

D. NOBLE.
SEWING MACHINE.
APPLICATION FILED SEPT. 2, 1910.

1,020,112.

Patented Mar. 12, 1912.

2 SHEETS—SHEET 1.

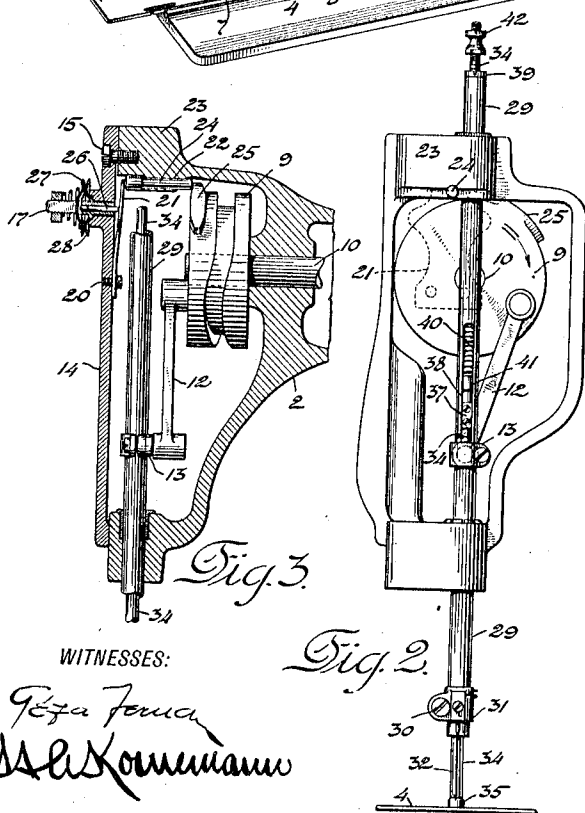
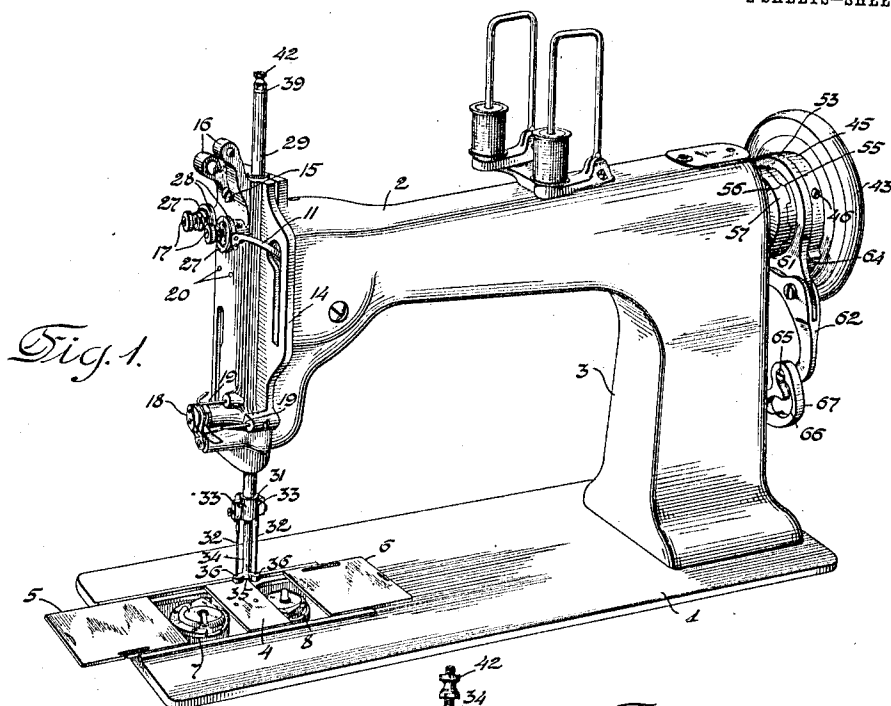


Fig. 4.

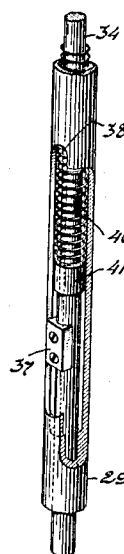
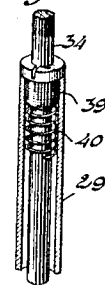


Fig. 5.



WITNESSES:

Geza Foma
Als Komman

Fig. 2.

INVENTOR

Donald Noble

BY

F. A. Petron

ATTORNEY

1,020,112.

D. NOBLE.
SEWING MACHINE.
APPLICATION FILED SEPT. 2, 1910.

Patented Mar. 12, 1912.
2 SHEETS—SHEET 2.

