Dec. 13, 1955 J. A. CLOUTIER 2,726,611

APPARATUS FOR MAKING TUBULAR PIECE GOODS

Filed Sept. 9, 1953 3 Sheets-Sheet 1

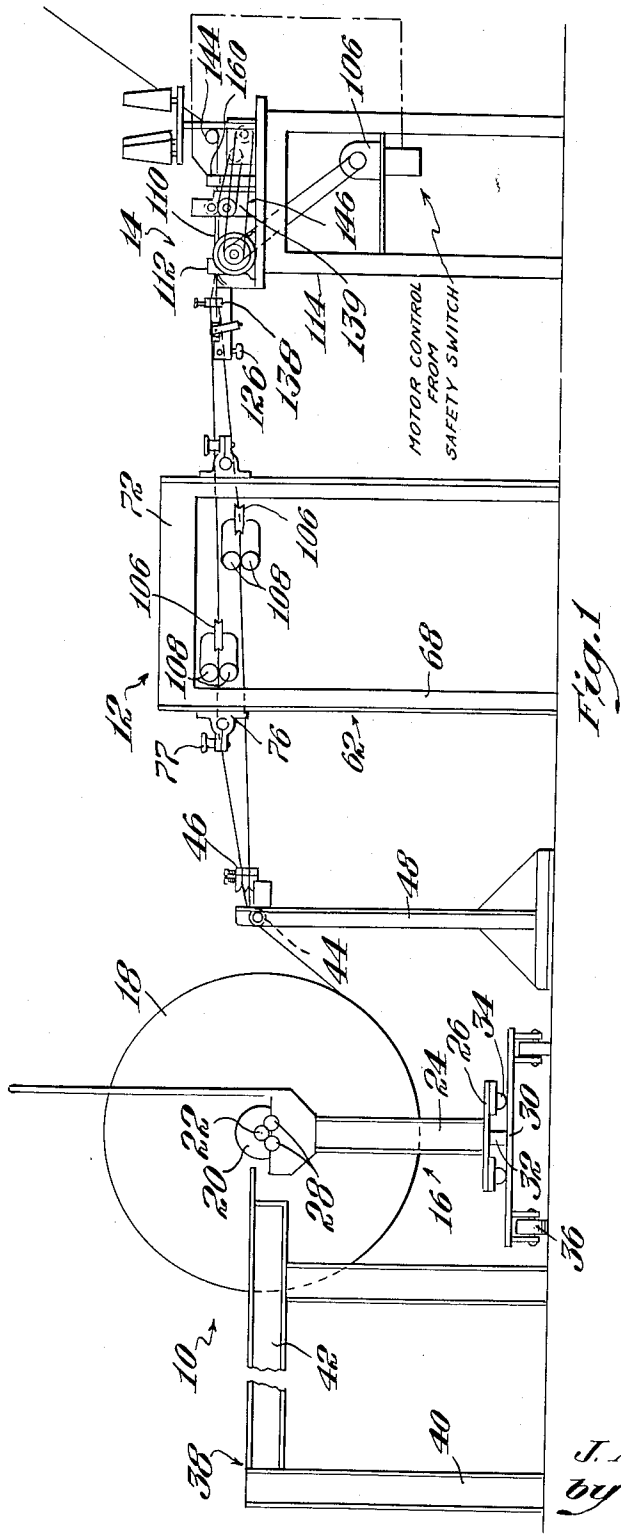


Fig. 1

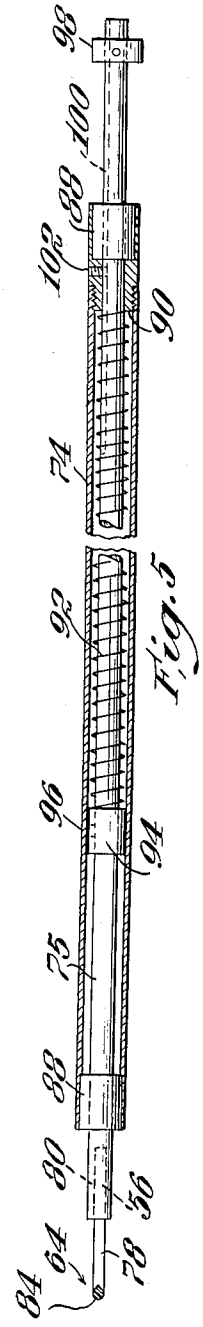


Fig. 5

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APPARATUS FOR MAKING TUBULAR PIECE GOODS

