Aug. 5, 1947. F. PARRY ET AL 2,425,120

OVERLOAD RELEASE CLUTCH FOR SEWING MACHINES

Filed Jan. 15, 1946 3 Sheets-Sheet 1

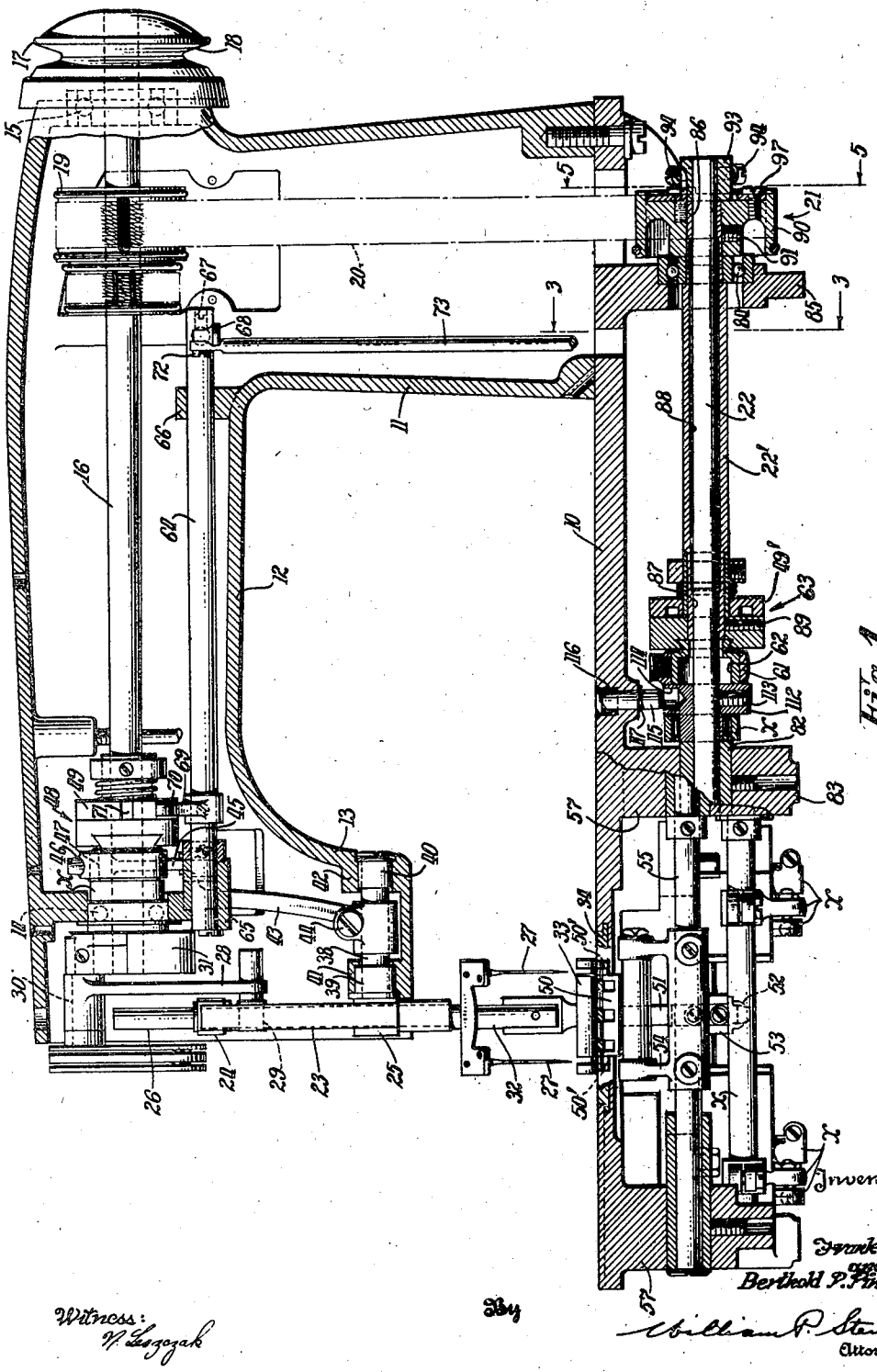

Fig. 1

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OVERLOAD RELEASE CLUTCH FOR SEWING MACHINES

Filed Jan. 15, 1946 3 Sheets-Sheet 2

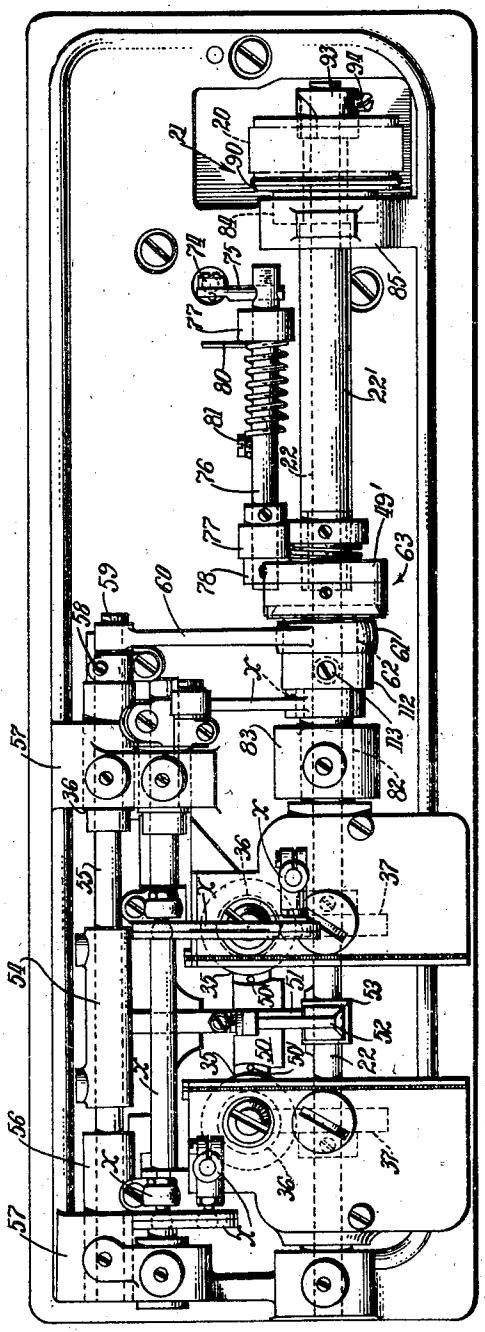

Fig. 2

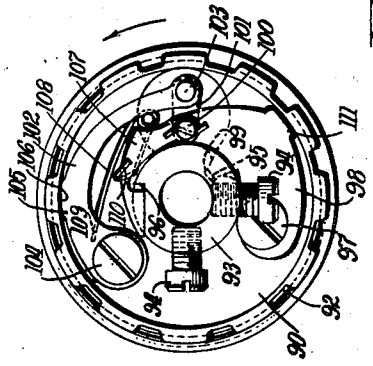

Fig. 4

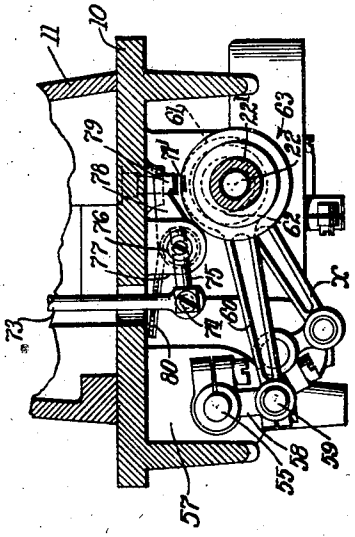

Fig. 3

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OVERLOAD RELEASE CLUTCH FOR SEWING MACHINES

Filed Jan. 15, 1946 3 Sheets-Sheet 3

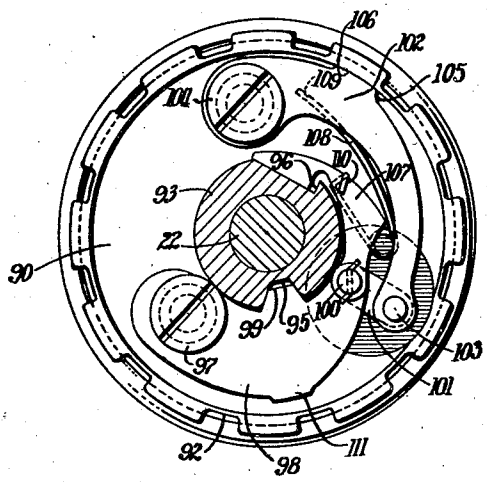

Fig. 5

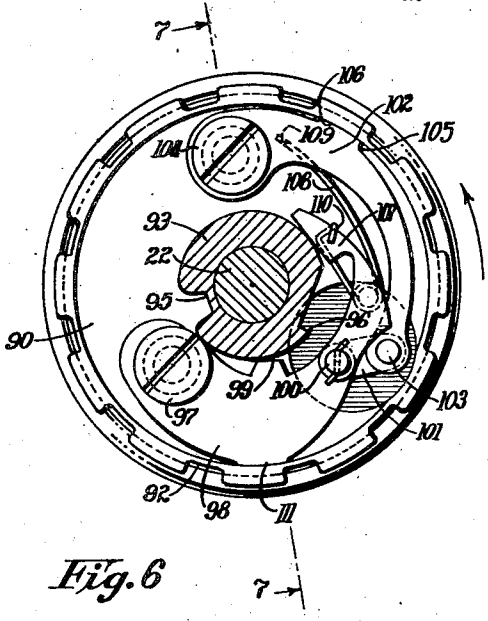

Fig. 6

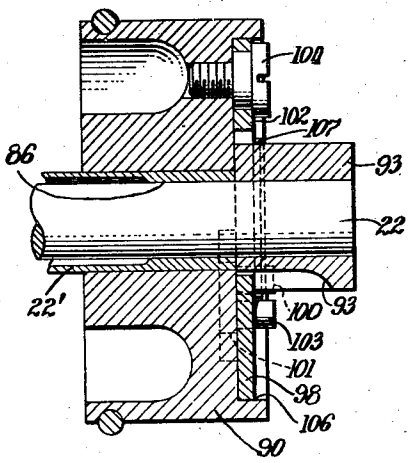

Fig. 7

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UNITED STATES PATENT OFFICE

2,425,120

OVERLOAD RELEASE CLUTCH FOR SEWING MACHINES

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Application January 15, 1946, Serial No. 641,233

13 Claims. (Cl. 112—220)

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This invention relates to sewing machines and, more particularly, to sewing machines having a compound needle and lower feed-dog work-advancing mechanism, together with a rotary loop-taker of the lock-stitch type.

