

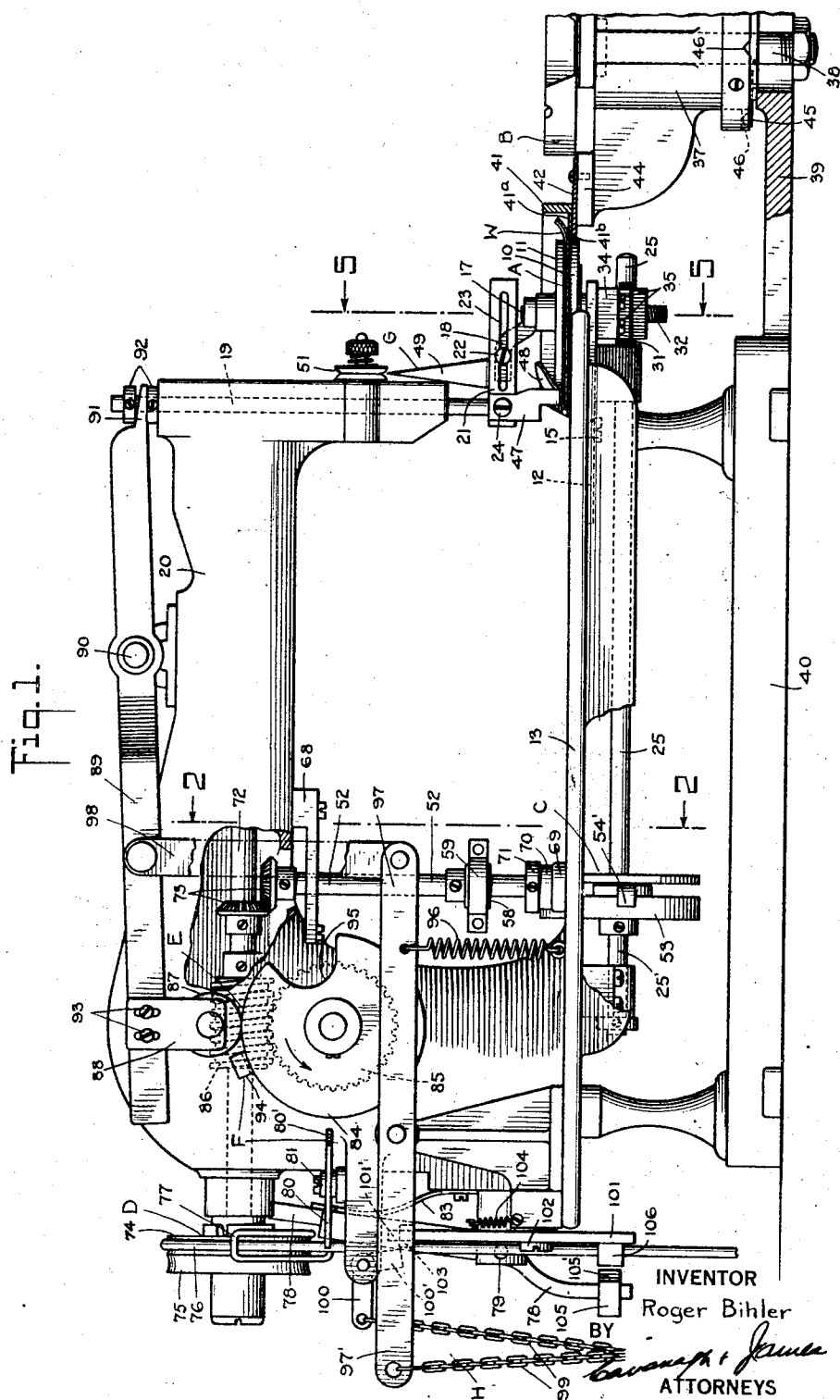
June 9, 1931.

