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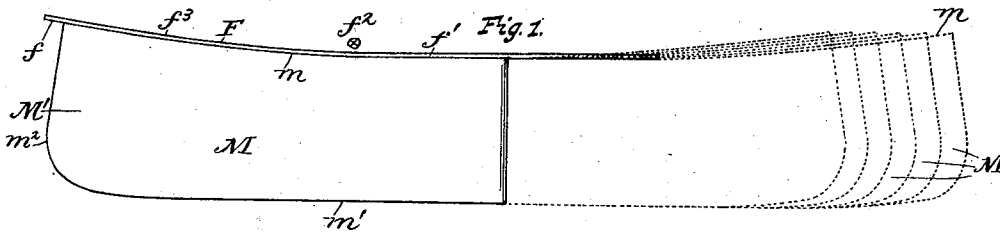
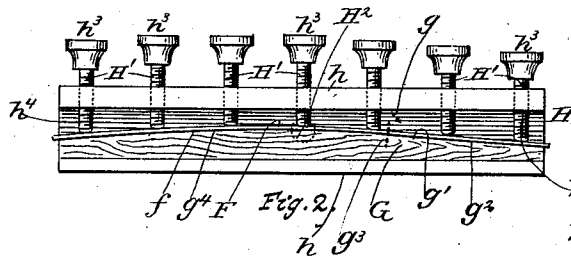
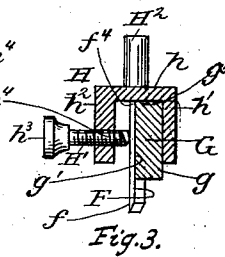
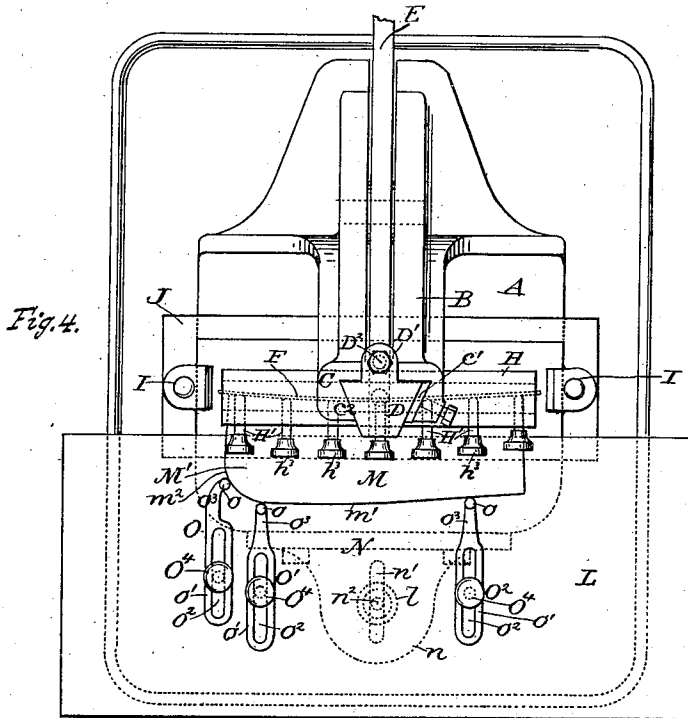
Patented July 9, 1901.

H. C. MILLER.
COLLAR TRIMMING MACHINE.

(No Model.)

(Application filed Dec. 13, 1900.)

2 Sheets—Sheet 1.



Witnesses.