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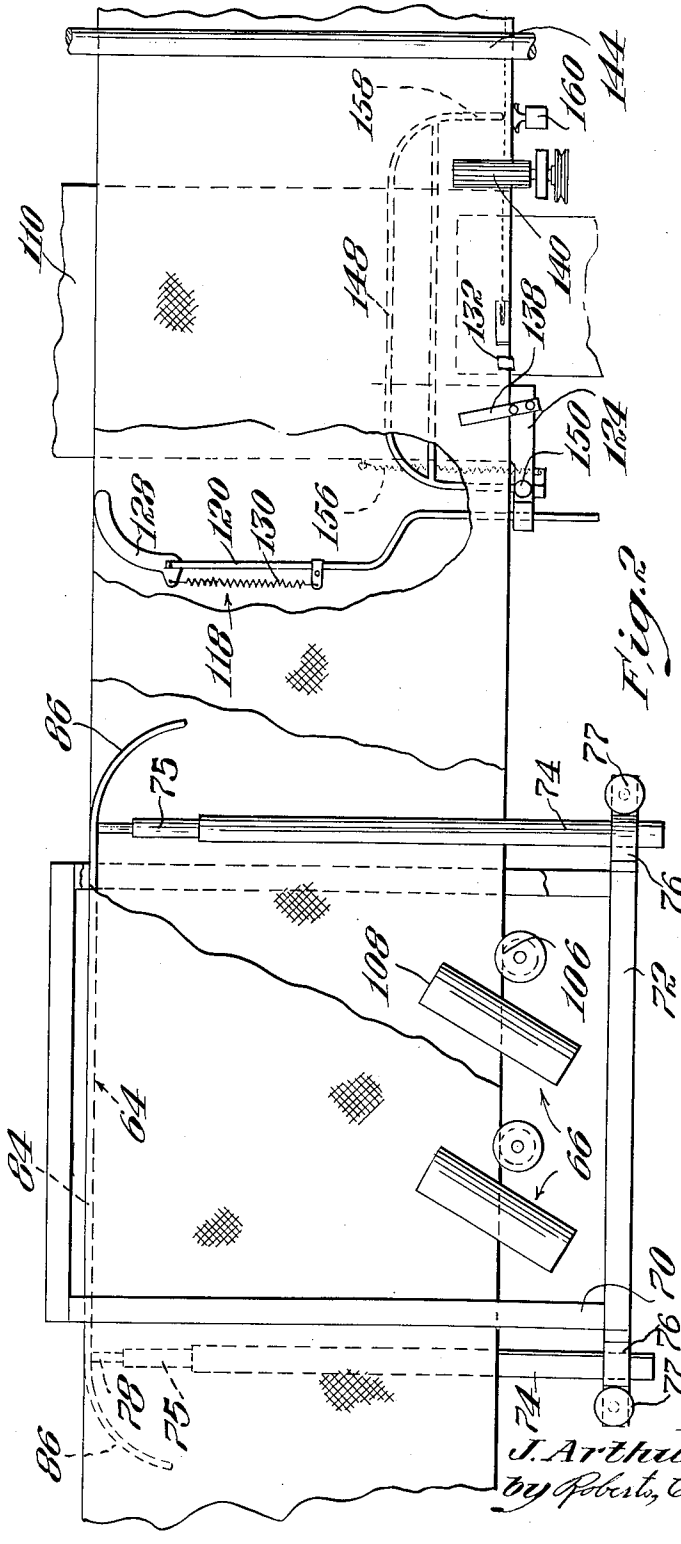


Fig. 2

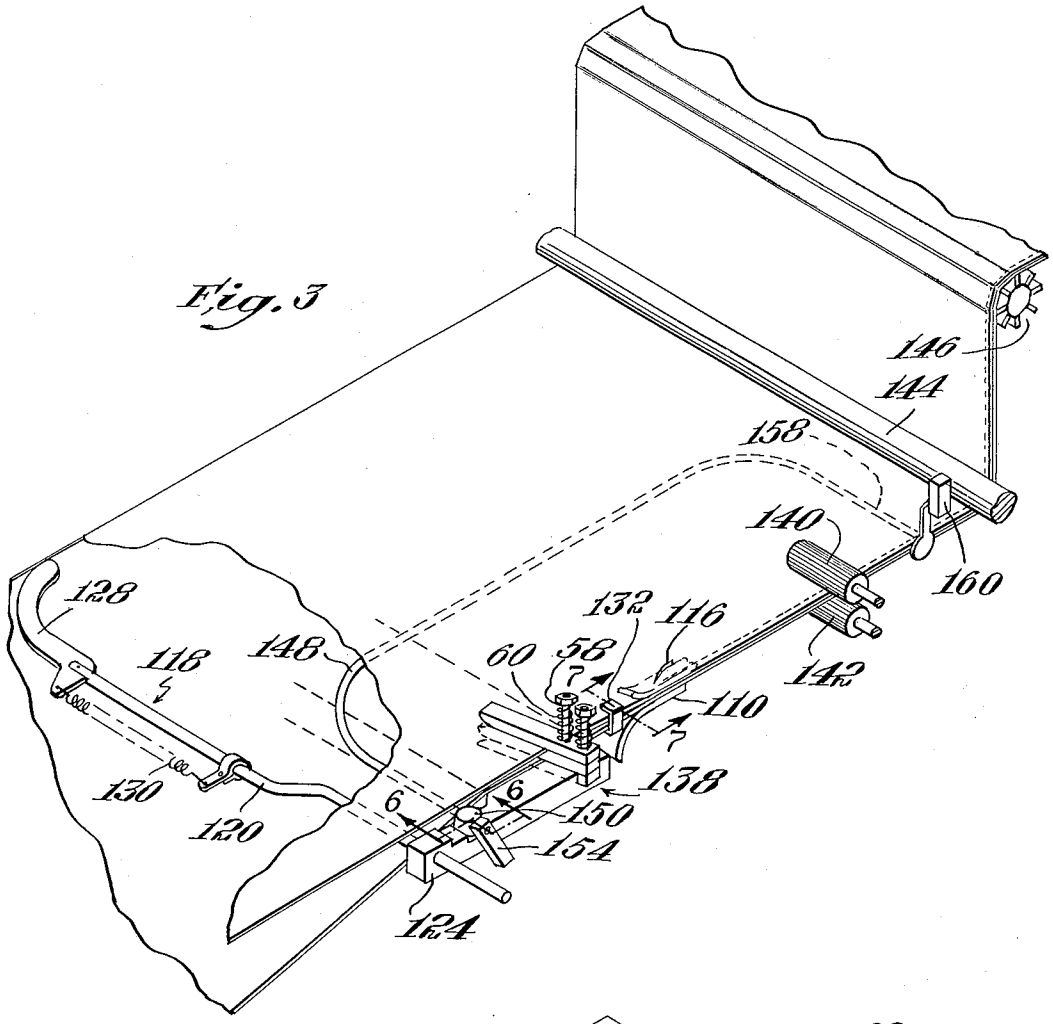
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APPARATUS FOR MAKING TUBULAR PIECE GOODS

