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Frost et al.

[11] **3,741,052**

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[54] **BUTTON LINE STRIP CUTTER AND STACKER**

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[52] **U.S. Cl.** **83/24,** 83/98, 83/88, 83/167, 83/436, 83/665, 271/86, 112/121.29

[51] **Int. Cl.** **B26d 7/06**

[58] **Field of Search** 83/24, 98–100, 83/88, 94, 89, 923, 167, 436, 425, 663, 665; 271/86; 112/121.29

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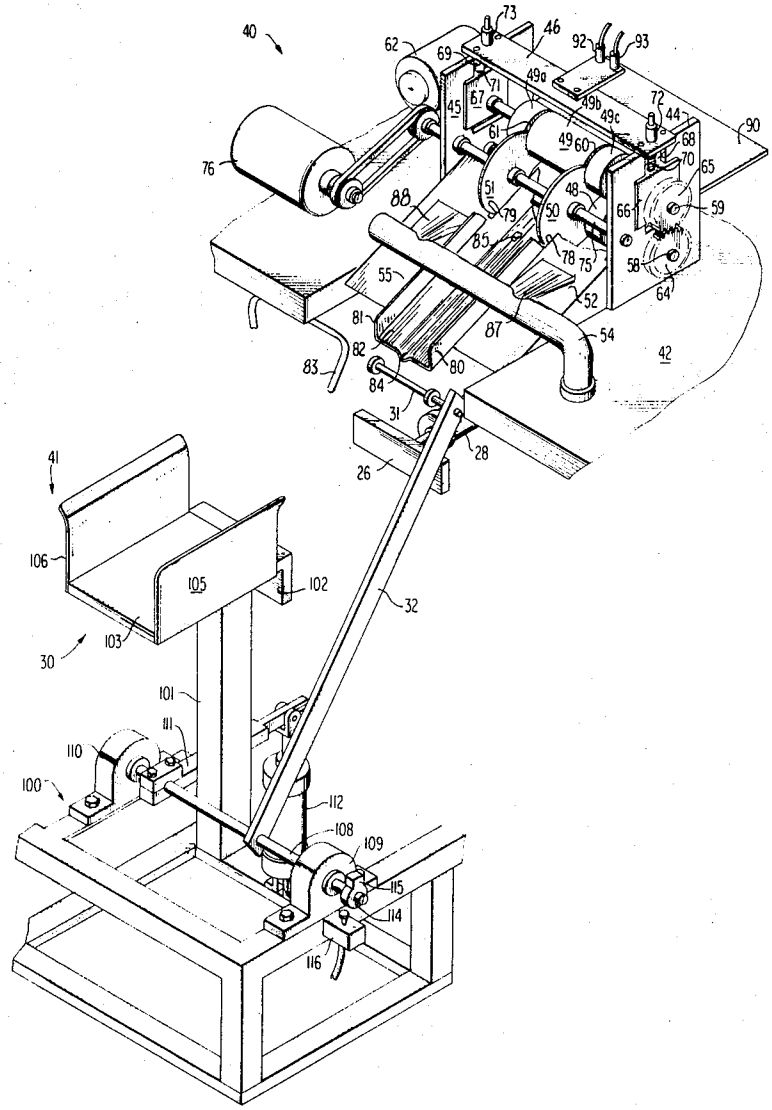
[57] **ABSTRACT**

A button line strip cutter and stacker for manufacturing center plaits of shirt fronts having stripe designs. Strips of cloth from which the center plait pattern parts are to be formed are moved through a cutting zone with the stripe design of the strips of cloth passing through the middle of the cutting zone and the side edges of the strips of cloth are simultaneously and progressively cut away from the center portion. The edge portions move into a flow of air and are carried to a remote waste area while the center portions move with another air flow and are stacked away from the cutting zone.

