

M. K. GOLDEN.  
WELT TRIMMING ATTACHMENT FOR SEWING MACHINES.  
APPLICATION FILED OCT. 14, 1909.

1,049,078.

Patented Dec. 31, 1912.

2 SHEETS—SHEET 1.

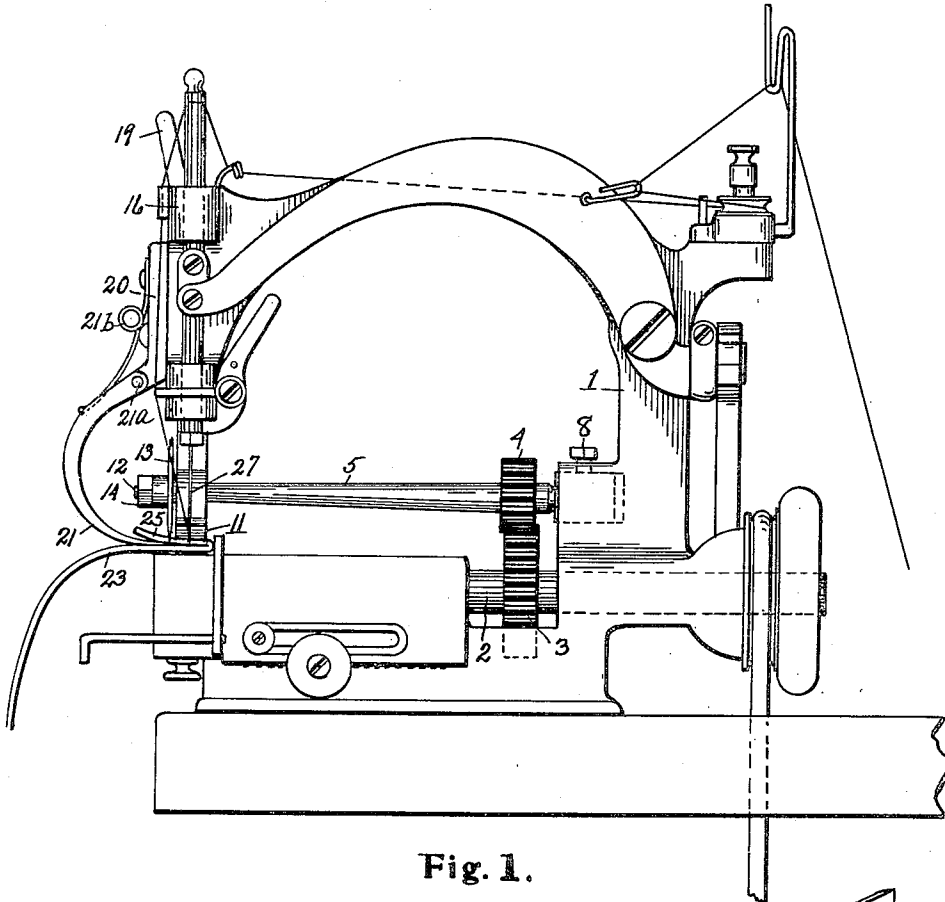


Fig. 1.

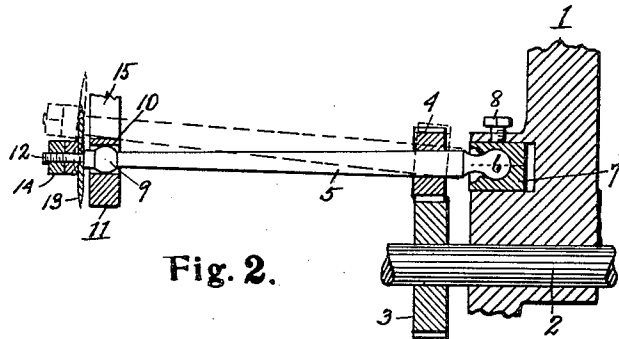


Fig. 2.

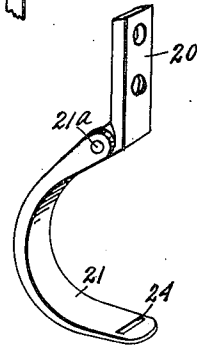


Fig. 3.

