United States Patent [19]

Off

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[45] **Apr. 24, 1973**

[54] **APPARATUS FOR FEEDING AND CUTTING A BAND OF SHEET MATERIAL**

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[52] **U.S. Cl.** **83/277,** 83/236, 83/42, 83/276, 83/443

[51] **Int. Cl.** **B26d 5/20**

[58] **Field of Search**.....83/39, 42, 277, 236, 83/276, 443, 639

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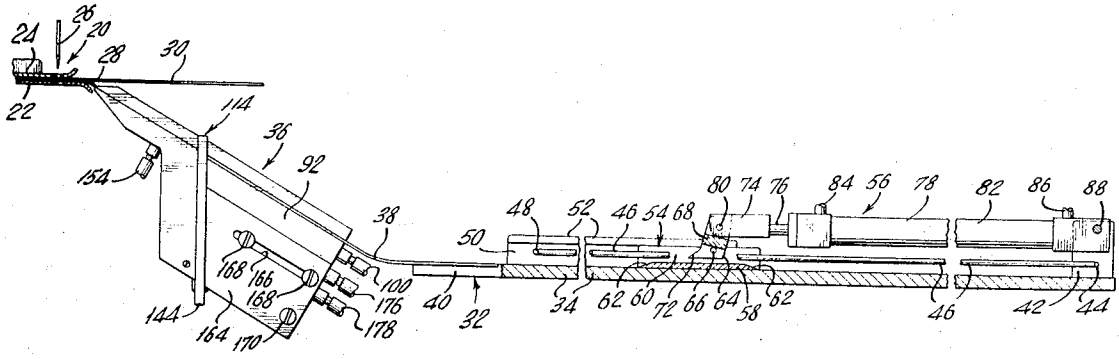
[57] **ABSTRACT**

Apparatus for feeding and cutting a band of sheet material such as a waistband which is to be sewn to a garment. An elongated guide structure longitudinally guides the elongated band of sheet material to a predetermined location and a cutting structure is located at a given distance from this location for cutting across the band. A feeding structure coacts with the band for feeding the latter to be predetermined location after the band has been cut by the cutting means, and the feeding structure has a feeding stroke sufficiently great to displace a leading end of the band from the cutting means to the predetermined location.

10 Claims, 10 Drawing Figures



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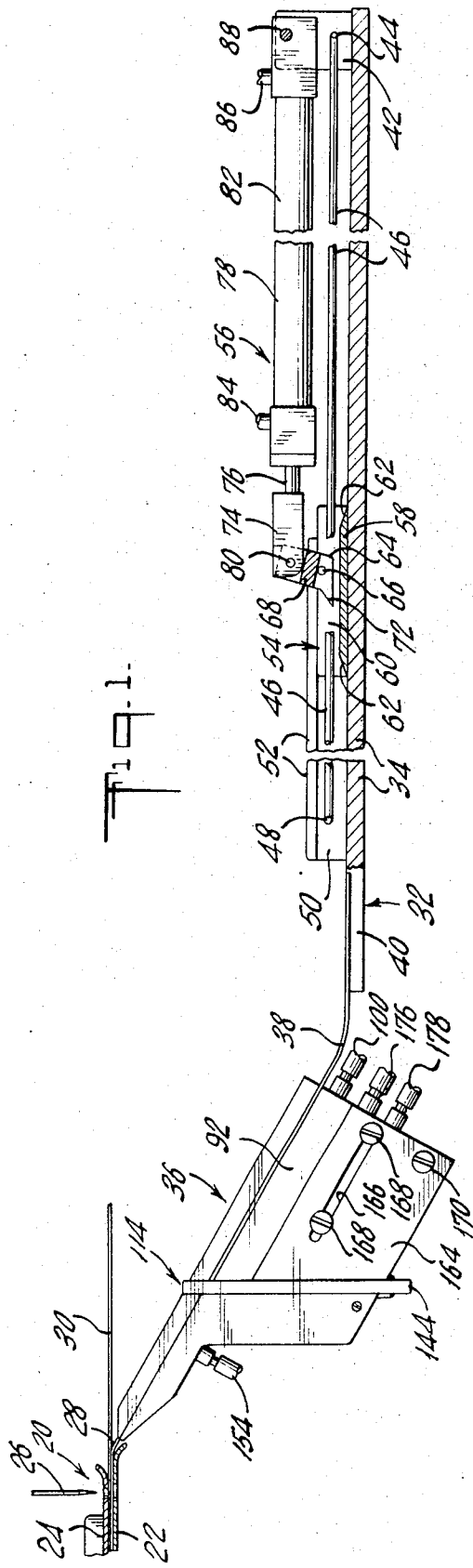

FIG. 1.

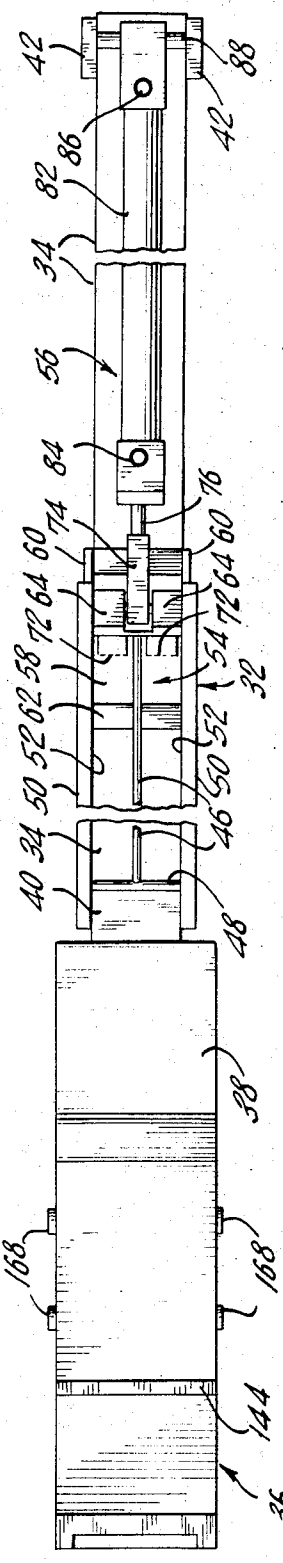

FIG. 2.