R. BIHLER

1,808,805

POWDER PUFF SEWING MACHINE

Filed Aug. 12, 1926 3 Sheets-Sheet 1



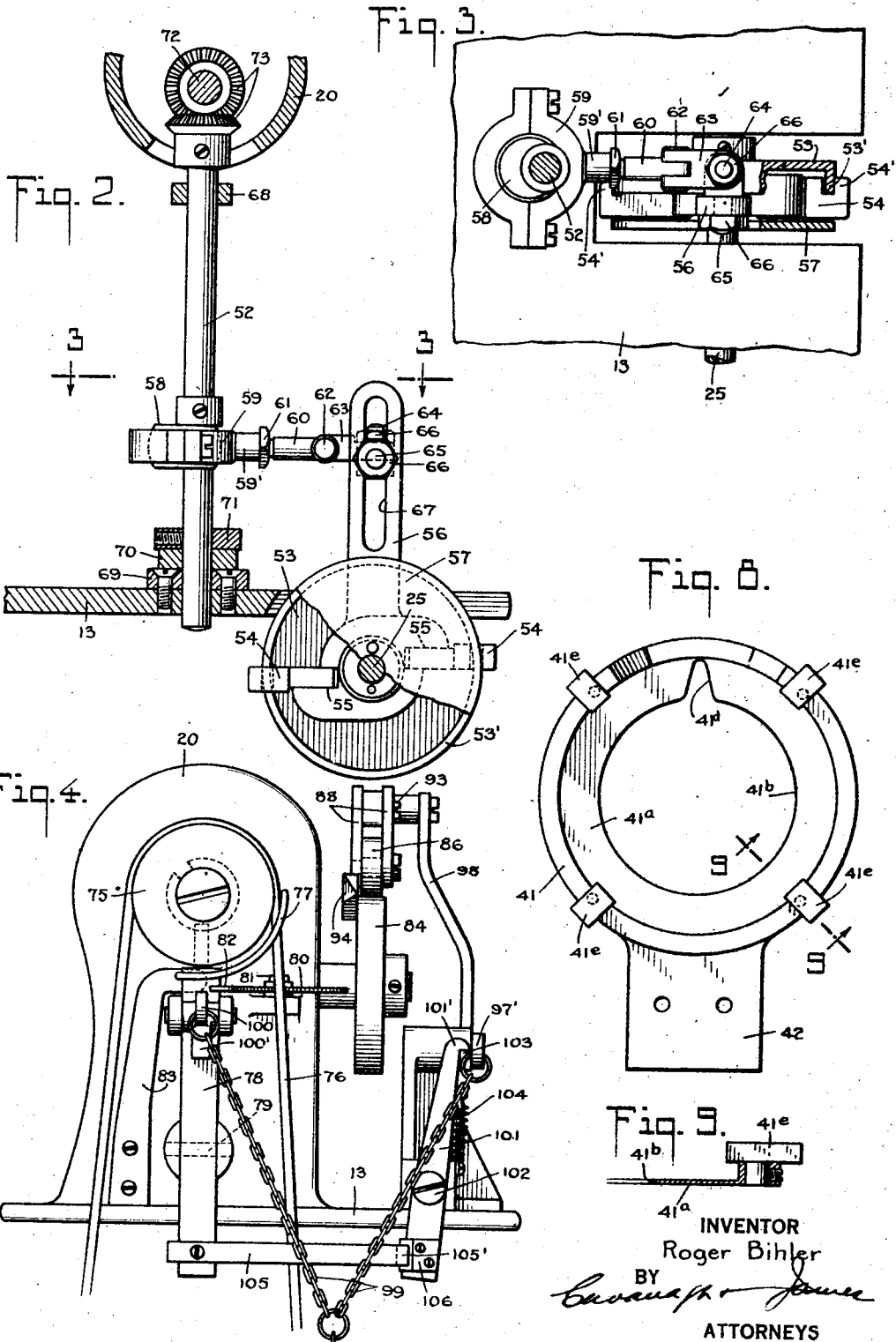
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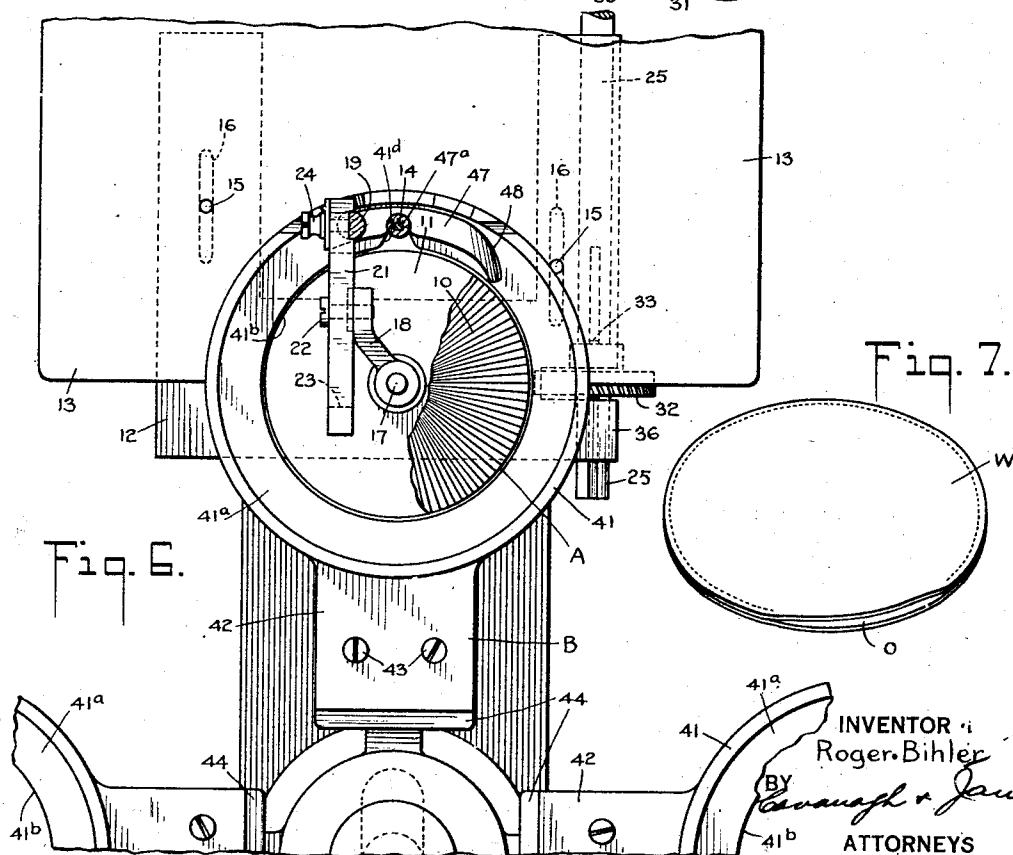
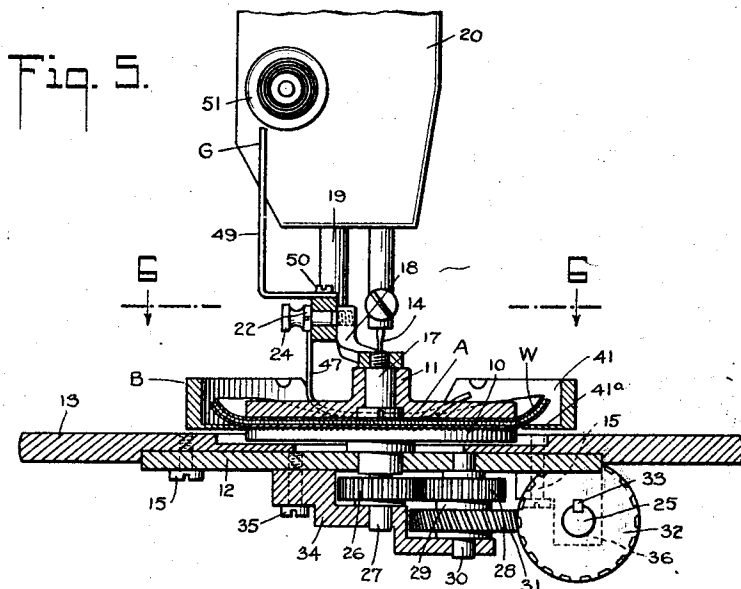
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UNITED STATES PATENT OFFICE

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POWDER PUFF SEWING MACHINE

Application filed August 12, 1926. Serial No. 128,835.

This invention relates to a machine for sewing circular multi-ply articles such as powder puffs, and the prime desideratum of the invention comprehends the provision of improvements for operating the machine to produce powder puffs of high-grade quality and of uniform characteristics on a quantity production scale.

