G. SCOTT.

SEWING AND TRIMMING MACHINE.

APPLICATION FILED NOV. 26, 1904.

902,453.

Patented Oct. 27, 1908.

2 SHEETS—SHEET 1.

FIG. 1.

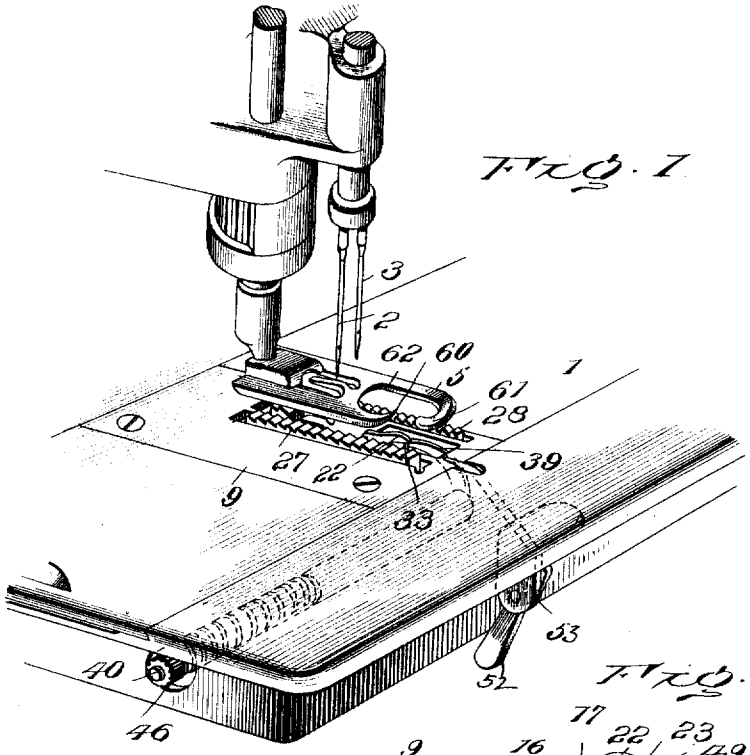


FIG. 3.

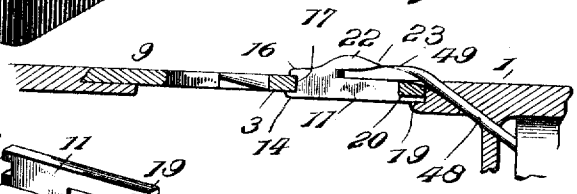
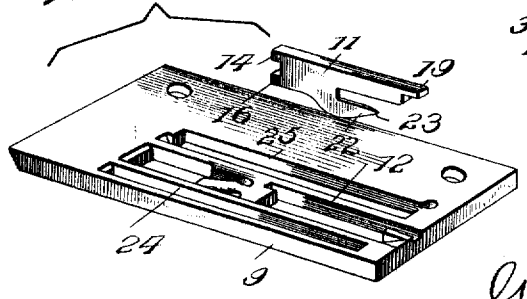


FIG. 2.



Witnesses

Jas. Munro

J. Stewart Rice.

Inventor

George Scott

By

Thos. E. Robertson

Attorney

G. SCOTT.

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2 SHEETS—SHEET 2.

Fig. 4

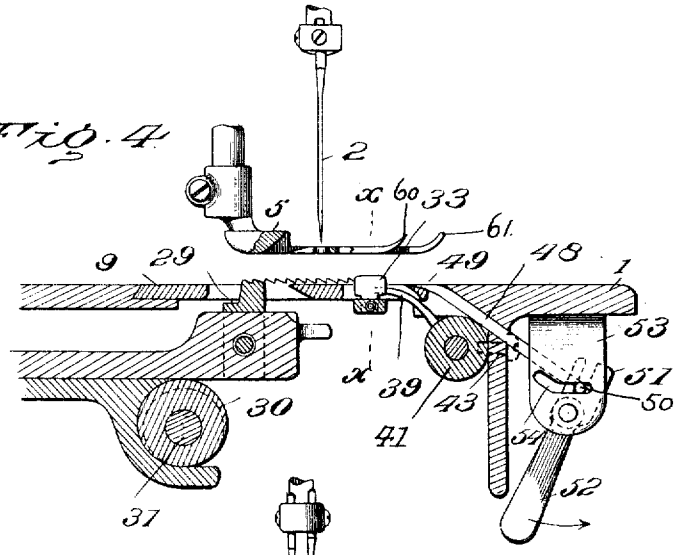


Fig. 5.