6 Claims, 9 Drawing Figures



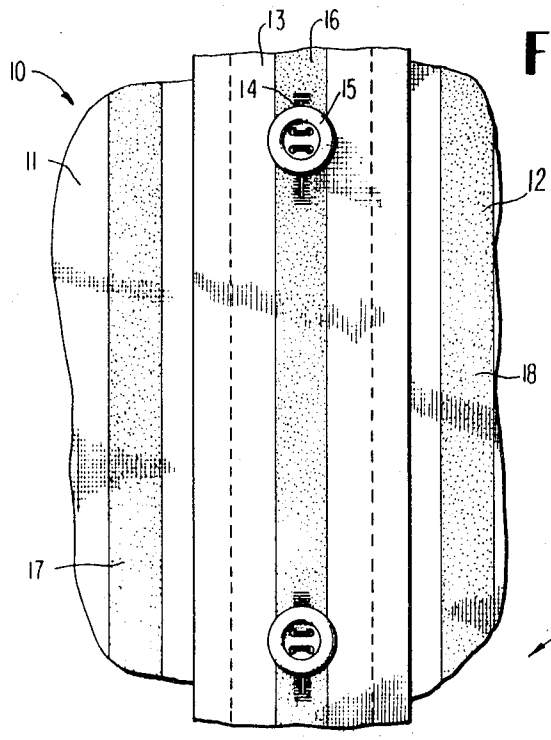


FIG.1

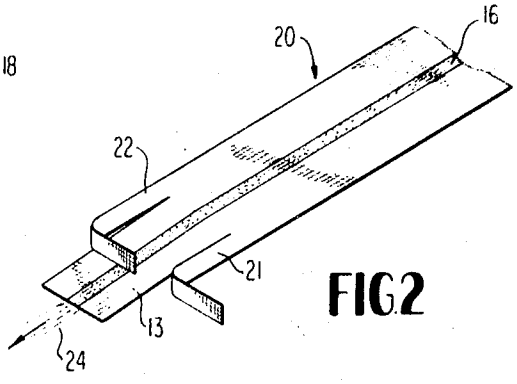


FIG.2

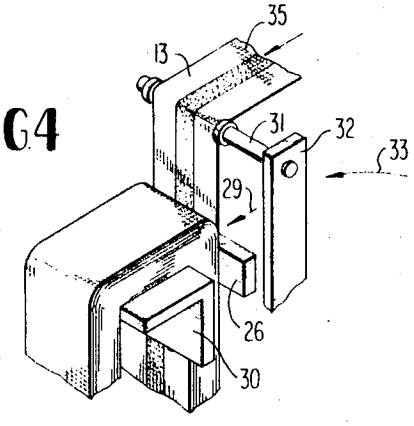


FIG.4

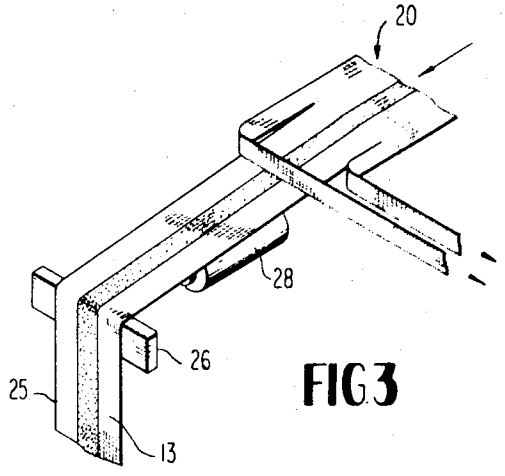


FIG.3

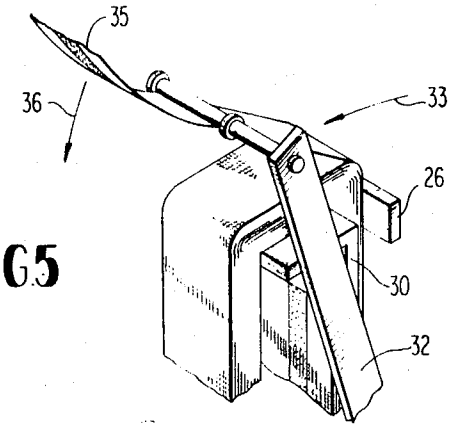


FIG.5

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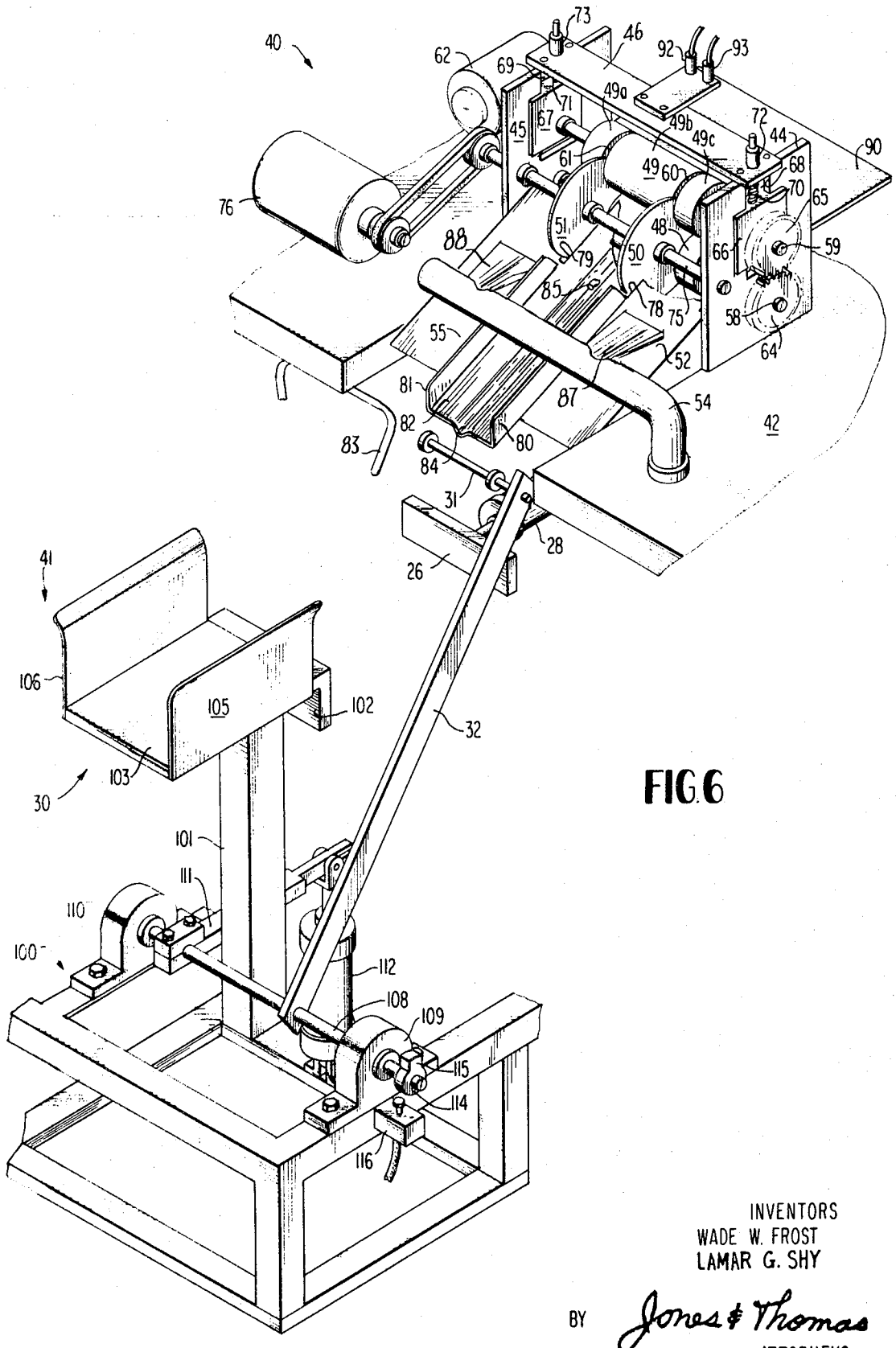