One of the principal objects of the invention in carrying out this prime desideratum centers about the provision of an improved work feeding mechanism designed and constructed for clasp ing and holding together the multiple plies forming the embryo powder puff assembly and for feeding the same to be sewed or stitched together in a manner to produce a resulting powder puff having the plies united together at their rims to form a uniformly flat and unruffled pouch and in a manner to prevent any injury to and to maintain the integrity of the nap of the powder puff.

As is well known, powder puffs are manufactured by assembling in superposed relation nap to nap two plies of a powder puff material cut to circular configuration and sewing the plies at their circumferential edges or rims a distance somewhat less than the entire rim circumference, leaving an opening through which the embryo pouch formed is turned inside out, after which the pouch so formed is filled and sewed by hand at the aforesaid opening. To produce powder puff pouches of neat appearance and uniform characteristics without injuring the delicate fabric or nap of the powder puff, it is desirable to feed the multi-ply powder puff assembly to the machine for sewing the rims thereof by holding the multiple plies together as they are fed to the machine needle in a manner to prevent any relative movement or slippage therebetween, such slippage producing a resulting powder puff having a twisted, non-flat and unsightly appearance; and it is further desirable in holding such plies together to prevent relative slippage therebetween to minimize any such pressure on the material that would tend to flatten or injure the nap of the material. To accomplish these desired objects, my present in-

vention contemplates the provision of an improved work feeding device embodying a means for holding together the plies of the work assembly with a predetermined and uniform pressure which may be adjusted to suit the character of the fabric employed and for feeding the work assembly to the machine so as to produce stitched circumferential edges of uniform and neat appearance.

A further principal object of my present invention comprehends the provision of a powder puff making machine which is automatically controlled in all of its major operations to permit the employment of unskilled help while affording the production of uniform and consistent results in the making of the powder puff by quantity production methods, such object being accomplished by the provision of means for maintaining uniform the predetermined pressure exerted on the multi-ply assembly during feeding thereof, by the provision of further means for automatically releasing this pressure at a predetermined point in the operation of the machine so as to permit quick releasing of the work from the machine, by the provision of further means for automatically releasing the thread tensioning means of the machine when the work is released to permit withdrawal of the work assembly and replacement thereof by a new embryo assembly without time lag, and by the provision of means for automatically stopping the operations of the machine when the predetermined circumferential amount of the multi-ply assembly has been sewed or stitched by the machine.

To increase the output or speed of operation of the machine, the invention further contemplates the provision of a work holding device constructed and designed to permit the operator to assemble thereon new work to be fed to the machine while the machine is operating upon work already fed thereto, and so as to permit the quick substitution to the machine of the work assembly for the finished work. In carrying out this object, a further desideratum of the invention comprehends the provision of a work holding device associated with the work feeding apparatus so as to permit the obtaining of uniform and con-

sistent results with the machine operating at a high output rate.

A further principal object of the invention resides in the provision of improved means for intermittently feeding the work assembly in relation to the machine needle; and the further provision of such means which may be readily adjustably by the operator to predetermine the portion of the circumference of the work assembly to be stitched or sewed and to determine this in relation to the different diameters of powder puffs operated upon by the machine; and the still further provision of mechanism which an unskilled operative may readily adjust to adapt the machine for powder puffs of different diameters and different thicknesses and quality of material.

A still further object of the invention centers about the provision of a machine of the character referred to in which all the parts are organized in accordance with simple laws of operation to accomplish the manifold objects of the invention in a simple manner.

To the accomplishment of the foregoing and such other objects of the invention as will hereinafter appear, my invention consists in the elements and their relation one to the other as hereinafter more particularly described and sought to be defined in the claims; reference being had to the accompanying drawings which show the preferred embodiment of my invention, and in which:

Fig. 1 is a front elevational view of the machine with parts broken away and other parts shown in section,

Fig. 2 is a fragmentary view thereof taken in cross-section in the plane of the line 2—2, Fig. 1,

Fig. 3 is a view taken in cross-section in the plane of the line 3—3, Fig. 2,

Fig. 4 is an end elevational view of the machine,

Fig. 5 is a view taken in cross-section in the plane of the line 5—5, Fig. 1,

Fig. 6 is a plan view taken in cross-section in the plane of the line 6—6, Fig. 5,

Fig. 7 is a perspective view of a powder puff pouch produced by the operation of the machine,

Fig. 8 is a plan view of part of the work holding means in the machine, and

Fig. 9 is a fragmentary view of a detail taken in cross-section in the plane of the line 9—9, Fig. 8.

Before describing the machine embodying the principles of my invention in detail, I may first briefly explain by reference to Fig. 1 of the drawings that in the operation of the machine the work W in the form of superposed plies of material is fed to the machine by a work feeding means generally designated as A which receives the work from a work holder B manipulated by the operator; the

said work feeding means A being constructed and designed to hold under uniform pressure the multiple plies of material forming the work assembly and to feed the circumferential edges thereof into stitching relation with the machine needle, the said work feeding means A being intermittently operated by a stitch-producing mechanism C operated from the drive mechanism D of the machine. The pressure maintained on the work W by the work feeding means A is uniformly produced by a cam operated mechanism E connected to the work feeding means A, and the said cam operated mechanism E is designed and actuated so that at a predetermined point of operation of the machine pressure on the work is automatically released, this cam operated mechanism further embodying means generally designated as F for tripping or stopping the operation of the machine at said predetermined point of operation thereof. To effect quick discharge from the machine of the work finished thereby and quick replacement thereof by a new embryo assembly, the invention further comprehends a thread tension releasing mechanism G which is automatically operated to release the tension on the thread when the operation of the machine is tripped and the pressure effective on the work is released; and to return the parts to operating condition there is provided treadle or other manually operated means generally designated as H for returning the operating mechanism D and the work feeding means A to the operating positions shown in Fig. 1 of the drawings.

The work feeding means A comprises in the preferred construction a rotatable stitch-producing or forming work table 10 which may be radially serrated as typically shown in Figs. 1 and 6 of the drawings so that the work received by the work table may be effectually gripped thereby, and cooperating with the work table 10 there is provided a freely rotatable pressure plate 11 movable into and out of engagement with the multiple work assembly W held or clasped between the work table and the pressure plate, the diametrical dimensions of both work table and pressure plate being such that the circumferential edges or rim of the work assembly W is exposed to permit such edges to be stitched together in the operation of the machine. As shown typically in Fig. 5 of the drawings, the work assembly is formed by arranging in superposed relation nap to nap two plies of the powder puff material cut to circular configuration, the assembly being centered with respect to the work table and cooperating pressure plate.