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Fig. 3



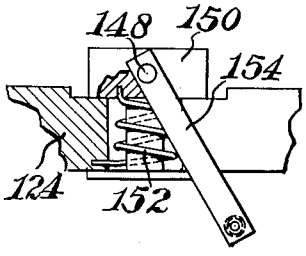


Fig. 6

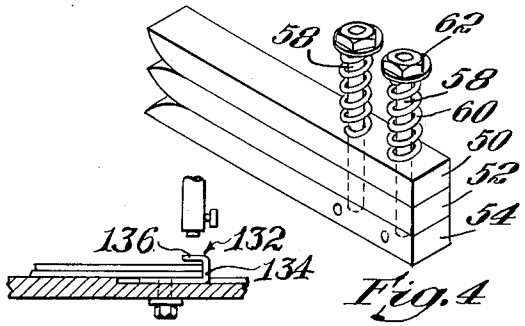


Fig. 4

Fig. 7

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APPARATUS FOR MAKING TUBULAR PIECE GOODS

Joseph Arthur Cloutier, Lewiston, Maine, assignor to Pepperell Manufacturing Company, Boston, Mass., a corporation of Massachusetts

Application September 9, 1953, Serial No. 379,269

6 Claims. (Cl. 112—63)

This invention relates to an apparatus for making continuous tubular material from flat woven material particularly for making pillow slips and constitutes a continuation in part of my pending application Serial No. 136,705, filed January 4, 1950, now abandoned.

Machines for doubling woven fabric longitudinally have been used for many years; however, such doubling is rough due to the fact that conventional folding or doubling machines are not intended to effect a precision folding, the adjustments thereon being far from critical and being made only infrequently by the operators after they see the fabric running off in one direction or the other. Accordingly, when the folded cloth comes from the doubler its free or selvage edges seldom coincide. In some instances, doubling and seaming have been combined in a single machine, for example, in machinery for making bagging and/or for temporarily tacking yard goods preparatory to processing it. In both such operations there is no need for precision, a rough approximation at joining the edges in parallel being entirely suitable. Fine appearance is of no moment in making bagging or in tacking operations where the tacking thread is subsequently removed following the processing. The paramount consideration in making pillow slips and hence in making the tubular material from which they are cut is appearance. The tubing must be free of wrinkles, the free edges or selvages must be in parallel registration, the weft threads must be substantially at right angles to the warp threads, that is there must be no transverse bias, the seam itself must be straight and the finished seamed tube must be free of blemishes, such as gaps, folded edges and perforations.

The principal objects of this invention are to provide a machine for making tubular goods which will produce precision folding and seam formation far beyond anything approached by prior machines or attainable thereon, which will be substantially fully automatic thus eliminating the individual attention of operators for each machine, which will eliminate accidental folding of either one or both of its edges, which will automatically stop in the event of a gap in the seam due to failure to join the edges by reason of thread failure or cut-outs in the material and which will minimize the occurrence of wrinkles during the seam forming operation.