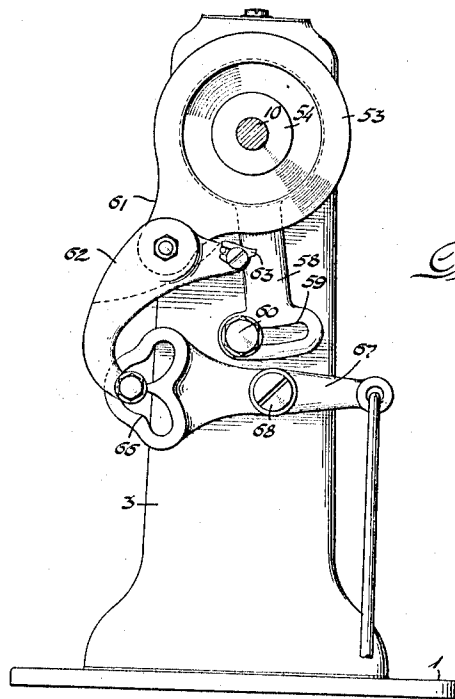


Fig. 6.

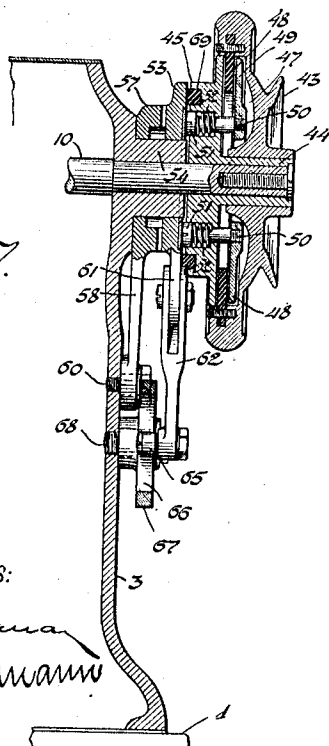


Fig. 7.

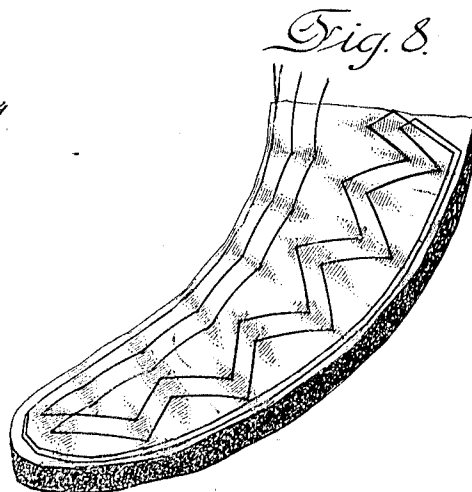


Fig. 8.

WITNESSES:

Jesse Fenn
SAAS Kimmann

INVENTOR

Donald Noble
BY *F. H. Robinson*
ATTORNEY

UNITED STATES PATENT OFFICE.

DONALD NOBLE, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

SEWING-MACHINE.

1,020,112.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Application filed September 2, 1910. Serial No. 580,147.

To all whom it may concern:

Be it known that I, DONALD NOBLE, a subject of the King of Great Britain, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to improvements in two needle sewing machines wherein the fabric is manually presented to the stitch-forming mechanism, the action of which latter is manually arrested between the successive stitch formations.

15 In the manufacture of ladies' and gents' outer garments, the operations of basting together and quilting the plies comprising the interlinings and paddings represent substantial items of cost. Prior to the present invention such operations, so far as applicant has any knowledge, have been accomplished by using single needle sewing machines; accordingly, the present invention effects an exceptional degree of increased utility.

20 In the accompanying drawings illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a perspective view in front side elevation of a sewing machine equipped with the improved mechanism. Fig. 2 is a view in front end elevation of the head or free end of the bracket arm, the arm face-plate 35 being removed to better illustrate the means employed for releasing the tensions on the needle threads between the successive stitch formations. Fig. 3 is a view, substantially in central section, of the head of the bracket arm and the arm face-plate, the latter being shown in vertical section on a line corresponding with the axis of the tension disk located farthest from the take-up, together with full-line views of the thread-tension releasing mechanism. Fig. 4 is a view of the tubular needle-carrying bar, the inner spring-pressed cloth-presser-carrying bar and the slide block for holding the latter bar against axial movement, the needle-carrying bar being broken out and each bar broken away at its opposite ends to better illustrate the movements of the inner or cloth-presser-carrying bar. Fig. 5 is a view in section of the upper portion of the needle-carrying bar and a full-line view of a

portion of the cloth-presser-carrying bar, together with the screw cap carried by the former bar and through which the upper end of the latter bar passes. Fig. 6 is a view in rear end elevation of the sewing machine 60 shown in Fig. 1, the main or needle-bar-driving shaft being shown in section, and illustrates in side elevation certain non-rotating elements later to be referred to which form a part of the stop-motion mechanism. 65 Fig. 7 is a sectional elevation of the rear wall of the bracket arm standard and a central cross-section of the parts comprising the stop-motion mechanism, together with that portion of the main or needle-bar-driving shaft upon which certain elements of the stop-motion mechanism are mounted to rotate, said shaft being broken out to better illustrate the means employed for holding the belt or driving pulley against accidental 75 movement in the direction of the length of said shaft. Fig. 8 is a view in perspective of a commonly employed coat pad, quilted and edge stitched by the employment of the improved mechanism herein pointed out. 80