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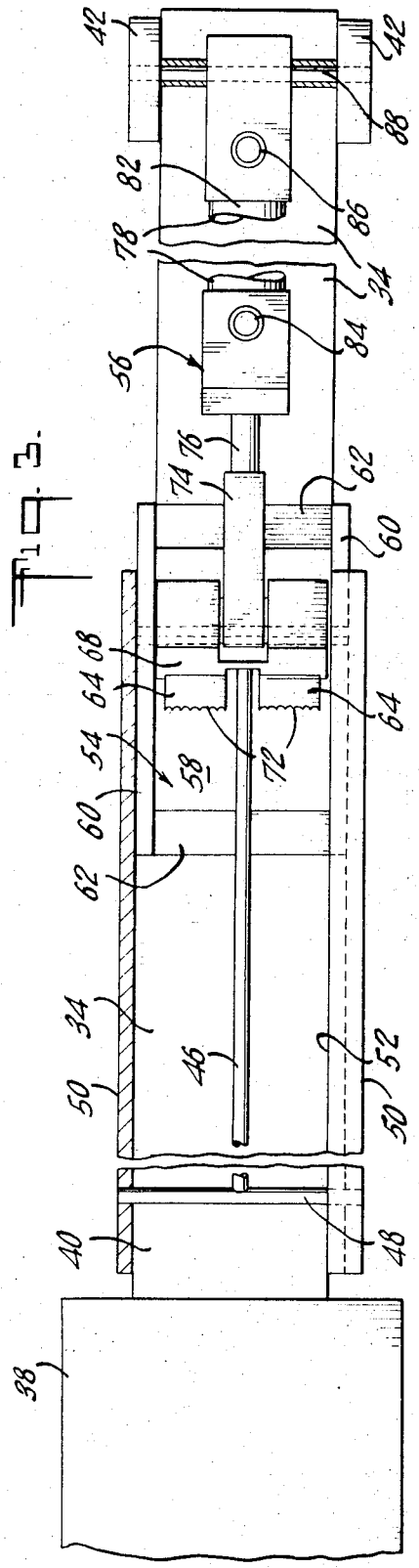

FIG. 3.

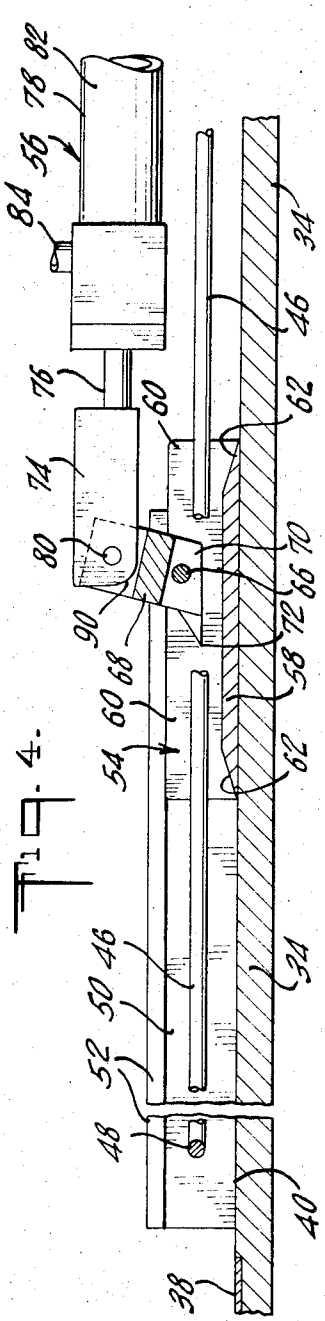

FIG. 4.

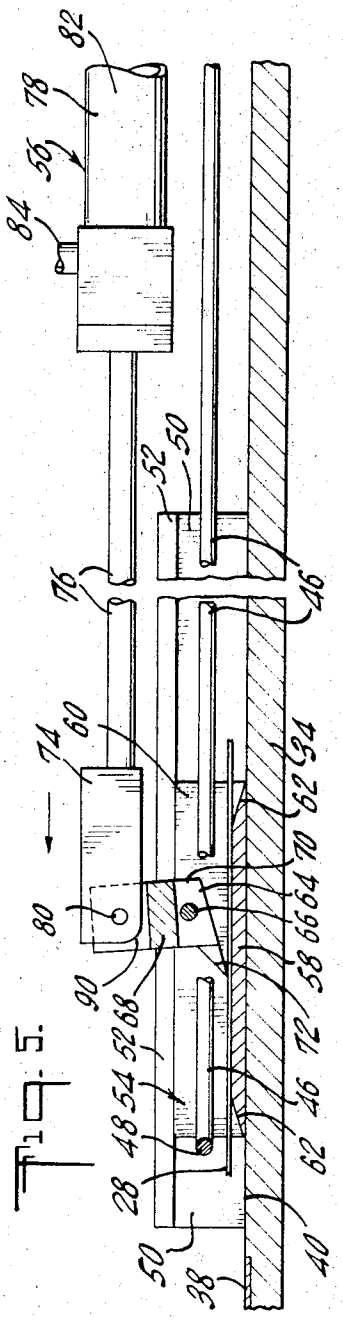

FIG. 5.