Witnesses  
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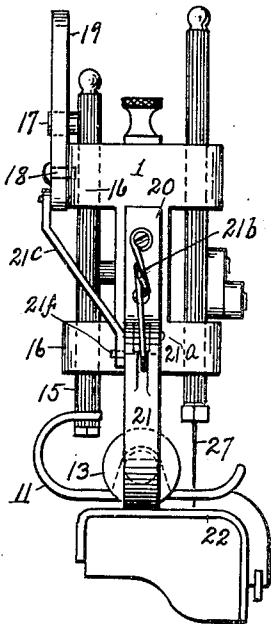


Fig. 5.

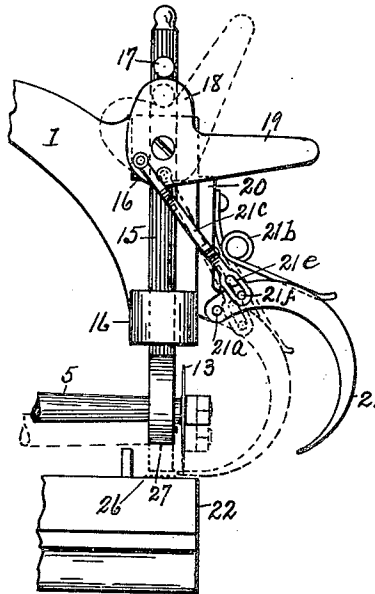


Fig. 4.

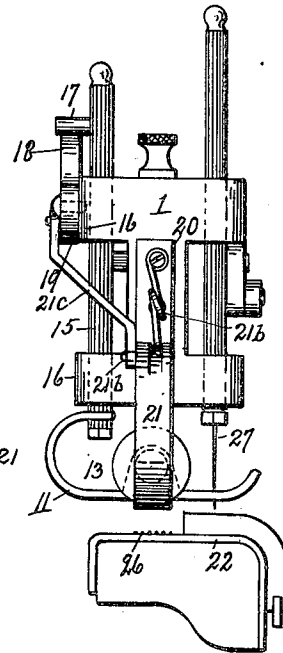


Fig. 6.

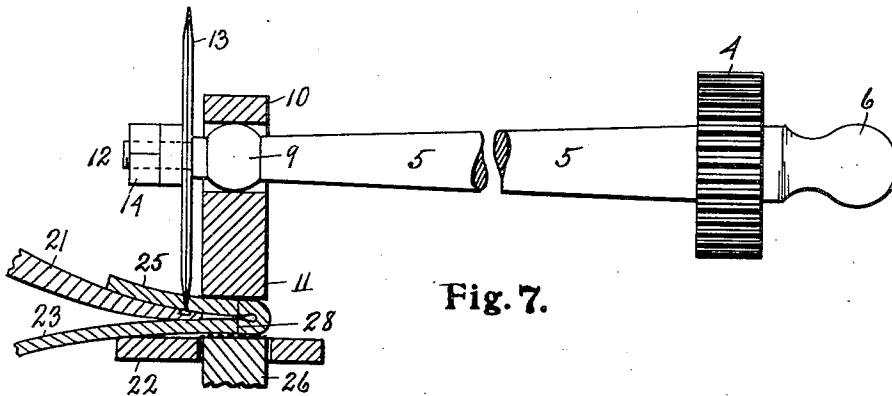


Fig. 7.

Witnesses

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# UNITED STATES PATENT OFFICE.

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WELT-TRIMMING ATTACHMENT FOR SEWING-MACHINES.

1,049,078.

Specification of Letters Patent.

Patented Dec. 31, 1912.

Application filed October 14, 1909. Serial No. 522,510.

*To all whom it may concern:*

Be it known that I, MAXIMILIAN K. GOLDEN, a citizen of the United States, residing at Detroit, in the county of Wayne, State of Michigan, have invented certain new and useful Improvements in Welt-Trimming Attachments for Sewing-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains, to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to a welt cutting or trimming attachment for sewing machines, especially designed for use in connection with machines for sewing fabric, leather, etc., and consists in the construction and arrangement of parts hereinafter more fully set forth and claimed.

The primary object of the invention is to provide a welt cutting or trimming attachment for sewing machines, wherein provision is made for trimming a welt edge parallel with the line of stitching and concurrent with the operation of sewing.

