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Frost

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[54] **METHOD OF MAKING A SHIRT FRONT ASSEMBLY**

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[52] **U.S. Cl.**..... **112/262**, 112/121.29, 112/121.27, 112/130

[51] **Int. Cl.**..... **D05b 1/00**, D05b 23/00

[58] **Field of Search**..... 112/121.29, 121.27, 112/121.26, 121.15, 121.12, 121.11, 262, 130; 2/243, 115

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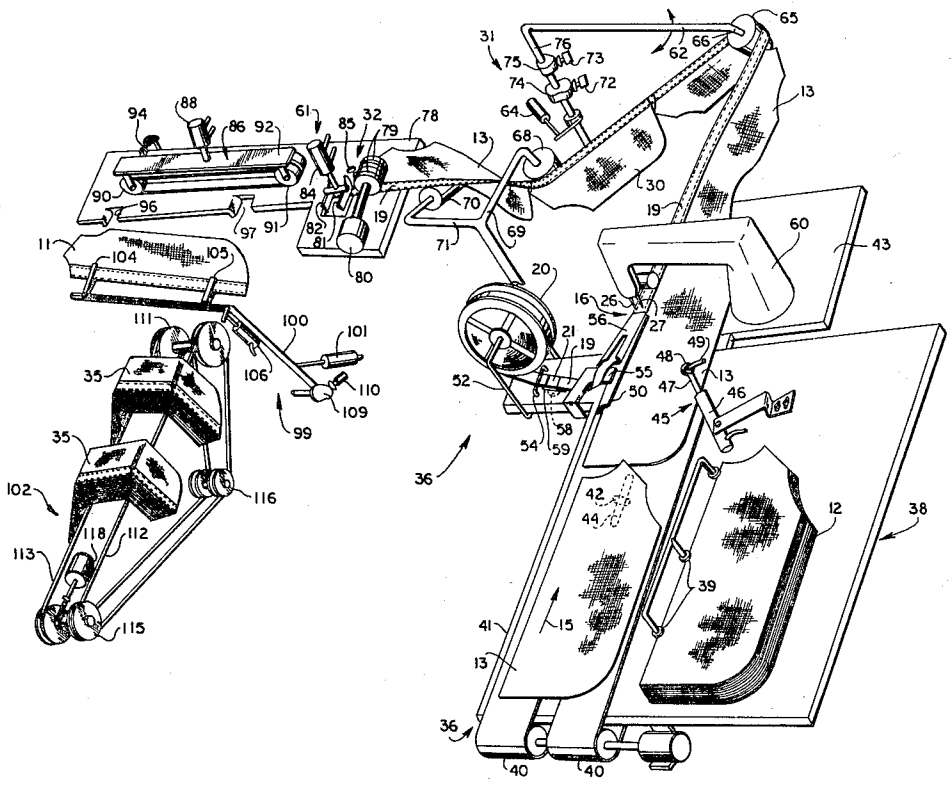
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[57] **ABSTRACT**

A shirt front assembly, method and apparatus wherein a connected series of center plait pattern parts and a series of shirt front pattern parts are fed simultaneously to a sewing machine and sewn together to form a connected series of shirt front assemblies. The connected series of shirt front assemblies are conveyed away from the sewing station to a cutting station where the center plait pattern parts are cut apart and trimmed so as to have their ends coextensive with the edges of the shift front pattern parts, and the cut-apart series of shirt front assemblies are stacked.