As herein illustrated the apparatus includes means for supplying inaccurately folded work to a place of precision refolding, where the plies of roughly folded work are readjusted transversely to bring the free edges or selvages into precise parallel registration by edge shifting means. Operating in conjunction with the means for shifting the plies transversely is a fold or crease guide which lies between the plies and has a bearing portion which engages the inside of the folded work opposite the edge shifting means which holds the work distended transversely. The edge shifting means are in the form of grippers which nip the edges of the plies and shift them to draw the folded edge of the work against the edge guide and to shift the plies with reference thereto to bring their edges into registration. Shift is effected both transversely and longitudinally. The guide preferably has an elongate bearing surface which engages a length of the seam paralleling the direction of movement of the work and is yieldable transversely thereof. Beyond the edge guide there is located a table over which the work moves in surface contact therewith and on the table adjacent the edges of the fabric is mounted a sewing head. The work is drawn from the supply, over the edge guide, across the table and beneath the sewing head by a pair of cooperating traction rolls arranged beyond the sewing head with their axis of rotation at right angles to the direction of movement of the work. An edge guide fast to the table close to the path of the needle serves to maintain the edges at a predetermined spacing from the needle so that the seam will be uniformly distanced from and parallel to the edges. A supplementary folded edge guide is mounted on the table so as to have contact with the inside of the folded edge after it leaves the refolding guide to maintain the work transversely taut close to the place of sewing, being located near the leading edge of the table just ahead of the sewing head.

Intermediate the sewing head and the traction rolls there is located a seam feeler which is arranged to bear against the inside of the sewn edge of the work as it leaves the sewing head and is operable in the absence of a continuous supply of yarn to the sewing head or by reason of a gap in the seam to stop the machine.

Selvage opening means are located between the source of work and the means for shifting the plies and just ahead of the sewing head to restore the edges to a flat condition in the event that they become accidentally folded.

The support for supplying the roughly folded work to the refolding guide and from thence to the sewing head is constructed to permit transverse and angular adjustment with reference to the direction of movement of the work.

The invention will now be described in its various aspects in greater detail with reference to the accompanying drawings wherein:

Fig. 1 is a side elevation of the machine;

Fig. 2 is a fragmentary plane view to larger scale omitting the support for the work and showing in more detail the refolding edge guide and selvage edge feeler;

Fig. 3 is an isometric view showing a supplementary folded edge guide, the seam feeler, a selvage opener, and the traction rolls;

Fig. 4 is an isometric view of selvage opener;

Fig. 5 is a vertical section through the refolding guide bar support;

Fig. 6 is an elevation partly in section taken on the line 6—6 of Fig. 3; and

Fig. 7 is a vertical section taken on the line 7—7 of Fig. 3.

Referring to the drawings (Fig. 1) the apparatus comprises a place 10 of supply for roughly folded work, such as comes from a conventional folding machine, a place 12 for refolding the roughly folded work to bring its edges into precision alignment and a place 14 for joining the edges to provide a continuous seam.

The place of supply 10 comprises a support 16 for a roll of doubled cloth 18, the latter being wound on a shell 20 having projecting from its ends stub shafts 22. The support includes a pair of transversely spaced posts 24 fast at their lower ends to a base 26 and carrying at their upper ends bearings 28 on which rest the stub shafts 22 so that the roll of cloth is free to rotate about a horizontal axis. The base 26 rests on a platform 30 and is adjustable about a pivot post 32 perpendicular to the platform 30 located midway between the posts 24, the corners

of the base **26** being supported by balls **34**. The post **32** is welded or otherwise flattened in an upright position to the platform **30** substantially centrally thereof and its upper end fits into a hole in the base **26** so that the support **12** is constrained against lateral movement and yet is free to turn about the vertical axis of the pin. The platform **30** itself is provided with wheels **36** at its four corners supporting it from the floor for lateral movement parallel to the axis of the roll of cloth. Thus the work support is movable transversely and angularly.

Located behind the support **16** is a rack **38** for supporting a spare roll of cloth, the rack having vertical supporting legs **40** and spaced parallel, horizontal rails **42**, the upper edges of which are adapted to bear the ends of the stub shafts **22**. The rails **42** terminate close to the bearings **28** of the swivel support **16**, so that a roll of cloth resting on the rails may easily be rolled therealong and deposited on the bearings **28** without the assistance of chain falls.

Intermediate the support for the work and the place of refolding is a tension rod **44** over which the work delivered from the underside of the roll **18** passes to a selvage opener **46**. The tension rod **44** and selvage opener **46** are mounted on a stand **48** with the rod **44** in a substantially horizontal position and substantially at the level of the axis of rotation of the work. The rod **44** is long enough to support the entire width of the work moving over it. The selvage opener **46** is inclined toward the direction from which the goods comes and receives the free edges as they approach it, unfolding the folded or double portions thereof. The selvage opener **46** as illustrated in Fig. 4 is made of three elongate rectangular bars **50**, **52** and **54** superposed with their sides and ends coinciding. Near one end of each bar there is a pair of spaced vertical holes, the holes in the superposed bars being in vertical registration. A rod **58** is placed through each set of holes with its lower end secured by a pin in the hole of the bottom bar and its other end projecting upwardly therefrom through the holes in the upper bar to a distance above the top bar. A compression spring **60** is placed above the projecting end of each rod and a nut **62** is threaded on the upper end so as to place the spring under compression. By adjustment of the springs frictional resistance to the passage of work between the bars may be varied. The middle bar has a double taper at its free end while the top and bottom bars have a single taper thus forming a pair of vertically spaced converging lips which entertain the edges of the plies.