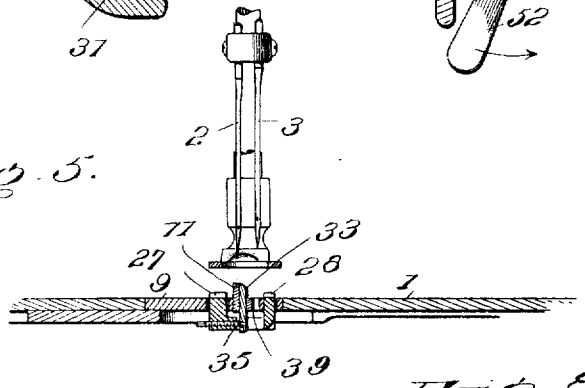


Fig. 7.

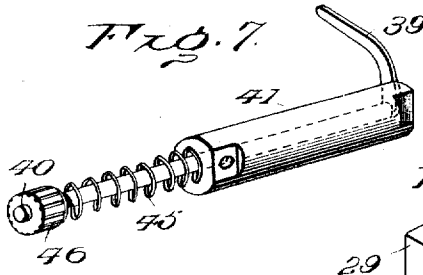


Fig. 8.

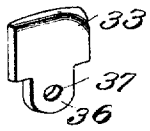


Fig. 6

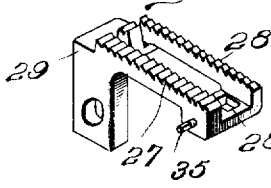
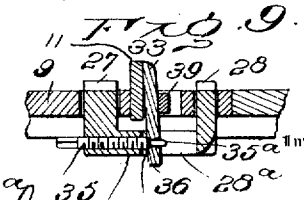


Fig. 9.



Witnesses

J. Stewart Rice.

Inventor

George Scott

Jos. E. Rhuetson Attorney

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE SCOTT, OF AMSTERDAM, NEW YORK, ASSIGNOR TO UNION SPECIAL MACHINE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SEWING AND TRIMMING MACHINE.

No. 902,453. Specification of Letters Patent. Patented Oct. 27, 1908.

Application filed November 26, 1904. Serial No. 234,392.

To all whom it may concern:

Be it known that I, GEORGE SCOTT, a citizen of the United States of America, and resident of Amsterdam, in the county of Montgomery and State of New York, have invented certain new and useful Improvements in Sewing and Trimming Machines, of which the following is a specification.

This invention relates to improvements in that class of sewing machines described and illustrated in my application filed May 31, 1902, Serial No. 109,756, in which a knife or cutting mechanism is combined with stitching mechanism in such a way that the fabric is cut and overstitched at one operation through the machine. The special purpose for which this machine is designed is what is known as "necking", and to do this work it is necessary that the machine be capable of feeding two or more layers of fabric, separating said layers, trimming one of the layers prior to the stitching operation and guiding or deflecting one of the severed edges so that it will not be sewed, and finally overstitching the undeflected severed edge to the layer or layers that have not been cut. And while this machine is especially adapted for this "necking" it is manifest that it may be used for a number of other purposes.

The objects of the present invention are to improve the machine shown in my hereinbefore mentioned application, to simplify the parts, to provide a movable cutter which has none of the complicated parts shown in my said application; to provide a simple form of fixed knife which may be easily detached and readily replaced; to provide means for yieldingly holding one of these knives in contact with the other; to provide a device for making the cutting device ineffective; and finally to provide a presser foot especially adapted to coact with this special form of cutting mechanism.

My invention therefore consists in a machine having its parts constructed and arranged to carry out the aforesaid objects and such a machine is shown, in its preferred embodiment, in the accompanying drawings and will now be hereinafter more fully described and then definitely claimed.

