F. A. MILLER.

MACHINE FOR CUTTING BLANKS.

APPLICATION FILED DEC. 7, 1909.

998,713.

Patented July 25, 1911.

2 SHEETS—SHEET 1.

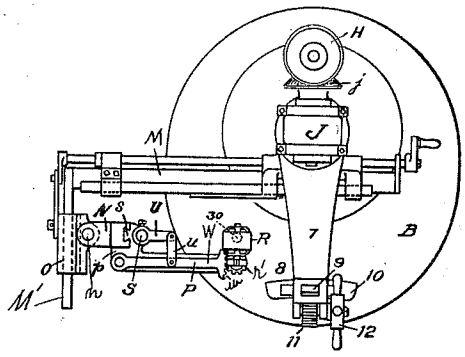

Fig. 2.

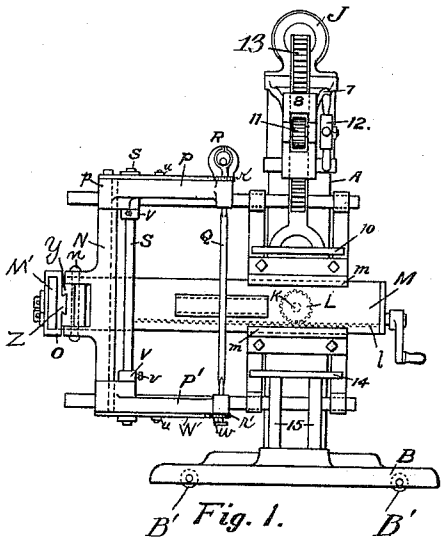

Fig. 1.

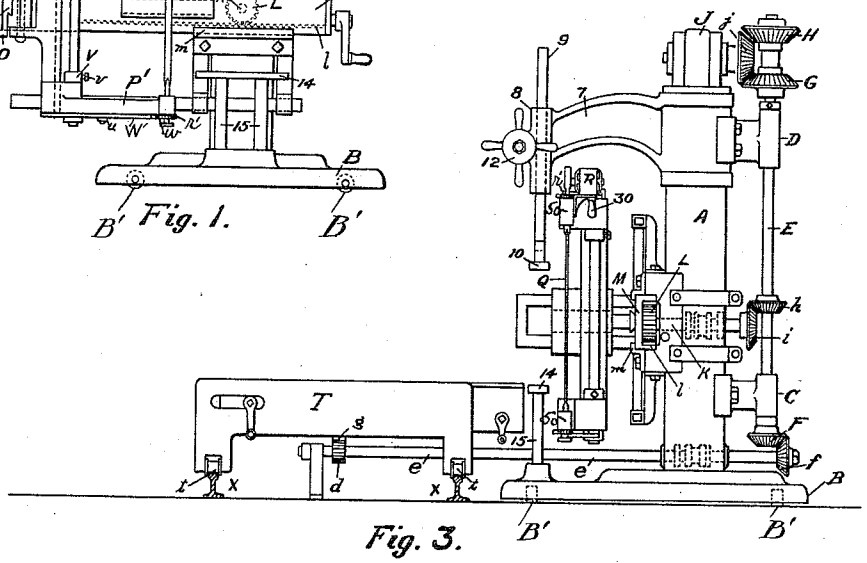

Fig. 3.

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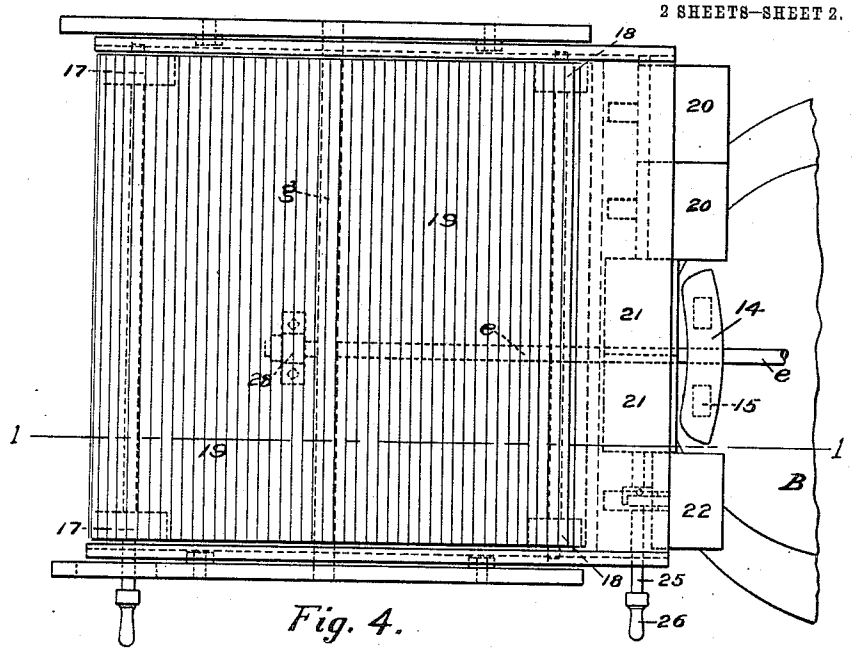

