Jan. 18, 1955 I. SMITH 2,699,742

SEWING MACHINE ATTACHMENT

Filed April 20, 1951 5 Sheets-Sheet 1

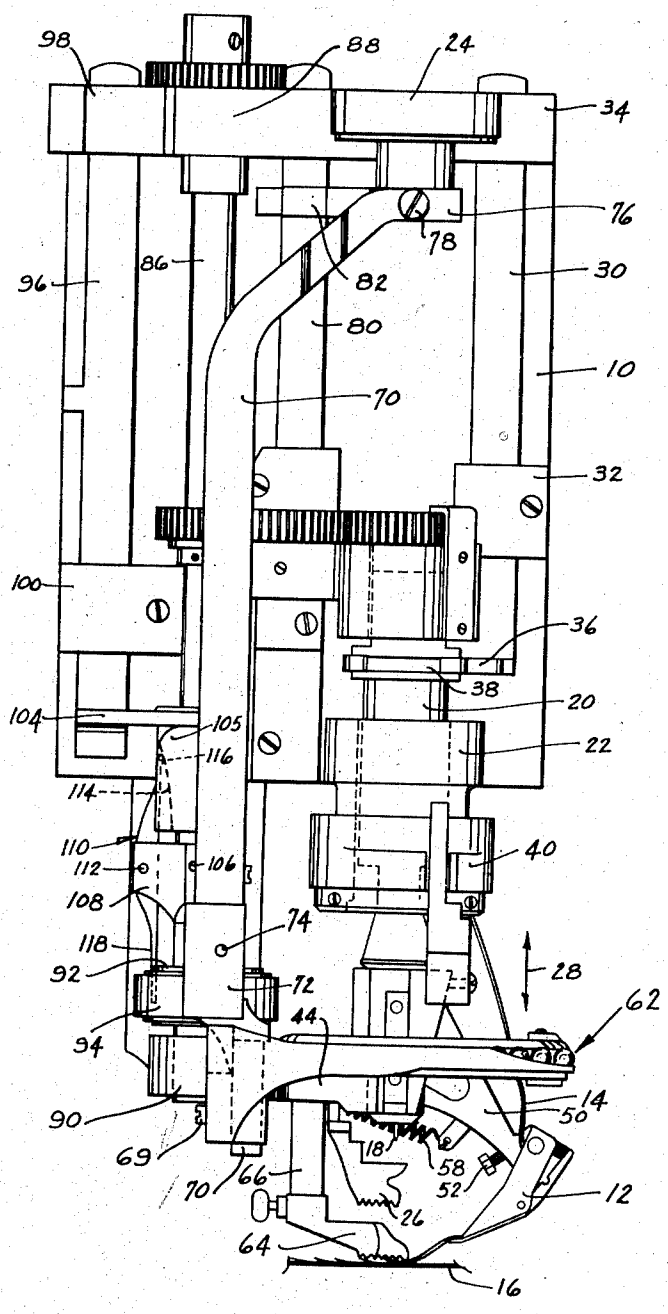


FIG. 1

INVENTOR.
IRVING SMITH

BY
J. F. Goodfriend
ATTORNEY

Jan. 18, 1955 I. SMITH 2,699,742

SEWING MACHINE ATTACHMENT

Filed April 20, 1951

5 Sheets-Sheet 2

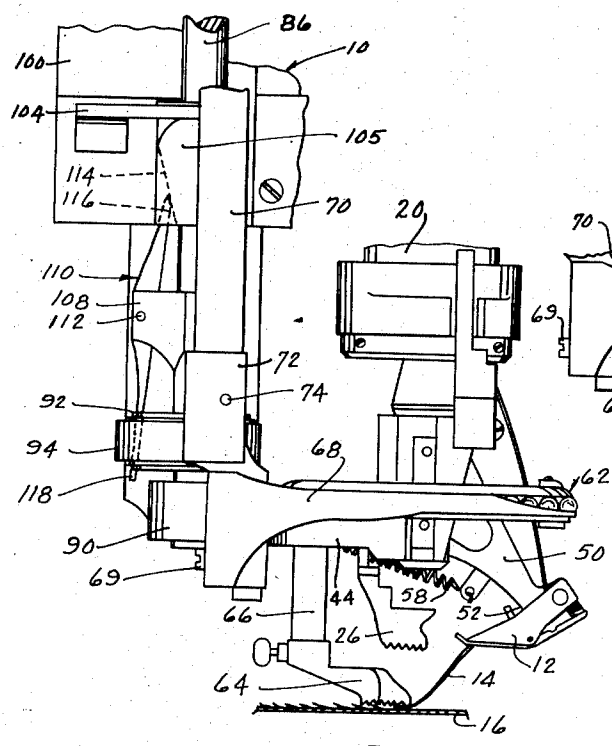