In the accompanying drawings: Figure 1 is a perspective view of a twin needle overstitching machine, with my invention embodied therein. Fig. 2 is a perspective view of the throat plate and its fixed cutter or knife, the parts being shown detached and upside down in order to better illustrate their method of attachment. Fig. 3 is a longitudinal section of the same parts in position. Fig. 4 is a vertical transverse section taken at a point to one side of the fixed cutter or knife which latter therefore does not appear in this view. Fig. 5 is a section at right angles to that shown in Fig. 4, taken on the line X. X. Fig. 6 is a perspective view of the feed dog and the knife carried thereby. Fig. 7 is a perspective view of a spring actuated finger which co-acts with the movable knife to hold it in its proper cutting position with respect to the fixed knife. Fig. 8 is a perspective view of the movable knife detached. Fig. 9 is a detail, on an enlarged scale, of the feed dog and knives.

Referring now to the details of the drawings by numerals: 1 designates the bed or cloth plate of a sewing machine which, in the form shown in my drawings, is the ordinary twin needle overstitching machine, and therefore provided with the usual twin needles 2 and 3 which, in operation work through the two needle openings in the presser foot 5 and through the two similar openings in the throat plate 9; all of which parts, except as will be hereinafter noted, may be of the ordinary construction and therefore need no further description. However, it may be well to state that the machine shown in my drawings is one of the well known types of union special sewing machines and is fully shown in my aforesaid application, Serial No. 109,766. The aforesaid throat plate 9 is made of the general character shown in my hereinbefore mentioned application, but the fixed knife 11 is detachably secured to said throat plate as shown in Figs. 2 and 3. As shown in Fig. 2 there is a recess 12 for the reception of the fixed knife 11 and said knife is recessed at one end, forming two lugs 14 and 16 which, when in position, straddle the wall 17 forming one end of the recess 12. At the opposite end the fixed knife is cut away, forming a projecting portion 19, which, when the fixed knife is in position abuts against a portion 20 forming the opposite end wall of the recess 12, as indicated in Fig. 3. It will thus be seen that when the fixed knife 11 is placed in position by inserting the two lugs 14 and 16 in the recess 12, so that said lugs

are on opposite sides of the end wall, the projecting portion 19 then fits against the end wall 20 of the throat plate, and when said throat plate rests on the supporting bed plate 1, as indicated in Fig. 3, the fixed knife is securely held in position. At the same time, whenever it becomes necessary to remove said fixed knife in order that it may be sharpened, or that a new one may be placed in position, it is merely necessary to remove the throat plate 9 when the fixed knife can be taken out by the reverse process of that just described. Of course, the parts shown in Fig. 2 are shown with the throat plate turned upside down in order to give a better idea of the method of placing these parts together. The fixed knife 11 has a cutting edge 22 quite similar to that shown in my aforesaid application except that it terminates in a needle point 23 which will readily pierce the fabric when the fabric is fed against it. The throat plate 9 is also provided with two recesses 24 and 25 and through these recesses project the toothed portions 27 and 28 of the feed dog 29, this dog being given the usual feed movements by means of a cam 30 on a shaft 31. As these parts are old, it is not necessary to further describe them except to state that the shape of the cam is such that during the movement from right to left, as the parts are shown in Fig. 4, the toothed portions 27 and 28 of the feed dogs receive an upward as well as a forward movement. This double movement is the very movement necessary for a cutting edge, and I therefore make use of the feed dogs to support my movable knife 33 which, as indicated in Figs. 5 and 6, projects up through the throat plate against the fixed knife 11. By an examination of Figs. 5 and 6 it will be seen that there is quite a large recess between the two feed dogs, and the movable knife 33 is situated between said dogs; the said knife having a foot 36 passing into a recess 28^a in the web connecting the feed dogs. This movable knife is shown detached in perspective view in Fig. 8 and when placed in position the foot 36 is placed down between the toothed portions of the feed dogs 27 and 28. An adjusting screw 35 is employed which has a reduced end 35^a adapted to project through an opening 37 of the knife. The said screw has a shoulder 35^b which presses against the foot of the knife and which may be adjusted to press the knife into a slanting position such as shown in Fig. 9 so that the pressure on the fixed knife is almost entirely on the cutting edge. Inasmuch as this knife is loosely supported between the toothed portions 27 and 28 of the feed dog and is capable of lateral movement on the screw 35, it is necessary that some means be provided to hold the cutting portion of the movable knife 33 against the fixed knife 11. To perform this service, I employ a finger 39, shown clearly in Figs. 4 and 5 and in perspective view in Fig. 7. This finger is preferably rigidly secured to one end of a bar 40, which latter passes through a barrel 41 screwed to the cloth plate or any suitable part of the machine as shown in dotted lines at 43 in Fig. 4. The bar 40 passes entirely through the barrel and in order to keep the finger 39 in its proper position a spiral spring 45 is placed around the bar 40 and a thumb screw 46 is secured to the end of the shaft for the purpose of adjusting the spring. By reference to the drawings it will be seen that when the barrel 41 and its connected parts are in position, the finger 39 will be held by the spring 45 up against the movable knife 33 so as to hold the upper cutting edge of said knife in close contact with the fixed knife 11. Of course the spring is adjusted by the thumb screw 46 until its tension is just sufficient to hold the finger 39 against the movable knife 33 and yet permit said knife to move up and down between the fixed knife 11 and said finger 39.