The work table 10 is mounted for intermittent rotation in a supporting plate 12 secured to the bottom plate 13 of the machine head, the said supporting plate 12 being slidable in the bottom plate 13 for the pur-

pose of adjusting the position of the work table 10 relative to the machine needle 14 to accommodate the machine to powder puffs of different diameters, the said slide plate 12 being secured in adjusted position by means of the screws 15, 15 which are threadedly received by tapped bores in the bottom plate 13 and which are received by elongated slots 16, 16 in the slide plate 12 permitting the desired adjustment of the latter.

The pressure plate 11 is mounted for free rotation on a screw stud 17 which is threadedly attached to an arm 18 movable between elevated and descended positions by means of a pressure plate lifting bar 19 reciprocable in the head 20 of the machine, the said arm 18 being adjustably connected to a bracket 21 by means of the screw 22 secured to the arm and adjustably receivable in an elongated slot 23 in the bracket, the said bracket being in turn attached to the lifting bar 19 by means of the securing device 24. The adjustment of the pressure plate 11 afforded by the screw and slot adjustment means 22—23 is provided for adjusting the pressure plate in correspondence with the predetermined adjustment of the work table and its slide support to suit or accommodate the different dimensions of powder puffs to be operated upon. As will be pointed out more in detail hereinafter, the pressure exerted on the pressure plate 11 may be predetermined and is made such as to effectively clamp or hold the plies of the material together without breaking or injuring the delicate nap of the work material and in a manner to permit feeding of the material without permitting relative slippage between the plies of the assembly; and by means of the construction described, it will be evident that the intermittent rotation imparted to the work table 10 effects the rotation of the pressure plate 11 and the intermittent feeding of the work held therebetween.

The intermittent operations of the work table 10 are produced by intermittently operating a drive shaft 25 journaled longitudinally in the machine, the work table 10 being connected to the drive shaft 25 by a train of gears comprising a spur gear 26 keyed to a shaft 27, to which shaft the turntable 10 is fixed, the said spur gear meshing with a gear 28 fixed to a sleeve 29 which in turn revolves on a stud 30, the said sleeve 29 having fixed thereto a spiral gear 31 meshing with a spiral gear 32 which in turn is loosely keyed as at 33 to the drive shaft 25. This gear system is supported and carried by the slide plate 12, part of the same being held by a gear housing 34 attached to the slide plate 12 by screws 35, 35, the construction being such that the gear system is movable with the adjustment of the slide plate 12, the gearing connection being maintained by the loose key 33. The spiral gear 32 is held between

opposed abutments 36 formed with the slide plate 12 so as to partake of the movement of the slide plate.

The work holding means B comprises a turntable device manipulated by the operative for presenting the assembled plies of material to the work feeding means A, the said work holding means being constructed and designed to permit the operator to assemble thereon new work to be fed to the machine while the machine is operating on work already fed thereto and so as to permit the quick substitution to the machine of the work assembly for the finished work. This turntable comprises in the preferred construction a hub 37 rotatable about a stud shaft 38 as an axis, the latter being adjustably secured within a longitudinal slot in a supporting arm 39 extending from and preferably integral with the bed 40 of the machine, this adjustment being kept commensurate with the adjustment of table 10 on plate 12, and to the hub 37 are secured a plurality, such for example as four, work holding elements 41, 41 each adapted for receiving assembled plies of material and each movable by turntable rotation to position the work assembly on the work table 10, as will be clearly apparent from a consideration of Figs. 1, 5 and 6 of the drawings.

Each of the work holding elements 41 comprises a receptacle having a work supporting rim 41a and a central opening 41b movable over and into registry with the work table 10 to position the assembly thereon; and each of said receptacles is provided with a radial arm 42 secured by means of the screws 43 to seat portions 44 provided in the turntable hub 37. Desirably as shown in Figs. 8 and 9 of the drawings, each of the receptacles is provided with work centering elements 41e, 41e which are eccentrically mounted in the peripheral wall of the receptacle, the said centering elements being adjustable by rotation to vary the effective holding diameter of the receptacle to accommodate and center work of varying diametrical dimensions. Where the turntable is provided with four work holding devices, it will be understood that a quarter of a revolution imparted to the turntable will effect the substitution of a new work assembly for the work finished by the machine; and to center the work on the work table, the turntable 37 is provided with a centering means consisting of a resilient finger 45 fixed to the arm 39 and mating with notches 46 provided in the turntable hub 37 (see Fig. 1).

With the construction thus far described, it will be apparent that after the work W is centered relative to the work table 10 by manipulation of the turntable B, the pressure plate 11 may be moved to descended position to effect the gripping of the work W between the pressure plate 11 and the work table 10,

the exposed rim or circumferential edges of the work being supported by the rim 41a of the work holding receptacle 41, which latter is held stationary during the intermittent stitch-forming operation of the work table. For the purpose of guiding and neatly presenting the rim of the work assembly to the machine needle, I prefer to provide a pressure and guide means in the form of a pressure foot 47 secured by means of the screw 24 to the lifting bar 19, the said pressure foot 47 being upturned at its advance end 48 for guiding the work material into operated position. The work holding receptacle 41 is provided with an orifice or notch 41d with which registers a notch 47a provided in the pressure foot 47, both for clearing the machine needle 14, the construction being such that the multiple plies of the material as they are fed between the rim of the work holding receptacle and the pressure foot are compacted to the required or desired degree, such compacting being localized at the machine needle. By means of this construction, combined with the predetermining of the pressure exerted on the work assembly, together with the intermittent stitch-producing operations imparted to the work table 10, I am enabled to sew or stitch together the multiple plies of the embryo assembly in a manner to produce a resulting flat and unruffled powder puff pouch of uniform and neat-appearing consistency. These results are capable of being produced by reason of the fact that the pressure exerted on the work may be predetermined to a degree to prevent or inhibit the breaking or injuring of the nap of the fabric and because the multiple plies are fed in a manner to prevent any relative movement or slippage between the plies of the work assembly.