The present invention has for its primary object to provide improved means for obviating breakage of parts upon overload of the rotary loop-taker of a sewing machine having a compound needle and lower feed-dog work-advancing mechanism in which the feed-dog is operated from actuating mechanism disposed below the work-support of the machine.

A further object of this invention is to provide a sewing machine with a compactly arranged actuating mechanism for a lower feed-dog of a sewing machine having driving mechanism including an overload release clutch for the rotary loop-taker of the machine.

More specifically, the present invention has for an object to provide improved means for continuing in unison operation the needle and lower feed-dog of a compound work-advancing mechanism in which the feed-dog is operated from actuating mechanism disposed below the work-support of a sewing machine and, upon overload, release of the sewing machine loop-taker from its driving mechanism.

Other and more specific objects of the invention will be apparent from the following description and claims.

The invention comprises the devices, combinations and arrangements of parts hereinafter described in connection with the accompanying drawings, which illustrate a preferred embodiment of the invention and in which:

Fig. 1 represents a longitudinal sectional view of a sewing machine embodying the present invention.

Fig. 2 represents a bottom plan view of the machine shown in Fig. 1.

Fig. 3 represents a transverse section taken substantially along line 3—3 of Fig. 1.

Fig. 4 represents an enlarged right-hand face view of the overload release clutch shown in Fig. 1.

Fig. 5 represents an enlarged section taken substantially along line 5—5 of Fig. 1.

Fig. 6 represents an enlarged section taken substantially along line 5—5 of Fig. 1 but illustrating the clutch in a disengaged position.

Fig. 7 represents a section taken substantially along line 7—7 of Fig. 6.

Referring more specifically to the drawings, the invention is disclosed as embodied in a sewing

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machine having a frame including a work-supporting cloth-plate or bed 10 and a bracket-arm secured to the bed and comprising a standard 11 and an overhanging arm 12, supporting at its free end a bracket-arm head 13. Journaled in bearings 14 and 15 and disposed lengthwise within the arm 12, is a main or needle-bar actuating shaft 16, carrying, at its rear end, a combined belt and hand wheel 17 having a U-shaped annular groove 18 adapted to receive a driving belt by means of which the shaft may be rotated from any suitable source of power.

Secured upon the shaft 16, adjacent its rear end, is a grooved pulley 19 which through a clip-belt 20 drives, in one-to-one ratio, a lower pulley and clutch drive 21 carried by a lower rotary or bed-shaft 22 and sleeve 22'.