FIG. 2

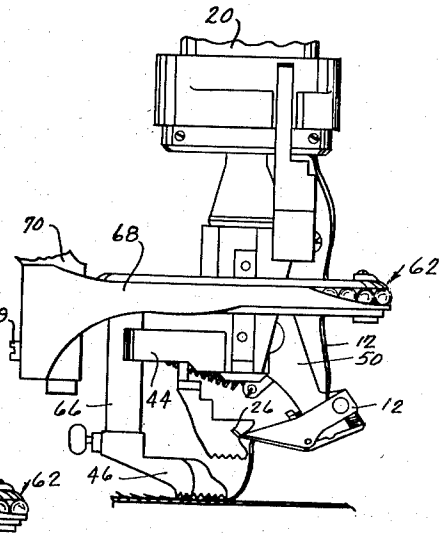


FIG. 3

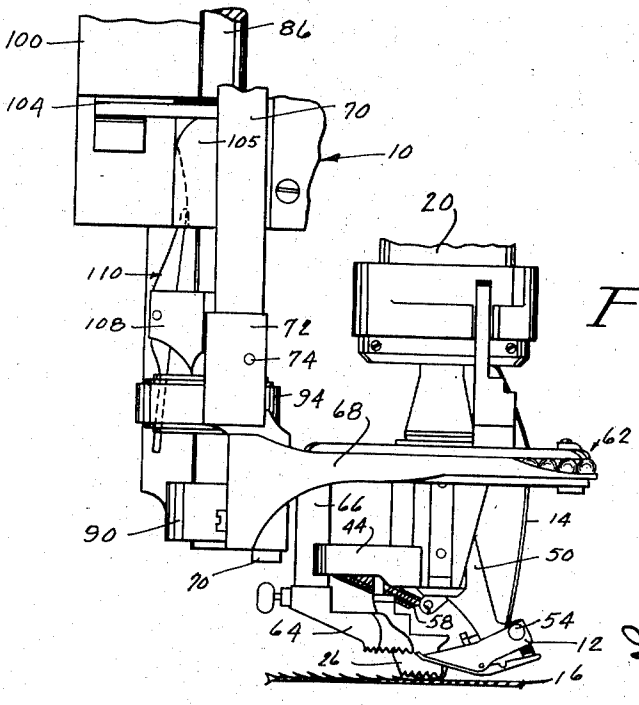


FIG. 4

INVENTOR.
IRVING SMITH

BY

Ingt. Goodfriend

ATTORNEY

Jan. 18, 1955 I. SMITH 2,699,742

SEWING MACHINE ATTACHMENT

Filed April 20, 1951 5 Sheets-Sheet 3

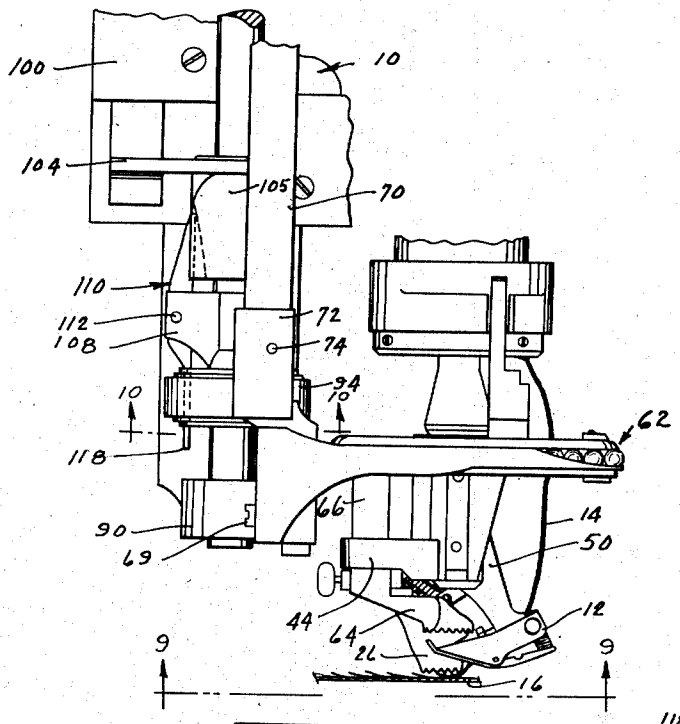