Fig. 4.

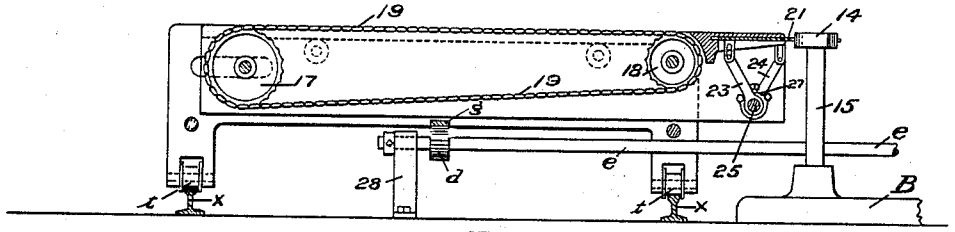

Fig. 5.

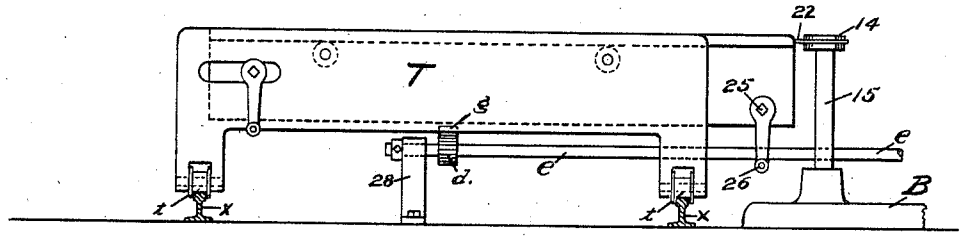

Fig. 6.

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MACHINE FOR CUTTING BLANKS.

998,713. Specification of Letters Patent. Patented July 25, 1911.

Application filed December 7, 1909. Serial No. 531,765.

To all whom it may concern:

Be it known that I, FREDERICK A. MILLER, citizen of the United States, residing at the city of Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Machines for Cutting Blanks, of which the following is a specification.

My invention relates to machines for cutting blanks, and the object of my invention is to provide a means for cutting collar, cuff and shirt blanks by means of which a large number may be cut at the same time and which may be operated so as to cause the knife to follow the contour of a pattern without disengaging the knife blade from its support, together with such other elements and combinations as hereinafter more particularly set forth and described. I accomplish these objects by means of the mechanism illustrated in the accompanying drawings, in which:

Figure 1 is a front elevation. Fig. 2 is a top plan view. Fig. 3 is a side elevation. Fig. 4 is a plan of the table. Fig. 5 is a section along the lines 1, 1, on Fig. 4. Fig. 6 is an end elevation of the table.

Similar letters refer to similar parts throughout the several views.

The standard, A, is mounted upon the base plate, B, and has attached at one side the brackets, C and D, through the sleeves of which passes the shaft, E, which shaft is provided with a beveled gear, F, at one end and at the opposite end with two oppositely inclined beveled gears, G and H, respectively. On the standard, A, is mounted a motor, J, adapted to impart motion to the beveled gear *j*, which engages with either the gear, G, or gear, H, depending upon the direction in which it is desired to rotate the shaft, E. Engaging with the beveled gear, F, is the beveled gear, *f*, attached to the shaft, *e*, which carries the pinion, *d*, meshing with the rack, *g*, in the bottom of the table T. The shaft, E, also has a beveled gear, *h*, which engages a beveled gear, *i*, on the shaft K, which carries the pinion, L, meshing with rack, *l*. The rack, *l*, is formed upon or secured to the plate, M, which reciprocates in a groove formed of flanges, *m*, *m*, formed by angle irons attached to the frame or standard. The plate M carries the arm M′ secured to or formed integral with the plate M. On the arm M′ is a sliding block O, on one side of which is a tongue Z upon which the block Y reciprocates, through which block Y a bolt, *n*, passes after first passing through the projections therefor on the supporting arm N of the knife frame, thus permitting a swinging motion of the knife frame about the bolt, *n*, and the block is capable of a sliding motion on the tongue Z as well as that which may be obtained by the movement of the sliding block, O, on the arm M′.