FIG. 6

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FIG.7

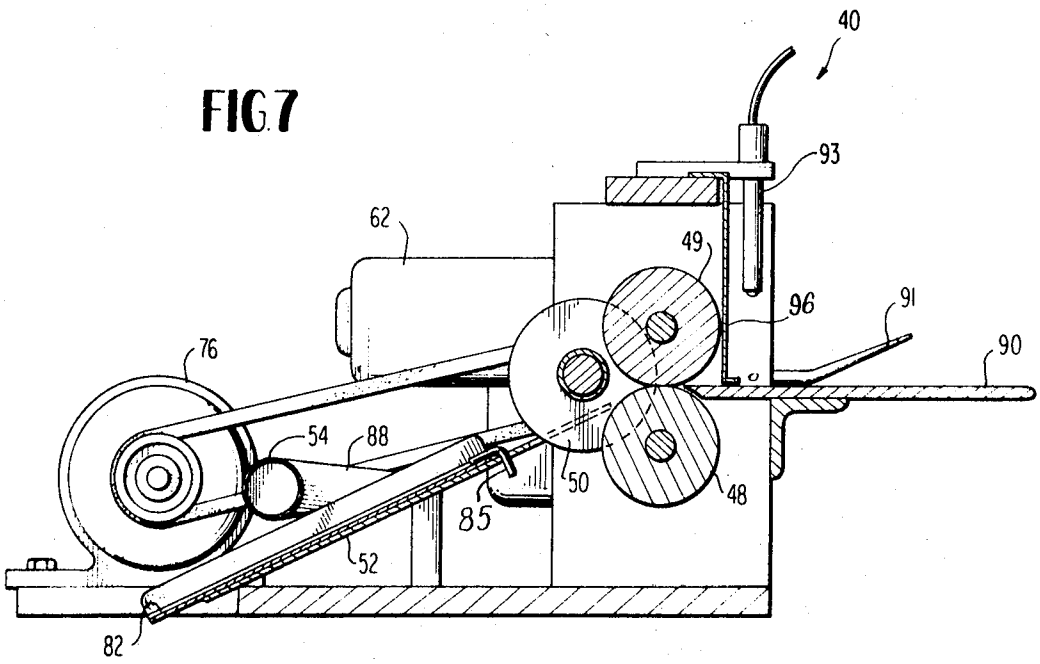
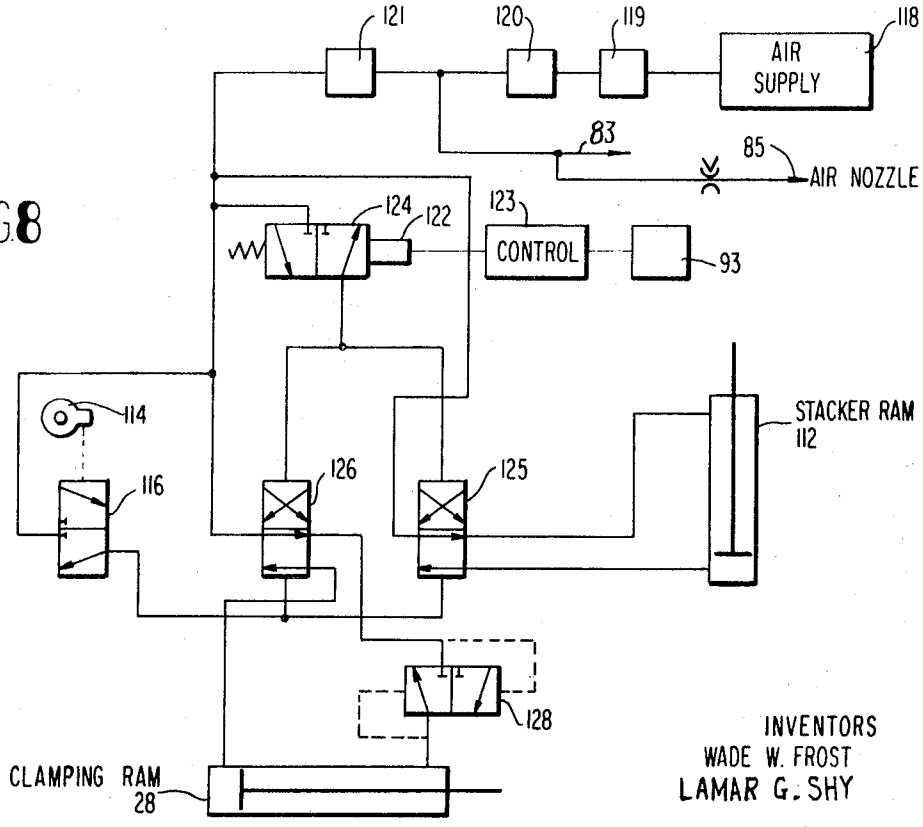