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Fig. 6.

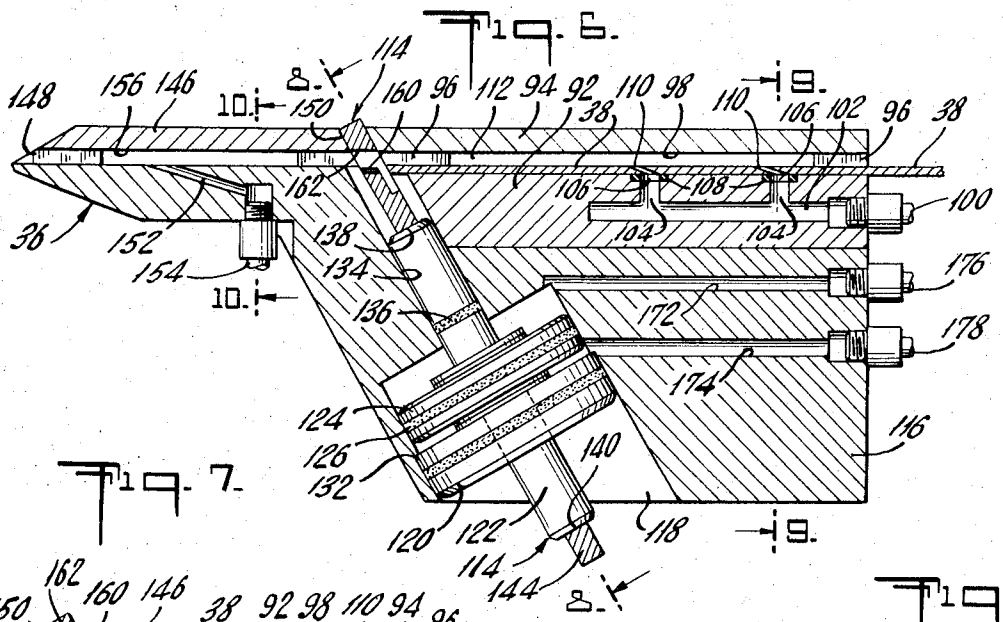


Fig. 7.

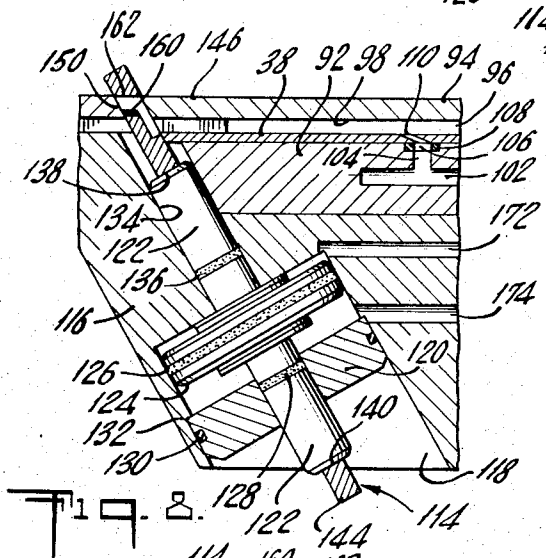


Fig. 8.

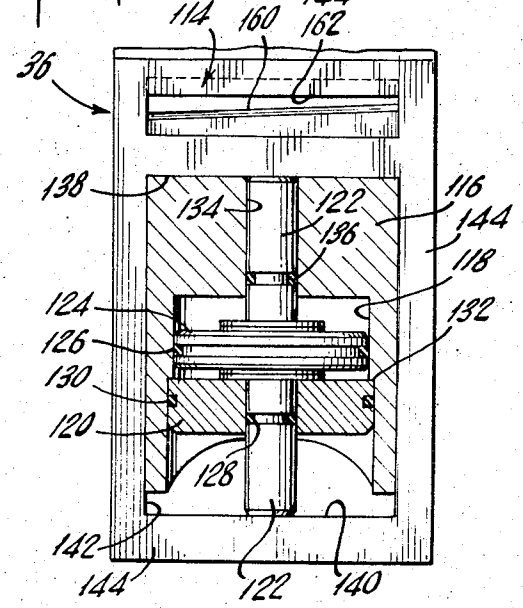


Fig. 9.

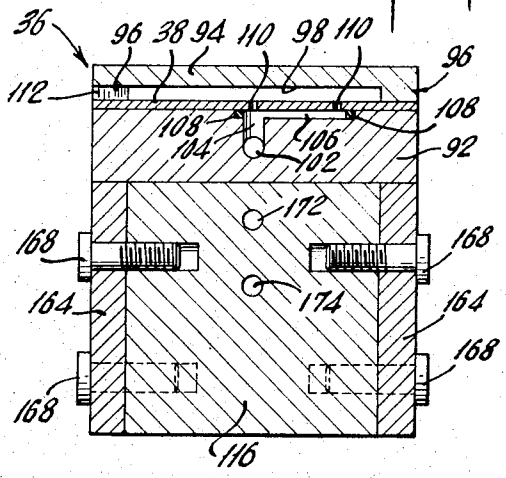
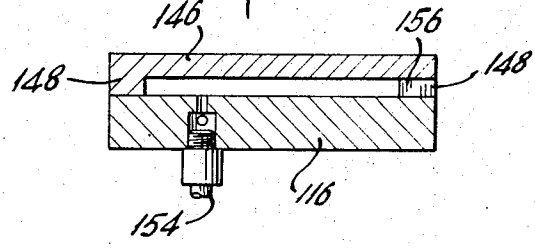


Fig. 10.



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APPARATUS FOR FEEDING AND CUTTING A BAND OF SHEET MATERIAL

BACKGROUND OF THE INVENTION

The present invention relates to band feeders and cutters.