At the place of refolding **12** (Fig. 1) there is a rigid supporting frame **62** on which are located a refolding guide bar **64** (Fig. 2) for engagement with the inside of the folded edge of the work and edge shifting means **66** for operating upon the free edges of the work to adjust them both transversely and longitudinally in a manner to bring the free edges into precision alignment. The frame has spaced vertical legs **68** joined by cross braces **70** and **72**. A pair of hollow arms **74** (Figs. 2 and 5) are mounted on the frame one at each end with respect to the direction of movement of the goods. Each arm **74** is made fast at one end to the frame by a bracket **76** bolted or welded to the sides of the frame and extends horizontally across the frame. Each bracket is split to provide a clamp and carries a screw **77** for binding the arm thus providing for transverse adjustment thereof. A rod **75** is slidably mounted in each arm with its ends projecting from opposite ends thereof. The further extremity of each rod with respect to its supporting bracket **76** is drilled axially at **56** (Fig. 5). The refolding guide bar **64** has fastened near its opposite ends arbors **78** which are inserted into the drilled holes **56** and secured therein by set screws **80**.

The guide bar **64** has a straight portion **84** which spans the space between the arms **74** and curved ends **86**. The bar **64** is yieldably held in engagement with the inside fold of the work. To this end each arm **74** has near its opposite ends anti-friction bearings **88** for supporting the rod **75** for sliding movement with a minimum amount of friction. Adjacent the right hand end of each arm **74** there is a shoulder **90** which provides a seat for one end of a coiled spring **92** placed about the rod. The opposite end of the spring bearings against a sleeve or collar **94** made fast to the rod by a set screw **96**. The spring constantly urges the rod toward the left and in operation this movement is limited by contact of the guide bar with the inside of the work. In the absence of work the bar would of course be forced to the left and to limit its movement a collar **98** is fastened to the right hand end of each bar. To prevent rotation of the bars and yet to provide for sliding movement thereof each rod has a key-way **100** formed in it into which projects the inner end of a set screw **102**. As thus constructed the guide bar is free to move laterally and is yieldably held against the fold of the work so as to keep it taut and smooth.

The refolding guide bar **64** provides means on which the goods may be drawn taut and adjusted so as to bring its edges into alignment. The edge shifting means **66** for effecting manipulation of the edges of the fabric so as to draw it back and forth on the refolding guide bar to line up the selvages comprises a pair of edge feelers and adjusting elements (Figs. 1 and 2) one for each ply. Each device comprises a feeler disc **106** with which the edge of a ply of the goods makes contact and a pair of compensating rolls **108** operable in response to the feeler either to exert a tractive force or repulsive force on the edge of the work, which varies with the lateral and longitudinal deviations of the work or displacements thereof so as to bring the edges into vertical and parallel registration and hence to compensate for irregularities in the rough folded work. Such devices are commercially available, the construction and operation of one such device which is suitable being set forth in the Dungler Patent 2,118,375, May 24, 1938. The operation of the device has a two-fold effect, namely a shifting of the work transversely, and a shifting of the work longitudinally, this being effected by the compensating rolls which in operation apply components of force transversely of the direction of movement of the work and longitudinally of the direction of the movement of the work. The edge feeler and adjusting elements are located between the arms **74** of the guide bar and are vertically displaced as shown in Fig. 1 so that the upper ply passes between the rolls **108** of the first device and the lower ply passes between the rolls **108** of the second device.

Beyond the place **12** of refolding just described the plies are brought together in perfect registration on a flat horizontal table **110** (Figs. 2 and 3) for the seaming operation. A sewing head **112** (Fig. 1) for performing the seaming operation is supported adjacent the edge of the table on a frame **114** which carries a motor **106** belted to the sewing head for operating the latter. A needle **116** (Fig. 3) is provided and is supplied with thread in a conventional manner. In the path of the thread from the spool to the needle there is interposed a feeler (not shown) which is operable in the absence of thread to trip a switch in the motor circuit and hence to bring the operation to a stop. Since such a device is conventional it is not illustrated herein. The conventional work feed dog and presser foot are omitted since it is desirable to have the goods move uninterruptedly beneath the sewing head, that is to derive its motion solely from the traction feeding means which will be described hereinafter as distinguished from reciprocating feeding means such as would be imparted thereto by the feed dog of a sewing machine.

At the leading edge of the table, that is the edge toward which the work is moving just before the plies are brought together, there is located a spreader **118** (Figs. 2 and 3) which comprises a rod **120** mounted on the frame **114** so that it projects horizontally across the frame between the plies. The right hand end of the rod **120** is fastened

by a thumb screw **126** to a bracket block **124** mounted on the frame and may be adjusted transversely by manipulation of the thumb screw. A sickle-shaped finger **128** is pivotally fastened to the further extremity of the rod **120** and is held extended by a spring **130** so that its outer curved edge is yieldably pressed into engagement with the inside fold of the work at a point ahead of the sewing head. The spreader acts in cooperation with the refolding guide bar to hold the goods taut at the time of seam formation.