FIG.8



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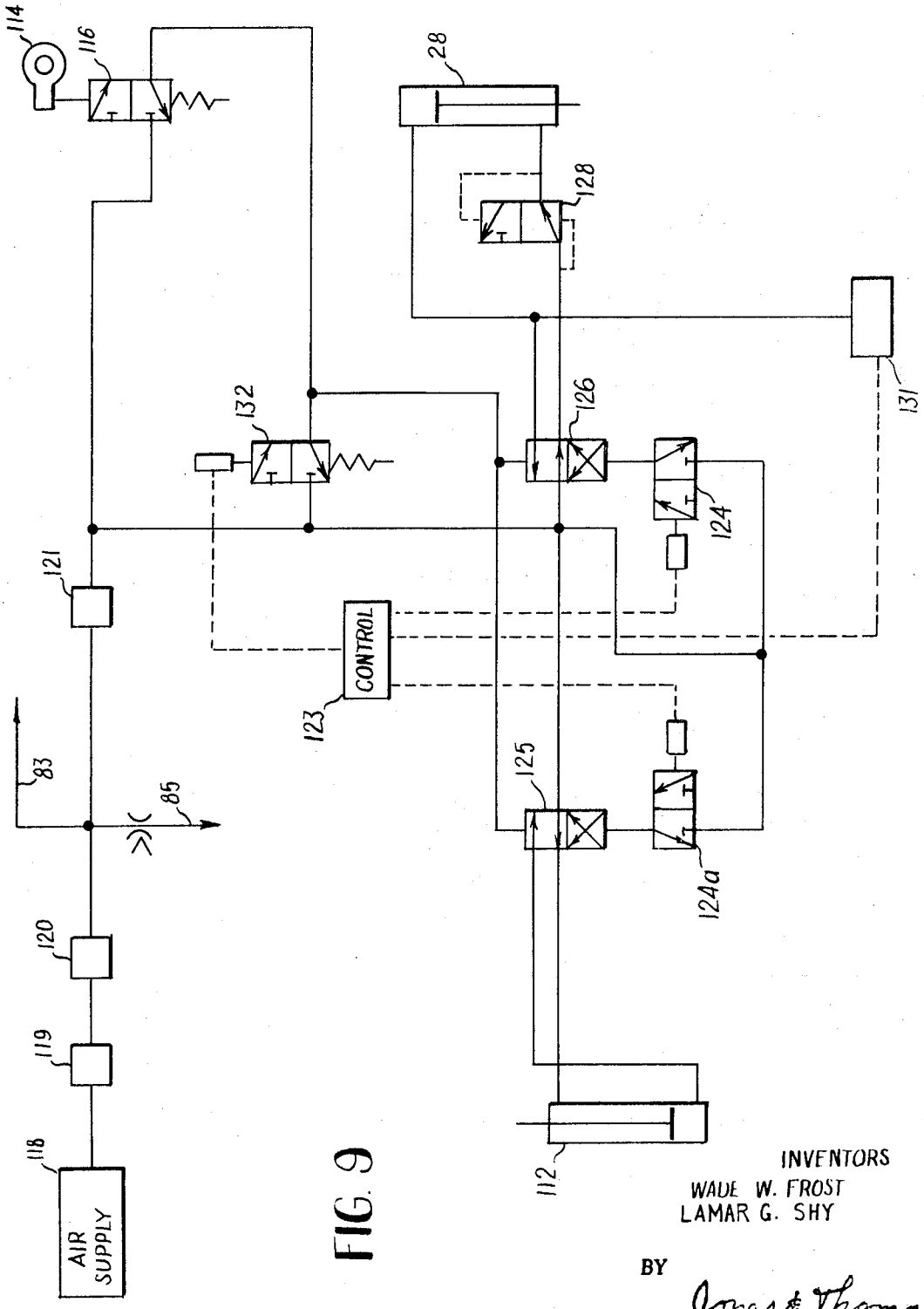

FIG. 9

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BUTTON LINE STRIP CUTTER AND STACKER

BACKGROUND OF THE INVENTION

When shirts, blouses, and other garments are manufactured from stripe or other design-bearing material, it is desirable to form the various portions of the garment so that the design of each portion will match with the design of the other portions. For instance, when a pocket or a center plait of a shirt is applied to the front panel of the shift, it is desirable to have the stripes of the material from which the pocket or center plait is formed to be in alignment with the stripes of the material of the shirt front panel. This causes the finished garment to have a uniform appearance and enhances the value of the garment. In addition, it is usually desirable to have button holes positioned in the center of a design in a shirt center plait so that the buttons of the shirt tend to blend with the design. This requires accurate cutting of the center plait strip so that the stripe or other design of the material is perfectly centered from the sides of the center plait strip.

When the center plait for shirts are first cut from the layers of material in the cutting room, it is virtually impossible to cut the center plaits accurately so that the design of the material is perfectly centered in each center plait strip. Any slight misalignment of the material in the multiple layers of material on the cutting table causes the design to be off centered. As a result, when the center plait pattern part is delivered to the sewing station where it is attached to the shirt front panel, the design of the center plait frequently will not be properly aligned or spaced with respect to the design of the shirt front panel.

SUMMARY OF THE INVENTION

Briefly described, the present invention comprises a button line strip cutter and stacker system wherein strips of design-bearing material are trimmed along their edges at equally spaced distances on opposite sides of the stripe or similar design of the material. Strips of material from which the center plait pattern parts are to be formed are individually guided through a cutting zone with the design of the material centered between material cutters. As the pattern part leaves the cutting zone, it is automatically stacked in a location remote from the cutting zone while the side trimmings are moved to a remote waste collection area.