A further object is to provide means for raising and lowering the cutting device with the vertical movement of the presser-foot.

A further object is to provide for cutting or trimming the welt edge without cutting the goods below that portion of the edge which is trimmed or cut away.

A further object is to provide for driving the cutter concurrent with and from the rotary motion of the driving shaft of the machine, the connection between the shaft and cutter being such as to allow of a vertical movement of the cutter independently of the driving shaft.

The above objects are attained by the mechanism illustrated in the accompanying drawings, in which:—

Figure 1 is an elevation of the head of a sewing machine showing my welt-cutting attachment applied thereto. Fig. 2 is a fragmentary view in section showing by dotted lines the vertical movement of the outer end of the shaft carrying the cutter. Fig. 3 is a perspective view of a hinged guard finger mounted on a fixed part of the head of the machine and adapted to extend under the welt edge below the knife to pre-

vent the knife cutting the goods during the operation of trimming the welt edge. Fig. 4 is a fragmentary view in rear elevation of a portion of the machine head, showing the cam for raising and lowering the foot bar and the presser-foot which supports the outer end of the shaft carrying the knife. Fig. 5 is an end elevation of the machine head, showing approximately the position of parts during the operation of sewing. Fig. 6 is a similar view, showing the position of parts when the pressure-foot is raised to permit the goods to be placed under said foot and the cutting or trimming knife, and in the path of the needle. Fig. 7 is an enlarged elevation of the shaft carrying the knife and a sectional view through a piece of goods below the knife, showing the operation of cutting or trimming the welt edge, and the position of the guard finger during such operation.

Referring to the characters of reference, 1 designates the head of a sewing machine which may be any of the well known types, and which will not, therefore, be specifically described, except as reference to some of the parts may be necessary in explaining the construction and operation of my invention. Upon the main drive shaft 2 is placed a gear 3 which meshes with a pinion 4 on the counter-shaft 5 located preferably above the main shaft approximately parallel thereto and in vertical alinement therewith. The inner end of shaft 5 is provided with a ball 6 adapted to have bearing in a socket in a bearing block 7 (see Fig. 2) adjustably mounted in a fixed part of the head or frame of the machine and effecting a ball and socket joint connection between the frame of the machine and the inner end of said shaft. The block 7 is adjustably seated in the socket in the frame in which it is confined and is secured by a set screw 8. By moving the bearing block in its socket, the shaft 5 may be adjusted longitudinally. The outer end of the shaft 5 is provided with a globular bearing member 9 confined in a bearing 10 carried by the presser-foot 11. The bearing 10 has straight bearing faces which permit of a slight longitudinal movement of the shaft therethrough, and also allow of a tilting of the shaft 5 to afford a rolling movement of said bearing member 9 within its bearing, an arrangement which admits of a vertical movement

of the presser-foot and the bearing 10 without cramping the shaft 5 in either of its bearings. At the outer end of the shaft 5 is a spindle 12 which is adapted to receive the circular knife or cutter 13 which is secured thereon by a nut 14 or other suitable fastening means.

The presser-foot 11 is carried by the usual foot bar 15 which is mounted to move vertically through suitable guides 16 and which at its upper end is provided with a pin 17 adapted to be engaged by the cam 18 on the pivoted lever 19, whereby said foot, by an operation of said lever, may be raised and lowered for the purpose of inserting and removing the work and for allowing the presser-foot to engage the work during the operation of sewing. As the presser-foot is raised and lowered the outer end of the shaft 5 is also raised and lowered concurrently therewith, causing the bearing member 9 on the outer end of said shaft to roll slightly in the bearing 10 and the ball 6 on the inner end of said shaft to turn in its socket in the bearing block 7. The length of the teeth on the gear 3 and pinion 4 is such that the vertical or swinging movement of the shaft 5 is not sufficient to disengage said teeth. Bolted to a fixed portion of the head of the machine is a bracket 20 having a curved downwardly extending guard finger 21, hinged at 21<sup>a</sup>, whose lower end stands such height above the plate 22 of the machine on which the fabric rests, as to permit the fabric 23 to be passed thereunder, as shown in Fig. 7. In the upper face of said finger at its lower end is a transverse channel 24 (see Fig. 3) which receives the lower arc of the circular knife 13, thereby permitting the knife to cut through the welt edge 25 without danger of cutting the body of the fabric or material being operated upon. The hinge 21<sup>a</sup> which connects the guard finger to the bracket 20, enables said finger to be raised out of the way to facilitate the placing of the goods under the presser-foot, said finger being engaged by a spring 21<sup>b</sup> mounted on the bracket 20, which returns it into normal position. For the purpose of raising said guard finger simultaneously with the presser-foot, a connecting rod 21<sup>c</sup> is pivoted at its upper end to the cam 18 and at its lower end is provided with a slot 21<sup>e</sup> which receives a pin 21<sup>f</sup> on said finger. By this arrangement, a movement of the cam 18 to raise the presser-foot will also raise the finger 21, against the action of the spring 21<sup>b</sup>, through the medium of said connecting rod, said finger being returned by said spring, when the presser-foot is lowered. The slot 21<sup>e</sup> in said rod allows the guard finger to be raised independently of the presser-foot.