There is also located just ahead of the sewing head an edge guide **132** which is adjustable transversely so as to hold the aligned edges at a given distance laterally of the needle in order that the line of stitching may be uniformly formed from and parallel to the edge. The conventional selvage is about ¼ of an inch in width and it is desirable that the line of stitches be formed approximately midway between the edges of the selvage. The guide has a flat surface **134** rising vertically from the table and an inwardly directed flange **136** extending inwardly parallel to the table top. The guide is adjustable transversely with reference to the table top thus permitting adjustment of the position of the line of stitching with reference to the edge of the work.

There is also located on the table a second selvage opener **138** corresponding in construction to that described heretofore for unfolding the selvages just before the work reaches the sewing head. Since the two selvage openers are identical it is not necessary to redescribe the latter herein again.

The work is drawn from the place of supply, through the place of refolding and seaming by traction rolls **140** and **142** (Fig. 3). The traction rolls **140** and **142** are mounted with their axes in vertically spaced relation perpendicular to the direction of movement of the work and are actually quite short, so that they engage and impart movement to the plies along a comparatively narrow margin at the selvage edges. The traction rolls are provided with surface knurling which is parallel to the axis of rotation of the rolls and are rotated in unison at a corresponding surface speed so that the plies are moved at uniform linear speed. The rolls are driven by way of a gear reduction unit **139** which is in turn belted to a pulley on the sewing head in such manner that the rate at which the work is moved provides the desired length of stitch. From the traction rolls the seamed tubular work runs substantially horizontally beneath an idle roll **144** which extends transversely of the direction of movement of the work and from thence upwardly over a guide roll **146** to a plater not shown. The guide roll **144** has a surface which affords some traction and hence assists in positively drawing the work delivered by the traction rolls upwardly to the plater. Since the traction rolls are driven by the same motor that operates the sewing head, when the latter is stopped by reason of thread breakage the traction rolls stop at the same time.

Because of imperfections in the work, cutouts sometime occur along the selvages and hence during seaming a hole may be left in the seamed margin where the thread crosses the gap in the material. It is desirable to detect such imperfection at once before the work is delivered to the plater, hence a stop motion is incorporated for the purpose of tripping a switch and stopping the motor **106**, the traction rolls and the sewing head. The stop motion comprises a light frame **148** mounted on a pivot pin **150** on the bracket block **124** so that it lies in a horizontal plane just above the table top and between the plies. The pivoted end of the frame is yieldably urged in a clockwise direction by a coiled spring **152** mounted on the pivot pin **150** and is also slidable in a diametral hole in the pin. A prolongation of the frame extends through the hole in the pin **150** and has fast to it a tail piece **154**. A spring **156** is fastened at one end to the tail piece and at its other end to the table so as normally to hold the frame with the tail piece against the edge of the table but to permit transverse yielding of the frame. The frame has an end portion **158** which is located opposite the seam just beyond the traction rolls. Outside of the seam there is located a safety microswitch **160** which is contained in the motor circuit. If through the occurrence of a defect in the work, such as by running out of thread, thread breakage or a cutout in the material, a hole or gap occurs in the seam the end **158** will be projected through the gap by the force of the spring **152**, into contact with the switch **160** thereby breaking the circuit so that the machine is brought to a standstill. Repair of the broken thread and/or removal to the defect may then be made before the seamed goods have moved an appreciable distance beyond the traction rolls.

In the operation of the apparatus for effecting seaming of tubular material a roll **18** of the roughly folded work is first placed on the support **16** so that the material may be drawn from the underside of the roll over the tension rod **44** for presentment to the means **12** for refolding it. The work is threaded up by drawing it over the refolding guide bar **64** across the table **110** beneath the sewing head **112** and through the traction rolls **140—142**. Since threading up the empty machine is a nuisance the general practice is to stop the machine prior to running out of the previous roll of work so that the trailing end of the exhausted roll is either still clinging to the shell **20** or is hanging down over the tension rod **44** whereupon the leading end of the succeeding roll is tacked to the trailing end of the preceding roll. By doing this the threading up of the succeeding roll is automatically accomplished. In order to secure proper seaming the support **16** must be adjusted transversely with respect to the direction of movement of the work so that the work is not displaced laterally in either direction with respect to the direction of movement and so that there is no bias in the work. This is accomplished by rolling the platform **30** on its wheels or caster **36** transversely in one direction or another until the center line of the work runs straight from the place of delivery of the work all the way to the roll **144** where it leaves the apparatus. The support **16** must also be adjusted angularly about the vertical axis **32** so that the angle at which the work leaves the roll **18** will compensate for any bias in the work. This is accomplished by turning the support about the post **32**. With the foregoing adjustments the work first passes over the tension bar rod **44**, and then its edges are engaged by the first selvage opener **46** thus unfolding and flattening out any folded-over selvages preparatory to refolding of the work. The flattened selvages then move into contact with the feeler discs **106** and depending upon their lateral displacement the compensating rolls **108** operate upon the selvages to shift the plies transversely and longitudinally in such manner as to bring the edges into precise vertical registration. Shifting is effective with reference to the refold guide rod **64** so that the work is refolded thereon, the guide rod bearing against the inside of the folded edge and holding the work taut. From the automatic feeler discs and compensating rolls the accurately aligned folded work advances over the secondary spreader **118**, the secondary selvage opener **138** and along the edge gauge **132** to the sewing head **112**. The secondary spreader holds the work flat and taut as it leaves the refolding guide bar **64** and moves onto the table **110** for sewing and the secondary selvage opener **138** insures flatness of the edges just before they reach the needle. The gage **132** positions the edges with respect to the needle so as to maintain a uniform stitch spacing from the edges. Following the seaming operation the seamed edges travel by the stop motion, from thence through the traction rolls **140** and **142** then under the holddown roll **144**, and finally upwardly over the plater roll. Thus at all times throughout movement of the work the properly registered edges are under control of guides for holding them in perfect registration prior to, during the sewing and after the sewing. The refolding guide **64**