11 Claims, 4 Drawing Figures



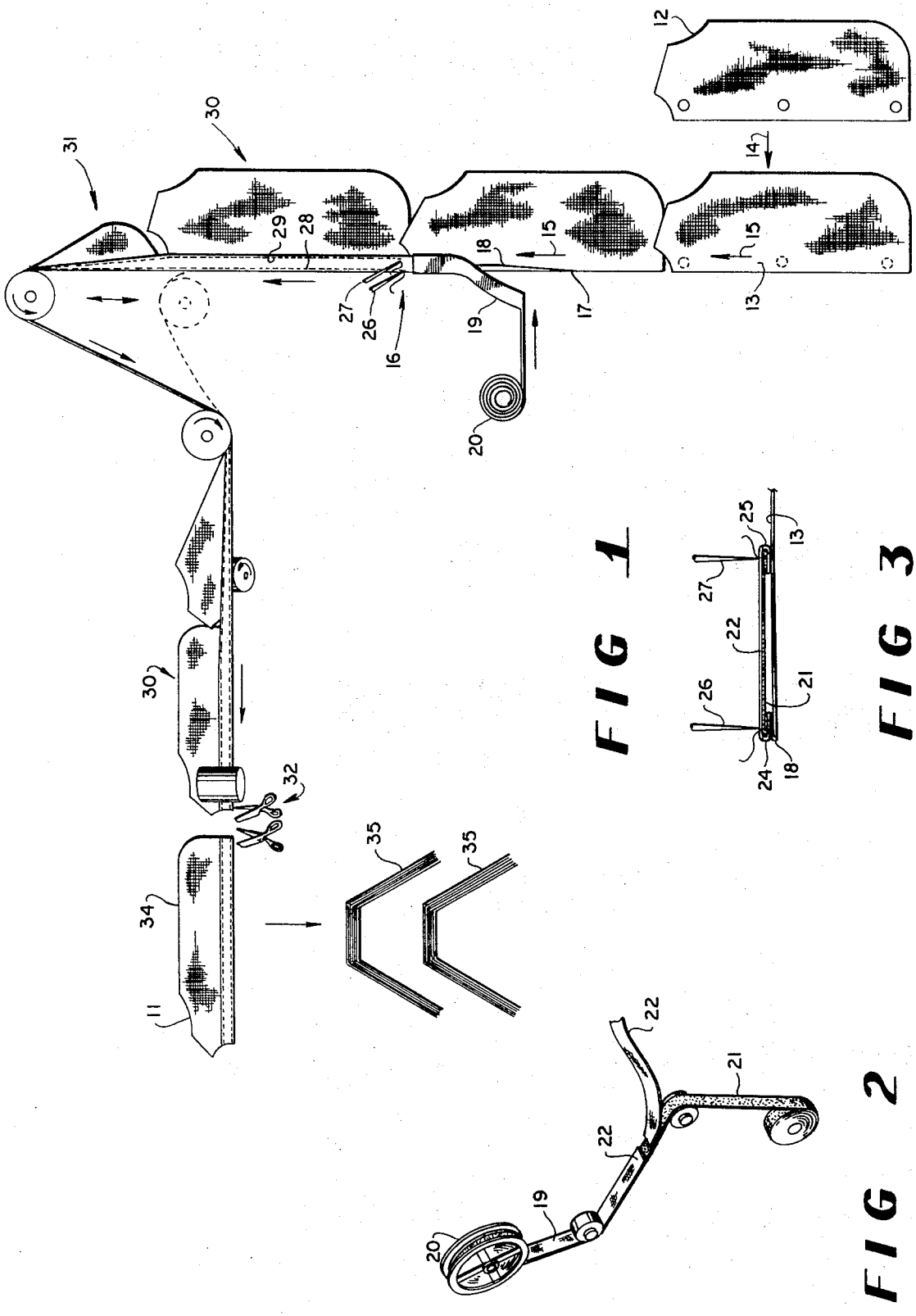


FIG 1

FIG 3

FIG 2

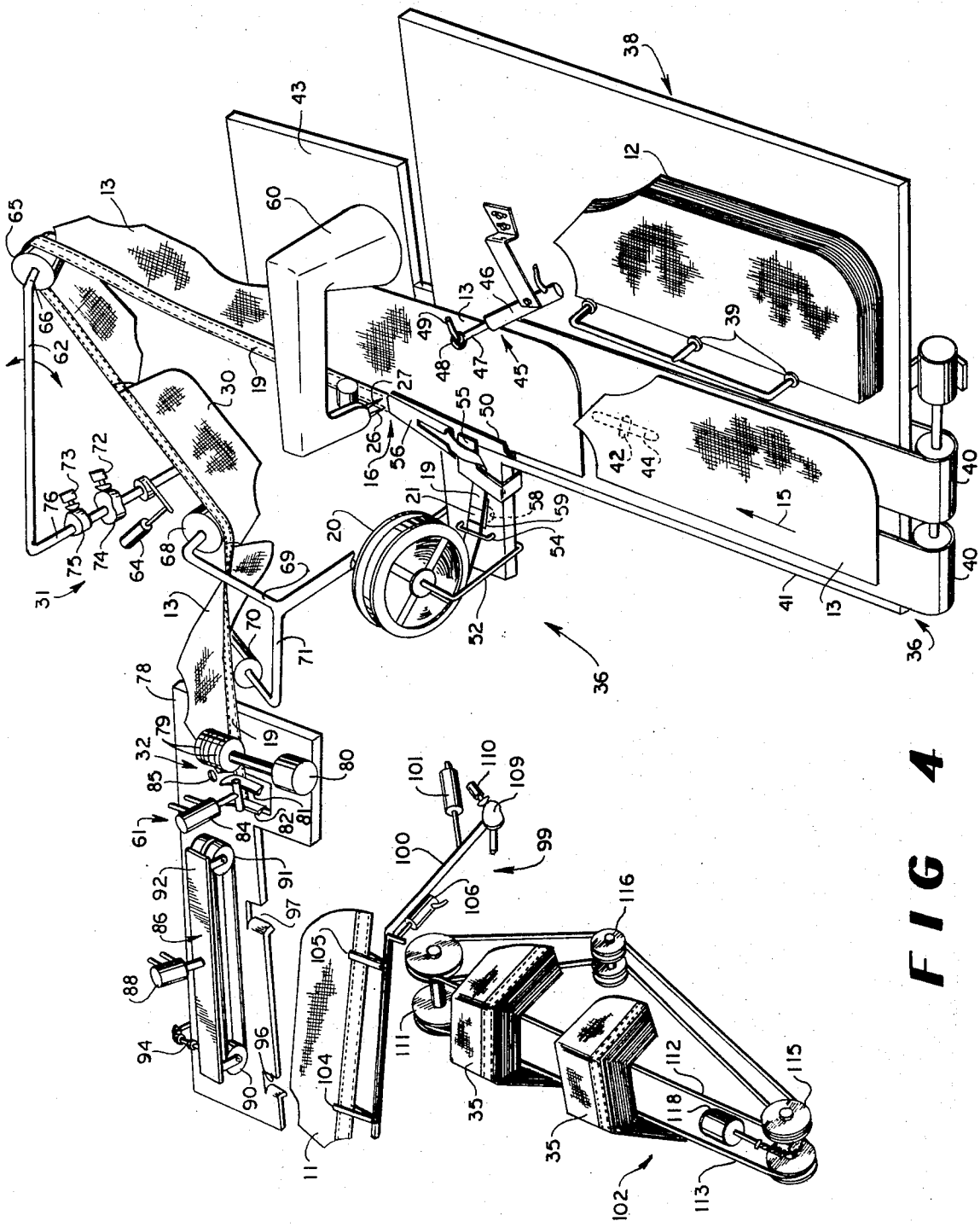


FIG 4

METHOD OF MAKING A SHIRT FRONT ASSEMBLY

CROSS REFERENCE TO RELATED APPLICATION

This application is a continuation-in-part of application Ser. No. 79,031, filed Oct. 8, 1970, entitled "GARMENT CUTTING AND STACKING METHOD," now U. S. Pat. No. 3,675,604, issued July 11, 1972.

BACKGROUND OF THE DISCLOSURE

When the center plait or buttonhole strip of a garment, such as a man's shirt or a woman's dress, is connected to the shirt front pattern part, the center plait pattern part is usually folded under along its side edges and its ends are placed in overlying relationship with respect to the shirt front pattern part. When the center plait is sewn to the shirt front pattern part to form the shirt front assembly, the ends of the center plait extend beyond the top and bottom edges of the shirt front pattern part. In the past, after the center plait had been attached to the shirt front pattern part to form the shirt front assembly, a bundle of shirt front assemblies was allowed to collect at the sewing station and another worker transferred the bundle to another station where the ends of the center plait of each assembly were trimmed by a third worker so that the cut ends of each center plait were approximately even or coextensive with the edges of the shirt front pattern part. The upper end of the center plait, usually the leading end as the pieces are processed through the sewing machine, were cut with a curved cut or an angled cut to match the neck opening of the garment, while the lower or trailing end of the center plait was cut with a straight cut that matched the lower edge or tail of the garment.

In order to fabricate the shirt front assemblies it was necessary to first attach the center plait to the shirt front panel, stack the shirt front assemblies in a bundle at the sewing station, transfer the bundles to a cutting station, cut the ends of each center plait, restack the shirt front assemblies, and transfer the cut bundle to a subsequent work station where subsequent stitching and other garment fabricating functions were performed. The manual steps of sewing, stacking, transferring, cutting and restacking the garment parts in the process of applying the center plaits to the garment panels is onerous, expensive, and there is some likelihood of misplacing bundles of garment parts or individual garment parts in the manufacturing process. Moreover, the more times the shirt fronts are manually handled in the separate sewing and cutting operations, the more likely is the tendency toward non-uniformity in the finished products.