Within the bracket-arm head 13 there is mounted, for oscillation, a needle-bar frame 23 having upper and lower arms 24 and 25 in which is reciprocably mounted a needle-bar 26, carrying, at its lower end a pair of eye-pointed needles 27. The needle-bar is reciprocated in its bearings in the arms 24 and 25 by a link 28, connected, at one end to a collar 29 on the needle-bar and at its other end to a crank-pin 30 carried by a crank-disk 31 secured to the forward end of the shaft 16. Thus rotation of the shaft 16 effects endwise reciprocation of the needle-bar and the needles carried thereby.

Also mounted in the head 13 is the usual spring-biased presser-bar 32 which carries, at its lower end, a presser-foot 33. This presser-foot is adapted to hold the work on a throat-plate 34, and to cooperate with a serrated feed-dog, located beneath the throat-plate, in the feeding of the work.

Cooperating with the needles, in the formation of stitches, are two rotary loop-takers 35 located beneath the cloth-plate 10 and each driven at a two-to-one ratio from the shaft 22 by gears 36 and 37.

The needle-bar frame 23 is secured to a rock-shaft 38 journaled in bearings 39 and 40 fitted in bosses 41 and 42 in the lower end of the head 13. The needle-bar frame 23 is oscillated about the longitudinal axis of the rock-shaft 38, thereby to give to the needles 27 feed and return movements in timed relation with the movements of the usual lower feeding mechanism hereinafter to be described, by means of connections comprising a rock-lever 43 formed with a split lower end adapted to be clamped by a screw 44 to the rock-shaft 38. The upper end of the rock-lever 43 is operatively connected to one end of a pitman 45,

the other end of which is formed as a strap 46 which surrounds an eccentric 47 forming a part of an adjustable eccentric device, designated generally as 48, secured upon the arm shaft 16. It will be understood that as the arm shaft is rotated, the eccentric 47 actuates the pitman 45, which in turn operates the rock-lever 43 to oscillate the needle-bar frame 23 about the axis of the rock-shaft 38. The extent of oscillatory motion imparted to the needle-bar frame, and thereby the amplitude of the feeding motion transmitted to the needles is dependent upon the amount of eccentricity of the eccentric 47. In order to vary the amplitude of the oscillatory movements of the needle-bar frame to harmonize the same with the stitch length to which the lower feeding mechanism is adjusted, the eccentric device 48 is so constructed that the eccentricity of the eccentric 47 may be adjusted between certain limits. Inasmuch as the details of construction of this adjustable eccentric device forms no part of the present invention, and furthermore as the same is disclosed completely in the U. S. patent of Myers, No. 2,128,031, dated Aug. 23, 1938, detailed illustration and description thereof in this specification is deemed unnecessary. Suffice it to say that adjustment of the eccentric 47 is effected by relative rotation between the member 49 of the adjustable eccentric and the arm shaft 16.

For a more complete disclosure of the above noted needle-bar mechanism, reference may be had to the U. S. patent application of Frank Parry, Serial No. 599,059, filed June 12, 1945.

Below the cloth-plate 10, the machine is provided with a four-motion lower feeding mechanism including a feed-dog 50 having needle apertures 50' and carried by a feed-bar 51 having a fork 52 engaged by a feed-lift eccentric 53 secured upon the shaft 22. At its forward end, the feed-bar is pivotally connected to a feed-rocker 54 secured upon a feed-drive rock-shaft 55 journaled in bearings 56 supported in bearing bosses 57 formed integral with the bed-plate 10. Upon one end of the shaft 55, there is secured a rock-arm 58 pivotally connected at 59 to one end of a pitman 60, the other end of which is formed as a strap 61 surrounding a lower feed-drive eccentric 62 forming a part of a second adjustable eccentric device 63 secured upon the sleeve 22'. Thus rotation of the shaft 22 and the sleeve 22', as a unit, and the eccentrics 53 and 62 thereon, effects rising-and-falling and feed-and-return movements of the feed-bar 51 and the feed-dog 50 carried thereby. The construction of the adjustable eccentric device 63 on the sleeve 22', is the same as that carried by the arm shaft 16 which as above stated, is fully disclosed in U. S. Patent No. 2,128,031 and includes a member 49' which is rotatable relative to its supporting sleeve 22' to vary the eccentricity of the eccentric 62.