The manipulation of the turntable B by the operative permits the output of the machine to be increased, since the operative may assemble the work on one of the receptacles 41 while the other receptacle is in machine operating position; and in order to permit the quick substitution to the machine of the new assembly for the finished work, I provide the means G heretofore referred to for releasing the thread tensioning means when the pressure on the work assembly W is released automatically by means to be described hereinafter. This means G for releasing the thread tensioning means comprises a wedge-shaped element 49 attached by means of a screw 50 to the bracket 21, the said wedge 49 being adapted to move between the jaws of the thread tensioning means 51 when the lifting rod 19 is elevated to in turn elevate the pressure plate 11. By means of this construction the turntable B may be given a quick quarter-turn, the released thread permitting a quick operation bringing the new work assembly in centered position at the work

table and permitting thereafter the discharge or removal of the completed work or embryo-formed pouch from the work holding turntable B.

The work feeding means A is, as aforesaid, intermittently operated by the stitch producing mechanism C which comprises clutch means connecting a continuously rotated shaft 52 with the shaft 25 to be intermittently driven, the said mechanism C embodying further means for converting the rotary motion of shaft 52 to an intermittent motion of shaft 25, which latter means is constructed so as to be readily adjustable by an unskilled operator to vary the length of stitch produced by the mechanism C.

The clutch of the mechanism C comprises a clutch body 53 fixed to an extension 25' of the shaft 25, with which clutch body co-operates a pair of clutch feed dogs 54, 54 received by slot 55, 55 provided in a rocker arm 56 oscillatably movable on the shaft 25, the said clutch dogs 54, 54 being provided with grip fingers 54' which co-act with the rim 53' of the clutch body 53 to impart intermittent motion to the clutch body when the rocker arm 56 is oscillated or rocked about its pivot shaft 25, this being accomplished by the slight eccentric positioning of the feed dogs 54, 54 relative to the rim of the clutch body and by the oscillating action imparted to the feed dogs which results in the rim of the clutch body being alternately gripped and released during the oscillation of the rock arm 56. The clutch body 53 is also preferably provided with a cover plate 57.

For converting the rotation of shaft 52 into oscillation of the clutch driving rocker 56, there is provided a ball eccentric 58 rotating within the ball eccentric strap 59, which latter is connected to a connecting rod 60 threadedly adjustable as at 61 in the sleeve extension 59' of the eccentric strap; and the said connecting rod 60 is swivelly attached by the wrist pin 62 to a connecting link 63, which latter can rotate horizontally about a stud 64 or vertically about a stud 65, the stud 65 being mounted in the rear end of the stud 64, the parts being secured together by securing nuts 66, 66 which are threadedly received by the studs, the construction being such that the connecting rod 60 is attached to the rock arm 56 in a way to permit universal relative movement between the same, the said rod being in turn attached to the shaft 52 to permit universal movement between the same.

For adjusting or varying the length of the stitch, the stud 65 is made adjustable in the rock arm 56, and to this end the said stud is adjustably received by the elongated slot 67 provided in the rocker arm 56; and it will be apparent that adjustment of the stud in the rocker arm will vary the arcuate throw of the rocker arm and hence vary the de-

gree of movement imparted to the work feeding device A for each oscillation of the rocker arm. The clutch operating shaft 52 is journaled at its top in a bracket arm 68 fixed to the head 20 of the machine and at its bottom in a journal plate 69 provided with the thrust plate 70 which engages the thrust collar 71 fixed to the shaft 52, the said shaft deriving motion from a continuously rotated shaft 22 arranged horizontally in the head 20 of the machine by means of the bevel gears 73.

The drive mechanism D for operating the parts of the machine comprises the conventional means for driving the horizontal shaft 72 which includes a pulley 74 fixed to the shaft and a pulley 75 idle thereon, the said pulley 74 being driven by means of a belt 76 receiving motion from any suitable source of power (not shown), the said belt 76 being shiftable onto the idler 75 when it is desired to stop the operation of the machine parts. The means for shifting the belt 75 may comprise a yoke member 77 embracing part of the strap 76, the said yoke member being attached to one end of a shift lever 78 fulcrumed as at 79, the said shift lever being normally held in the position shown in Figs. 1 and 4 of the drawings by means of a latch member 80 pivoted on the screw stud 81, the said latch being provided with a latch finger 82 engaging the upper end of the shift lever 78 and holding the same against the tension of a leaf spring 83. With this construction it will be apparent that normally the shift lever 78 is held in the position shown to drive the machine parts, and that when the latch lever 80 is tripped, the shift lever 78 will be released and will be shifted by force of the spring 83 to move or shift the belt 76 onto the idler 75.

As heretofore mentioned, a desired object of the invention centers about the provision of means for maintaining the pressure on the pressure plate 11 constant during the operation of the machine, and to this end the cam means E heretofore referred to is provided. This cam means E comprises a cam wheel 84 which is connected to the shaft 72 to be rotated in the direction of the arrow shown in Fig. 1, the cam being connected to the shaft by means of a gear 85 fixed to the cam shaft meshing with a worm gear 86 fixed to the shaft 72, said cam means further including a cam follower 87 which engages and rides under pressure over the rim of the cam wheel 84, the said cam follower being journaled in a holder 88 fixed to a lever 89, the latter being fulcrumed at 90 on the machine head 20, the said lever being provided at its advance end 91 with a finger held between a pair of collars 92 fixed to the lifting bar 19 so that movement of the lever 89 about its fulcrum operates the lifting bar 19. In the operation of the machine the riding of the cam follower 87 on the cam wheel 84 causes a

constant pressure to be transmitted to the lifting bar 19 and consequently to the pressure plate 11; and this transmitted pressure may be predetermined and varied in accordance with the height of the nap or other characteristics of the fabric by making one of the parts adjustable and preferably by adjustably mounting the holder 88 in the lever 89 by means of the adjusting elements 93.

As heretofore stated, the multi-ply assembly W is stitched by the machine a predetermined distance about its circumference, and as shown for example in Fig. 7 of the drawings, the stitching is predetermined so as to leave an opening *o* in the powder puff pouch through which the powder puff may be turned inside out to be filled and finished. To predetermine the portion of the circumference to be sewed, I provide means for automatically stopping the operation of the machine when the desired point is reached, and such means heretofore designated as F comprises a trip device 94 preferably attached to the cam wheel 84, which trip device cooperates with the bevel end 80' of the latch 80 to trip the said latch when the cam wheel 84 reaches a predetermined point in its travel, the tripping of the latch resulting in shifting the belt 76 and stopping the operation of the machine.