As is well known it is necessary in certain mechanical devices to provide a structure which will feed a band of sheet material to a predetermined location and which will cut across the band so as to separate the latter into predetermined lengths. For example where a sewing machine is used for sewing a waistband to a garment, the waistband is required to be longitudinally fed to the sewing machine and then after the waistband has been sewn to the garment it is necessary to cut across the waistband so as to separate a length thereof from he remainder of the waistband which then has its leading end again fed to the sewing machine.

While structures are known at the present time for accomplishing these results, the known structures are exceedingly complex and inconvenient to operate. Thus, the known structures include complex electrical controls which are delicate and require frequent repairs. In addition, conventional structure of the above type often damages the band of sheet material as a result of the frictional gripping and feeding thereof. Furthermore, when the band is sewn to the garment the conventional structures do not completely release the band so that it can travel with a minimum amount of friction to the sewing machine.

SUMMARY OF THE INVENTION

It is accordingly a primary object of the present invention to provide a band feeding and cutting apparatus which will avoid the above drawbacks.

In particular it is an object of the present invention to provide an apparatus of this type which will permit a band to travel to a sewing machine or the like with a minimum amount of frictional resistance encountered by the band during its movement to the sewing machine.

Furthermore, it is an object of the present invention to provide a structure which permits the operator to cut cross the band when desired in an extremely convenient and reliable manner with the cutting structure on the one hand operating effectively to cut across the band and on the other hand having no interference with the movement of the band during the sewing thereof to a garment.

In addition it is an object of the present invention to provide for an apparatus of the above type a feeding means which will feed the band to the sewing machine in a rapid convenient manner while at the same time providing for the band a minimum frictional resistance to movement thereof along a guide means directing the band to the sewing machine.

In addition it is an object of the present invention to provide a structure of the above type which will not in any way damage a band as a result of the action thereon during feeding and cutting thereof.

Also it is an object of the present invention to provide an apparatus of the above type which is composed of simple rugged elements which will operate very reliably to achieve the required results with a minimum amount of maintenance.

According to the invention the apparatus includes an elongated guide means for longitudinally guiding a band to a predetermined location.

A cutting means is provided for cutting across the band to divide the latter into one length having a trailing end region situated at the cutting means between the latter and the predetermined location and a second length having a leading end region extending from the cutting means away from the predetermined location. A feed means coacts with the guide means for engaging and feeding the band along a stroke sufficiently great to displace the leading end of the second length from the cutting means to the predetermined location.

BRIEF DESCRIPTION OF DRAWINGS

The invention is illustrated by way of example in the accompanying drawings which form part of this application and in which:

FIG. **1** is a partly sectional longitudinal elevation of a band feeding and cutting apparatus according to the invention;

FIG. **2** is a top plan view of the structure of FIG. **1**;

FIG. **3** is a partly sectional plan view of the feed means and part of the guide means;

FIG. **4** is a fragmentary longitudinal sectional elevation of the structure of FIG. **3**, the feed means being shown in FIG. **4** in its retracted rest position;

FIG. **5** illustrates the structure of FIG. **4** during a feeding stroke;

FIG. **6** is a longitudinal sectional elevation of that part of the guide means where the cutting means is located, the cutting means being shown in FIG. **6** in its retracted rest position;

FIG. **7** fragmentarily illustrates part of the structure of FIG. **6** with the parts being shown in FIG. **7** in the position they take when the cutting means has been displaced to the end of its cutting stroke;

FIG. **8** is a transverse sectional elevation of the structure of FIG. **6** taken along line **8—8** of FIG. **6** in the direction of the arrows;

FIG. **9** is a transverse sectional elevation of the structure of FIG. **6** taken along line **9—9** of FIG. **6** in the direction of the arrows; and

FIG. **10** is a transverse sectional elevation of the structure of FIG. **6** taken along line **10—10** of FIG. **6** in the direction of the arrows.

DESCRIPTION OF A PREFERRED EMBODIMENT

Referring to FIG. **1**, there is shown at the upper left region thereof a predetermined location **20** to which an elongated band of sheet material is to be fed by the structure of the invention. This predetermined location **20** in the illustrated example is part of a sewing machine. Thus, there is schematically represented in FIG. **1** at the predetermined location **20** a throat plate **22**, a presser foot **24**, and a sewing needle **26**. The band of sheet material which is acted upon by the structure of the invention may take the form, in the illustrated example, of a waistband **28** which is sewn at the location **20** to a garment portion **30**.

The structure of the invention includes an elongated guide means **32** for longitudinally guiding the band of sheet material **28** to the predetermined location **20**. This guide means **32** has a horizontal elongated portion **34** in the form of an elongated narrow strip of rigid

metal or the like supported in any suitable way in the horizontal position indicate in FIG. 1. At the region of the location 20 the guide means 32 includes an assembly 36 described in greater detail below.

The guide means 32 also includes an elongated transition strip 38 made of metal, for example, and operatively connected with the plate 34 as well as the assembly 36 for guiding the band of sheet material from the element 34 to the unit 36. As is apparent from FIG. 2, the transition strip 38 is wider than the elongated element 34. At its left end region this element 34 has a recessed portion 40 receiving the right end of the transition strip 38 so that the top surface of the latter is flush with the top surface of the element 34. The band of sheet material 28 is delivered from any suitable supply roll to the right end of element 34, as viewed in FIGS. 1 and 2, in order to move along the top surface thereof.