Thus, it is an object of this invention to provide a method and apparatus for forming shirt front center plait pattern parts with the design of the material centered in the pattern part.

Another object of this invention is to provide a method and apparatus for accurately, expediently and inexpensively forming shirt front center plaits having the button holes and buttons of the completed garment positioned in the center of the design of the material and in the center of the pattern part on the front of the shirt.

Other objects, features and advantages of the present invention will become apparent upon reading the following specification when taken in conjunction with the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a detail showing of a shirt front, showing the center plait and buttons of the shirt.

FIGS. 2,3,4 and 5 are schematic illustrations of the manner in which the strip of material is cut and stacked in order to form the shirt front center plait pattern part.

FIG. 6 is a perspective view showing the rear portion of the material cutter and the stacker.

FIG. 7 is a side cross-sectional view of the cutter.

FIG. 8 is a schematic illustration of the pneumatic control system for the cutter and stacker.

FIG. 9 is a schematic illustration of an alternate pneumatic control system for the cutter and stacker.

DESCRIPTION OF A PREFERRED EMBODIMENT

Referring now in more detail to the drawing in which like numerals indicate like parts throughout the several views, FIG. 1 illustrates a typical shirt front 10 of a striped shirt and includes shirt front panels 11 and 12, center plait 13, button holes 14 and buttons 15. Preferably, the design or stripe 16 of center plait 13 is centered between stripes 17 and 18 of shirt front panels 11 and 12. Also, button holes 14 and buttons 15 are preferably centered in the middle of stripe 16. The centering of stripe 16 in this manner causes center plait 13 to appear as a continuous part of the shirt assembly, and the pattern or design of the shirt appears to be uniform. Moreover, buttons 15 tend to form a part of the pattern if they are properly centered.

In order to form center plait 13 with its stripe 16 in the center of the center plait, it is desirable to receive the center plait pattern part in the sewing room with the stripe centered between the side edges of the pattern part. As is illustrated in FIGS. 2 – 5, the present invention includes a process for trimming the side portions of a strip of material at equally spaced distances on opposite sides of the stripe 16. A strip of material 20 from which the center plait 13 is ultimately formed is fed through a cutting zone (FIG. 2) where the side portions 21 and 22 are trimmed or cut away from the center portion 13. The side portions 21 and 22 are moved into a stream of air and delivered to a waste receptacle (not shown) while the center portion 13 continues to move away from the cutting zone (FIG. 3). The side portions 21 and 22 are progressively and simultaneously cut from the center portion until the entire length of the strip of material 20 has been cut in this manner. As the material is cut a stream of air 24 (FIG. 2) flows away from the cutting zone beneath the center portion 13 and induces the center portion 13 to continue in its movement away from the cutting zone.

By the time the cutting function has been completed (FIG. 3), the leading or lower end 25 of the center portion 13 has reached the vicinity of clamping block 26. Clamping block 26 is movable under the influence of clamping ram 28 in the direction as indicated by arrow 29 (FIG. 4) in order to clamp the leading end 25 of the center portion 13 against stacking block 30. In the meantime, rod 31 of stacker arm 32 moves in the direction indicated by arrow 33 beneath the center portion 13 of the strip of material and over stacking block 30 (FIG. 4) and functions to flip the trailing edge 35 of the center portion 13 over stacking block 30 (FIG. 5) in the direction indicated by arrow 36 until it comes to rest behind stacking block 30, whereupon the stacking of the center portion or center plait 13 has been completed.

As is illustrated in FIG. 6, the apparatus utilized for cutting and stacking the center plait strips comprises a cutter 40 and a stacker 41. Cutter 40 is mounted on

work table 42 and includes side upright supports 44 and 45 extending upwardly from work table 42 and joined by top horizontal support 46. Supports 44 – 46 function to support the moving parts of cutter 40 on work table 42. Cutter 40 includes a pair of feed roller assemblies 48 and 49, a pair of disc cutters 50 and 51, work tray 52, waste conduit 54 and discharge tray or guide slide 55.

Lower and upper feed roller assemblies 48 and 49 each comprise three feed rollers such as upper feed rollers 49*a*, 49*b* and 49*c*, and each of the feed rollers is keyed to a roller axle 58 and 59. The rollers of both feed roller assemblies 48 and 49 are spaced apart from each other along their respective roller axles a distance sufficient to form annular cutter slots, such as cutter slots 60 and 61 of upper feed roller assembly 49. The cutter slots of the upper feed roller assembly are aligned with the cutter slots of the lower feed roller assembly. Lower roller axle 58 extends through bearings in the side upright supports 44 and 45, and roller drive motor 62 is in driving relationship with one end of roller axle while timing gear 64 is connected to the opposite end thereof. Timing gear 65 is connected to the corresponding end of roller axle 59. Upper roller axle 59 is supported at its ends on slide blocks 66 and 67 which are generally H-shaped and are vertically slidable in the vertical slots 68 and 69 defined in the upper ends of side upright supports 44 and 45. Coil compression springs 70 and 71 are mounted about spring pins 72 and 73 and bear against top horizontal support 46 and slide blocks 66 and 67, respectively. Spring pins 72 and 73 extend through the ends of top horizontal support 46 and are threaded into the slide blocks 66 and 67. The arrangement is such that the springs urge the slide blocks 66 and 67 in a downward direction so that the timing gears 64 and 65 are in engagement with each other at one end of the assembly, and the upper feed roller assembly 49 bears tangentially against the lower feed roller assembly 48. The surfaces of the feed rollers of the feed roller assemblies are positioned close together so that when a strip of cloth or the like is guided between feed roller assemblies while the feed roller assemblies are rotating, the surfaces of the feed roller assemblies will tend to frictionally engage and draw the strip of material in between the feed roller assemblies.