1 illustrates the cloth or bed plate of the sewing machine, 2 the bracket arm, 3 the arm standard, 4 the throat plate, 5 the front and 6 the back slide plate, 7 and 8 the complementary loop-takers, 9 the take-up cam 85 carried by the main or needle-bar-driving shaft 10, 11 the needle thread take-up, and 12 the needle-bar link connection for operatively connecting the shaft 10 with the needle-bar link collar 13, all of which are of 90 common construction and may be as herein pointed out or of any approved form of construction.

14 represents the bracket arm face-plate secured by screw 15 to the arm 2 and provided with the commonly employed thread-checks 16, thread-tension elements 17, thread-controller 18 and thread-leaders 19. To the inner wall of the face-plate 14 is secured by screws 20 a spring plate 21, and in 100 a suitable bearing 22, formed in the head 23 of the arm 2, is slidably mounted a thread-tension-releasing bolt 24, the inner end of which latter is acted upon at each revolution of the main shaft by a cam lug 25, through 105 the complementary tension-releasing pins 26 (one only of which is shown), to move the tension disks 27, 27 out of engagement with their respective coacting disks 28, 28, thus permitting the needle thread to pass freely 110

between said disks during the time that the lug 25 is in engagement with said bolt.

29 represents the tubular needle-carrying bar mounted in suitable bearings formed in the head 23 and connected with the link 12 by the collar 13, the lower end of said bar having secured to it by screws 30 the needle-holder 31 provided with complemental needles 32, 32 and thread-guides 33, 33.

34 represents the cloth-presser-carrying bar, its lower end being mounted in a suitable bearing formed in the needle-carrying bar and having formed integral with it a cloth presser 35 which in turn is provided with needle-openings 36, 36, said presser-carrying bar being provided with a lug 37 which coacts with the opening 38 in the needle-carrying bar to hold the openings in the presser in proper alinement with the needles.

In the upper end of the needle-carrying bar is threaded a cap 39 through which the upper end of the cloth-presser-carrying bar passes, and encircling the latter is a spring 40 which is held confined between said cap and an enlarged portion 41 formed on said presser-carrying bar, a nut 42 threaded upon the upper end of the latter bar acting, in connection with the spring 40, to hold said presser-carrying bar resiliently depressed within the needle-carrying bar.

The construction of the stop-motion or clutch mechanism herein employed is substantially the same as that represented by United States patent to D. Noble, No. 656,853, dated August 28, 1900 and, accordingly, only such reference will be made to the usual well known parts of such mechanism as is deemed necessary for a proper understanding of its application to the present construction of stitch-forming mechanism.

43 is the belt or driving pulley loose upon the sleeve 44 forming a part of the clutch disk 45, the latter being secured upon the main shaft 10 by a set screw 46, and 47 denotes a recess in the inner face of said pulley. In the inner wall of the rim of the pulley 43 is secured a ring 48 which may be of any suitable material, as leather, wood or metal, and located at the right or inner side (see Fig. 7) of the ring 48 is a movable clutch disk 49 between which and the clutch disk 45 said ring is located.

50 represents screw bolts which pass loosely through the clutch disk 45 and are threaded into the clutch disk 49, the heads 51 projecting out from the face of the disk 45, as shown in Fig. 7. Bearing against the undersides of the heads 51 and against the clutch disk 45 are springs 52 which normally act to draw the disk 49 in position to grip the ring 48 between said disks, so that when power is applied to the pulley 43 the main shaft 10 will be rotated. The disk 49

is adjusted to release the ring 48 by means of a brake disk 53, the face of which is adapted to engage the screw heads 51. The disk 53 is mounted upon a hub 54 formed integral with the rear wall of the arm stand-ard 3 and is adapted to oscillate thereon and at the same time be moved laterally, such lateral movement being effected by means of inclines 55 formed on said disk engaging corresponding inclines 56 on the disk 57. The disk 57 is provided with an arm 58 having at its lower end a slot 59 through which a bolt 60 passes to effect the proper adjustment of said inclines.