It is sometimes necessary to sew a garment and trim one portion and not another portion; it is also sometimes desirable to sew a garment without making use of the trimming mechanism; and in order to permit either of these operations, I provide a device which is designed to make it possible to render the trimming mechanism ineffective. This mechanism is shown in Figs. 3 and 4 and comprises a finger 48 which is normally in the position shown in Fig. 4 so that it is inactive. This finger 48 is provided at one end with a needle point 49 and at the other end with a bent end 50 and the latter rests between the forked ends 51 of a lever 52. This lever is pivoted on a right angled bracket 53, which latter is slotted as shown at 54 for the purpose of guiding the bent end 50 which also projects into said slot 54. The construction of the parts is such that when the lever 52 is moved in the direction of the arrow in Fig. 4, the pointed end 49 of the finger 48 is projected up into the position shown in Fig. 3 so that this point 49 is on the same plane with the pointed end 23 of the fixed knife 11. It will therefore be manifest that when the operator desires, the lever 52 may be moved so as to project the finger 48 in front of the fixed knife, and thus prevent the point 23 of the latter from penetrating the fabric. It will also be obvious that by reason of this construction, inasmuch as the finger 48 bears upon the under side of the fabric, it may be used advantageously in adapting the machine to cutting varying thicknesses of fabric, that is, in addition to forcing the fabric to such a plane that it will feed over the top of the fixed cutter, it may be operated to such an extent as to adapt fabrics of varying thicknesses to be properly fed to the point of the cutter, so as to cut one layer only. By arranging this movable fin-

ger to coöperate with the fixed cutter projecting from the throat plate, it will be seen that where the piercing point is on the fixed cutter the position of said piercing point is established, and the device or movable finger for rendering the cutting mechanism ineffective has only to be positioned properly relative to the fixed piercing point.

I do not herein claim broadly a work support, combined with a feeding mechanism, and a cutting mechanism with means operating upon the material for diverting the material with respect to the cutting mechanism, whereby varying thicknesses of goods may be cut, or the cutting action rendered ineffective. I have also designed a special form of presser foot which is adapted for work with the particular cutting mechanism shown in my drawings; this presser foot being provided with two projecting ends 60 and 61 with an opening between them. One of these projecting ends 60 is bent upward as indicated in Fig. 1 and the construction is such that when two or more thicknesses of material are fed to the machine, one of them—the one that is to be trimmed—is fed under the end 61, while the thickness not to be trimmed is passed over the end 61 and is caught under the upturned end 60 and thus fed to the needles at a point where it will be fed over the upper edge of the fixed knife 11 and will therefore not be cut. The inner edge 62 acts as a guide for the edge which passes under the point 60 and when the upper thickness of the material is fed over the point 61 and along the guide 62, it is in just the proper position to be correctly stitched for forming a collarette or other edge of a garment. Of course this presser foot may be made right or left, as desired as may also the trimming attachment.