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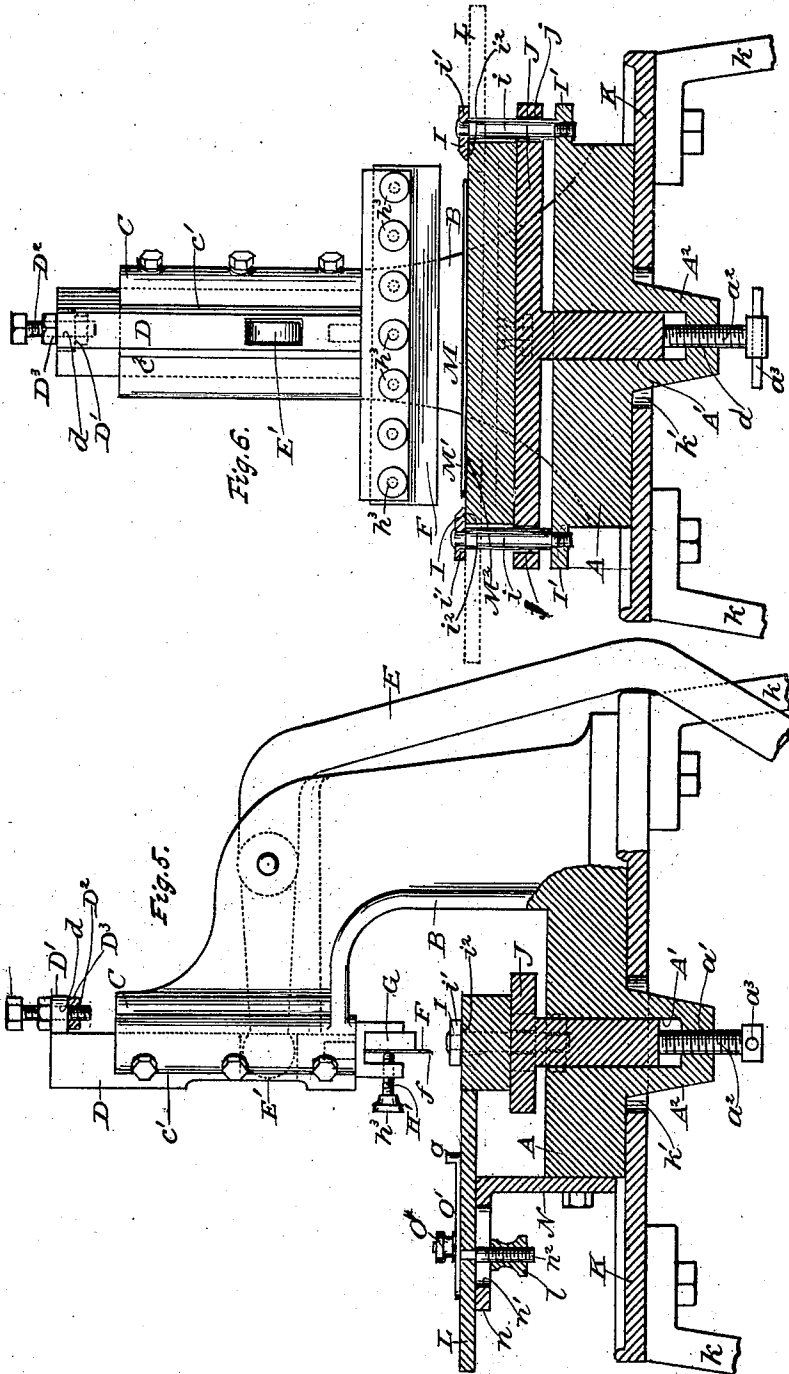
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2 Sheets—Sheet 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY C. MILLER, OF WATERFORD, NEW YORK.

COLLAR-TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 678,002, dated July 9, 1901.

Application filed December 13, 1900. Serial No. 39,738. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. MILLER, a citizen of the United States, residing at Waterford, in the county of Saratoga and State of New York, have invented new and useful Improvements in Collar-Trimming Machines, of which the following is a specification.

My invention relates to machines for trimming the collar-top of collars at their line of band edge preparatory to receiving the same; and it consists of the novel construction and combinations of parts, as will be hereinafter fully set forth, and pointed out in the claims.

The objects of my invention are, first, to provide in machines for trimming the band edges of finished collar-tops mechanism by means of which collar-tops of all lengths in any one style when sewed, turned, face-stitched, and ironed may be lengthwise folded while on a cutting-bed, with the end edges of each half portion abutting an end gage from which the two folded half lengths of the collar-top shall be extended to the length of an exact half of the whole length of the collar-top and have each half length of the finished top edge of the collar-top abutting gaging devices at two points in their length, whereby the line of the top edge of the upper half may be exactly over that of the corresponding line of the finished top edge of the other half of the collar-top, and thereby retain the collar-top in a condition in which it may be trimmed by means of a blade of shorter length than that of the whole length of the collar-top to a predetermined standard width and form of area between the finished top edge and band edge, with each half in exact correspondence with the other half; second, to combine with a cutting-bed an end gage against which the finished end edges of each half portion of a finished collar-top may abut and gaging devices against which finished top edges of the collar may abut at two points in the two folded half lengths of the same and a suitable cutting-blade of length less than the whole length of the line of trim to be given to the collar-top, whereby all lengths of collar-tops of like style may have their band edges trimmed at standard distances and on standard lines from the finished top edges of the collar-tops, so that the line of trim of the band edges in each half portion may be in exact correspondence