FIG. 5

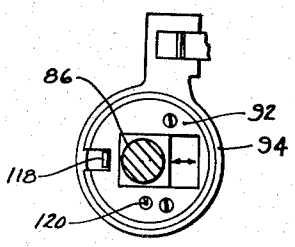


FIG. 10

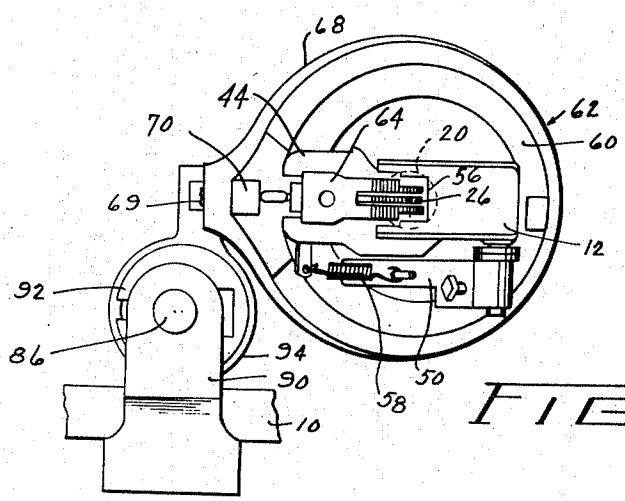


FIG 9

INVENTOR.
IRVING SMITH

BY

Dwight F. Goodfriend

ATTORNEY

Jan. 18, 1955 I. SMITH 2,699,742

SEWING MACHINE ATTACHMENT

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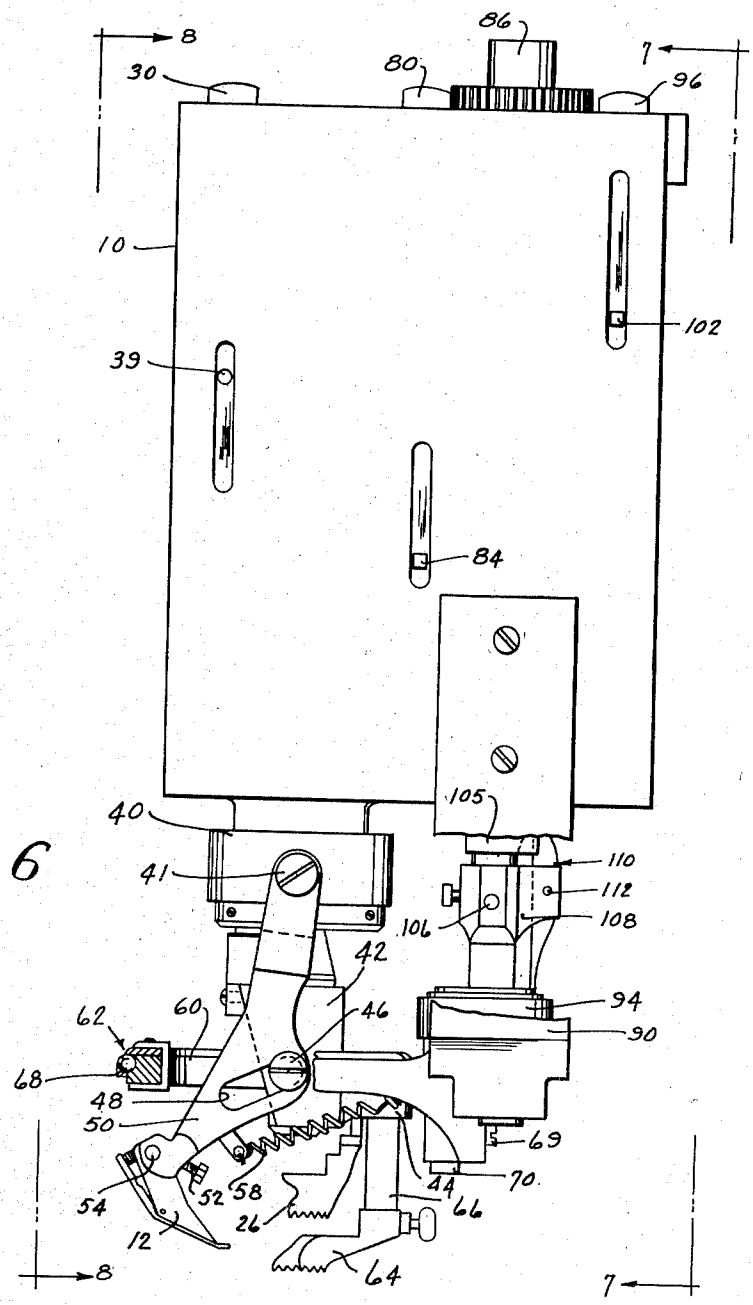