In operation the operator feeds two or more thicknesses of material to the machine and if it is desired to form simple necking, the fold of the material is fed under the presser foot against the needle point 23 of the fixed knife 11. As the material is fed by the feed dogs it is fed against the fixed knife so that one thickness is underneath said knife and the other thickness is over the knife and between the knife and the presser foot. As the material continues to be fed, the under thickness is severed by the lower movable knife being rapidly moved up and down and the material is thus fed to the needles; the fixed knife at the same time deflecting the left hand severed edge from the needles while the right hand severed edge is allowed to pass between the needles. The deflection of one of the cut edges of the lower layer is caused by the fact that the fixed knife 33 is substantially in line with one of the needle openings, and this fixed knife is of just the width to separate the cut edges sufficiently to permit one of the needles to pass between them. As the material passes under the needles, the overstitching is performed in the usual manner. When it is desired to attach collarettes or similar articles to garments, the upper layer or layers are fed over the end 61 while the lower layer or layers pass under the said end 61 and are pressed by said end so that the lower layer or thickness will be trimmed and one edge deflected before passing to the needles. The upper layer or thickness which has passed over the end 61 is now passed under the end 60 and is guided by the edge 62 to the needles, and as the end 61 supports the upper layer while the lower layer is being trimmed, said upper layer is fed or guided by the upturned edge 60 to the needles at a point in the rear of the piercing point 23 of the knife 11, and therefore the upper layer is not cut.

It is obvious that changes and modifications may be made in my invention without departing from the spirit thereof. As a mere example, it is obvious that my invention may be applied to a single needle machine or to a five thread machine, or in fact to any character of machine with which it will properly coact. It may also be noted that in some of my claims I refer to a movable cutter and to a fixed cutter; and these terms are used with relation to each other and I do not mean to imply that the "fixed" knife is necessarily integrally secured to its support but is merely fixed relatively to the movements of the movable knife. Other modifications will be manifest, and I therefore refer to the following claims to set forth the scope of my invention.

What I claim as new is:

1. In a sewing machine and in combination with the stitching mechanism thereof, a throat plate, a fixed cutter detachably held in position and having one end loosely secured to said throat plate and its other end held in position by the throat-plate resting thereon, substantially as described.

2. In a sewing machine and in combination with the stitching mechanism thereof, a throat plate, a fixed cutter detachably held in position and having one end embracing said throat plate and its other end held in position by the throat plate resting thereon, substantially as described.

3. In a sewing machine and in combination with the stitching mechanism thereof, a fixed cutter, a movable cutter coacting with said fixed cutter and a finger yieldingly held against said movable cutter, substantially as described.

4. In a sewing machine and in combination with the stitching mechanism thereof, a fixed cutter, a movable cutter coacting therewith, a finger pressing said movable cutter against the fixed cutter, and a spring coacting with said finger, substantially as described.

5. In a sewing machine and in combina-

tion with the stitching mechanism thereof, a fixed cutter, a movable cutter coacting therewith, a spring pressed spindle, and a finger projecting from said spindle and holding the movable cutter against the fixed cutter, substantially as described.

6. In a sewing machine and in combination with the stitching mechanism thereof, a fixed cutter, a movable cutter coacting therewith, a suitably supported barrel, a spring pressed spindle held thereby, and a finger projecting from said spindle and coacting with the movable cutter to hold the same against the fixed cutter, substantially as described.

7. In a sewing machine, in combination with the stitching mechanism thereof, a fixed cutter, comprising a member projecting forward over the plane of the throat plate, a feed dog, and a movable cutter loosely supported by said feed dog, and means for holding it in coöperative relation with said fixed cutter; substantially as described.

8. A cutting device, including in combination, a work support, feeding mechanism and a cutting mechanism, said cutting mechanism including a fixed cutter projecting forward over the plane of the work support, with means operating upon the material for diverting the material out of the path of said cutting mechanism, whereby the cutting mechanism is rendered ineffective.