61 denotes an arm, extending from the brake disk 53, to which a bell crank lever 62 is pivoted. One arm of said lever is provided with a brake shoe 63 which is adapted to engage the incline 64 forming a part of the clutch disk 45, the other arm of said lever being provided with a roller 65 adapted to engage a cam slot 66 in the operating lever 67 fulcrumed on the stud 68, said operating lever being actuated through a suitable treadle (not shown).

To communicate motion from the driving pulley to the main shaft, it is simply necessary to move the lever 67 to the position shown in Fig. 6, thus effecting an oscillation of the brake lever 62 and brake disk 53 which, through the action of the springs 52 on the bolts 50, causes the inclines 55 on the disk 53 to ride down the inclines 56 of the disk 57, thus permitting the disk 53 to move slightly to the left or away from the brake ring 69 carried by the clutch disk 45, which causes the clutch disk 49 to clamp the ring 48; and so long as the operating lever remains in this position the main shaft will be rotated with the driving pulley. The instant, however, that the operating lever 67 is moved to position the roller 65 at either of the extreme ends of the slot 66, the brake shoe 63 will be moved to engage the incline 64 which imparts a toggle movement to the brake lever 62 and through the connection of arm 61 oscillates the brake disk 53, causing the inclines 55 to ride up the fixed inclines 56, the effect of which is to move the brake disk 53 slightly toward the right, as shown in Fig. 7, in opposition to the resiliency and the springs 52, so that the disk 49 will be moved away from the ring 48, thus leaving the main shaft disconnected from the driving pulley, and the instant the shaft is released its rotation will be stopped through the engagement of the brake disk 53 with the brake ring 69.

From the foregoing it will be understood that the main shaft 10 will be operated from the driving pulley as long as the operating lever 67 is held adjusted to the position shown in Fig. 6; that a movement of the lever in either direction will stop the machine; that a movement which will change

the roller 65 from one to the other end of the slot 66 will start and also stop the machine; that the return movement of the lever will start and stop the machine again; and that power is applied to drive the pulley 43 in any suitable manner, as by a belt (not shown).

In the operation of the machine the cam lug 25, through the connections 21, 24 and 26, releases the tensions on the needle threads between the formation of the successive pairs of stitches, such operation occurring when the take-up is in its highest position, at which time the machine is brought to rest, thus leaving the fabric free to be manually adjusted under the needles, as shown in Fig. 1.

The advantages of the present construction will be readily understood from an inspection of Fig. 8 which illustrates the placing of multiple lines of quilting stitches and multiple spaced and unspaced seams of edge stitches without in any way changing the operative relationship of the elements comprising the stitch-forming mechanism.

Claims:—

1. In a sewing machine, means for permitting the manual feeding of the fabric, stitch-forming mechanism comprising a plurality of eye pointed needles, loop-takers, thread-tensioning devices and cloth-presser elements, manually controlled clutch mechanism operatively connected with the stitch-forming mechanism for determining the action and inaction of the latter, and means operatively connected with said stitch-forming mechanism and acting upon said thread-tensioning devices to release the tension on the needle threads when the needles are out of the fabric in the formation of each pair of synchronously formed stitches.

2. In a sewing machine, stitch-forming mechanism comprising a needle-bar, multiple eye pointed needles carried by said bar, multiple loop-takers, thread-tensioning devices and cloth-presser elements, the latter carried by a bar resiliently mounted in said needle-bar, manually controlled clutch

mechanism operatively connected with said stitch-forming mechanism for determining the action and inaction of the latter, and means operatively connected with the stitch-forming mechanism of the sewing machine and acting upon said thread-tensioning devices to release the tensions on the needle threads when the needles are out of the fabric in the formation of each pair of synchronously formed stitches.

3. In a sewing machine, means for permitting the manual feeding of the fabric, stitch-forming mechanism comprising multiple eye pointed needles, loop-takers, thread-tensioning devices and cloth-presser elements, manually controlled clutch mechanism operatively connected with said stitch-forming mechanism to determine the action and inaction of the latter, and means including a rotary cam carried by the main shaft and acting upon said thread-tensioning devices to release the tension on the needle thread when the needles are out of the fabric in the formation of each pair of synchronously formed stitches.

4. In a sewing machine, means for permitting manual feeding of the fabric, stitch-forming mechanism comprising multiple eye-pointed needles, a clutch mechanism operatively connected with said stitch-forming mechanism for arresting the action of the latter and to position the needles out of the material between the formation of the successively formed pairs of stitches, and a cloth-presser carrying bar provided with multiple cloth-pressers and operatively connected with said stitch-forming mechanism to bear upon the fabric at predetermined times to prevent said fabric from following the upward movements of said eye-pointed needles.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

DONALD NOBLE.

Witnesses:

WM. A. SAUTTER,
ABBIE M. DONIHUE.