FIG. 6

INVENTOR.
IRVING SMITH

BY

J. F. Goodfriend

ATTORNEY

Jan. 18, 1955 I. SMITH 2,699,742

SEWING MACHINE ATTACHMENT

Filed April 20, 1951 5 Sheets-Sheet 5

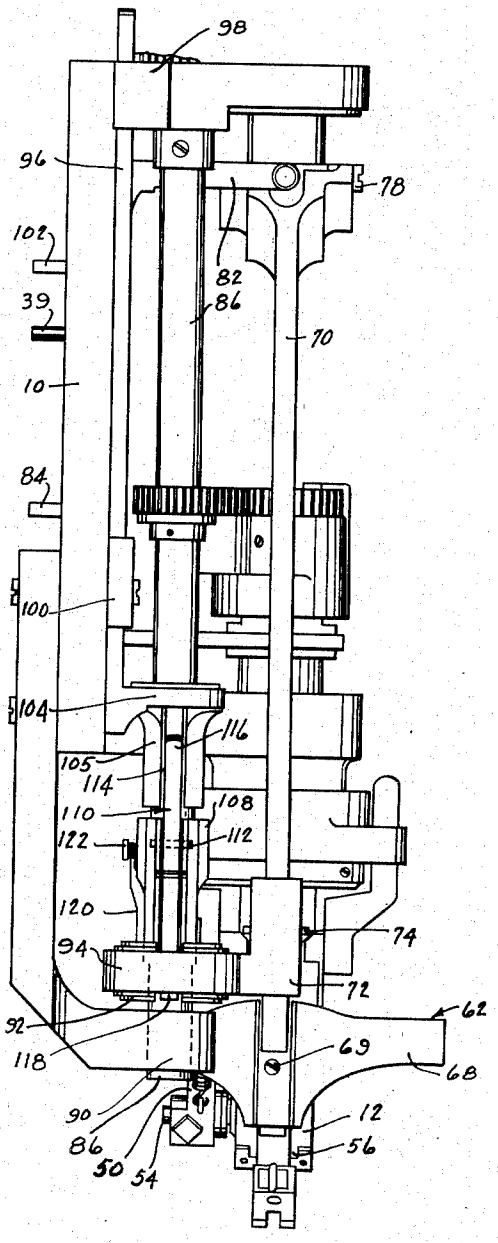


FIG. 7

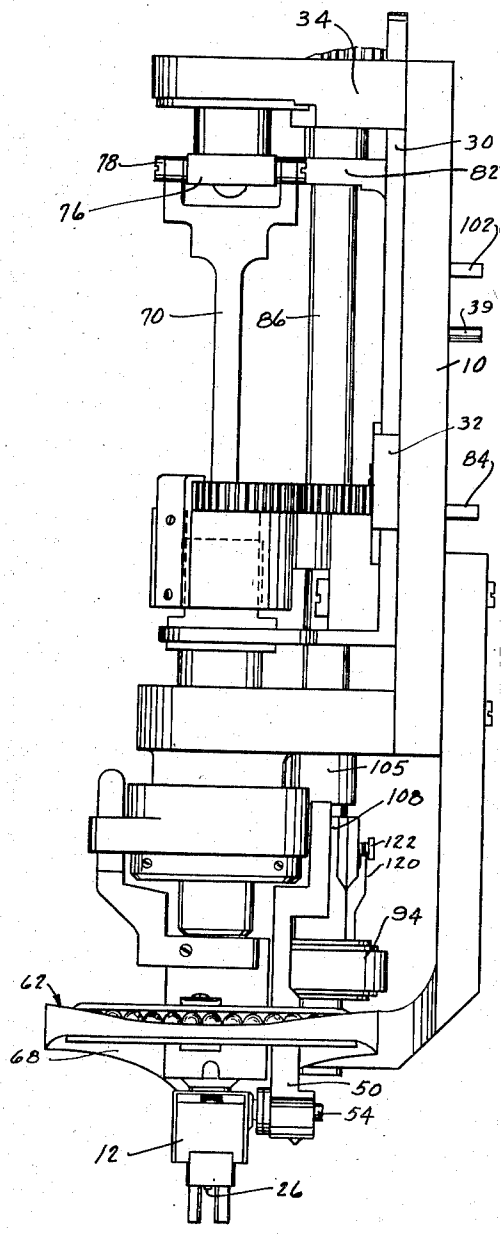


FIG. 8

INVENTOR.
IRVING SMITH

BY

F. Goodfriend

ATTORNEY

United States Patent Office

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Patented Jan. 18, 1955

2,699,742

SEWING MACHINE ATTACHMENT

Irving Smith, New York, N. Y.

Application April 20, 1951, Serial No. 222,018

11 Claims. (Cl. 112—100)

The present invention relates to an attachment for a sewing machine and more particularly to such an attachment by means of which a standard sewing machine in which the direction of stitching may be changed at will, and which sews a regular invisible lock stitch, for example, that known in the trade as the "Bonnaz or Cornely style FB" machine, may be converted to a ruching sewing machine in which the design tape or lace is sewn to the basic material by the invisible lock stitch.

Heretofore, commercial sewing machines have been available for sewing materials together by means of a lock stitch. However, with such machines, it has not been possible to sew ruches, piping, soutache, sequins and the like in a decorative design to a material forming a background therefor.

Therefore, prior to my invention, lace, netting or any decorative material has been sewed to hats, dresses and other garments in a selected design having definite curvilinear form by means of a conventional stitch of the yarn, which, upon inadvertent breakage, would unravel the stitches to thereby permit the lace, netting and the like to be separated and pulled away from the hat, dress or other garment.

As a result, hats, dresses or other garments having ruches, soutache, piping etc., sewed to them by machines heretofore available did not have the lasting qualities of wear desired since they could not easily or inexpensively be repaired should the decorative ruching and the like be pulled away as it so often was.

The feminine wearer very often hesitated purchasing hats, dresses or garments to which a becoming and desirable ruching and the like were sewed because of the always present danger or likelihood of "catching" the net, lace or similar decorative material which would then cause the hat, dress or garment to be discarded because the stitches formed by the thread or yarn would then unravel.

The present invention therefore contemplates the provision of an attachment for a conventional sewing machine of the Bonnaz or Cornely type that enables ruches, soutache and the like to be sewed to a material so that the decorative net, lace etc., cannot be ordinarily separated but is sewed thereto by an invisible lock stitch.

Heretofore, although available in great numbers, sewing machines forming lock stitches or those which could not slip and in which the direction of stitching may be changed at will throughout a complete circle, were not used with ruchers since there was no means of converting them to such use.

The present invention therefore contemplates the provision of an attachment which may be easily mounted upon or removed from a conventional Bonnazzing or Cornely sewing machine forming a lock stitch. By means of this attachment ruches and the like can be sewn to fabric with a lock stitch which cannot be unraveled or slipped.

By means of my invention, an entirely new field is opened up for sewing machines which heretofore were unavailable to sew ruching to hats, dresses, garments and the like thus enabling owners of such machines to enter a field heretofore unavailable to them and with a relatively low investment.

Further, by means of my novel sewing machine attachment, ruching and the like can now be sewed to the material forming the background therefor so that the net, lace or other decorative fabric will not be separated from the material to which it is sewed because the stitches will not unravel should the decoration be caught and the yarn or thread break.

Further, the present invention contemplates the provision of such an attachment which is comparatively inexpensive to manufacture and therefore at relatively low cost convert existing commercial machines to perform a type of sewing which such machines otherwise could not accomplish.

The attachment of the present invention may be detachably mounted on existing sewing machines without basically changing them so that they can readily be adapted for the purposes here proposed and then upon removing my attachment reconverted for the purposes for which they were originally designed.