At its right end, as viewed in FIGS. 1 and 2, the elongated element 34 of the guide means 32 is fixed with a pair of upstanding lugs 42 between which a transverse rod 44 extends, this rod 44 being fixed to the lugs 42 over and spaced from the element 34. The transverse rod 44 extends perpendicularly across and is fixed to an elongated rod 46 which extends over and longitudinally along the element 34. At its left end the rod 46 is fixed to a second transverse rod 48 which may be identical with the rod 44. At the opposed ends of the rods 48 the element 34 is fixedly connected with a pair of elongated guide plates 50 which extend upwardly from opposed side edges of the element 34 and which extend longitudinally along the latter, the ends of the transverse rod 48 being fixed to these plates 50. Thus, the rod 46 is fixedly mounted above the element 34 so that a band 28 of sheet material will be longitudinally guided along element 34 between the latter and the rod 46.

The plates 50 are provided at their top ends with inwardly directed flanges 52, so that these plates together with with their flanges 52 and the opposed side edge regions of element 34 form a pair of guide channels for a shiftable member 54 of a feed means 56. This shiftable member 54 is of a cradle-shaped configuration having a bottom wall 58 slidable along the top surface of element 34. The shiftable member 54 has a pair of opposed side walls 60 situated beneath the flanges 52, as shown most clearly in FIGS. 3 and 4. The bottom wall 58 of the shiftable member 54 has inclined end surface regions 62 enabling the band of sheet material to slide along the upper surface of the bottom wall 58 of the shiftable member 54 with a minimum of friction. It will be noted that the rod 46 is situated over the bottom wall 58 of the shiftable member 54 by a distance sufficient to permit the band 28 to move freely between the bottom wall 58 and the rod 46.

The feed means 56 also includes a swingable gripping member 64 swingably connected to the side walls 60 of the shiftable member 54. This swingable gripping member 64 is swingably connected by a pair of coaxial pivot pins 66 respectively to the side walls 60. The gripping member 64 has a transverse intermediate wall portion 68 shown in section in FIG. 4. This wall portion 68 extends across the rod 46 between the side walls 60, and the length of the wall portion 68 is such that it can swing freely between the flanges 52. Beneath the wall portion 68 the gripping member 64 has a pair of downwardly extending portions 70 spaced from each other so as to define a notch for clearing the rod 46. Thus, the rod 46 can extend freely between the downwardly extending portions 70, and it is these portions 70 which are respectively pivotally connected by the coaxial pivots 66 to the side walls 60 of the shiftable member 54. The downwardly extending portions 70 terminate at their left ends, as viewed n FIGS. 1–5 in a pair of forwardly extending toothed gripping portion 72 capable of swinging downwardly toward the wall 58 for gripping a band 28 between the wall 58 and the gripping portion 72.

The part of the gripping member 54 which extends above the intermediate wall portion 68 thereof is formed with a central notch for receiving and end portion 74 of a piston rod 76 of a fluid pressure means 78 of the feed means 56. This end portion 74 of the piston rod 76 is pivotally connected to the gripping member 64 by a pivot pin 80. It will be noted that the pivot pin 80 as well as the end portion 74 of the rod 76 and the rod 76 itself are all located at an elevation higher than the flanges 52 of the plates 50.

The fluid pressure means 78 includes a cylinder 82 in which is located an unillustrated piston which is fixed to the piston rod 76. A pair of tubes 84 and 86 communicate with the opposed ends of the cylinder 82 for directing air under pressure to opposite sides of the piston in the cylinder 82 so as to displace the piston rod 76 of the feed means 56 forwardly and rearwardly along feeding and retracting strokes. The feed means 56 is shown in FIGS. 1 and 4 in its retracted rest position while the feed means is illustrated in FIG. 5 during a feeding stroke thereof. The rear end of the cylinder 82 is fixed by any suitable means such as a transverse pin 88 to the upstanding lugs 42. When air under pressure is fed into the tube 86, the piston rod 76 will be shifted to the left from the position of FIG. 4, and the forward movement of the end 74 of the piston rod will cause the gripping member 64 to swing about the axis of the pins 66 to displace the gripping portions 72 against the top surface of a band 28 of sheet material, as illustrated in FIG. 5. The band will thus be gripped between the gripping member 64 and the bottom wall 58 of the shiftable member 54. After the forward feeding stroke of the feed means 56 is completed, the air under pressure is introduced through the pipe 84 to retract the piston and the piston rod 76, and this will result in swinging of the gripping member 64 back to the position shown in FIG. 4. At this time the lower left corner 90 of the end 74 of piston rod 76 will press against the top surface of the wall portion 68 of the gripping member 64 so as to limit the turning of the latter in a clockwise direction about the pins 66, as viewed in FIG. 4, and thus during the retracting stroke the shiftable member 54 will be pulled back with the rod 76 to the retracted starting position shown in FIGS. 1–4.

The flow of compressed air to the tubes 84 and 86 may be very simply controlled by a suitable pedal actuated by a foot of the operator of the sewing machine. When this pedal is depressed a solenoid valve is actuated to admit air under pressure to the tube 86 while releasing the pressure from the tube 84. Upon release of this pedal the solenoid returns the valve to its rest

position where the pressure is relieved from the tube **86** and air under pressure is introduced through the tube **84** to return the parts to their rest positions.