It is the common practice in turning and

stitching a welt edge, so called, as for instance upon the margin of a felt hat brim, and in the manufacture of other articles, to cut or trim the welt after the operation of stitching; a process which requires a double handling of the article. By means of this attachment the welt is cut or trimmed during the operation of stitching so that the article is completed by a single operation.

In practice the article on which the welt edge is to be formed is placed in the machine after raising the presser-foot and guard finger, when the presser-foot is lowered onto the turned edge of the fabric to force it downwardly onto the feed 26, and swing the guard finger under the welt, at the same time carrying the knife 13 into forcible engagement with the upper side of the welt above said finger, as shown in Fig. 7. As the machine is operated to sew through the turned edge of the fabric by the reciprocatory movement of the needle 27, as shown at 28 in said last-mentioned figure, the circular knife will be rotated to trim or cut the welt parallel with the line of stitching, the guard finger lying below the knife and between the welt and the body of the fabric, preventing injury to said fabric from said knife. It will be seen that the circular knife is geared to revolve at a high rate of speed in the direction in which the fabric is fed through the machine, so that a clean cut through the welt is made, thereby completing the operation of cutting the welt with the operation of sewing. At the completion of the operation, by raising the foot bar the presser-foot, guard finger, and the knife 13 are simultaneously raised from the work, enabling the completed work to be withdrawn and new work inserted in the machine, when by again lowering the presser-foot the knife will be again carried into position to cut through and trim off the margin of the welt simultaneously with the operation of stitching.

I have shown and described my invention in connection with the sewing and trimming of the welt edge on the brim of felt hats, but I wish it understood that the invention may be used for cutting or trimming the welt of shoes and for other purposes.

Having thus fully set forth my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. The combination with a sewing machine, of a gear upon the shaft thereof, a presser-foot, a counter shaft having a ball and socket connection at one end with the frame of the machine, and a jointed connection at the other end with the presser-foot, a circular knife on said shaft, and a pinion on said counter shaft meshing with the gear on the shaft of the machine.

2. An attachment for a sewing machine, comprising a presser-foot, a work plate, a

rotary knife journaled on said presser-foot and movable vertically therewith, means for driving said knife to render it operative for cutting a welt, and a guard finger lying between the knife and the work plate, when in operative position, and spaced from said work plate.

3. The combination with a sewing machine of a presser-foot, a rotary knife journaled upon and movable with said presser-foot, a work plate, and a guard finger extending below said knife and pivoted to swing between the knife and said work plate.

4. The combination with a sewing machine, of a vertically movable presser-foot, a rotatable welt cutting knife mounted on the presser-foot to move vertically therewith, a work plate, a guard finger having a

channel to receive the edge of said knife located below the knife and above the work plate, and jointed driving means connected to a moving part of the machine for imparting to the knife a rotary movement.

5. The combination with a sewing machine, of a rotary knife journaled upon and movable with the presser-foot thereof, a movable guard finger adapted to become interposed between the knife and the body of the fabric, and common means for moving said finger and presser-foot.

In testimony whereof, I sign this specification in the presence of two witnesses.

MAXIMILIAN K. GOLDEN.

Witnesses:

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I. G. HOWLETT.