SUMMARY OF THE INVENTION

Briefly described, the present invention comprises a shirt front assembly, method and apparatus wherein shirt front assemblies are formed in a connected series by attaching a series of center plait pattern parts to a series of shirt front pattern parts. The resulting connected series of shirt front assemblies is conveyed away from the sewing station by conveying the connected series of center plait pattern parts with the shirt front pattern parts hanging from the center plait pattern parts. The connected series of shirt front assemblies is conveyed to a cutting station where the connected series is intermittently fed to a cutter where the connected series of shirt front assemblies is cut apart, and the individual shirt front assemblies are stacked. A conveyor assembly is located between the sewing station and the cutting station and functions as a buffer between the sewing station and the cutting station so that the speed of operation at the sewing station is independent of the speed of operation at the cutting station, and the cutting function at the cutting station is terminated when the supply of connected series of shirt front assemblies is low. The shirt front pattern parts are automatically fed from a stack of pattern parts to the sewing station and folded as they approach the needle. In a similar manner, the series of center plait pattern parts is guided from a supply toward the sewing station and folded as they approach the needles, and the movements of the center plait pattern parts and shirt front pattern parts toward the sewing station are regulated so they are sewn together in the proper relationship.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a schematic illustration of the process of forming shirt front assemblies.

FIG. 2 is a schematic illustration of the method of forming a connected series of center plait pattern parts.

FIG. 3 is a detail illustration of the pattern parts and the manner in which they are sewn together.

FIG. 4 is a perspective view of the apparatus for forming shirt front assemblies.

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 shows a process 10 in which shirt front assemblies 11 are manufactured. A stack of shirt front panels or pattern parts 12 is formed, usually from a bunch of pattern parts received from a cutting area, and the top ply or pattern part 13 is lifted from the stack 12 and moved in the direction indicated by arrow 14 over to a path where the pattern parts are to be conveyed and passed through a sewing station. Each pattern part 13 is moved in the direction indicated by arrow 15 toward a sewing station 16. Sewing station 16 includes a fabric connecting means which functions to connect together layers of fabric, and can include various fusing, sewing, or other conventional fabric connecting means. By way of example, sewing machine needles 26 and 27 are illustrated. As each shirt front pattern part 13 moves in the direction indicated by arrow 15, the straight or shirt front edge 17 of the pattern part is folded over as indicated at 18. As the shirt front pattern part approaches the sewing station 16, a connected series of center plaits 19 is fed from a supply 20 to the same sewing station.

As is indicated in FIG. 2, the connected series of center plaits 19 are formed by fusing, sewing or otherwise connecting together a continuous length of center plait lining material 21 and center plait pattern parts 22. The center plait pattern parts 22 are placed in end-to-end relationship along the length of the lining material 21, and after the supply of center plait pattern parts have been connected to the lining material and accumulated in a reel or supply 20, the reel 20 is transferred to the process illustrated in FIG. 1. The center plait pattern parts 22 are usually placed in spaced end-to-end relationship along the length of the lining material; however, the pattern parts 22 can be in abutting relation-

ship, or even in overlapping relationship with respect to the lining material, if desired.

As the connected series of center plait pattern parts **19** approaches sewing station **16**, the ends of each center plait pattern part will be moved into overlying relationship with respect to the ends of each shirt front pattern part **13** so that the center plait pattern parts protrude beyond the shirt front pattern parts. In addition, the edges of both the lining material and center plait pattern parts are folded inwardly toward each other as indicated in FIG. **3** to form folds **18, 24** and **25**. The needles **26** and **27** form the stitching **28** and **29** along the folded edges of the connected series of center plait pattern parts and through the folds of the mated plys of material so that the shirt front pattern parts become connected to the connected series of center plait pattern parts, thus forming a connected series of shirt front assemblies **30**.

After the connected series of shirt front assemblies has been formed at sewing station **16**, they are handled by conveying means **31** and passed toward cutting means **32**. The connected series of center plaits **19** is handled by the conveying means **31** by orienting the shirt front center plaits in an upwardly extending attitude with the shirt front pattern parts hanging in a downward direction and trailing freely from the center plait pattern parts. The connected series of shirt front assemblies **30** are cut apart by cutting means **32**, and each shirt front assembly **34** is stacked in stacks **35**.

As is illustrated in FIG. **4**, the apparatus **11** for forming the shirt front assemblies includes a fabric feeder which is schematically illustrated at **38**. Fabric feeder **38** is of conventional construction and the details of its construction form no material part of this invention. Fabric feeders of the type suitable for use with the apparatus disclosed herein include Fabri-feed series **10** manufactured by U.S.M. Industrial Machinery, a division of United Shoe Machinery of Boston, Massachusetts. Fabric feeder **38** is arranged to transfer shirt front pattern parts **13** from the stack **12** onto conveyor **36**. The fabric feeder applies a suction through the suction heads **39** to the top ply of material in the stack **12**, the suction heads lift the top ply away from the stack, moves the top ply laterially over to conveyor **36**, and then deposits the fabric on the conveyor. Conveyor **36** includes a pair of belts **40** which are arranged to move across the top surface of a work table **41** toward sewing station **16**. A photoelectric cell **42** is positioned beneath the table surface in registration with an elongated slot **44** and is arranged to be repositioned along the slot, as necessary. A source of light (not shown) is located above the table surface **41** and arranged to emit light to the photoelectric cell **42**. Photoelectric cell **42** is arranged to control the operation of conveyor **36**, as will be explained later.