The unit **36** of the guide means **32** includes a stationary supporting member **92** in the form of a block of metal or the like fixed to any suitable mounting structure which maintains the block **92** stationary. The elongated transition strip **38** of guide means **32** extends along the top surface of the block **92**. The unit **36** has over the block **92** an elongated top plate **94** having downwardly directed side flanges **96** one of which is visible in FIG. **9**, so that this top plate **94** has a bottom inner surface **98** forming part of the guide means for the band **28**. Thus, as is apparent from FIG. **9** in particular, the band will be guided between the surface **98** and the transition strip **38** and between the side flanges **96** of the top plate **94**. A tube **100** (FIG. **6**) communicates with any source of compressed air and communicates with a conduit means formed by a passage **102** in the block **92**. This passage **102** has upwardly directed branches **104** forming part of the conduit means and communicating with a pair of elongated transversely extending recesses **106** (FIG. **9**) formed in the top surface of the block **92**. These recesses **106** are sealed with respect to the lower surface of the strip **38** by suitable sealing rings **108**. As is apparent from FIG. **6**, there are a pair of branches **104** leading to a pair of recesses **106**. The transition strip **38** is formed with a pair of inclined openings **110** communicating with each of the recesses **106** an inclined forwardly in the direction of travel of the band **28**, as is apparent from FIG. **6**. As a result through the conduit means **102** it is possible to introduce beneath the band an air stream which reduces the frictional resistance to movement of the band through the unit **36** of the guide means. The plate **94** is fixed in any suitable way to the block **92**. At its left flange **96**, as viewed in FIG. **9**, the top plate **94** is formed with an elongated slot **112** through which the air can escape to the outer atmosphere. The length of the slot **112** is apparent from FIG. **6** which illustrates the end regions of the flange **96** located beyond the slot **112**. The top plate **94** as well as the transition strip **38** and the block **92** extend all the way up to a cutting means **114**.

In order to actuate the cutting means the structure includes a cylinder block **116** fixed in any suitable way to the supporting block **92** of the unit **36**. This cylinder block **116** is formed with a cylindrical opening **118** closed by a plug **120** in a fluid-tight manner. This plug **120** is formed with a central aperture through which extends part of a piston rod **122** of a piston **124** which is slidable in the bore **118** to form with the cylinder block **116** a fluid-pressure means for actuating the cutting means **114**. The piston **124** is provided with a sealing ring **126** slidably engaging the inner surface of the bore **118** in a fluid-tight manner. Also, the lower portion of the piston rod **122** is provided with a sealing ring **128** having a fluid-tight sliding engagement in the central bore of the plug **120**. The plug **120** itself has a sealing ring **130** engaging the inner surface of the bore **118**. The bore **118** is formed with a shoulder **132** which determines the location of the plug **120**. This plug **120** is fixed in any suitable way against the shoulder **132**. The cylinder block is formed with a bore **134** coaxial with the bore **118** and receiving in a fluid-tight manner the upper region of the piston rod **122** which is fixed to the piston **124**. This upper region of the rod **122** is also provided with a sealing ring **136** slidably engaging the inner surface of the bore **134** to have a fluid-tight engagement therewith.

The elongated piston rod **122** has its opposite ends located in engagement with upper and lower edges **138** and **140** of a rectangular opening **142** formed in a plate **144** of the cutting means **114**. The cylinder block **116** extends through this opening **142**, as shown most clearly in FIG. **8**, and the cylinder block **116** slidably engages the left surface of the plate **144**, as viewed in FIGS. **6** and **7**. The stationary supporting block **92**, the strip **38** and the top plate **94** slidably engage the right surface of the plate **144**, as viewed in FIGS. **6** and **7**, so that the cylinder block **116** together with elements **94**, **38**, and **92** slidably guide the plate **144** of the cutting means **114**. The block **116** is fixed to the plate **92** in any suitable way.

To the left of the plate **144** of the cutting means **114** the cylinder block **116** carries a top plate **146** provided with downwardly directed side flanges **148** engaging the top surface of the block **116** to the left of the plate **114** and this plate **146** is fixed to the block **116** in any suitable manner. The right edge **150** of the plate **146** forms a stationary cutting edge of the cutting means **144**.

To the left of the cutting means **114** the block **116** is formed with a conduit means **152** communicating with a source of compressed air through a tube **154**, and this compressed air is directed forwardly in the direction of band travel by the inclination of the opening **152** which is apparent in FIG. **6**. Thus, through the conduit means **152** air under pressure will also be introduced to the lower surface of the band **28** to reduce the frictional engagement between the latter and the top surface of the block **116** to the left of the cutting means **114**, as viewed in FIG. **6**. The flange **148** which is visible in FIG. **6** is formed with a slot **156** through which the air introduced through the conduit **152** can escape to the outer atmosphere. Also this air can escape at the discharge end of the guide means formed by the passage defined between the plate **146** and the block **116** at the left end of the latter, as viewed in FIG. **6**. This left end of the unit **36** is located in the immediate vicinity of the location **20** to which the band **28** is delivered.

The plate **144** of the cutting means **114** is formed above the rectangular opening **142** thereof with a second rectangular opening. The bottom edge of this rectangular opening is defined by an inclined cutting edge **160** which coacts with the stationary cutting edge **150** of the cutting means **114** for cutting across the band **28** when the piston **124** is displaced upwardly along its cutting stroke from the position of FIG. **6** to the position of FIG. **7**. The plate **144** has an edge **162** defining the upper edge of the second rectangular opening, and the cutting edge **160** as well as the edge **162** defined between themselves a passage for the band **28** when the cutting means **114** is in the rest position shown in FIG. **6**. Thus, this upper opening of the cutting means forms part of the guide means for the band when the cutting means is in its rest position shown in FIG. **6**.

The block **116** carries a pair of side plates **164** shown in section in FIG. **9**, and one of these side plates **164** is illustrated in FIG. **1**. Each side plate **164** is formed with an elongated slot **166** (FIG. **1**) and a pair of screws **168** extend through the slot **166** into threaded bores of the block **116** for fixing each side plate **164** to the block **116**. The length of the slot **166** is such that each side plate **164** can be adjusted with respect to the block **116** so that the left edge of each side plate **164** will have proper sliding engagement with the plate **144**. An additional screw **170** extends through an elongated opening of each plate **164**, this elongated opening also permitting adjustment of each plate **164**, and the screws **170** are also received in threaded bores of the block **116**, as shown most clearly in FIG. **9**.