Disc cutters 50 and 51 are mounted on cutter axle 75 at spaced distances corresponding to the spacing of the annular cutter slots in feed roller assemblies 48 and 49. For instance, disc cutter 50 extends into the annular cutter slot 60 of upper feed roller assembly 49 and into the aligned slot of the lower feed roller assembly 48. The ends of cutter axle 75 are supported by bearings in the side upright supports 44 and 45, and cutter drive motor 76 is connected to cutter axle 75 through a belt drive arrangement. As is illustrated in FIG. 7, disc cutters 50 and 51 extend far into the annular cutter slots between the feed rollers of the feed roller assemblies 48 and 49, so that the peripheries of the cutter blades are located approximately at the line of tangency of the rollers. If desired, the bearings at the ends of cutter axle 75 can be mounted on side upright support 44 and 45 so that the axle can be moved toward and away from feed roller assemblies 48 and 49, to adjust the positions of the peripheries of disc cutters 50 and 51 with respect to the line of tangency of feed roller assemblies 48 and 49. This would provide for the wear on the cutting edges of disc cutters 50 and 51, allowing the disc cutters to be moved further into the annular cutter slots of the feed roller assemblies as the disc cutters wear, to maintain the periphery of the disc cutters at the line of tangency of the feed roller assemblies.

Work tray 52 is sloped in a downward direction away from the line of tangency of feed roller assemblies 48 and 49 and includes a pair of spaced slots 78 and 79 to accommodate the lower arc of disc cutters 50 and 51. Guide slide 55 is positioned on work tray 52, is generally of U-shaped cross-sectional configuration, and includes upright sides 80 and 81 and slide surface 82. The center of slide surface 82 defines a rectilinear recess 84 which extends along its length and air nozzle 85 is positioned at the upper end of the recess. Air flows from air nozzle 85 in a direction so that it follows the rectilinear recess 84 down the length of slide surface 82 causing the rectilinear recess 84 to function as an air conduit or passage.

A second air conduit 83 (FIG. 6) is located above the path of movement of stacker arm 32 and arranged to blow the leading end of the strip of material being fed from cutter 40 toward a position below stacking block 30.

Waste conduit 54 extends over work tray 52 and guide slide 55, and its branch inlet conduits 87 and 88 extend toward work tray 52 so that their openings are in alignment with the end rollers of feed roller assemblies 48 and 49. A flow of air is created through waste conduit 54 by a conventional air flow device (not shown).

At the front of cutter 40 a feed tray 90 extends from the line of tangency of the feed roller assemblies 48 and 49 out to the front of the cutter in a substantially horizontal plane. Feed tray 90 at the front of the cutter and work tray 52 sloping downwardly at the rear of the cutter form a substantially continuous work surface over which strips of material will pass. Separator lever 91 also extends toward the front area of cutter 40 from the vicinity of side upright support 45. Separator lever is pivotally supported intermediate its ends, and when the end protruding to the front of the cutter is moved downwardly, its rear end (not shown) engages slide block 67 of upper roller axle 59 and functions to lift slide block 67 and its end of roller axle 59. This functions to separate feed roller assemblies 48 and 49 and release any material being fed through cutter 40 while allowing the timing gears 64 and 65 at the other end of the axles 58 and 59 to remain in engagement with each other.

A light source 92 and a photoelectric cell 93 are positioned at the front of cutter 40 and supported by support arm 94 from top horizontal support 46. Light source 92 is arranged to emit a light beam in a downward direction toward feed tray 90, and photoelectric cell 93 is arranged to receive any light reflected from the feed tray 90. The feed tray is fabricated from a bright material so that the light from light source 92 will be reflected therefrom.

A guide finger 96 extends in a downward direction from the front end of support arm 94 and generally bisects the space between the disc cutters 50 and 51. The operator uses guide finger 96 to guide the strips of material through cutter 40.

Stacker 41 includes a support frame 100 supported by the floor surface, and an upright stanchion 101 extends in an upward direction from support frame 100. Stacking block 30 is positioned in alignment with the

cutting zone of cutter **40** and includes an L-shaped block having a downwardly extending bumper leg **102** at its forward end and a horizontal leg **103** extending rearwardly from the bumper leg. Stacking block **30** is mounted on the upper end of stanchion **101**, and a pair of fenders **105** and **106** extend upwardly from horizontal leg **103**.

Stacker arm **32** is generally T-shaped, and its lower cross head **108** is received at its ends in bearing blocks **109** and **110** on frame **100**. Crank arm **111** is clamped at one of its ends to cross head **108**, and stacker ram **112** is connected to the distal end of crank arm **111** and support frame **100**. Stacker ram **112** functions to pivot crank arm **111**, thereby oscillating cross head **108** and stacker arm **32**. Rod **31** at the upper end of crank arm **32** is rigidly connected to and movable with the stacker arm and is normally positioned below guide slide **55** on work tray **52** in the recess of the work table. When stacker ram **112** operates to oscillate crank arm **32**, rod **31** is movable from beneath guide slide **55** through an arc over the upper edges of fenders **105** and **106**.

The end of cross head **108** extending through bearing block **109** includes a cam **114** connected thereto with a lobe **115** aligned with air release valve **116**. When stacker arm **132** moves away from cutter **40** so that its rod **31** is beyond fenders **105** and **106**, lobe **115** engages valve **116** to initiate the return stroke of the stacker arm, as will be described in more detail.