Along one edge of the portion N of the frame I provide a groove into which the tongue *s* on the projection *p* of the horizontal arm P of the knife frame is placed, see Fig. 2. Through the projection, *p*, one end of the rod S projects, the other end projecting through a like projection attached to the arm P′, which arm is connected with the supporting arm N, of the knife frame, and extends therefrom parallel to arm P and is provided with connections the same as already explained in reference to the arm P. The rod S is provided with collars, *v*, *v*, by means of which the distance between the arms P and P′ may be adjusted. On the rod S above the projection *p*, Fig. 2, I place the arm U to one end of which is pivoted a link *u*, and above the arm P and pivoted thereto is a segment arm W, to which one end of the said link *u* is attached. The segment arm W having at one end a series of teeth, *w*, arranged in the form of a segment. The arm P′ has a like segment arm W′ connected by link to the rod S.

The blade Q is provided at each end with the block 50 and a wheel or gear *r*′, which gear meshes with the segments *w* and *w*′ respectively. R is a suitable motor connected with said gear *r*′ and pivoted on the arm P adjacent to and in operative connection with the end of the knife blade Q. The handle 30 is attached to the bottom of the said motor and so arranged that by the movement of the handle both ends of the blade, Q, will be moved simultaneously.

The standard A carries near its upper end a bracket, 7, to which is attached a sleeve, 8, in which a rod, 9, having at its end a plate, 10, reciprocates, the rod being preferably provided with a rack, 13, along a portion of its edge reciprocating in said sleeve which is engaged by a pinion, 11, operated by a hand wheel, 12.

Attached to the base, B, upon which the standard, A, rests, and immediately beneath the plate, 10, I place the pattern plate, 14, supported by the post, 15. The function of the pattern plate, 14, is to support the goods and to furnish the outline to be cut by the knife blade, Q, and that of the similar plate, 10, is to hold the goods firmly in position on the pattern plate during the operation of cutting.

The operation of so much of my machine as I have already described is as follows: The cloth to be cut having been placed upon the pattern plate, 14, and the plate, 10, having been by operation of the hand-wheel, 12, brought down upon the goods and the knife blade, Q, having been brought in contact with one end of the goods placed on the pattern plate, the power is applied and the pinion, L, operating in connection with the rack, *l*, draws the plate, M, toward the knife along the side of the pattern plate, 14, whereby the goods are cut to conform to the contour of one side of the pattern plate. There is a sufficient movement provided for in the arms supporting blade and permitting of the adjustment of the blade to conform to the irregular shape of the pattern. When the blade has cut the goods along one side of the pattern, the plate, M, is caused to move backward to its first position and the blade is turned to permit it to cut along the end of the pattern plate 14, when it is again turned to permit it to cut along the side of the pattern plate, 14, opposite to that first traversed by it. When the remaining end of the pattern plate is reached, the blade is turned to permit it to be followed by the blade in cutting the goods.

In order to feed the goods to the machine, I have provided a table, T, mounted on suitable rollers, *t*, preferably engaging with tracks, X, although I do not of course limit myself to the means for supporting the table. Mounted on the table are the sprocket wheels, 17 and 18, about which are placed endless bands of slats or strips, 19, which during a portion of their movement under the direction of said sprocket wheels form the top of the table upon which the goods to be cut are placed and are by the movement of the strips or slats carried from the front of the table to the edge of the table nearest the pattern plate, 14. At the edge of the table adjoining the pattern plate when the table is in operative position, I arrange a series of sliding plates, 20, 21 and 22, to each of which are attached the ends of the arms, 23 and 24, loosely on the shaft, 25, mounted on the table and having at its end a crank arm, 26, whereby on the movement of the crank arm the slides, 20, 21 and 22 may be projected from the table proper as shown in Figs. 4, 5 and 6. This is for the purpose of supporting the goods which are delivered upon the slides by the movable portion, 19, of the table to the pattern plate, 14, because the movable portion of the table delivers the goods on to the slides at the edge of the table. Then by the operation of the crank arm, 26, the slides moving backward from the pattern plate may be drawn out of the way of the knife when the cutting is taking place. On the shaft, 25, adjacent to the arms, 23 and 24, I arrange a suitable clutch, 27, for the purpose of adjustment so that certain of the sets of slides, 20, 21 and 22, may be moved when the shaft, 25, is rotated by the crank arm, 26, as desired, the clutch operating to cause the arms 23 and 24 which are loose on the shaft to be held firmly in connection with it. For the purpose of moving the table upon its tracks, X, I place a rack, *g*, on the bottom of the table which engages with the pinion, *d*, on the shaft, *e*, the shaft, *e*, being supported by post, 28, to the floor beneath the table. The beveled gear, *f*, will thus cause the table to move on its tracks transversely of the cutting portion of the machine.