In order to displace the piston **124** so as to actuate the cutting means, the cylinder block **116** is formed with a pair of bores **172** and **174** respectively communicating with tubes **176** and **178** connected to a solenoid valve which is in turn connected to a suitable source of compressed air. This solenoid valve is operated by a second pedal accessible to the other foot of the operator who actuates with one foot the pedal which controls the solenoid valve which controls the transmission of compressed air to the tubes **84** and **86** as described above. Thus through the second pedal it is possible to actuate the solenoid valve to control admission of compressed air either to the tube **176** or the tube **178**. When it is desired to actuate the cutting means the operator will depress this second pedal to admit compressed air to the conduit **174** while placing the conduit **172** in communication with the outer atmosphere, so that now the compressed air will drive the piston **124** upwardly from the position of FIG. **6** to the position of FIG. **7**, and thus the cutting edge **160** will move with respect to the stationary cutting edge **150** in order to cut across the band of sheet material **28**. Then the operator will release the pedal and the solenoid valve will automatically assume a position where the compressed air is admitted through the conduit **172** while the conduit **174** is relieved of pressure by being placed in communication with the outer atmosphere, and now the piston **124** will be driven back to the rest position shown in FIG. **6**.

The above described structure of the invention operates as follows:

During sewing of a band **28** to a garment **30** the garment **30** and the band **28** are fed to the left, as viewed in FIG. **1**, with respect to the presser foot **24** and the throat plate **22**. When a length of the band **28** almost equal to the required length thereof has been sewn to the garment **30**, the operator will depress the pedal which introduces air under pressure beneath the piston **124**, so that the band **28** will be cut, and then the trailing end portion of the cut length of the band **28** will be sewn to the remainder of the garment **30** as this trailing end portion is drawn through that part of the guide means which extends to the left beyond the cutting means **114** up to the region of the predetermined location **20**. It will be noted from FIG. **1** that the guide means has an end region situated in the immediate vicinity of the predetermined location **20** with the cutting means **114** situated in the vicinity of this end region. After the band has been cut the operator will release the valve-operating pedal so that air under pressure will now be introduced through the conduit **172** in order to return the piston **124** to its rest position, thus retracting the movable cutting edge **160** of the cutting means to its lower position shown in FIG. **6** where it will be situated beneath the band **28**. Now the operator will actuate the other pedal so as to introduce air under pressure through the tube **86** into the cylinder **82** of the fluid-pressure means **78**, so that now the feed means **56** will be actuated to feed the band **28**. The action of the cutting means divides the band **28** into one length having a trailing end region extending from the cutting means up to the predetermined location **20** and a second length having a leading end region terminating at the cutting means **114**. The stroke of the feed means **56** is sufficiently long to displace the leading end of this second length of the band **28** all the way from the cutting means **114** up to the predetermined location **20** so that now the sewing of this second length of the band **28** can be continued with another garment **30**. The introduction of air under pressure into this cylinder **82** through the tube **86** will tilt the gripping member **64** in a counterclockwise direction about the common axis of the pivot pins **66** so that the gripping portions **72** will grip the band **28** in the manner shown in FIG. **5** against the bottom wall **58** of the shiftable member **54**, and now the band will be fed forwardly along the element **34** and the transition strip **38** through the unit **36**, as well as through the upper opening of the plate **144**, so that the leading end of the new length of band **28** will reach the predetermined location **20**. At this time the shiftable member **54** is guided by the plates **50** as it moves forwardly to the left, as viewed in FIG. **5**, feeding the band **28** through the required stroke. As soon as the leading end of the new band length **28** reaches the predetermined location **20**, the sewing of the band **28** to the next garment **30** is commenced, so that during the sewing operations the band is pulled forwardly through the unit **36** and along the guide means **32**, with he band being displaced longitudinally along the guide strip **34** over the bottom wall **58** of the shiftable member **54**. As soon as the operator starts sewing the leading end of the new length of the band **28** to the next garment **30**, the pedal which controls the solenoid valve of the feed means **56** is released so that now air under pressure is introduced through the tube **84** while the tube **86** is placed in communication with the outer atmosphere. Therefore, while the band **28** is pulled forwardly along the guide means due to the sewing operation the shiftable member **54** is retracted to move rearwardly with respect to the forwardly moving band **28**, until the parts again return to the rest position shown in FIGS. **1–4**.

The above operations are repeated first with actuation of the cutting means the then with actuation of the feed means in the manner described above with the successive lengths of the band **28** which are successively sewn to successive garments **30**.

As is apparent from the above description with the structure of the invention the band feeding and cutting apparatus is exceedingly rugged and reliable in its operation, providing a highly effective and efficient guide for the band **28** with minimum frictional resistance to movement thereof. Introduction of air under pressure continuously through the conduit means **102** and **152** contributes to this result. Also the

inclined surfaces **62** of the bottom wall **58** of the shiftable member **54** contributes to this result. The gripping portions **72** of the tiltable gripping member **64** have exceedingly fine teeth while the bottom wall **58** has a smooth top surface so that there is no damage to the band **28** while it is fed, and the inclination of the openings **110** and **152** contribute to the forward feeding of the band by the feed means **56** while the elongated rod **46** prevents any possible upward buckling of the band **28**. Not only is the band guided at its bottom surface by the upper surfaces of elements **34**, **38**, and **116**, but in addition side edges of the band are guided by the side walls **60** of the shiftable element **54** and the side flanges **96** of element **94** as well as the side flanges **148** of element **146**. The bottom surface **98** of the cover plate **94** and the corresponding bottom surface of the cover plate **146** as well as the upper opening of plate **144** contribute to the guiding of the band, and all of these band-engaging surfaces are smooth so as to contribute to the lower friction in the longitudinal guiding of the band **28** by the guide means of the invention.