As illustrated in the drawings, the machine also includes means for providing a thread-clearance space between the nose of a thread-carrier, (not shown) forming a part of each of the loop-takers 35, and stop-lugs (not shown) provided by the throat-plate 34 supported by the bed 10. This mechanism forms no part of the present invention and therefore detail illustration and description thereof is deemed unnecessary for this disclosure. Portions of the mechanism, however, are designated generally as X.

Provided in this machine is means for simultaneously and synchronously varying the eccentricity of the upper feed-drive eccentric 47 and the lower feed-drive eccentric 62. This means is

disclosed in a pending patent application of F. Parry, Serial No. 599,059, filed June 12, 1945, and comprises a manually oscillatable rock-shaft 64 journaled in bearings 65 and 66 formed in the arm 12. Secured to the shaft 64, adjacent one end thereof and by a set screw 67, is an outwardly projecting hand-lever in the form of a crank 68 which projects through an opening (not shown) formed in the forward wall of the standard 11.

Secured upon the shaft 64, adjacent the bearings 65, is an arm 69 having an offset finger 70 adapted, upon the turning of the shaft 64 in one direction, to enter an aperture or notch 71 formed in the periphery of the member 49 of the upper adjustable eccentric 48.

Intermediate its ends, the hand-lever 68 is pivotally connected, at 72, to the upper end of a vertically disposed link 73, located mainly within the machine standard 11. The lower end of the link 73 is pivotally connected, at 74, to the free end of a rock-arm 75 carried by one end of a rock-shaft 76 journaled, parallel with the shaft 64, in bearing bosses 77 depending from the cloth-plate 10. Fixed to the other end portion of the rock-shaft 76, is an arm 78 having an offset finger 79 adapted, upon turning of the rock-shaft in one direction, to enter an aperture or notch 71' in the periphery of the member 49' of the lower adjustable eccentric device 63.

The shaft 76 is normally biased in a counter-clockwise direction, as seen in Fig. 3 by a torsion spring 80 surrounding the shaft and having one end thereof secured to the shaft by a screw 81. The opposite or free end portion of the spring projects laterally and bears against the under side of the cloth-plate 10. This bias of the shaft 76 is transmitted to the shaft 64 by the rock-arm 75, link 73 and hand-lever 68. Thus the fingers 70 and 79 of the arms 69 and 78, respectively, are normally maintained out of engagement with the apertures 71 and 71' in the members 49 and 49' of the adjustable eccentric devices 48 and 63.

When it is desired to vary the eccentricity of the eccentrics 48 and 63, the operator grasps the lever 68 and swings it upwardly. This movement simultaneously turns the shafts 64 and 76 clockwise, as seen in Fig. 3 and places the fingers 70 and 79 in position to enter the notches 71 and 71', respectively. With the elements 49 and 49' held against rotation by these fingers, the operator grasps the hand-wheel 17 and turns the shaft 16, which through the pulleys 19 and 21 and clip-belt 20, simultaneously and synchronously turns the shaft 22 and sleeve 22'. Angular movement of the shaft 16 and the locked shaft 22 and sleeve 22' unit relative to the members 49 and 49' varies the eccentricity of the eccentrics 48 and 63, as fully described in the above mentioned Myers Patent No. 2,128,031. Turning of the shaft 16 in one direction increases the eccentricity of the eccentrics 47 and 62 and thereby increases the length of work-feeding movement transmitted to the needles 27 and feed-dog 50. Turning of the shaft in the opposite direction has the opposite effect.

The hereinabove noted shaft 22 is journaled intermediate its ends in a bushing 82 carried in a lug 83 depending from the cloth-plate 10. The rear end portion of this shaft is disposed within the sleeve 22' which at its rear end, is journaled within a ball bearing mounting 84 carried in a lug 85 depending from the cloth-plate 10. This rear end portion of the shaft 22 engages and is supported by the portion 86 of the sleeve 22'. The forward end of the sleeve 22' terminates at

a point within the eccentric device 63 and is supported thereat upon the shaft 22 at 87. Between points 86 and 87, the sleeve 22' is undercut, as at 88 to afford clearance between shaft 22 and sleeve 22'.

Referring to Fig. 1, the eccentric device 63 is secured upon the sleeve 22' by means of a set screw 89 and, therefore, rotation of the sleeve will be effective to actuate the feed-dog 50.

The pulley 21 is designed to function as an overload release clutch-member for the purpose of breaking driving connection between sleeve 22' and shaft 22 whenever one of the rotary hooks becomes jammed. By thus severing this connection, the unison feeding operation of the needles and lower feed-dog is continued while the rotary hooks remain stationary.