holds the work taut during the refolding operation, the spreader **118** holds the work taut as it is delivered from the guide rod to the table for sewing, and the traction rolls advance the folded material by pulling as distinguished from pushing in a manner to minimize wrinkling. The traction rolls as illustrated are confined to the selvage edge and function to counteract the retarding tendency of the needle on the work during feeding. The roll **146** at the plater (not shown) affords supplemental feeding action for the work laterally of the traction rolls to insure smooth running of the work free of wrinkles.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the appended claims.

I claim:

1. Apparatus for making continuous tubing comprising means for supplying inaccurately folded woven fabric in a substantially horizontal plane, traction means spaced from the supply means for pulling the folded fabric away from the supply means, and means intermediate the supply and traction means for refolding the fabric to bring its selvages into accurate registration and to unite the same, comprising vertically spaced plows located at the selvage side of the work operating on the respective edges of the upper and lower thicknesses of the work to unfold and flatten the selvages, a combined edge guide and refold bar at the selvage side edge of the work beyond the plows having a horizontally arranged rail parallel to the direction of movement of the work located between the folds in contact with the inside folded edge, said guide bar being movable in a horizontal plane and yieldably held engaged with said folded edge, spaced drafting rolls arranged at the selvage side of the work having rolling tangential contact with the opposite surfaces of the selvage edges for progressively gripping successive narrow areas of the selvage edges of the respective thickness thereof substantially transversely opposite the guide bar, said drafting means being operable alternately to apply stress to the thickness with which it is engaged to shift the folded edge with reference to said guide bar thereby to bring the selvages into accurate registration, a sewing head located at the selvage side of the work for uniting the registered edges, and a spreader arranged in the same horizontal plane as the guide and refold bar for supporting the folded edge and holding the fabric horizontal as the registered edges move into the zone of operation of the sewing head.

2. Apparatus for making continuous tubing comprising means for supplying inaccurately folded woven fabric in a substantially horizontal plane, traction means spaced from the supply means for pulling the fabric away from the supply means, and means intermediate the supply and traction means for refolding the fabric to bring its selvages into accurate registration and to unite the same, comprising vertically spaced plows located at the selvage side of the work operating on the respective edges of the upper and lower thicknesses of the work to unfold and flatten the selvages, a combined edge guide and refold bar at the selvage side of the work beyond the plows comprising a pair of spaced hollow arms fast near one end to the frame at the selvage side, a rod slidably mounted on each arm with its ends projecting from opposite ends of the hollow arm, an elongate guide bar spanning the space between the arms and fast to the inner extremities of the rods so as to be parallel to the direction of movement of the work, means in the hollow arms yieldably urging the rods in a direction to hold the guide bar engaged with the fold of the work, and means for limiting the movement of the rods, spaced drafting means arranged at the selvage side of the work gripping the edges of the respective thicknesses thereof, substantially transversely opposite the guide bar, said drafting means being operable to shift the folded edge with reference to the guide bar thereby to bring the selvages into accurate registration, a sewing head located at the selvage side of the work for uniting the registered edges, and a spreader arranged in the same horizontal plane as the guide and refold bar for supporting the folded edge and holding the fabric horizontal as the registered edges move into the zone of operation of the sewing head.

3. Apparatus for making continuous tubing comprising means for supplying inaccurately folded woven fabric in a substantially horizontal plane, traction means spaced from the supply means for pulling the folded fabric away from the supply means, and means intermediate the supply and traction means for refolding the fabric to bring its selvages into accurate registration and to unite the same, comprising vertically spaced plows located at the selvage side of the work operating on the respective edges of the upper and lower thicknesses of the work to unfold and flatten the selvages, a combined edge guide and refold bar at the selvage side of the work beyond the plows comprising a pair of spaced hollow arms fast near one end to the frame at the selvage side, bearing means near the ends of the arms, a rod slidably mounted in the bearings of each arm, a guide bar fast to the inner ends of the rods so as to be substantially parallel to the direction of movement of the work, spaced shoulders on the rods and arms, coiled springs on the rods between said shoulders yieldably urging the rods outwardly of the inner ends of the arms and stops limiting the movement of the rods, spaced drafting means arranged at the selvage side of the work gripping the edges of the respective thicknesses thereof, substantially transversely opposite the guide bar, said drafting means being operable to bring the selvages into accurate registration, a sewing head located at the selvage side of the work for uniting the registering edges, and a spreader arranged in the same horizontal plane as the guide and refold bar for supporting the folded edge and holding the fabric horizontally as the registered edges move into the zone of operation of the sewing head.