Generally, the invention comprises a rucher, together with means for mounting this rucher for reciprocation by the existing presser foot and needle guide reciprocation mechanism. A removable collar, a ring bearing, and other associated parts provide for carrying and reciprocating the presser foot, needle guide and needle in the usual manner, these parts being constructed and arranged for assembly on the existing machine by the use of simple tools such as a screwdriver.

The invention contemplates the installation of the ruching attachment with a minimum of disturbance to the machine, so that the attachment may be applied or removed by a machine operator without the need for a skilled mechanic.

These, other and further objects and advantages of the present invention will be clear from the following description and the drawings appended thereto, in which

Fig. 1 is an elevation through my attachment, in partial section and with the rucher away from the needle guide and therefore in open position.

Fig. 2 is a similar view, broken away to foreshorten the drawing, the elements of the attachment being shown in a succeeding position with the rucher moved toward the needle guide and the foot down.

Fig. 3 is another similar view, the elements of the attachment in a further succeeding position with the rucher moved further toward the needle guide.

Fig. 4 is another similar view, the rucher moved further toward closed position against the needle guide which is positioned down on the material and with the foot in raised position.

Fig. 5 is a further similar view with the rucher in closed position and the other elements correspondingly positioned.

Fig. 6 is a rear view of my apparatus as illustrated in Fig. 1.

Fig. 7 is a view on the line **7—7** of Fig. 6.

Fig. 8 is a view on the line **8—8** of Fig. 6.

Fig. 9 is a view on the line **9—9** of Fig. 5.

Fig. 10 is a section on the line **10—10** of Fig. 5.

Throughout my description, I shall refer to the inside of my attachment as that part at the center of Fig. 1, to the front of my attachment as that part shown in Fig. 1 and to the back of my attachment as that part shown in Fig. 6.

Referring now to the drawings, my attachment may be mounted on the head of a sewing machine (not shown since it may be any one of a number of commercial sewing machines by means of which a lock stitch may be formed and comprising means for changing the direction of stitching, as exemplified by the machine known in the trade as the Bonnaz or Cornely style FB sewing machine). Such a machine includes the frame formed by the block or support **10**.

The conventional machine to which my ruching attachment is to be applied comprises various vertically reciprocating members actuated by cams or the like disposed within the sewing machine head. These reciprocating members are arranged to raise and lower the needle, the needle guide and the presser foot, and further to impart a horizontal movement to the presser foot for feeding the work to the needle. These reciprocating movements are all interrelated within the sewing machine, in known manner. My attachment utilizes the reciprocating members of the conventional machine, which are mounted on block **10**, in order to apply the ruching attachment thereto, it being necessary to correlate the

movement of the rucher with the usual movements of the conventional needle, needle guide and presser foot.

The rucher **12** (see Fig. 1) automatically feeds the ruche or ruching that is the decorative lace, tape and the like **14**, into sewing position on the fabric or material **16**, on which it is sewn as a design by the needle **18**. The rucher **12** is rotated in a circular movement with the needle **18** as a center to form the ruching design by conventional, manually operated crank means, which forms a part of the conventional "Bonnaz" or "FB Cornely Paris" sewing machine and which therefore need not be shown in detail.

In order to rotate the rucher as desired, a handle (not shown) through a train of gears rotates the hollow shaft **20** on which the rucher **12** is carried.

The conventional hollow needle guide actuating shaft **20** is mounted for rotation in accordance with the direction of stitching and for vertical reciprocation to raise and lower the needle guide **26** in the usual manner, being supported in the lower and upper bearings **22** and **24**, respectively, the direction of reciprocation being indicated by the arrow **28**.

To accomplish this up and down movement of the shaft **20**, I mount the reciprocable lever **30** in grooves or slots provided in the straps **32** and **34** secured to the block or support **10**.

Extending from the lever **30** integral therewith, I provide the yoke **36** in which the collar **38** on the shaft **20** rotates.

The needle guide reciprocating lever **30**, carries a pin **39** (Fig. 6) which engages a further needle guide reciprocating member (not shown) within the sewing machine head. Pin **39** is thus raised and lowered in proper timing relationship with respect to the needle **18** and the presser foot which feeds the work toward the needle, in order to hold the work during the penetration thereof by the needle **18**.

Thus, when the lever **30**, through the operation of the sewing machine, is reciprocated in sequence by the sewing machine mechanism to which it is connected, the rucher **12** is swung toward and away from the needle guide **26**, as I shall now describe.

I secure the freely rotatable collar or union **40** so that it (the union) will be rotated along with the shaft **20** but will not be reciprocated therewith. Mounted on shaft **20** below the rotatable collar **40** I provide the member **42** at the end of which I provide the yoke **44**, the purpose of which I shall further describe.

Secured to the member **42**, I provide the screw **46**, which is slidably positioned in the elongated slot **48** in the fulcrum or rucher carrying lever **50**, the upper end of lever **50** being pivotally secured to the rotatable non-reciprocating collar **40** by a pivot screw **41**.

I mount the rucher **12** at the end of the fulcrum or lever **50** as by the set screw **52** and rod **54**.

When the shaft **20** is moved down from the position illustrated in Fig. 2 to that illustrated in Fig. 1, the member **42** is forced down along with it causing the pin or set screw **46** to move down in the elongated slot or camming surface **48**.