The pulley 21 comprises a pulley member 90 secured to the sleeve 22' by means of a set screw 91 and having the usual clip-belt slots 92 in the periphery thereof. Abutting both the end of the sleeve 22' and one edge of the hub of the pulley portion 90 is a collar 93 fixed to the outboard end of the shaft 22 by means of set screws 94. The collar 93 has a recess 95 with outwardly divergent inclined sides, and a shouldered recess 96 in the periphery thereof.

Pivotally secured at one end by a screw 97 to the side face of the pulley portion 90 is a link 98 which is provided with a wedge-shaped projection 99, adapted to enter the recess 95 in the collar 93. The other end of the link 98 is pivotally connected by a pin 100 to a second link 101. The opposite end of the link 101 is pivoted to an arcuate spring 102 by means of a pin 103. The other end of the arcuate spring is secured to the face of the pulley by a screw 104 and an intermediate portion 105 of the spring is adapted to engage a rim 106 of the pulley so as to function as a fulcrum.

The connected links 98 and 101 form a toggle mechanism. To break the toggle and reestablish driving relation, a pawl 107 is pivotally mounted on the pin 100. The pawl 107 is adapted to engage the shouldered recess 96 in the periphery of the collar 93. A light bow spring 108 yieldingly holds the pawl 107 in contact with the collar 93. One end of the bow spring 108 is disposed within an aperture 109 provided in the arcuate spring 102 and the opposite end of the bow spring has a bent portion 110 bearing upon the pawl 107.

Operation

The pulley 90 is driven in the direction indicated by the arrow in Fig. 4. When an excessive load or torque is applied to the shaft 22, the wedge-shaped projection 99 is forced out of the recess 95 in the collar 93 by the inclined wall of the recess 95, thereby aligning the pivot points and straightening the toggle formed by members 98 and 101, as shown in Fig. 6. Preferably, sufficient momentum is given the toggle when it is straightened to cause a slight reverse binding thereof, which is limited by the rim 106 of the pulley 90 which is engaged by the projection 111 formed on the link 98. The effect of this slight reverse binding of the toggle is to move the wedge-shaped projection on the link 98 to a position out of contact with the collar 93, as shown in Fig. 6. When the wedge-shaped projection 99 on the link 98 is moved to a position out of contact with the collar 93, the spring-pressed pawl 107 which is pivoted to the toggle link 98 is moved outwardly with the link 98, and the free end of the pawl rides freely over the periphery

of the collar 93 in a counterclockwise direction as long as the driving member overruns the driven member or shaft 22. It will be observed that the arcuate spring 102 acts inwardly in the direction of the collar 93 and the spring, therefore, tends to both straighten and break the toggle to effect the opening and closing of the clutch. It will be obvious that the maximum force required to straighten the toggle is at the beginning of the straightening operation, diminishing as the pivot points approach alignment.

When it is desired to reestablish driving relation, the pulley is manually rotated in the reverse direction. When the shouldered recess 96 in the collar 93, engages the pawl 107 which is urged inwardly by the bow spring 108, the pivoted point or pin 100 of the toggle is pulled inwardly, breaking the toggle and thereby forcing the projection 99 on the link 98 into the wedge-shaped recess 95 in the collar 93.

In order to lock the collar 93 while thus reengaging the clutch mechanism, there is provided on the present machine a locking disk 112 which is secured upon the shaft 22 by means of a set screw 113 (see Fig. 1). Provided in the periphery of this disk 112 is an aperture 114 which is adapted to be entered by a spring biased detent 115 carried in the cloth-plate 10. A spring 116 normally holds the detent 115 out of engagement with the disk 112. A shoulder 117 on the detent 115 limits the upward movement thereof. Therefore, when the clutch mechanism is to be reengaged, the operator need only depress the detent 115 and at the same time turn the handwheel 17 thereby to force the projection 99 back into the collar recess 95.

From the above description it is clear that whenever the rotary hooks become jammed, the clutch will open thereby releasing the shaft 22 from driving relation with the pulley 90. The sleeve 22' will continue to run and therefore the lower feeding mechanism will continue to operate in timed relation with the upper needle feed.

