, one set of knives sliding between the knives of the other set, have been used for similar purposes, and also that concave guard-disks have been used on the ends of cutters in this class of machines. Such devices, therefore, I do not broadly claim, irrespective of the relation to and combination with other parts, as herein set forth.

I claim as my invention—

1. In a sole-edge-trimming machine, the combination of a square and feather edge-trimming cutter, E, a bevel-edge-trimming cutter, D, having a movement outward and inward on its driving-shaft, means, as the springs *o o* and K, for automatically moving the cutter either outward or inward, and means, as the reversing-lever L, for changing the automatic movement to either an outward or inward direction, for the purposes herein specified.

2. The combination of the bevel-edge-trimming cutter D, carrier G, provided with guide-pins *m m*, having a sliding movement in ways of the main head of the machine in lines parallel with the cutter-shaft, springs *o o* and K, for moving the carrier and cutter either outward or inward, and an adjustable gage, I J, for holding the carrier and cutter in a fixed or positive position, for the purpose herein specified.

3. The combination of the bevel-edge-trimming cutter D, the knives of which have a telescopic movement between the knives of the square-edge cutter E, the carrier G, having guide-pins *m m* sliding in bearings, springs *o o*, for pushing the guide-pins, carrier, and cutter outward, and adjustable spring K, for moving the parts inward, substantially as and for the purpose herein set forth.

4. The combination of the knife-carrier G, provided with one or more guide-pins, *m m*, one pin being provided with a suitable projection, *n*, an adjustable gage lever or bar, I, and a graduated index, J, substantially as and for the purpose herein specified.

5. In combination with the bevel-edge cutter D and carrier G, the loose pin M, spring *r*, treadle N, and connecting-rod between the treadle and lever, substantially as and for the purpose herein specified.

6. In combination with the carrier G, having a replaceable washer in its interior chamber for the purpose specified, a sleeve, *w*, surrounding the same, a clutch, H, attached to the said sleeve, and the cutter D, provided with a clutch-groove, substantially as and for the purpose herein specified.

7. A bevel-edge-trimming cutter-guard, P, attached to the carrier-sleeve *w*, in combination with the bevel-edge-trimming cutter, substantially as and for the purpose herein set forth.

8. A square-edge-trimming cutter-guard, Q,

attached to the carrier-sleeve *w*, in combination with the square-edge-trimming cutter, substantially as and for the purpose herein specified.

5 9. The combination of the guards P Q, the carrier G, the sleeve *w*, and set-screw *y*, substantially as and for the purpose herein specified.

10 10. The combination of the guard Q, sleeve *w*, and clutch H, attached to and adjustable on the said guard, substantially as and for the purpose herein specified.

11. The combination of the cutters D E,

having their knives intermeshing telescopically, and having their hubs recessed within 15 the knives at their adjacent ends, and a spring, *p*, located in the said recesses, substantially as and for the purpose herein specified.

12. The swinging shield and rest S, in combination with the edge-trimming cutters D E 20 and shank-trimming cutter F, substantially as and for the purpose herein specified.

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Witnesses:

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