Clamping block **26** is aligned with bumper leg **102** of stacking block **30** and clamping ram **28** functions to move clamping block **26** rapidly out into engagement with bumper leg **102**. The return stroke of clamping block **26** also is initiated by the same cam **114** and valve **116**.

As is illustrated in FIG. **8**, clamping ram **28**, stacker ram **112** and air nozzle **85** receive air from a source **118**. All the air passes through a filter **119** and a regulator **120**. The air flowing through air nozzle **85** passes through the air nozzle without passing through lubricator **121**. The air flowing to the rest of the system passes through the lubricator.

When photoelectric cell **93** does not detect any light reflected from feed tray **90** of cutter **40**, as when a strip of cloth is passing through the cutter, it charges a capacitor (not shown) in its control circuitry **123**. When the photoelectric cell detects light reflected from the feed tray as when the trailing edge of the strip of material has passed into cutter **40**, a circuit is made from the capacitor to solenoid **122**, causing a momentary shift of pilot valve **124**. The air then communicates from air supply **118** through pilot valve **124** to stacker ram control valve **125**, causing its valve spool to be pushed across the valve housing. When the valve spool is shifted in this manner, air from air supply **118** communicates with the rear of stacker ram **112**, causing its ram rod to distend from its cylinder and pivot stacker arm **32** in the manner previously described. In the meantime, air flowing through pilot valve **124** also communicates with one end of clamping ram control valve **126**, causing the control valve to shift and allow air to communicate from air supply **118** with the rear end of clamping ram **128**, causing its ram rod to distend and move clamping block **26** toward engagement with bumper leg **102**.

As stacker arm **32** reaches the end of its stroke under the influence of stacker ram **112**, cam **114** engages valve **116**, causing air supply **118** to communicate with the opposite sides of control valves **125** and **126**, resulting in the valves shifting back to their original positions. When the valves have shifted back, the air supply **18** communicates with the front of rams **28** and **112**.

In order that clamping ram **28** act rapidly to move its clamping block **26** out into engagement with bumper leg **102** and back again, exhaust pilot valve **128** communicates with the forward end of clamping ram **28**. When the air surges to the rear of ram **28**, the air being compressed by the ram piston in the forward end of the ram cylinder functions to shift the pilot valve **128** and allow the air in the forward end of ram cylinder to travel directly to the atmosphere, without having to travel back through valve **126**. Thus, the pressure behind the piston of clamping ram **28** is rapidly depleted and the pressure at the rear of the ram functions to move the ram rod out of cylinder rapidly.

As is illustrated in FIG. **9**, an alternate air flow arrangement can be utilized in order to cause clamping ram **28** to function ahead of stacker ram **112**. While the basic elements are generally similar to those shown in FIG. **8**, an additional pilot valve **124*a*** is utilized to control stacker ram control valve **125**. Pressure operated switch **131** communicates with the air flow line extending between clamping ram control valve **126** and the rear of clamping ram **28** so that switch **121** is actuated upon the outward movement of clamping ram **128**. The closing of pressure operated switch **131** causes a capacitor (not shown) in control **123** to discharge to the solenoid of pilot valve **124*a***, to cause stacker ram control valve **125** to energize stacker ram **112**. Thus, rams **28** and **112** will operate in sequence.

In addition, a third solenoid control pilot valve **132** can be utilized to positively control the movement of pilot valves **124** and **124*a*** in a situation where cam **114** does not properly operate its valve **116**. Pilot valve **132** is shifted momentarily when the photoelectric cell detects an absence of light, causing air pressure to shift the pilot valves **125** and **126** to their ready positions. If stacker arm **32** had been restrained from moving to its full out position so that its cam **115** did not engage valve **116** and cause its return movement, pilot valve **132** would assure that the stacker arm **32** has returned to its ready position by the time the stacker should be prepared to receive another strip of material.

OPERATION

When the operator is to cut the edges or side portions of a strip of material in order to form a shirt front center plait pattern part, the operator aligns the stripe design of the strip of material with the downwardly depending guide finger **96** and feeds the strip of material across feed tray **90** toward the line of tangency of feed roller assemblies **48** and **49**. When the strip of material is properly positioned in this manner, the operator depresses her foot pedal (not shown) which energizes roller drive motor **62** and cutter drive motor **76**. The feed roller assemblies **48** and **49** then function to feed the strip of material through the cutting zone at the feed roller assemblies and disc cutters. As the strip of material is progressively moved through the feed roller assemblies **48** and **49**, the operator continues to guide the stripe design of the material with respect to the guide finger **96**.

As the strip of material moves over the feed tray **90** toward feed roller assemblies **48** and **49**, the light emanating from light source **92** is no longer reflected from

feed tray **90** back to photoelectric cell **93**, and a capacitor (not shown) in the electrical control system is charged.

As the strip of material passes between feed roller assemblies **48** and **49**, the rotating disc cutters **50** and **51** begin to cut or trim away the side portions of the strip of material at equally spaced distances on opposite sides of the stripe design of the material. Since the disc cutters **50** and **51** reach into the annular slots of the feed roller assemblies to a point adjacent the line of tangency between the feed roller assemblies, the strips of material will be firmly gripped at the instant they are being cut by the disc cutters, so that little or no shreading or fraying of the material will be experienced and the material will not deviate from its proper path.