Having thus set forth the nature of the invention, what we claim herein is:

1. In a sewing machine having a work-support, in combination, stitch-forming mechanism including a rotary loop-taker disposed below said work-support, a work-advancing feed-dog operating through said work-support, a feed-shaft rotatably journaled below said work-support, means for rotating said shaft, means including operative connections with said feed-shaft for actuating said feed-dog, a rotary loop-taker actuating shaft concentric with said feed-shaft, means comprising an overload release clutch for rotating said loop-taker actuating shaft from said feed-shaft, and driving connections with said loop-taker actuating shaft for rotating said loop-taker.

2. In a sewing machine having a work-support, in combination, stitch-forming mechanism including a rotary loop-taker disposed below said work-support, a work-advancing feed-dog operating through said work-support, a tubular feed-shaft rotatably journaled below said work-support, means for rotating said feed-shaft, means including operative connections with said feed-shaft for actuating said feed-dog, a loop-taker actuating shaft rotatably journaled in said feed-shaft, means comprising an overload release clutch for rotating said loop-taker actuating shaft from said feed-shaft, and driving connec-

tions with said loop-taker actuating shaft for rotating said loop-taker.

3. In a sewing machine having a work-support, in combination, stitch-forming mechanism including a rotary loop-taker disposed below said work-support, a work-advancing feed-dog operating through said work-support, a tubular feed-shaft rotatably journaled below said work-support, means for rotating said feed-shaft, means operatively connected to said feed-shaft for imparting work-advancing and return movements to said feed-dog, an auxiliary shaft rotatably journaled in said feed-shaft, means comprising an overload release clutch for rotating said auxiliary shaft from said feed-shaft, means including operative connections with said auxiliary shaft for imparting rising and falling movements to said feed-dog, and driving connections with said auxiliary shaft for rotating said loop-taker.

4. In a sewing machine having a work-support, in combination, stitch-forming mechanism including a rotary loop-taker disposed below said work-support, a work-advancing feed-dog operating through said work-support, a tubular feed-shaft rotatably journaled below said work-support, an auxiliary shaft rotatably journaled in said feed-shaft and extending from opposite ends thereof, a pulley secured upon one end of said feed-shaft, driving connections for rotating said pulley, complemental overload release clutch elements carried by said pulley and one end of said auxiliary shaft, a feed-advance eccentric carried by said feed-shaft, a feed-lift eccentric carried by said auxiliary shaft, operative connections with said eccentrics for actuating said feed-dog, and driving connections with said auxiliary shaft for rotating said loop-taker.

5. In a sewing machine having a frame including a work-support and an overhanging bracket-arm, in combination, an arm-shaft extending lengthwise of and rotatably journaled in said bracket-arm, a tubular bed-shaft disposed substantially parallel to said arm-shaft and rotatably journaled at the under side of said work-support, driving connections for rotating said shafts in unison, a thread-carrying needle, operative connections with said arm-shaft for imparting endwise reciprocatory work-penetrating and laterally vibratory work-feeding movements to said needle, a feed-dog operating through said work-support and provided with a needle-aperture, an auxiliary shaft rotatably journaled in said bed-shaft and extending from opposite ends thereof, releasable coupling means comprising an overload release clutch connecting said bed and auxiliary shafts, means operatively connected to said bed-shaft for imparting work-advance and return movements to said feed-dog, means operatively connected to said auxiliary shaft for imparting rising and falling movements to said feed-dog, and driving connections with said auxiliary shaft for rotating said loop-taker.

6. In a sewing machine having a work-support, in combination, a thread-carrying needle, means for imparting endwise reciprocatory work-penetrating and laterally vibratory work-feeding movements to said needle, a tubular shaft rotatably journaled at the under side of said work-support, means including a driving member carried by one end of said tubular shaft for rotating said shaft, an auxiliary shaft rotatably journaled in said tubular shaft, means comprising an overload release clutch-link carried by said driving member and a clutch-collar carried by said auxiliary shaft for rotating said shafts in unison, a work-advancing feed-dog operating through said work-support, means including operative connections with said tubular shaft for imparting work-advancing movements to said feed-dog, a rotary loop-taker disposed below said work-support and complemental to said needle in the formation of lock-stitches, and driving connections with said auxiliary shaft for rotating said loop-taker.