4. Apparatus for making continuous tubing comprising means for supplying inaccurately folded woven fabric in a substantially horizontal plane, traction means spaced from the supply means for pulling the folded fabric away from the supply means, and means intermediate the supply and traction means for refolding the fabric to bring its selvages into accurate registration and to unite the same, comprising vertically spaced plows located at the selvage side of the work operating on the respective edges of the upper and lower thicknesses of the work to unfold and flatten the selvages, each plow comprising a plurality of superposed bars which are tapered at their corresponding ends so as to provide vertically spaced upper and lower flaring surfaces between the intermediate and top and bottom bars, corresponding substantially to the spacing of the layers of fabric for receiving the edges of said layers as they advance, said plow being arranged transversely of the work and inclined diagonally with the flared surfaces toward the advancing work, and means yieldably holding the bars together for relative yielding movement between them, a combined edge guide and refold bar at the selvage side of the work beyond the plows having a horizontally arranged rail parallel to the direction of movement of the work located between the folds in contact with the inside folded edge, said guide bar being moved in a horizontal plane and yieldably held engaged with said folded edge, spaced drafting means arranged at the selvage side of the work gripping the edges of the respective thickness thereof, substantially transversely opposite the guide bar, said drafting means being operable to bring the selvages into accurate registration, a sewing head located at the selvage side of the work for uniting the registered edges, and a spreader arranged in the same horizontal plane as the guide and refold bar for supporting the folded edge and holding the fabric horizontal as the registered edges move into the zone of operation of the sewing head.

5. In an apparatus for making continuous tubing,

means for supplying inaccurately folded woven fabric comprising a platform having rectangularly arranged casters supporting it for lateral movement, a base mounted on the platform, means securing the base to the platform for constraining lateral movement thereof but permitting pivotal movement in a horizontal plane about an axis perpendicular to the base substantially at the geometric center of the base, a pair of transversely spaced posts rising from the base, bearing blocks at the upper ends of the posts for receiving the ends of the stub shaft of a roll of double fabric, traction means spaced from the supply means for pulling the folded fabric away from the supply means, and means intermediate the supply and traction means for refolding the fabric to bring its selvages into accurate registration and unite the same, comprising vertically spaced plows located at the selvage side of the work operating on the respective edges of the upper and lower thicknesses of the work, to unfold and flatten the selvages, a combined edge guide and refold bar at the selvage side of the work beyond the plows having horizontally arranged rails parallel to the direction of movement of the work located between the folds in contact with the inside folded edge, said guide bar being movable in a horizontal plane and yieldably held engaged with said folded edge, spaced drafting means arranged at the selvage side of the work gripping the edges of the respective thicknesses thereof, substantially transversely opposite the guide bar, said drafting means being operable alternately to apply a stress to the thickness with which it is engaged to shift the folded edge with reference to the guide bar thereby to bring the selvages into accurate registration, a sewing head located at the selvage side of the work for uniting the registered edges, and a spreader arranged in the same horizontal plane as the guide bar and refold bar for supporting the folded edge and holding the fabric horizontally as the registered edges move into the zone of operation of the sewing head.

6. Apparatus for making continuous tubing comprising means for supplying inaccurately folded woven fabric in a substantially horizontal plane, traction means spaced from the supply means for pulling the folded fabric away from the supply means, and means intermediate the supply and traction means for refolding the fabric to bring its selvages into accurate registration and to unite the same, comprising vertically spaced plows located at the selvage side of the work operating on the respective edges of the upper and lower thicknesses of the work to unfold and flatten the selvages, a combined edge guide and refold bar at the selvage side of the work beyond the plows having horizontally arranged rails parallel to the direction of movement of the work, located between the folds in contact with the inside folded edge, said guide bar being movable in a horizontal plane and yieldably held engaged with said folded edge, spaced drafting means arranged at the selvage side of the work gripping the edges of the respective thicknesses thereof, substantially transversely opposite the guide bar, said drafting means being operable alternately to apply a stress to the thickness with which it is engaged to shift the folded edge with reference to said guide bar thereby to bring the selvages into accurate registration, a sewing head located at the selvage side of the work for uniting the registered edges, and a spreader arranged in the same horizontal plane as the guide and refold bar for supporting the folded edge for holding the fabric horizontal, comprising a horizontal bar projecting between the plies, a sickle-shaped finger pivotally mounted on its inner end and a spring yieldably holding the finger extended into contact with the inner folded side of the work.

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