with that of the other half; third, to provide with a cutting-blade a detachable shaping device, clamping devices forcing said blade to conform to the contour of the said shaping device, and means for holding the blade connected with the slide of the machine, and, fourth, to provide in a collar-trimming machine a cutting-blade having a portion of its length designed for trimming the middle portion of the band edge of a collar-top on a straight line and an outer end portion of each half on a curved line gradually running into the straight line, and to provide with a cutting-blade and cutting-bed of the same a vertical adjustable table, whereby the cutting-bed may be adjustable for correspondence with the width of the blade as it may require from time to time because of its wear.

Other objects and advantages of the invention will be fully understood from the following description and claims when taken in connection with the annexed drawings, in which—

Figure 1 is a view of the cutting-blade of the machine viewed from its cutting edge and illustrating the novel feature of its shape and its adaptation for trimming the band edges of collar-tops of different lengths in like styles. Fig. 2 is a horizontal view of the cutting-blade and its shaping device when inverted and illustrating means for shaping the same. Fig. 3 is an end view of the same in position for trimming. Fig. 4 is a plan of a collar-trimming machine embodying my invention. Fig. 5 is a side elevation of the same with some of its parts in section, and Fig. 6 is a view of the machine from its front with some of its parts in section.

Similar letters of reference refer to similar parts throughout the several views.

In the drawings, A is the base-plate of the machine. B is the standard thereof, suitably connected to said base-plate, yet preferably integral with the same, which standard may be of any suitable form of construction to adapt it for the service in which it is to be employed. C is the head of the standard, provided with suitable ways c' c'' , one of which is preferably adjustable. D is a suitable slide carrying the cutting device, which slide works between said ways c' c'' , and E E' represent lever mechanism for operating said slide. These above-mentioned parts are old and form

no part of my invention, but are employed with the same, as they are well suited for operations with my improvements.

F is the trimming-blade of the machine for trimming collar-tops after being sewed, turned, face-stitched, and ironed preparatory to having their band-receiving edges trimmed for applying neckbands thereto. This blade is made with a length a little greater than half the length of the collar-top of greatest length in the several different lengths of like style of collar to be trimmed at their band edges, as band edges m' of collars M, Fig. 1. This blade may be made with any suitable construction, yet I at present prefer to make it of thin flexible steel of best grade for cutting woven fabrics, and I shape the blade in direction of its length, so that its edge f may correspond in its contour of form from one end of the blade to the other with the line of the band edge m to be given to the collar-top, (each way outward from its middle of length to the ends thereof,) at which the neckband is united. It is intended that the collar-top M is to have its two halves M' M^2 trimmed when one half thereof, as M' , is turned flat on the other half M^2 with their finished top edges m' and finished end edges m^2 , respectively, coincident when turned, as illustrated in Fig. 6.

As one part of my invention is intended for shaping the band edges of collar-tops of different styles of collars, I have provided a preferred means for giving to the cutting edge of blade F for trimming collars of like styles, but of different lengths, with a contour of form in direction of its length which I believe is novel. This form of edge of the blade in direction of its length is shown to be in part, as portion f' thereof, extended forward from point f^2 , Fig. 1, on a suitable line, which I at present prefer to be a straight line, and its remaining portion, as f^3 , on a differing line, which may be curved from point f^2 outward, should the style of the collar require such portion f' to be on such line, so that when the two halves of the collar-top are trimmed while turned each against the other the line cut by portion f' of the blade of the trimmed edge of each half of the collar-top may intersect with the corresponding line of trim of the other half and be as in Fig. 1, without either a relative elevation or depression of the trimmed edges at the middle length of the band edge when the two halves of the collar-top are turned off from each other to the same plane, while the curved lines of trimmed-edge portions of each half of the said band-edge line will be in correspondence with that of the other half and run into the straight-line middle-edge portion in gradually approaching lines, as illustrated by full and dotted lines in Fig. 1. The means I have provided for shaping this blade F in direction of its length, as above described, consists of the blade-shaping body-piece G, Figs. 2 and 3, made of any suitable material, but preferably of any suitable seasoned hard wood, of suitable width in vertical direction,