Feeder assembly **45** is located above the surfaces of work tables **41** and **43** at sewing station **16** and comprises single acting pneumatic ram **46** which is spring-urged to its retracted position. Arm **47** of ram **46** includes a gripping head **48** that communicates through conduit **49** with a source of low pressure air. The operation of feeder assembly **45** is controlled by photoelectric cell **42**, which causes the distension and retraction of arm **47** and the suction and release of gripping head **48**. Feeder assembly **45** functions to grasp a shirt front pattern part **13** and urge the pattern part into the folder **50** and toward the needles at sewing station **16**. The feeder assembly **45** is adjustably connected to work table **41** and is angled so as to move the shirt front pattern part in the proper direction for forming the desired fold and to meet the needles **26** and **27** at the sewing station. The relationship between conveyor **36** and feeder assembly **45** is such that the pattern parts **13** first moving with conveyor **36** are subsequently engaged by feeder assembly **45** and the feeder assembly **45** continues to carry the pattern parts from work table **41** onto work table **43** after the conveyor belt **40** of conveyor **38** begins to move back beneath the work table **41**.

The reel **20** of connected series of center plait pattern parts is mounted on a bracket **52** from work table **43**, and the portion of the supply of connected series of center plait pattern parts feeding away from the reel is directed beneath U-shaped guide **54** toward angle guide **55** and through folder **56** toward sewing station **16**. Photoelectric cell **58** is located beneath work table **46** and is in registration with slot **59** between U-shaped guide **54** and angle guide **55**. A source of light (not shown) is located above work table **46** and arranged to emit light toward photoelectric cell **58**. The photoelectric cell **58** is arranged to control the operation of sewing machine **60** at sewing station **16**

Photoelectric cells **42** and **58** can be positioned at the needles of sewing machine **60**, or a time delay circuit (not shown) can be used with the photoelectric cells and the photoelectric cells can be positioned back along the paths of the pattern parts, as indicated in FIG. **4**. Fabric feeder **38** is adjusted to feed the shirt front pattern parts onto conveyor **36** at closely spaced intervals, preferably with the shoulder portion of the pattern part overlapping the tail portion of the preceding pattern part as the pattern parts move along the path **15** of the conveyor toward the sewing station. The photoelectric cell **42** at conveyor **36** is arranged to detect the leading and trailing edges of each shirt front pattern part as the shirt front pattern moves toward the sewing station. In a similar manner, the photoelectric cell **58** is arranged to detect the leading and trailing ends of the center plait pattern parts through the lining material **21** as the connected series of center plait pattern parts progress toward the sewing station. When both photoelectric cells **42** and **58** detect darkness, which indicates that both a shirt front and a center plait are ready at the sewing station, both conveyor **38** and sewing machine **60** operate at normal operating speeds and both pattern parts will be processed through the sewing station and sewn together as illustrated in FIGS. **1, 3** and **4**. When the pattern parts have been attached to each other and the photoelectric cells **42** and **58** both detect light, which indicates the absence of the pattern parts at the sewing station, both conveyor **36** and sewing machine **60** will continue to operate at normal operating speeds. Because of the longer length of the center plait pattern parts than the shirt front pattern parts and the spacing of both pattern parts as they approach the sewing station, the photoelectric cell **58** usually will detect darkness or the presence of a center plait pattern part before photoelectric cell **42** detects darkness or the approach of a shirt front pattern part. Sewing machine **60** will begin to stop its sewing function and the feeding of the connected series of center plait pattern parts, thus sewing only onto the leading edge of the next-to-be sewn center plait pattern part and waiting for the approach of a shirt front pattern part. When photoelectric cell **42** detects the presence of the oncoming shirt front

pattern part, sewing machine 60 will resume its normal operation to sew together the two pattern parts.