As heretofore pointed out, when the operation of the machine is automatically stopped the pressure exerted on the work assembly is released and the pressure plate 11 elevated, permitting the withdrawal of the work from the machine; and to accomplish these results the cam means E is constructed so that when the machine is stopped the pressure plate 11 is automatically elevated. This is accomplished by providing a notch 95 in the cam wheel 84 which is adapted to mate with and receive the cam follower 87 to permit actuation of the lever 89 to elevate the pressure plate. The lever 89 is actuated at such time by its weight combined with the action of a spring 96 anchored so as to exert its force on an operating lever 97 connected to the lever 89 by means of the connecting link 98.

After a stopping operation the parts of the machine may be returned to normal operating condition, and this is effectuated by returning the lever 97 to the position shown in Fig. 1 of the drawings and by returning the shift lever 78 to its normal operating position by means heretofore referred to as the operating means H, which comprises pulley chains or equivalent apparatus 99 attached to a pedal (not shown) so that when the pedal is operated the motion will be transmitted by the chains 99 to the rear end 97' of the lever 97 and to a bell crank lever 100 fulcrumed in the machine, which bell crank lever is provided with an arm 100' engaging the shift lever 78 to return the same to the position shown typically in Figs. 1 and 4 of the

drawings to be latched in such position by the latch device 80.

Preferably and for the reasons now to be explained, the operating lever 97 is also latched in the position shown in the drawings, this being effected by means of a latch lever 101 fulcrumed on the machine on the screw stud 102, the upper end of the lever having a latch finger 101' engaging a tooth 103 provided in the lever 97 (see Figs. 1 and 4). The latch lever 101 is normally held in its latching position by means of a spring 104. The latching of the lever 97 permits the treadle to be released while the elevated cam follower 87 is still over the cam wheel notch 95 and prior to the pressure engagement of the cam wheel rim with the cam follower 87, and also prevents descending movement of the cam follower 87 into the notch 95 until the full notch is beneath the cam follower, at which time the operation of the machine is predeterminedly stopped. It will be evident that this permits the pressure to be maintained on the work until the point of stopping the machine, and prevents the pressure at the terminal portion of the work from being gradually released and varied.

The latching of the lever 97 as described necessitates the releasing of the latch when the machine is stopped and this is effected by the provision of a latch trip arm 105 fixed to the lower arm of the shift lever 78 and partaking of the movement thereof, the advance end 105' of the latch trip arm 105 being adapted to engage a finger 106 fixed to the latch lever 101 so as to operate the latch lever 101 to the unlatching position permitting the pressure plate elevating operation of the cam means E.

The use and operation of the machine will in the main be fully apparent from the above detailed description of the mechanism and sequence of operations thereof. It will be further apparent that while I have shown and described my invention in the preferred form, that many changes and modifications may be made in the structure disclosed without departing from the spirit of the invention, defined in the following claims.

I claim:

1. In a machine for sewing circular multiply articles, a machine head having a pair of forwardly projecting arms, a rotatable work-feeding work table for receiving assembled plies of material and for stitch-feeding the same to the machine needle, a plate subjacent said work table for supporting the same and mounted for longitudinal adjustment along the lower arm of said machine head, a pressure plate movable into and out of engagement with the multi-ply assembly for holding the plies of material together and in engagement with the work table to be rotated thereby, means for adjustably supporting said pressure plate on said machine head, and

means for intermittently operating the work table in unison with the stitching operations of the needle.

2. In a machine for sewing circular multiply articles, a machine head including an operating shaft, a rotatable work-feeding work table for receiving assembled plies of material and for stitch-feeding the same to the machine needle, a supporting plate for said work table slidably mounted for adjustment on said machine head, gearing supported on said plate and connecting the work table with said operating shaft, a pressure plate movable into and out of engagement with the multi-ply assembly for holding the plies of material together and in engagement with the work table to be rotated thereby, and means for intermittently operating the shaft to actuate the work table in unison with the stitching operations of the needle.

3. In a machine for sewing circular multiply articles, a machine head including an operating shaft, a rotatable work-feeding work table for receiving a plurality of plies of material assembled to be sewed together and for feeding the same to the machine needle, a supporting plate for said work table adjustably mounted on the machine head, gearing supported on said plate and connecting the work table with the operating shaft to permit of adjustments of said plate, and means for intermittently operating the shaft to actuate the work table in unison with the stitching operations of the needle.

4. In a machine for sewing circular multiply articles, a machine head including an operating shaft, a rotatable work-feeding work table for receiving a plurality of plies of material assembled to be sewed together and for feeding the same to the machine needle, means for adjustably supporting the work table on the machine head, means connecting the work table with said operating shaft while permitting of said adjustment, and means for intermittently operating the shaft to actuate the work table in unison with the stitching operations of the needle.

5. In a machine for sewing circular multiply articles, a rotatable work table, a work holder for receiving assembled plies of material, said work holder being movable to position the assembly on the work table and for holding the same so positioned, a pressure plate movable into and out of engagement with the multi-ply assembly for holding the plies of material together and in engagement with the work table to be rotated thereby, and means for intermittently operating the work table to effect the operation thereof.

6. In a machine for sewing circular multiply articles, a rotatable work table, a work holder for receiving assembled plies of material, said work holder and support having an opening in its bottom movable over and in registry with the work table to position the

assembly thereon, a pressure plate movable into and out of engagement with the multi-ply assembly for holding the plies of material together and in engagement with the work table to be rotated thereby, the said pressure plate being movable to permit the work holder to be moved between the work table and the pressure plate, and means for intermittently operating the work table to effect the operation thereof.

7. In a machine for sewing circular multi-ply articles, a work-feeding means including a rotatable feeding mechanism, a work holder for receiving assembled plies of material, said work holder being movable to position the assembly in relation to the work feeding means and for holding the same so positioned, and a pressure plate movable into and out of engagement with the multi-ply assembly for holding the plies of material together and in engagement with the rotatable feeding mechanism to be rotated thereby.

8. In a machine for sewing circular multi-ply articles, a rotatable work table, a work holder for receiving assembled plies of material, said work holder having a work supporting rim and a central opening movable over and into registry with the work table to position the assembly thereon, a pressure plate movable into and out of engagement with the multi-ply assembly for holding the plies of material together and in engagement with the work table to be rotated thereby, said pressure plate having dimensions to expose the rim of the assembly to the machine needle, and means for intermittently operating the work table to effect the operation thereof.