and having one side, as the case-bearing side g , straight and the opposite side, as blade-bearing side g' , with a convex form of line, in which a portion, as g^2 , is extended in one direction from point g^3 in a straight line, and the remaining portion, as g^4 , is extended in opposite direction from said point g^3 in a curved line, all as shown in Fig. 2, as the style of the collar may require. With this blade-shaping body-piece I employ a suitable case H, made of metal and comprising the horizontal top portion h and parallel vertical flanges h' and h^2 , integral with portion h and having their inner surfaces preferably parallel and vertical, as shown in Fig. 3, and I also employ a suitable number of clamping devices H', preferably in the form of screws, provided with suitable heads h^3 for engaging with a suitable instrument for turning the same, which heads h^3 may be of irregular or square form or notched for that purpose, as may be preferred. These screw-form-clamping devices are provided with strong screw-threads h^4 , working through screw-threaded holes provided in flange h^2 , as shown, and are adapted to jointly operate to hold all portions of blade F tight against the blade side of the blade-shaping body-piece G, as illustrated in Fig. 2. Projected from the upper side of the horizontal top piece of case H is a suitable stem H^2 for attachment with the slide D. In this blade-shaping device the upper edge g^5 of the blade-shaping body-piece G and the upper edge f^4 of the blade F are both seated against the inner side of the horizontal portion h , as shown, while the cutting-edge portion f is projected downward past the lower edge of piece G.

I is a suitable cutting-bed, made of wood, composition, or soft metal or alloy, as may be found to be advantageous, and with length and width for receiving on its face side the collar-top when folded from its point of middle of length.

J is an adjustable table adapted to be adjustable in a vertical direction in relation to the trimming-blade F as its wear of cutting edge may require from time to time and as the cutting-bed is reduced in thickness by dressing its cut upper surface.

I I are standard-clamping devices supported from suitable ears I', connected with a suitable stationary piece of the machine, preferably the base-plate A, by means of standards i , having secured to their upper ends, respectively, clamping-heads i' , which have their planes of lower side bearing-surfaces i^2 on a like plane above the bases of the said standards, which standards, respectively, freely pass through perforations j , provided in the table J, as shown in Fig. 6, so as to allow said table to be freely raised and lowered in relation to the base-plate A as may be required for holding the upper face side of the cutting-bed on a plane with the plane of the two lower side bearing-surfaces i^2 of the clamping-heads i' of said standards

and also the plane of the upper surface of the material-supporting table L, as shown in Fig. 5. This adjustable table is provided with a centrally-located vertical stem, preferably of a true cylindrical form and nicely fitting in the vertical perforation A', provided in base-plate A. Integral preferably with this base-plate is the downwardly-projected bracket A², which is provided with a screw-threaded vertical perforation a', in which works the vertical adjusting-screw a², provided with a suitable device a³, adapted to revolve said screw for raising and lowering the table J as may be required for carrying the upper surface of the cutting-bed I to the plane of the lower side bearing-surfaces i² of the clamping-heads i'.

K is a suitable platform suitably supported, preferably by legs k k, and having the above-described machine mounted thereon, with bracket A² projected down through opening k'.

L is a suitable adjustable table having its rear edge abutting against the cutting-bed I and its top surface on a plane with that of the latter and mounted on a suitable bracket N, which is shown secured to the front side of the base-plate A. The horizontal portion n of this bracket is provided with slot n', through which works a suitable set-bolt n², secured to said table L and provided, preferably, with a finger-nut l for tightening the same when said table is adjusted.

O O' O² are adjustable gages which are adapted to be adjusted separately and independently in horizontal directions toward and from the cutting-blade F and so in relation that their gage-fingers o may be set farther apart or nearer together, as may be required or be found to be advantageous for governing the lengths and widths of the collar-tops at which the blade is to trim the band edge of the same. These gages may be of any suitable form of construction, but are preferably made by me to comprise the body o', provided with longitudinal slot o², arm o³, and gage-finger o and are respectively secured in place as adjusted by set-screws O⁴, working in slots o² and screwing into the table L. With this described form of construction the respective gages may be adjusted in direction of their length and also be swiveled on their respective set-screws so as to carry their gage-fingers o relatively toward the middle of the said table L or toward the outer ends of the same, as the length and width of the collar-tops may require. Integral, preferably, with the upper end of slide D is a suitable lug D', which is provided with a suitable screw-threaded perforation, (indicated by dotted lines d,) in which works a suitable adjusting-bolt D², provided with a suitable set-nut D³, working on said bolt below the said lug D' and adapted to be set at any suitable point between the latter and the upper end surface of the standard C, so as to gage the length of downward movement of

the slide D, and thereby limit its length of downward movement to a distance at which the edge of the cutting-blade F will touch the upper surface of cutting-bed I. The slide D may be operated by means of any suitable mechanism actuated by manual, steam, or other power, yet I preferably employ the usual lever E, suitably pivoted to standard C and so connected with said slide as to enable an operator to actuate said slide in proper direction.