While the preceding operation is considered to be the normal operation of the assembly, there are instances when the spacing between the series of center plait pattern parts is greater than the spacing between the oncoming series of shirt front pattern parts. In this situation photoelectric cell 42 will cause conveyor 36 to begin to stop as sewing machine 60 continues to operate and the oncoming leading edge of the next-to-be sewn center plait pattern part will thus reach the needles of the sewing machine ahead of the oncoming shirt front pattern part. When photoelectric cell 58 detects the leading end of the next-to-be sewn center plait pattern part, the operation of conveyor 36 will resume.

The now-connected series of shirt front assemblies 30 is guided from sewing station 26 by conveying means 31 toward cutting means 32 at cutting station 61. Conveying means 31 includes oscillating arm 62 which is urged by spring means 64 in a counterclockwise direction. A truncated cone 65 is rotatable on the downwardly extending leg 66 of oscillating arm 62, and the connected series of shirt front assemblies 30 is guided about cone 65. The connected series of center plait pattern parts 19 engages cone 65 while the shirt front pattern parts 13 droop in a downward direction. A second truncated cone 68 rotates on stationary support 69, and cylinder 70 rotates on stationary support 71. Second cone 68 and cylinder 70 are arranged to guide the connected series of shirt front assemblies from the oscillating cone 65 toward cutting station 61. Since cutting means 32 operates intermittently and at a different rate of speed than sewing machine 60, oscillating cone 65 functions as a buffering means and accumulates and dissipates the connected series of shirt front assemblies between the sewing station and the cutting station. Switches 72 and 73 which are actuated by cams 74 and 75 mounted on the downwardly extending leg 76 of oscillating arm 62 function to indicate the length of the connected series of shirt front assemblies accumulated between sewing station 16 and cutting station 61 and control the operation of the elements at cutting station 61.

Cutting station 61 includes a work table 78, and feed rollers 79 driven by motor 80 engage the connected series of center plait pattern parts 19 and feed the connected series of shirt front assemblies across the work table toward cutting means 32. Cutting means 32 is aligned with rollers 79 and includes a pair of cutting blades 81 and 82 which are operated by a single double-acting ram 84. Cutting blade 81 is curved at a radius which corresponds to the desired cut at the curved neck of the shirt front assembly, while cutting blade 82 is straight and disposed at an angle corresponding to the angle of the tail or trailing edge of the shirt front pattern part. Photoelectric cell 85 is positioned beneath work table 78 and a source of light (not shown) is arranged to emit light to the photoelectric cell. The photoelectric cell is displaced to the side of the path of the connected series of center plait pattern parts but is in the path of the shirt front pattern parts as they move with the connected series of shirt front assemblies across work table 78. Cutting station conveyor 86 is located above work table 78 and is movable in a downward direction under the influence of doubleacting ram 88 so as to be biased toward contact with the top surface of the work table. Cutting station conveyor 86 comprises one or more continuous bands 89 extending about rollers 90 and 91, and the rollers 90 and 91 are supported by framework 92. A motor (not shown) drives roller 91 through gears 94.

One edge 95 of work table 78 includes a pair of spaced-apart slots 96 and 97 which are in alignment with the normal path of travel of the center plait pattern parts from cutting means 92. Stacker 99 includes an oscillating stacking arm 100 driven by double-acting ram 101 back and forth from work table 78 of cutting station 61 and stacker conveyor 102. The upper end of stacking arm 100 extends laterally across stacker conveyor 102 at a height approximately level with work table 78 of cutting station 61, and jaws 104 and 105 protrude from stacking arm 100. Jaws 104 and 105 open and close in response to ram 106 which is spring-loaded so that jaws 105 normally remain open. When ram 106 is pressurized, jaws 104 and 105 close. Jaws 104 and 105 are arranged so as to register with slots 96 and 97 of work table 78 when oscillating stacking arm 100 is moved by its ram 101 toward work table 78. When oscillating arm 100 is moved to its other position over stacker conveyor 102, jaws 104 and 105 will be disposed on the opposite sides and above the stacker conveyor.

When photoelectric cell detects the leading edge of a shirt front pattern part 13, the operation of motor 80 is temporarily terminated for a time interval determined by a time delay device (not shown) and the movement of the shirt front assembly is stopped, and ram 84 of cutting means 32 is actuated. Cutting blade 81 thus functions to cut the leading end of the center plait pattern part and cut across the continuous lining material with a curved cut corresponding to the curvature of the neck opening of the shirt front pattern part. It is desirable to form the curvature of cutting blade 81 in accordance with the desired curvature of the neck opening and time the movement of the connected series of shirt front assemblies so that the blade 81 also cuts across a portion of the shirt front pattern part as well as the center plait pattern part, and thus actually form the curvature of the neck opening.