9. In a machine for sewing circular multi-ply articles, a rotatable work table, a work holder for receiving assembled plies of material, said work holder having a work supporting rim and a central opening movable over and into registry with the work table to position the assembly thereon, a pressure plate movable into and out of engagement with the multi-ply assembly for holding the plies of material together and in engagement with the work table to be rotated thereby, said pressure plate having dimensions to expose the rim of the assembly to the machine needle, a work guide element located above the supporting rim of the work holder for guiding the rim of the multi-ply assembly, and means for intermittently operating the work table to effect the operation thereof.

10. In a machine for sewing circular multi-ply articles, a rotatable work table, a turntable having a plurality of work holding elements each adapted for receiving assembled plies of material and each movable by turntable rotation to position the assembly on the work table, a pressure plate movable into and out of engagement with the so-positioned multi-ply assembly for holding the

plies of material together and in engagement with the work table to be rotated thereby, and means for intermittently operating the work table to effect the operation thereof.

11. In a machine for sewing circular multi-ply articles, a rotatable work table, a turntable having a plurality of work holding elements each adapted for receiving assembled plies of material and each movable by turntable rotation to position the assembly on the work table, each of said work holding elements comprising a receptacle having a work supporting rim and a central bottom opening movable into registry with the work table, a pressure plate movable into and out of engagement with the so-positioned multi-ply assembly for holding the plies of material together and in engagement with the work table to be rotated thereby, and means for intermittently operating the work table to effect the stitch-feed operation thereof.

12. In a machine for sewing circular multi-ply articles, a work-feeding means including a rotatable feeding mechanism, a turntable having a plurality of work holding elements each adapted for receiving assembled plies of material and each movable to position the assembly in relation to the work feeding means, and a pressure plate movable into and out of engagement with the so-positioned multi-ply assembly for holding the plies of material together and in engagement with the rotatable feeding mechanism to be rotated thereby.

13. In a machine for sewing circular multi-ply articles, a rotatable work table, a turntable having a plurality of work holding elements each adapted for receiving assembled plies of material and each movable by turntable rotation to position the assembly on the work table, each of said work holding elements comprising a support provided with a central opening for registry with the work table and provided with an orifice for registry with the machine needle, a pressure plate movable into and out of engagement with the so-positioned multi-ply assembly for holding the plies of material together and in engagement with the work table to be rotated thereby, and means for intermittently operating the work table to effect the operation thereof.

14. In a machine for sewing circular multi-ply articles, a rotatable work table, a turntable having a plurality of work holding elements each adapted for receiving assembled plies of material and each movable by turntable rotation to position the assembly on the work table, a pressure plate movable into and out of engagement with the so-positioned multi-ply assembly for holding the plies of material together and in engagement with the work table to be rotated thereby, the pressure plate being movable a distance to clear the turntable and to permit move-

ment of the work holding elements between work table and pressure plate, and means for intermittently operating the work table to effect the operation thereof.

15 15. In a machine for sewing circular multi-ply articles, a work feeding means including a rotatable feeding mechanism, a work holder for receiving assembled plies of material, said work holder being movable
20 into and out of relation with said work feeding means to position the assembly on the rotatable feeding mechanism, a pressure plate movable into and out of engagement with the multi-ply assembly for holding the
25 plies of material together and in engagement with the rotatable feeding mechanism, a thread tensioning means and means for releasing the thread tensioning means when said pressure plate is moved out of engage-
30 ment with the assembly.

16. In a machine for sewing circular multi-ply articles, a rotatable work table for receiving assembled plies of material, a rotatable pressure plate movable into and out
35 of engagement with the multi-ply assembly for holding the plies of material together and in engagement with the rotatable work table, a thread tensioning means, and means operated in response to movement of the ro-
40 tatable pressure plate for releasing the thread tensioning means when said pressure plate is moved out of engagement with the assembly.

17. In a machine for sewing circular multi-ply articles, a work feeding means in-
45 cluding a rotatable feeding mechanism, a work holder for receiving assembled plies of material, said work holder being movable into and out of relation with said work feeding means to position the assembly on the
50 rotatable feeding mechanism, a pressure plate movable into and out of engagement with the multi-ply assembly for holding the plies of material together and in engage-
55 ment with the rotatable feeding mechanism, a thread tensioning means and a wedge connected to the pressure plate for movement therewith for releasing the thread tension-
60 ing means when said pressure plate is moved out of engagement with the assembly.

18. In a machine for sewing circular multi-ply articles, a work feeding means in-
65 cluding a rotatable feeding mechanism, a turntable having a plurality of work holding elements each adapted for receiving assembled plies of material and each movable by turn-
table rotation to position the assembly in relation to the work feeding means and on said rotatable feeding mechanism, a pres-
sure plate movable into and out of engage-
ment with the so-positioned assembly for holding the plies of material together and in engagement with the rotatable feeding mechanism, a thread tensioning means and means for releasing the thread tensioning means operated by movement of the pres-

sure plate out of engagement with the work assembly.

19. In a machine for sewing circular multi-ply articles, a work feeding means in-
70 cluding a rotatable feeding mechanism, a turntable having a plurality of work holding elements each adapted for receiving assembled plies of material and each movable by turntable rotation to position the assembly in relation to the work feeding means and on
75 said rotatable feeding mechanism, a pressure plate movable into and out of engagement with the so-positioned assembly for holding the plies of material together and in engagement with the rotatable feeding mechanism, a thread tensioning means and auto-
80 matic means for moving the pressure plate out of engagement with the work assembly and for simultaneously releasing the thread tensioning means.

20. A machine comprising a work feeding means, a work holder for receiving the work, said work holder being movable into and out of relation with said work feeding means to position the work with relation thereto, a
90 pressure and guide means cooperating with said work feeding means and movable into and out of engagement with the work assembly, a thread tensioning means and means for releasing the thread tensioning means when
95 said pressure and guide means is moved out of engagement with the work.

21. A machine comprising a work feeding means, a turntable having a plurality of work holding elements each adapted for receiving
100 the material to be operated upon and each movable by turntable rotation to position the material in relation to the work feeding means, a pressure and guide means movable into and out of engagement with the work, a
105 thread tensioning means and means for releasing the thread tensioning means operated by movement of the pressure and guide means out of engagement with the work.