This movement of the pin in the slot causes the fulcrum or lever to be rotated so that the rucher **12** is moved toward the needle guide **26**.

The rucher **12** is cut out at **56** so that the needle guide **26** is received in the slot formed thereby, which permits the needle to pass through the ruche or ruching **14** to sew it to the fabric or material **16**.

The needle guide **26** is secured to and extends down from the yoke **44** at the center thereof. Thus, automatic reciprocation of the hollow shaft **20**, in which the needle **18** is reciprocated, moves the needle guide **26** and the yoke **44** up and down and swings the rucher **12** toward and away from the needle guide by the action of screw **46** moving in the slot **48**.

One end of the tension spring **58** is secured to the fulcrum or rucher carrying lever **50** and the other end thereof to the yoke **44** so that this spring normally pulls the rucher toward the needle guide **26**.

Secured to and extending down from the inner race **60** of the ball bearing **62**, I provide the presser foot **64**, the post **66** of which is positioned in the yoke **44**. The end of the presser foot is bifurcated so that the needle guide **26** may be reciprocably received when either the foot or guide are moved up and down in relation to each other.

Thus, when the rucher **12** is manually rotated by means of the hollow shaft **20**, and the train of gears, the yoke **44** is rotated about the needle **18** as the center to carry with it the presser foot **64** in a circular path.

The needle **18** is reciprocated for the sewing operation in the conventional manner, which therefore need not be described, at the center of and in the hollow shaft **20** and upper mounting **22**.

To recapitulate, the rucher **12** and therefore the presser foot **64** are manually rotated in order to feed the ruche or ruching **14** in accordance with the design and the ruche or ruching sewed to the fabric or material **16** by the reciprocation of the needle **18**.

The presser foot **64** is given a compound movement to automatically and concurrently vertically and horizontally reciprocate it in order to hold the ruche or ruching to sew it to the material and push the material and ruche or ruching away from the needle **18** after the sewing operation, the mechanism for which movement I shall now describe.

The outer race **68** of the ball bearing **62** is detachably mounted, as by the wing set screw **69**, on the end of the crank arm **70**, which crank arm extends from the bracket **72** to which it is secured by any satisfactory means such as the pin **74**.

The crank arm **70** bends inwardly toward the upper mounting **24** and is pivoted at the upper end to the hollow block **76** as by means of the set screws **78**.

The block **78** is secured to the slidable vertical presser for reciprocating bar **80** by the finger **82** and which bar **80** is reciprocated by conventional cam or similar mechanism of the machine on which my attachment is mounted by means of the member **84** extending through the block or support **10** at the rear thereof.

Thus, the crank arm **70** moves the ball bearing **62** down and up, and so, the presser foot **64** which is attached to the inner race **60**.

In order to fully understand the construction by means of which the presser foot **64** is automatically reciprocated horizontally, I shall first describe the mechanism by means of which the ball bearing is manually moved so that the members mounted thereon are also moved in the selected horizontal direction to form the ruching design.

The shaft **86** which is rotated manually by means of the handle, is mounted for rotation in the upper bracket **88** and the lower bracket **90**, both of which are carried by the block or support **10**.

On this shaft **86**, I mount the cam or eccentric **90** which is rotated in the collar **94** extending from and integral with the bracket **72**.

Thus, as the shaft **86** is manually rotated, it will move the crank arm **70** about the pivot formed by the set screws **69** in a clockwise or counterclockwise direction as viewed in Fig. 1.

This will of course move the ball bearing **62** and so the rucher **12**, needle guide **26** and presser foot **64** correspondingly to the left or right of Fig. 1. As pointed out, this motion is manually performed.

The presser foot **62** in addition to its automatic vertical movement, as heretofore described and accomplished by the reciprocation of the bar **80** and finger **82**, which latter is secured to a conventional mechanism found on the sewing machine, must be moved automatically horizontally in proper sequence to the left and right of Fig. 1 in order to push the material after the sewing operation away from the needle and bring the presser foot back to position to lower it against the ruche or ruching and the material for the next sewing operation.

This is accomplished by the mechanism which I shall now describe. The reciprocable bar **96**, slidable in the straps **98** and **100** mounted on the block or support **10** of my attachment, is automatically reciprocated by a sewing machine mechanism which actuates the finger **102** extending from the rear of the attachment. This vertical reciprocation of the horizontal presser foot movement bar **96** is produced by conventional cam or similar mechanism within the sewing machine and its action is conventional, its timing relationship with respect to the needle guide movement and vertical presser foot movement being such as to draw each finished stitch away from beneath needle **18** after needle **18** is withdrawn from the work following completion of a stitch.

At the end of the reciprocable bar, I provide the fork

member **104** which is mounted in the grooved collar **105** which collar is slidable on the shaft **86**.

Secured to the shaft **86** as by the pins **106**, I provide the support **108** which carries the beveled finger **110** which finger is secured to the support by the pivot pin **112**.

A beveled groove **114**, having a cam-like surface, is provided in the collar **105** in which the upper member **116** of the finger **110** slides as the collar is reciprocated by the movement of the bar **96**, it being understood that the collar is not fixed to the shaft **86** but slides on it.

The lower member **118** of the finger **110** is mounted between the eccentric or cam **92** and the collar **94** extending from the bracket **72** secured on the crank arm **70**. The cam or eccentric **92** is slidably held on shoulderers at the lower end of the support **108**.