As the leading end of the strip of material emerges from between feed roller assemblies **48** and **49**, the center portion of the strip of material will pass down guide slide **55** which is aligned with the space between the disc cutters while the side portions will pass toward branch inlet conduits **87** and **88** of waste conduit **54**. A flow of air is created into branch inlet conduits **87** and **88** and through waste conduit **54** by a conventional air flow system, and the side portions of the strip of material will flow into the branch inlet conduits and then through waste conduits **54** so as to be carried to a remote waste collection point. In the meantime, the center portion of the strip of material passes over air nozzle **85**. The flow of air from the air nozzle tends to pass down the rectilinear recess **84** in guide slide **55** beneath the center portion of the strip of material. This flow arrangement tends to urge the strip of material to move or flow down guide slide **55** without any folding or buckling.

When the trailing edge of the strip of material has been fed to feed roller assemblies **48** and **49**, the light emanating from light source **92** will again be reflected from feed tray **90** back to photoelectric cell **93**. The detection of the reflected light causes the capacitor of the electric control **123** to be electrically connected to solenoid **122** and temporarily actuate solenoid **122** and shift pilot valve **124** (FIG. **8**). The shifting of the pilot valve causes stacker ram control valve **125** and clamping ram control valve **126** to shift and flow air to the rear portions of clamping ram **28** and stacker ram **112**. This causes clamping block **126** to move rapidly out into engagement with bumper leg **102** at the upper end of stanchion **101** and clamp the leading end of the center portion of the strip of material against the bumper leg. In the meantime, stacker arm **32** pivots under the influence of stacker ram **112** from in the work table recess between guide slide **55** and the original position of clamping block **126** through an arc over stacking block **30** and its upwardly extending fenders **105** and **106**. As is illustrated in FIGS. **2–5**, this causes the leading end of the center portion **13** of the strip of material to be clamped in a stationary position while the trailing portion is flipped over stacking block **30**. Once the flipping of the material has been performed, cam **114** at the end of cross head **108** of stacker arm **32** engages valve **116**, causing air pressure to flow to the opposite ends of control valves **125** and **126** (FIG. **8**) and shift these valves back to their original positions. This causes air to flow to the front ends of stacker ram **112** and clamping ram **28**, causing their respective stacker arm **32** and clamping block **26** to retract to their original positions.

If the flow arrangement illustrated in FIG. **9** is utilized, a sequential operation of clamping ram **28** and stacker ram **112** is achieved, by the actuation of pressure operated switch **131** as clamping ram **28** extends. The closing of switch **131** causes the capacitor in control **123** to discharge to the solenoid of pilot valve **124a** which controls stacker ram **112**. In addition, if a large stack of strips of material have accumulated on stacking block **30** so as to inhibit the outward movement of stacker arm **32** and cam **114** is not able to actuate its valve **116**, pilot valve **132** will cause a shifting of control valves **125** and **126** back to their ready positions. Pilot valve **132** is momentarily energized when the photoelectric eye detects a dark condition, when the next strip of material is being introduced to the cutter, causing the control valves **125** and **126** to shift back to their ready positions.

In the event the operator improperly aligns the stripe design of a strip of material with respect to the guide finger **96** and wishes to withdraw the strip of material from between feed roller assemblies **48** and **49**, she depresses separator lever **91**. The pivoting of the lever causes its distal end to lift slide block **67** of upper feed roller assembly **49** so that the upper feed roller assembly is lifted away from the lower feed roll assembly creating a separation sufficient to allow the operator to withdraw the strip of material.

While this invention has been described in detail with particular reference to a preferred embodiment thereof, it will be understood that variations and modifications can be effected within the spirit and scope of the invention as described hereinbefore and as defined in the appended claims.

We claim:

1. A method of forming shirt front center plaits or the like comprising sequentially moving elongated strips of cloth from which the center plaits are to be formed along their lengths through a cutting zone between adjacent pairs of oppositely rotating feed rollers urged toward engagement with each other, progressively and simultaneously cutting the side portions of the strips of cloth away from the center portions as the strips of cloth move through the cutting zone at the line of engagement of the feed rollers, progressively and simultaneously removing the cut away side portions of the strips of cloth from the vicinity of the center portions as the side portions are cut away from the center portions, urging the center portions away from the cutting zone with a flow of air, and stacking the center portions of the strips of cloth as the center portions move away from the cutting zone.

2. The method of claim **1** and wherein the step of progressively and simultaneously removing the cut away side portions of the strips of cloth comprises progressively moving the cut away side portions into a stream of air as the side portions are cut from the center portions.

3. The method of claim **1** and wherein the step of moving the elongated strips of cloth through the cutting zone comprises aligning the design printed on the strips of cloth with respect to the cutting zone.

4. A method of cutting design-bearing strips of material to form shirt front center plaits or the like comprising simultaneously and progressively cutting away the side portions of the strips of material at equally spaced distances on opposite sides of the center portion of the design of the material.

5. A method of cutting elongated design-bearing strips of material to form shirt front center plait pattern parts with the design centered in the pattern parts comprising passing the strips of material between oppositely rotating engaging feed rollers, cutting the side portions of the strips of material at equal distances from the center portion of the design of the strips of material adjacent the line of tangency of the feed rollers within the ends of the feed rollers moving the center portions of the cut strips of material in a first direction away from the feed rollers, and moving the side portions of the cut strips of material in another direction away from the feed rollers.

6. A method of cutting elongated design-bearing strips of material to form shirt front center plait pattern parts with the design centered in the pattern part comprising passing the strips of material between a pair of feed rollers, cutting the side portions of the strips of material at equal distances from the center portion of the design of the strips of material adjacent the line of tangency of the feed rollers, flowing a stream of air beneath the center portions of the cut strips of material in a direction away from the feed rollers to induce the movement of the center portions of the cut strips of material in a first direction away from the feed rollers, and moving the side portions of the cut strips of material in another direction away from the feed rollers.

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