For operating the machine embodying this invention the edge cutting or trimming knife is secured to slide D by inserting the stem H² of the blade-holding device H into the usual socket provided longitudinally in the same and securing the latter by a set-screw after the device H has been suitably adjusted. This blade-holding device or case H is so adjusted in reference to said slide D and cutting-bed I as to carry the blade F in proper position and in direction of its length, so as to bring its line of cutting edge in a proper relation to the line of the top surface of the cutting-bed, so that the latter may suitably support the collar-tops M to be trimmed and also so that the lines on which they are to be trimmed may properly fall beneath said cutting edge and the straight-line portion f' of said edge be at the end of the blade F most distant from the gage-finger o of gage O, Fig. 4, while the curved portion f² of said blade may be extended from said straight-line portion f' in the opposite direction and toward the side of the table at which gage-finger o is located. The operator will now set gage O so that its gage-finger o may be at the point of the finished outer end edges m² of the two halves M' M² of the collar-tops M, as they will lie when they have been turned flat on each other from the point of middle of length of the said collar-tops, as illustrated in Figs. 4 and 6. The gages O' O² will then be set with their gage-fingers o' at points at which the top edge m' of the collar-tops will occur when touching the said gages. Then the line at which the band-receiving edges of the collar-tops to be trimmed will be mechanically located preparatory to the trimming of said band-receiving edge, and that, too, while each half of each collar-top is turned on the other half, with the finished end edges of both halves abutting the gage O and the finished top edge of both halves abutting the gages O' O², so that the trimming of band-receiving edge of each half portion of the collar-top may be on a line in exact correspondence with that on which the other half is trimmed. The cutting-blade F and the said gages O O' O² being adjusted as described, the operator will turn the two half-lengths M' M² of each collar-top M flat against each other, so that their finished edges m' m² may coincide, and then place the doubled collar-top on the cutting-bed I, with the finished top edges m' against the finger o of gage O' and the end edges m² against gage-finger o of gage O, when the op-

erator by means of the mechanism provided will force the blade F down, so that its cutting edge *f* may cut through the material of both halves of the collar-top in an even and clean manner and without dragging on the threads of the fabric. When the two half portions of the collar-top have been trimmed as described and are opened out from each other flat, it will be found that the line of trim of each half will be substantially the same as that of the other half and that the straight line of the trimmed portion of each half and of the now middle portion of the collar-top will coincide without any divergence whatever, while the curved-line portions *g*² of the trimmed edge will be each the same as the other and running, respectively, in gradually-approaching lines into the midway straight portion of said trimmed edge.

By my above-described improvements collars of all sizes of like styles may be trimmed with great facility and with uniformity of lines of cut at their band edges and with like width from their finished outer edges, while readjustment of parts, except as to gages, is not required.

It should be understood that should it be attempted to trim collars with a blade having a straight-line portion and a curved-line portion, as described, while the collars are opened out full length and trimming each half singly instead of when folded at middle of length, as is required by employment of the form of my above-described cutting-blade, the straight-line cut provided in each half of the collar would run past the line of middle of length of the same and cut into the portion of the other half, which should be on a curved line running into the straight line.

By my above-described improvements I obviate the employment of shears, expert skill, and a very considerable amount of time for trimming the band edges of collar-tops after being sewed, turned, face-stitched, and ironed, as are now required to be employed as now practiced by the trade, and by these improvements a person of ordinary intelligence may trim more than twice the number of collar-tops per day than can be trimmed by an expert by present means employed, while at the same time the line of trim of each half of a collar-top will in all cases be in exact correspondence with that of the other half, and the line of trim of the band edge of each of any given number of like style of collar-tops will be in exact form with the lines of trim of the others of that number, and the widths and form of areas of the half portions of each collar-top of any number of like style will be the same in all cases as those of the others in said number. This exact correspondence of lines of trim of both halves of each collar-top with those of any number of like style and length cannot be produced by methods and means now practiced by the trade. Further, by giving to collar-tops the new condition above described by means of the cut-