Thus, as the grooved collar **105** is automatically moved downward by the movement of the bar **96**, the upper member **116** is pushed by it in a counterclockwise direction against the tension of the spring **120**, one end of which is wound on the pin **122** extending from the support **108** and the other end of which is mounted in the cam or eccentric **92**, which forces the lower member **118** to rotate in a counterclockwise direction (each as viewed in Fig. 1), thereby forcing the collar **94** and the crank arm **70** to also move in a counterclockwise direction, as viewed in Fig. 1. This moves the ball bearing **62**, which is mounted on the crank arm **70**, and the presser foot **64** to the right of Fig. 1.

As the grooved collar **105** is moved upwardly by the bar **96**, the upper member **116** is pulled by the spring **120** in a clockwise direction, as viewed in Fig. 1, about the pin **122** to pull the ball bearing **62** and the presser foot **64** to the left of Fig. 1, which motion moves the ruching or ruche **14** and the material or fabric **16** to which it has been sewed away from the needle **18** for the next sewing operation.

To sum up at this point, all rotational movements that selectively position the rucher **12**, needle guide **26**, presser foot **64** and inner race **60** are manually performed by rotation of the shaft **86**, it being understood that the ball bearing **62** is correspondingly moved to the right or left of Fig. 1 to accommodate it to the selective movement of the rucher.

All vertical movements of the needle **18**, the hollow shaft **20** on which the rucher **12** is carried, the needle guide **26**, the outer race **68** and the horizontal movement thereof to control the presser foot for feeding the sewed material away from the needle are automatically performed by connecting the proper parts of my attachment to the mechanisms found on the sewing machine on which my attachment is mounted.

To sew the ruche or ruching to the fabric or material, the mechanism which is provided in the sewing machine on which my attachment is mounted, is arranged to perform the operations in the following sequence:

As the fabric or material to which the ruche or ruching has been sewed, is being pulled away by the action of the presser foot, the needle starts to move down toward the fabric or material. The needle guide, after downward movement of the needle commences, follows with its movement down and the rucher commences movement to closing position toward the needle guide. This of course feeds the ruche or ruching into position.

The needle guide is moved into position and the needle enters the ruche or ruching and the material to make the lock stitch. When the needle is about to come out as it is moved upward, the presser foot, which is at raised or upward position, moves toward the path of reciprocation of the needle and then down against the material to hold it.

As the material and ruching are held by the presser foot, the needle moves up to complete the stitch and both it (the needle) and the needle guide continue their upward motion. The rucher then moves away from the needle guide to open position to make ready for its next movement.

As the needle guide and needle move upwardly, the presser foot held down against the ruche or ruching and the material is automatically moved in a horizontal direction away from the needle to thereby push away and feed the sewed material for the next stitch.

As the material is being pulled away, the needle and needle guide move down and the rucher commences to move in. As the needle enters the ruche or ruching and the fabric or material, the presser foot, which has been

moved to its outward position moves up to release the sewed material and commence the operations over again, it being understood that the presser foot is automatically moved at its upper position toward the needle so that it (the presser foot) can commence its downward movement before the needle is removed after making the stitch.

It should be noted that certain portions of the device thus far described form a part of a standard "Bonnaz" or Cornely sewing machine model FD. These comprise the presser foot crank **70** together with the mechanism for imparting to this crank **70** a vertical movement and a horizontal movement in the direction of stitching; the hollow rod **20** together with the means for imparting to it a vertical movement and a rotary motion to change the direction of stitching; the needle **18** and the means for imparting to it a vertical movement, all of these movements being coordinated by conventional mechanism within the machine, together with the manually operable crank and mechanism driven thereby which rotates shafts **86** and **20** to change the direction of stitching.

My attachment comprises the hollow ring ball bearing **62** which carries the presser foot **64** and imparts thereto its conventional movement; the freely rotatable non-reciprocating collar **40** to which the upper end of rucher carrying lever **50** is pivotally secured; the means for actuating the lever **50** to draw the rucher toward the needle guide as the latter descends together with the means for rotating collar **40** as the direction of stitching is changed, all of these various elements being so designed and arranged that they may be conveniently attached to or removed from a sewing machine of this character. This change is possible with a minimum of disturbance to the normally used parts of the machine in order that it may be quickly and easily restored to condition for normal use.

While I have described in detail a certain embodiment of my invention, it will be understood that I do not intend to be limited to the details thereof as many changes and modifications may be made thereto without departing from the spirit and scope of the invention.

I claim:

1. A ruching attachment for a sewing machine in which the direction of stitching may be varied at will throughout a complete circle, said sewing machine comprising a needle and means for vertically reciprocating the same, means for vertically reciprocating a needle guide, means for rotating together said needle and said needle guide reciprocating means as the direction of stitching is varied, and means for vertically reciprocating a presser foot and imparting thereto a horizontal movement in the direction of stitching, said attachment comprising a hollow ring bearing having inner and outer portions, said outer portion being carried by said presser foot reciprocating and moving means; means for rotating said inner bearing portion as the direction of stitching is varied; a presser foot carried by said inner bearing portion; a needle guide; supporting means for said needle guide extending through said inner bearing portion and carried by said needle guide reciprocating means; a rucher, means revoluble as said direction of stitching is varied supporting said rucher for movement toward and away from said needle guide; and means carried by said needle guide supporting means and disposed to move said rucher toward said needle guide as said needle guide moves downwardly, whereby ruching will be fed beneath said needle in the direction of stitching prior to each stitching operation thereof.