9. A cutting device, including in combination, a work support, feeding mechanism, and a cutting mechanism, said cutting mechanism including a fixed cutter projecting forward over the plane of the work support, and a device engaging the under face of the material passing over the work support, and means for raising and lowering said device, with respect to the projecting portion of the fixed cutter.

10. In a sewing machine, in combination with the stitching mechanism thereof, a work support, a cutter fixed with respect to said work support and projecting forward over the plane of the same, a coöperating movable cutting member, and means operating upon the material for adjusting the plane in which said material moves.

11. In a sewing machine, in combination with the stitching mechanism thereof, cutting mechanism, including a fixed cutter extending above and projecting forward over the plane of the throat plate, a movable cutter coöperating with said fixed cutter, and means independent of the cutting mechanism for rendering the same ineffective.

12. In a sewing machine, in combination with the stitching mechanism thereof, cutting mechanism including a fixed cutter projecting forward over the plane of the throat plate, means for rendering said cutting mechanism ineffective, comprising a member movable into substantially the same horizontal plane with the cutting edge of said fixed cutter.

13. In a sewing machine, in combination with the stitching mechanism thereof, cutting mechanism including a fixed cutter projecting forward over the plane of the throat plate, means for rendering said cutting mechanism ineffective, comprising a member movable into substantially the same horizontal plane with the cutting edge of said fixed cutter, and a hand lever for operating said device.

14. A cutting device, including in combination, a work support, feeding mechanism, and a cutting mechanism, said cutting mechanism including a fixed cutter having a piercing point adapted to enter between and separate layers of material, and means operating on the material for adjusting the plane in which said material moves.

15. A cutting device, including in combination, a work support, feeding mechanism, and a cutting mechanism, said cutting mechanism including a fixed cutter projecting forward over the plane of the work support and having a piercing point, and a device engaging the under face of the material passing over the work support, and means for raising and lowering said device with respect to the projection on the fixed cutter.

16. In a sewing machine and in combination with cutting and stitching mechanisms thereof, said cutting mechanism comprising a substantially fixed cutter projecting forward over the plane of the cloth plate, a presser foot co-acting with said cutting mechanism and having one member arranged to feed the material to said cutting mechanism and a second member in the rear of the first named member arranged to feed material which has passed over the first mentioned member under itself to the stitching mechanism, substantially as described.

17. In a sewing machine and in combination with cutting and stitching mechanisms thereof, said cutting mechanism comprising a substantially fixed cutter projecting forward over the plane of the cloth plate, a presser foot co-acting with said cutting mechanism and having two members with a passage between the same, one of said members being arranged to feed material to the cutting mechanism and the other over the cutting mechanism, substantially as described.

18. In a sewing machine and in combination with cutting and stitching mechanism thereof, said cutting mechanism comprising a substantially fixed cutter projecting forward over the plane of the cloth plate, a presser foot co-acting with said cutting mechanism and having two members with a passage between the same, one of said members being arranged to feed material to the cutting mechanism and the other over the cutting mechanism, the said presser foot

also having a guiding edge for the material which is fed over one of the said members, substantially as described.

19. In a sewing machine and in combination with overstitching mechanism and cutting mechanism, the latter comprising a knife fixed to and located above the bed or cloth plate and projecting horizontally over the plane of the same to separate layers of fabric, a movable knife co-acting with said fixed knife to cut a layer of fabric passing between them, said movable knife being held in yielding contact with said fixed knife, and the latter spreading the cut edges and being located to deflect one cut edge away from the stitching mechanism, substantially as described.

20. In a sewing machine, the combination of stitching mechanism comprising a pair of needles and cutting mechanism comprising a knife fixed to and located above the bed or cloth plate and projecting horizontally over the plane of the same to separate the layers of fabric, a movable knife co-acting with said fixed knife to cut a layer of fabric passing between them, said movable knife being held in yielding contact with said fixed knife and the latter spreading the cut edges and being located to deflect one cut edge outside of the needles and to permit the other cut edge to pass between the needles, substantially as described.

Signed by me at Amsterdam, N. Y. this 17th day of November 1904.

GEORGE SCOTT.

Witnesses:

LINCOLN ELDREDGE,

ELMER D. TRULL.