When the time delay lapses after the detection by photoelectric cell 85 of the presence of the leading edge of a shirt front pattern part, motor 80 will resume its operation, causing roller 79 to feed the connected series of shirt front assemblies across work table 78. The detection by photoelectric cell 85 of the presence of the leading edge of the shirt front pattern part also causes cutting station conveyor 86 to move in a downward direction under the influence of its ram 88 into engagement with the work table 78, and the continuous operation of its motor causes the conveyor to move the material received under it across the work table.

When photoelectric cell 85 detects the trailing edge of a shirt front pattern part, by detecting the presence of light, the operation of motor 80 will be terminated for a time interval determined by the time delay device, ram 84 will operate again to reciprocate its cutting blades 81 and 82, and ram 88 will function to lift conveyor 86 away from work table 78. Straight cutting blade 82 cuts across the connected series of center plait pattern parts, thus cutting across the trailing end of the center plait and cutting away the leading one of the series of shirt front assemblies. Simultaneously with the cutting action of cutting means 32 and the upward movement of cutting station conveyor 86, the jaws 104

and 105 of stacking arm 100 are closed under the influence of ram 106 and reach through slots 96 and 97 to grasp the cut away shirt front assembly 11, and oscillating stacking arm 100 begins to swing away from work table 78 toward stacker conveyor 102 under the influence of its ram 101. When oscillating stacking arm 100 reaches the outward limit of its movement, cam 109 at the axle of stacking arm 100 depresses bleeder valve 110 which shifts the air flow to rams 101 and 106, causing gripper jaws 104 and 105 to open and to drop the shirt front assembly onto stacker conveyor 102 and begin the return movement of stacking arm 100 toward work table 78.

Cutting means 32 and the remaining elements at cutting station 61 and stacker 99 function in response to the signal provided by photoelectric cell 85, and the functions taking place at cutting station 61 are thus independent of those taking place at sewing station 16. The speed at which the shirt front assemblies are processed at cutting station 61 is at least as fast as and usually faster than the maximum speed at which the shirt front assemblies are processed at sewing station 16 and the connected series of shirt front assemblies can be cut and stacked at a rate equal to or faster than the rate at which they can be formed at sewing station 16. Conveying means 31 is therefore arranged to accumulate predetermined lengths of the connected series of shirt front assemblies by the outward movement of oscillating arm 62 before the operation at cutting station 61 is allowed to begin. When switches 72 and 73 at the upright portion of oscillating arm 62 are both closed by oscillating arm 62 moving out a predetermined distance and accumulating a predetermined length of the connected series of shirt front assemblies between sewing station 16 and cutting station 61, the elements at cutting station 61 are actuated. After the operation of the elements at cutting station 61 is initiated, the system will continue to operate until the lenghts of connected series of shirt front assemblies at conveying means 31 is depleted to the point where oscillating arm 62 is drawn in to a position where both switches 72 and 73 are opened. When switch 72 opens, the operation at cutting station 61 is terminated until a supply of the connected series of shirt front assemblies from the sewing station is provided to conveying means 31, whereupon both switches 73 and 72 are again closed to cause the operation of the elements at cutting station 61 to resume.

Stacker conveyor 102 comprises a pair of spaced-apart continuous conveyor belts 112 and 113 which are arranged about the pairs of sheaves 115, 116 and 117 suported by a framework (not shown) and motor 118 is arranged to drive the pair of sheaves 115. Motor 18 is driven intermittently, usually upon the closing of a switch by an operator who detects the accumulation of a bundle 35 of shirt front assemblies on the stacker conveyor. An operator usually will be in the vicinity of one or more of adjacent ones of the apparatus 36 for forming the shirt front assemblies so as to monitor the operation of the apparatus, supply the needed stacks 12 of shirt front pattern parts and reels 20 of connected series of center plait pattern parts, and occasionally retrieve one or more stacks 35 of shirt front assemblies which have been fabricated by the apparatus.

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

I claim:

1. A method of attaching center plate pattern parts or the like to shirt front pattern parts or the like comprising:
- forming a connected series of center plate pattern parts in end to end relationship with each other;
- simultaneously passing in timed relationship the connected series of center plate pattern parts and a series of shirt front pattern parts toward a sewing station with the leading and trailing ends of the center plate pattern parts in overlying relationship with respect to the leading and trailing ends of the shirt front pattern parts;
- sewing together the connected series of center plate pattern parts and the series of shirt front pattern parts to form a connected series of shirt front assemblies;
- passing the connected series of shirt front assemblies to a cutting station; and
- cutting apart the connected series of shirt front assemblies.