22. A sewing machine comprising a work feeding means, a turntable having a plurality
110 of work holding elements each adapted for receiving assembled plies of material and each movable by turntable rotation to position the assembly in relation to the work feeding means, a pressure and guide means movable into and out of engagement with the so-
115 positioned assembly for guiding the plies of material together, a thread tensioning means and means automatically operable for moving the pressure and guide means out of engagement with the work and for simulta-
120 neously releasing the thread tensioning means.

23. In a machine for sewing multi-ply articles, a sewing machine head, a work feeding mechanism including a rotatable table and a
125 rotatable pressure plate between which the plies of the work assembly are held, means for intermittently operating said mecha-
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nism in relation to the sewing needle for stitching together the rims of the multi-ply assembly, and means for automatically elevating the pressure plate to thereby release the work when a predetermined part of the work assembly has been stitched, said last-mentioned means comprising a pressure plate lifting bar slidable in said head, a lever connected to said lifting bar and pivoted on said head, and cam means normally depressing the pressure plate through the lever, but so shaped as to release the pressure plate at the desired time.

24. In a machine of the class described, a mechanism comprising an intermittently operable work feeding device, a continuously rotating shaft, a clutch means connected to the work feeding device, a rocker arm for operating the clutch means to effect intermittent operation of the work feeding device, and a universally movable rod connecting the rocker arm with said continuously rotating shaft.

25. In a machine of the class described, a mechanism comprising an intermittently operable work feeding device, a continuously rotating shaft, a clutch means connected to the work feeding device, a rocker arm for operating the clutch means to effect intermittent operation of the work feeding device, and a universally movable rod connecting the rocker arm with said continuously rotating shaft, said rod being adjustable on said rocker arm to adjust the throw of said clutch and hence the size of the stitch.

26. In a machine of the class described, a mechanism comprising an intermittently operable work feeding device, a continuously rotating shaft, a clutch means connected to the work feeding device, said clutch means provided with clutch gripping dogs, a rocker arm for oscillating the gripping dogs to effect intermittent operation of the work feeding device, and a universally movable rod connecting the rocker arm with said continuously rotating shaft.

27. In a machine of the class described, a mechanism comprising an intermittently operable work feeding device, a continuously rotating shaft, a clutch means connected to the work feeding device, a rocker arm for operating the clutch means to effect intermittent operation of the work feeding device, a universally movable rod connected to the rocker arm, and a ball eccentric connecting the rod with the continuously rotating shaft.

28. In a machine of the class described, a mechanism comprising an intermittently operable work feeding device, a continuously rotating shaft, a clutch means connected to the work feeding device, a rocker arm for operating the clutch means to effect intermittent operation of the work feeding device, a universally movable rod connected to the rocker arm, and a ball eccentric connecting the rod with the continuously rotating shaft,

said rod being adjustable on said rocker arm to adjust the throw of said clutch and hence the size of the stitch.

29. A machine for sewing multi-ply articles comprising stitch mechanism, work feeding mechanism including a rotatable table and a rotatable pressure plate between which the plies of the work assembly are held, a reciprocable pressure bar carrying said pressure plate, a control cam, operating mechanism for actuating the stitch mechanism, the work feeding mechanism, and the control cam, a treadle for depressing the pressure plate, a follower cooperating with the aforesaid cam for keeping the pressure plate in operative position, and means for automatically releasing the work when a predetermined part of the rim of the work assembly has been pitched including mating means on said cam and follower for releasing the pressure plate.

30. A machine for sewing multi-ply articles comprising stitch mechanism, work feeding mechanism including a rotatable table and a rotatable pressure plate between which the plies of the work assembly are held, a reciprocable pressure bar carrying said pressure plate, a control cam, operating mechanism for actuating the stitch mechanism, the work feeding mechanism, and the control cam, a treadle for positively depressing the pressure plate, latch means for holding the pressure plate in operative position, and means for automatically releasing the work when a predetermined part of the rim of the work assembly has been stitched including trip means on the aforesaid control cam for releasing the latch means.

31. A machine for sewing multi-ply articles comprising stitch mechanism, work feeding mechanism including a rotatable table and a rotatable pressure plate between which the plies of the work assembly are held, a reciprocable pressure bar carrying said pressure plate, a control cam, operating mechanism for actuating the stitch mechanism, the work feeding mechanism, and the control cam, a source of power, treadle means for starting the machine including means to connect the power source and operating mechanism and to depress the pressure plate, a follower cooperating with the aforesaid cam for keeping the pressure plate in operative position, and means for automatically stopping the machine when a predetermined part of the rim of the work assembly has been stitched including trip means on the aforesaid control cam for disconnecting the power source, and mating means on said cam and follower for releasing the pressure plate.

32. A machine for sewing multi-ply articles comprising stitch mechanism, work feeding mechanism including a rotatable table and a rotatable pressure plate between

which the plies of the work assembly are held, a reciprocable pressure bar carrying said pressure plate, a control cam, operating mechanism for actuating the stitch mechanism, the work feeding mechanism, and the control cam, a drive belt, treadle operated means for starting the machine including means to shift the belt and to depress the pressure plate, means to maintain the machine in operation including latch means for holding the belt shifting means and pressure plate in operative position, and means for automatically stopping the machine when a predetermined part of the rim of the work assembly has been stitched including trip means on the aforesaid control cam for releasing the latch means.

33. A machine for sewing multi-ply articles comprising stitch mechanism, work feeding mechanism including a rotatable table and a rotatable pressure plate between which the plies of the work assembly are held, a reciprocable pressure bar carrying said pressure plate, a control cam, operating mechanism for actuating the stitch mechanism, the work feeding mechanism, and the control cam, a drive belt, treadle operated means for starting the machine including means to shift the belt and to depress the pressure plate, means to maintain the machine in operation including latch means for holding the belt shifting means and pressure plate in operative position, and a follower cooperating with the aforesaid cam for keeping the pressure plate under desired pressure, and means for automatically stopping the machine when a predetermined part of the rim of the work assembly has been stitched including trip means on the aforesaid control cam for releasing the latch means, and mating means on said cam and follower for releasing the pressure plate.

Signed at College Point, New York in the county of Queens and State of New York this seventh day of August, A. D. 1926.

ROGER BIHLER.

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