What is claimed is:

1. In an apparatus for feeding an elongated band of sheet material to a predetermined location and for cutting the band, elongated guide means for longitudinally guiding the band of sheet material to said predetermined location while freeing the band of sheet material for continued unobstructed longitudinal movement through the beyond said predetermined location, said guide means having an end region situated adjacent said predetermined location and formed at said end region with a space through and beyond which the band is free to continue its movement beyond said predetermined location, cutting means carried by said guide means at a given distance from said predetermined location for cutting across the band to separate the latter into one length having a trailing end region extending from said cutting means to said predetermined location and a second length having a leading end situated at said cutting means, nd feed means coacting with said guide means for engaging and feeding a band along said guide means through a stroke sufficiently great to displace the leading end of said second band length from said cutting means to said predetermined location.

2. The combination of claim **1** and wherein said cutting means is situated adjacent said end region of said guide means which is located in the vicinity of said predetermined location.

3. The combination of claim **2** and wherein said feed means has a forward feeding stroke and a rearward retracting stroke, said feed means automatically gripping the band and feeding the latter during said forward feeding stroke thereof and automatically releasing the band for movement with respect thereto during the retracting stroke of said feed means.

4. In an apparatus for feeding an elongated band of sheet material to a predetermined location and for cutting the band, elongated guide means for longitudinally guiding the band of sheet material to said predetermined location, said guide means having an end region situated adjacent said predetermined location, cutting means carried by said guide means at a given distance from said predetermined location for cutting across the band to separate the latter into one length having a trailing end region extending from said cutting means to said predetermined location and a second length having a leading end situated at said cutting means, and feed means coacting with said guide means for engaging and feeding a band along said guide means through a stroke sufficiently great to displace the leading end of said second band length from said cutting means to said predetermined location, said cutting means being situated adjacent said end region of said guide means which is located in the vicinity of said predetermined location, and said feed means having a forward feeding stroke and a rearward feeding stroke, said feed means automatically gripping the band and feeding the latter during said forward feeding stroke thereof and automatically releasing the band for movement with respect thereto during the retracting stroke of said feed means, said feed means including a shiftable member guided by said guide means for shifting movement toward and away from said cutting means, said shiftable member extending beneath a band which is fed by said feed means, and said feed means including a swingable gripping member swingably connected to said shiftable member and located over a band beneath which said shiftable member extends, said feed means automatically swinging said gripping member downwardly into gripping engagement with a band gripping the latter between said gripping member and shiftable member during the forward feeding stroke of said feed means, said feed means automatically retracting said gripping member upwardly away from said shiftable member to release a band during the retracting stroke of said feed means while said shiftable member moves rearwardly with respect to a band.

5. The combination of claim **4** and wherein a fluid-pressure means forms part of said feed means and includes a piston rod pivotally connected to said gripping member for swinging the latter into gripping engagement with a band during the forward feeding stroke of said feed means and for swinging said gripping member away from said shiftable member during the retracting stroke of said feed means.

6. The combination of claim **5** and wherein said guide means includes an elongated rod extending longitudinally over a band and over said shiftable member, said gripping member being formed with a notch through which said rod extends.

7. The combination of claim **2** and wherein said guide means has at said cutting means a stationary portion forming a stationary cutting edge of said cutting means, said cutting means including a movable cutting edge coacting with said stationary cutting edge for cutting across a band, and fluid-pressure means coacting with said cutting means for displacing said movable cutting edge along a cutting stroke and then along a return stroke back to a position located beyond the path of movement of the band along said guide means.

8. In an apparatus for feeding an elongated band of sheet material to a predetermined location and for cutting the band, elongated guide means for longitudinally guiding the band of sheet material to said predetermined location, said guide means having an end region situated adjacent said predetermined location, cutting means carried by said guide means at a given distance from said predetermined location for

cutting across the band to separate the latter into one length having a trailing end region extending from said cutting means to said predetermined location and a second length having a leading end situated at said cutting means, and feed means coacting with said guide means for engaging and feeding a band along said guide means through a stroke sufficiently great to displace the leading end of said second band length from said cutting means to said predetermined location, said cutting means being situated adjacent said end region of said guide means which is located in the vicinity of said predetermined location, said guide means having at said cutting means a stationary portion forming stationary cutting edge of said cutting means, said cutting means including a movable cutting edge coacting with said stationary cutting edge for cutting across a band, and fluid-pressure means coacting with said cutting means for displacing said movable cutting edge along a cutting stroke and then along a return stroke back to a position located beyond the path of movement of the band along said guide means, said cutting means including a plate formed with an opening through which the band moves while travelling to said predetermined location, said plate having said movable cutting edge defining part of said opening of said plate.

9. In an apparatus for feeding an elongated band of sheet material to a predetermined location and for cutting the band, elongated guide means for longitudinally guiding the band of sheet material to said predetermined location, said guide means having an end region situated adjacent said predetermined location, cutting means carried by said guide means at a given distance from said predetermined location for cutting across the band to separate the latter into one length having a trailing end region extending from said cutting means to said predetermined location and a second length having a leading end situated at said cutting means, and feed means coacting with said guide means for engaging and feeding a band along said guide means through a stroke sufficiently great to displace the leading end of said second band length from said cutting means to predetermined location, a conduit means coacting with said guide means for delivering air to said guide means beneath a band moving therealong for reducing the frictional engagement between the band and said guide means.

10. The combination of claim **9** and wherein said conduit means is situated along said guide means both before and after said cutting means.

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