2. A ruching attachment for a sewing machine in which the direction of stitching may be varied at will throughout a complete circle, said sewing machine comprising a needle and means for vertically reciprocating the same, means for vertically reciprocating a needle guide, means for rotating together said needle and said needle guide reciprocating means as the direction of stitching is varied, and means for vertically reciprocating a presser foot and imparting thereto a horizontal movement in the direction of stitching, said attachment comprising a hollow ring bearing having inner and outer portions, said outer portion being carried by said presser foot reciprocating and moving means; means for rotating said inner bearing portion as the direction of stitching is varied; a presser foot carried by said inner bearing portion; a needle guide; supporting means for said needle guide extending through said inner bearing portion and carried by said needle guide reciprocating means; a freely revoluble non-reciprocating supporting member disposed to revolve about the

axis of said needle; a rucher disposed at the end of an arm, said arm being pivotally connected to said revoluble supporting member for movement toward and away from said needle guide; means for rotating said arm and said supporting member as the direction of stitching is varied; and means carried by said needle guide supporting means and disposed to move said rucher toward said needle guide as said needle guide moves downwardly, whereby ruching will be fed beneath said needle in the direction of stitching prior to each stitching operation thereof.

3. A ruching attachment according to claim 2 in which said rucher arm extends through said inner bearing portion.

4. A ruching attachment according to claim 2 wherein said freely revoluble supporting member is a collar.

5. A ruching attachment for a sewing machine in which the direction of stitching may be varied at will throughout a complete circle, said sewing machine comprising a needle and means for vertically reciprocating the same, means for vertically reciprocating a needle guide, means for rotating together said needle and said needle guide reciprocating means as the direction of stitching is varied, and means for vertically reciprocating a presser foot and imparting thereto a horizontal movement in the direction of stitching, said attachment comprising a hollow ring bearing having inner and outer portions, said outer portion being carried by said presser foot reciprocating and moving means; means for rotating said inner bearing portion as the direction of stitching is varied; a presser foot carried by said inner bearing portion; a needle guide; supporting means for said needle guide extending through said inner bearing portion and carried by said needle guide reciprocating means; a freely revoluble non-reciprocating collar disposed to revolve about the axis of said needle; an arm pivotally connected to said collar and extending through said inner bearing portion for movement toward and away from said needle guide, said arm having camming surface; a rucher disposed at the end of said arm; means for rotating said collar and said arm as the direction of stitching is varied; and means carried by said needle guide supporting means and engaging said camming surface and disposed to move said rucher toward said needle guide as said needle guide moves downwardly, whereby ruching will be fed beneath said needle in the direction of stitching prior to each stitching operation thereof.

6. A ruching attachment according to claim 5, wherein said ring bearing is a ball bearing.

7. A ruching attachment according to claim 5 wherein said arm has an elongated slot therein comprising said camming surface, and wherein said means carried by said needle guide supporting means comprises means movable longitudinally within said slot.

8. In combination, a needle guide, means to mount said needle guide for up and down reciprocation, a ring bearing disposed concentrically of the needle guide and having inner and outer portions, means to mount said bearing for vertical up and down reciprocation about its axis, means to rotate the needle guide and the inner ring portion in the same direction simultaneously and at the same angular rate of rotation about the common axis of said needle guide and bearing, a presser foot fixed to said inner ring portion, means to move said bearing sideways in all angular positions of the inner ring portion, a rucher, means to rotate the rucher together with the needle guide about the axis of the needle guide, and means controlled by reciprocation of the needle guide to oscillate the rucher about an axis perpendicular to the reciprocation of the needle guide in all angular positions of said needle guide downwardly, toward the needle guide and upwardly away from said needle guide.

9. In combination, a presser foot, means to mount said presser foot for vertical reciprocation, means to rotate said presser foot about a vertical axis, means controlled by the vertical reciprocation of the presser foot to reciprocate the presser foot horizontally in all angular positions of rotation of said presser foot, a rucher, means to mount the rucher directly in front of the presser foot, means to rotate the rucher about said vertical axis in the same direction and following the rotation of said presser foot, and means to oscillate the rucher in all angular positions of said rucher, downwardly toward the presser foot and upwardly away from said presser foot.

10. A device according to claim 8, said ring bearing and needle guide being coaxial, and said bearing surrounding said needle guide.

11. An attachment for a sewing machine comprising a hollow shaft mounted for up and down reciprocation, a needle guide attached to said hollow shaft, a ring bearing comprising inner and outer ring portions surrounding said hollow shaft and coaxial with respect thereto, a presser foot attached to the inner ring portion, a fixed collar surrounding said hollow shaft, a rucher pivoted to said fixed collar, said rucher being formed with an inclined slot, a pin fixed to the hollow shaft and passing through said slot for oscillating said rucher as said hollow shaft reciprocates, means to rotate said hollow shaft and inner ring portion simultaneously through equal angles, said bearing being movable up and down, and means controlled by the up and down movement of said bearing to cause said bearing and presser foot to move sideways in all angular positions of said inner ring portion.

References Cited in the file of this patent

UNITED STATES PATENTS

656,967	Grubman	Aug. 28, 1900
751,056	Cooper et al.	Feb. 2, 1904
797,308	Nassberg	Aug. 15, 1905
1,031,681	Antopol	July 9, 1912