2. A method of attaching center plate pattern parts or the like to shirt front pattern parts or the like comprising:
- forming a connected series of center plate pattern parts in end to end relationship with each other;
- simultaneously passing in timed relationship the connected series of center plate pattern parts and a series of shirt front pattern parts toward sewing stations;
- sewing together the connected series of center plate pattern parts and the series of shirt front pattern parts to form a connected series of shirt front assemblies;
- passing the connected series of shirt front assemblies to a cutting station; and
- cutting apart the connected series of shirt front assemblies, including trimming portions of the leading and trailing ends of the shirt front assemblies.

3. A method of attaching center plate pattern parts or the like to shirt front pattern parts or the like comprising:
- forming a connected series of center plate pattern parts in end to end relationship with each other;
- simultaneously passing in timed relationship the connected series of center plate pattern parts and a series of shirt front pattern parts toward a sewing station;
- sewing together the connected series of center plate pattern parts and the series of shirt front pattern parts to form a connected series of shirt front assemblies;
- passing the connected series of shirt front assemblies to a cutting station; and
- cutting apart the connected series of shirt front assemblies, including trimming a portion of one end of each shirt front panel.

4. A method of attaching center plate pattern parts or the like to shirt front pattern parts or the like comprising:
- forming a connected series of center plate pattern parts in end to end relationship with each other;
- simultaneously passing in timed relationship the connected series of center plate pattern parts and a se-

ries of shirt front pattern parts toward a sewing station;

sewing together the connected series of center plate pattern parts and the series of shirt front pattern parts to form a connected series of shirt front assemblies;

accumulating a first predetermined length of connected series of shirt front assemblies, feeding the connected series of shirt front assemblies toward a cutting station until the accumulated length of the connected series of shirt front assemblies has been reduced to a second predetermined length and terminating the feeding of the connected series of shirt front assemblies to the cutting station until the first predetermined length of the connected series of shirt front assemblies has been accumulated again; and

cutting apart the connected series of shirt front assemblies.

5. The method of claim **4** and wherein the step of feeding the connected series of shirt front assemblies toward the cutting station comprises continually feeding the shirt front assemblies to the cutting station in intermittent feeding movements.

6. A method of fabricating garments or the like comprising moving a length of lining material through at least one sewing station, continually connecting a series of duplicate pattern parts in series to the lining material at the sewing station, passing the lining material and the pattern parts connected thereto to a second garment processing station, treating the lining material and pattern parts at the second garment processing station, accumulating the lining material with the pattern parts connected thereto between the sewing station and the second garment processing station, terminating the connecting of the pattern parts to the lining material at the sewing station in response to the accumulation of a first predetermined length of lining material with the pattern parts connected thereto between the sewing station and the second garment processing station, and reactivating the step of continually connecting the series of duplicate pattern parts in series to the lining material at the sewing station in response to the depletion of the length of lining material with the pattern parts connected thereto between the sewing station and the second garment processing station to a length less than the first predetermined length of lining material with the pattern parts connected thereto.

7. The method of claim **6** and further including the step of terminating the step of passing the lining material with the series of duplicate pattern parts connected thereto to the second garment processing station in response to the depletion of the accumulated length of lining material with the pattern parts connected thereto to a second predetermined length, and reactivating the step of passing the lining material with the pattern parts connected thereto to the second garment processing station in response to the accumulation of a length of lining material with the pattern parts connected thereto greater than the second predetermined length of lining material with the pattern parts connected thereto.

8. The method of claim **6** and wherein the step of accumulating the lining material with the pattern parts connected thereto includes maintaining the lining material under tension between the sewing station and the second garment processing station.

9. A method of attaching center plate pattern parts to shirt front pattern parts comprising:

attaching a series of center pattern parts in spaced end to end relationship to a length of lining material;

simultaneously passing in timed relationship the length of lining material with its connected series of center plate pattern parts and a series of shirt front pattern parts toward a sewing station;

sewing together each of the center plate pattern parts carried by the lining material and a shirt front pattern part from the series of shirt front pattern parts to form a series of shirt front assemblies carried by the length of lining material;

passing the length of lining material with its series of shirt front assemblies to a cutting station with the shirt front pattern parts hanging freely from the length of the lining material; and

cutting the lining material between the series of shirt front assemblies.

10. The method of claim **9** and wherein the step of passing the length of lining material with its series of shirt front assemblies to a cutting station includes maintaining the lining material under tension after the shirt front pattern parts have been connected to the lining material and before the step of cutting the lining material.

11. The method of claim **9** and wherein the step of cutting the lining material between the series of shirt front assemblies includes trimming portions of the leading and trailing ends of the center plate pattern parts.

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