I do not limit myself to the beveled gears, as I may use toothed gears. Nor do I limit myself to the attachment of the motor, J, to the standard, A, nor to the means of imparting motion to my shafts.

For the purpose of guiding the knife blade, I preferably arrange a handle, 30, at the end of the upper horizontal bar, P, forming the knife frame which may be used by the operator for that purpose.

I do not limit myself to a motor attached to the arm, P, as any convenient means of applying power to cause the knife blade to reciprocate comes within the spirit of my invention.

I may place rollers or other suitable movable supports B′, beneath the base plate B, for the purpose of moving the machine conveniently.

What I claim as my invention and desire to secure by Letters Patent is:

1. In a machine for cutting goods, a knife blade, adjustable supports therefor; a universal joint connection between said knife blade supports and a plate upon which they are mounted; a pinion and a rack for moving said plate, said rack attached to said plate; said pinion mounted on a shaft supported by the frame of the machine; a means for imparting motion to said pinion; a means for causing said knife blade to reciprocate in its supports; a pattern plate supported in the bed of the machine; a plate superimposed upon the goods when placed on said pattern; a means for supporting said superimposed plate in connection with the frame of the machine.

2. In a machine for cutting collars, cuffs, shirts and similar articles, a suitably supported standard; a motor mounted thereon;

a shaft rotated by said motor; a plate supported in connection with said standard; a means for causing said plate to reciprocate in its supports under the direction of power transmitted to said shaft; a frame hinged to said plate; a knife blade mounted on said frame; a means for causing said knife blade to have a short, quick, reciprocating motion in said frame; a pattern plate; a means for supporting said pattern plate and adjustable means for securing goods placed on said pattern plate and holding them in position thereon.

3. In a machine for cutting fabrics, the combination of a supporting frame; a knife carrying frame; a plate to which said knife carrying frame is hinged; a means for causing said knife carrying frame to reciprocate in said supported frame; a knife mounted in said knife carrying frame; means for causing said knife to reciprocate in its frame; a pattern plate for supporting the goods during the cutting operation and at the same time to furnish the pattern for said cutting; a table adapted to support and carry the goods to said pattern plate; said table comprising an endless band of narrow strips; sprocket wheels supporting said endless band and imparting motion thereto; means for moving said table transversely of the cutting machine; a series of sliding feed plates attached to said table; a means for moving said plates to and from said pattern plate.

4. In a machine for cutting collars, cuffs, shirts and similar articles, a suitably supported standard; a shaft mounted in connection therewith; a means for imparting motion to said shaft; a plate; a means for causing said plate to reciprocate under the direction of power transmitted to said shaft; a knife blade; a means for mounting said knife blade in connection with said plate; a means for imparting to said knife blade a short, quick reciprocating motion; a pattern plate; a means for supporting said pattern plate; a means for securing the goods to be operated on in connection with said pattern plate and holding them in position.

5. In a machine for cutting fabrics, the combination of a supporting frame; a knife carrying frame; a plate to which said knife carrying frame is hinged; a means for causing said knife carrying frame to reciprocate in said supporting frame; a knife mounted in said knife carrying frame; a means for causing said knife to reciprocate in its frame; a pattern plate for furnishing the pattern for cutting said goods during the cutting operation, substantially as described.

6. In a machine for cutting collars, cuffs, shirts and similar articles, a table adapted to support and carry the goods to be operated on, comprising an endless band of narrow strips; a sprocket wheel supporting said endless band and imparting motion thereto; a means for moving said table; a series of sliding feed plates attached to said table; a means for moving said plates, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

FREDERICK A. MILLER.

Witnesses:
LOTTIE PRIOR,
FREDERICK W. CAMERON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."