ting-bed and the gages above mentioned by a lengthwise folding of the two half portions of each collar-top, respectively, flat on the other, with the finished end edges of each half abutting the same end gage and the finished top edges of said two halves abutting at the same time suitable top-edge gages at two points in the length of said folded half portions, a cutting-blade of length less than the whole length of the band edge to be trimmed and mechanical means for guiding said cutting-blade may be employed for contributing to the accuracy of the lines of trim of collar-tops of different lengths in like styles.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a collar-trimming machine, the combination with a cutting-bed, a trimming-knife having a cutting edge on a line of contour corresponding with that on which each half portion of the band edge of the collar-top is to be trimmed, and having its said edge of length shorter than the collar to be trimmed, and a reciprocating slide carrying said trimming-knife and guiding it in its delivery of said cutting edge on the said cutting-bed, of a table adjoining said bed and coacting with said cutting-bed for supporting the collar-top to be trimmed, a gage adapted to receive against it the finished end edges, respectively of the two half portions of the collar-top while they are folded longitudinally on each other, and two adjustable gages adapted to control the distance the lines of contour of the finished top edge of the folded collar-top are to be from the line of contour of the cutting edge of said knife, as set forth.

2. In a collar-trimming machine the combination with a cutting-bed, a vertically-adjustable table supporting said bed, mechanism for raising and lowering said table and stationary standard-clamping devices I I connected with a suitable stationary piece of the machine and provided with clamping-heads which hold the upper surface of the ends of said bed when the latter is moved thereto, by said mechanism raising and lowering the table-supporting bed, of a collar-supporting table having its upper surface on a plane with the cutting-surface of the cutting-bed and adjustable in a horizontal direction in relation to the latter, a gaging device secured to said table and projected to a point to adapt it to receive the abutment of the two finished ends of a collar-top when its two half portions are each doubled flat on the other, on said cutting-bed, two width-gaging devices mounted on said collar-supporting table and adapted to receive the abutment of the top edges of the half portions of the collar-top at the same time the two end edges of the same about the said end-gaging device, a blade having a cutting edge of form corresponding with that of the line of trim each half portion of the collar-top is to receive at its band

edge, and of length shorter than the length of said edge, and mechanism adapted to move at pleasure, the said blade to and from the surface of said cutting-bed, as and for the purposes set forth.

3. In a collar-trimming machine, the combination with a slide, a cutting-bed, a cutting-blade of length shorter than the length of the edge of a collar-top to be trimmed and suitably connected to said slide, of a vertically-adjustable table, supporting said cutting-bed, means for raising and lowering said table in relation to the cutting edge of said blade, an adjustable table adjoining the front edge of said cutting-bed, and gages mounted on the last-mentioned adjustable table and adapted to be adjusted separately and independently in relation to the line at which the cutting edge of said blade may touch the said cutting-bed, as set forth.

4. In a collar-trimming machine, the combination with a cutting-blade of thin flexible steel, of a blade-shaping body-piece having one side plain and the opposite side of contour of form in correspondence with the form of line of trimmed edge to be produced, a case which comprises a horizontal top portion, a vertical flange connected with the same and adapted to support the said blade-shaping body-piece from its plain side, and a second vertical flange and clamping-screws working through said second flange and adapted to be screwed tight against the said blade and loosened therefrom at pleasure, as set forth.

5. In a collar-trimming machine, the combination with stationary ears connected with a fixed base-piece, bolster-clamping devices which are supported from said ears with their lower sides at a standard distance from the upper surface of said ears, a material-supporting table having its upper surface on a line on a plane with the plane of the said lower sides of said bolster-clamping devices, a cutting-bed adapted to be clamped from the upper surface of the outer end portions thereof, an adjustable table which supports said cutting-bed and is adapted to carry and hold said bed with its upper surfaces on a plane with that of said material-supporting table, as set forth.

6. In a collar-trimming machine the combination with a cutting-bed adapted to be moved laterally in either direction, a material-supporting table having its material-supporting surface on a line on a plane with the cutting-surface of said cutting-bed, a bracket holding said table with its supporting-surface on a plane with that of the upper surface of said cutting-bed, and provided with a horizontal guiding device and adapted to allow said table to be moved horizontally in either direction in relation to said cutting-bed, and means for securing said bed from being accidentally moved, when adjusted, as set forth.

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Witnesses:

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