7. In a sewing machine having a work-support, in combination, a thread-carrying needle, means for imparting endwise reciprocatory work-penetrating and laterally vibratory work-feeding movements to said needle, a tubular shaft rotatably journaled at the under side of said work-support, a belt-pulley secured upon one end of said tubular shaft, a feed-advance eccentric carried by the other end of said shaft, a feed-dog operating through said work-support and deriving work-advancing and return movements from said eccentric, an auxiliary shaft rotatably journaled in said tubular shaft, means comprising complemental overload release clutch elements carried by said pulley and auxiliary shaft for rotating said shafts in unison, a feed-lift eccentric carried by said auxiliary shaft, operative connections with said feed-lift eccentric for imparting rising and falling movements to said feed-dog, a rotary loop-taker complemental to said needle in the formation of stitches, and driving connections with said auxiliary shaft for rotating said loop-taker.

8. In a sewing machine, in combination, a work-support, stitch-forming mechanism including a thread-carrying needle and a rotary loop-taker, concentrically arranged rotary actuating shafts disposed below said work-support, driving connections including an overload release clutch between said shafts, work-feeding mechanism, operative connections with one of said rotary shafts for actuating said work-feeding mechanism, and operative connections with the other of said shafts for rotating said loop-taker.

9. In a sewing machine having a work-support, in combination, stitch-forming mechanism including a rotary loop-taker disposed below said work-support, a work-advancing feed-dog operating through said work-support, a tubular feed-shaft rotatably journaled below said work-support, operative connections between said feed-dog and said tubular feed-shaft, an auxiliary shaft rotatably journaled in said feed-shaft and extending from opposite ends thereof; operative connections between said loop-taker and said auxiliary shaft, a pulley secured upon one end of said feed-shaft, means for rotating said pulley, driving connections including an overload release clutch between said pulley and said auxiliary shaft, said clutch being adapted to disconnect said pulley and said auxiliary shaft whenever a predetermined load is applied to said auxiliary shaft, and means for reconnecting said pulley and said auxiliary shaft through said clutch, said latter means including a manually controllable locking device associated with said auxiliary shaft and adapted for locking said latter shaft against rotary movement.

10. In a sewing machine having a frame including a work-support and an overhanging bracket-arm, in combination, an arm-shaft rotatably journaled in said bracket-arm, a thread-carrying needle, operative connections with said arm-shaft for imparting endwise reciprocatory work-penetrating and laterally vibratory work-feeding movements to said needle, a tubular bed-shaft rotatably journaled at the under side of said

work-support, driving connections for rotating said shafts in unison, a rotary loop-taker disposed below said work-support and complemental to said needle in the formation of lock-stitches, a rotary loop-taker actuating shaft disposed within said tubular bed-shaft, driving connections including an overload release clutch between said tubular bed-shaft and said loop-taker actuating shaft, work-feeding mechanism disposed below said work-support, and positive driving connections between said tubular bed-shaft and said work-feeding mechanism for imparting work-advancing movements to said latter mechanism in unison with the work-advancing movements of said needle.

11. In a sewing machine having a frame including a work-support and an overhanging bracket-arm, in combination, an arm-shaft extending lengthwise of and rotatably journaled in said bracket-arm, a thread-carrying needle, operative connections with said arm-shaft for imparting endwise reciprocatory work-penetrating and laterally vibratory work-feeding movements to said needle, a tubular bed-shaft rotatably journaled at the under side of said work-support, a pulley mounted upon one end of said bed-shaft, driving connections between said arm-shaft and said pulley for rotating said shafts in unison, work-feeding mechanism disposed below said work-support, means including an eccentric mounted upon the other end of said tubular bed-shaft for actuating said work-feeding mechanism in unison with the work-advancing movements of said needle, an auxiliary shaft rotatably journaled in said tubular bed-shaft and extending

from opposite ends thereof, releasable coupling means comprising an overload release clutch connecting said bed-shaft and one exposed portion of said auxiliary shaft, a rotary loop-taker disposed below said work-support, and means carried upon the oppositely exposed portion of said auxiliary shaft for actuating said loop-taker.

12. In a sewing machine, in combination, a work-support, stitch-forming mechanism including a thread-carrying needle and a rotary loop-taker, a tubular feed-shaft, a rotary loop-taker actuating shaft extending through said tubular feed-shaft, driving connections including an overload release clutch between said shafts, work-feeding mechanism operatively connected to said tubular feed-shaft, and operative connections between said loop-taker actuating shaft and said rotary loop-taker.

13. In a sewing machine having a work-support, in combination, stitch-forming mechanism including a rotary loop-taker disposed below said work-support, a work-advancing feed-dog operating through said work-support, a tubular feed-shaft rotatably journaled below said work-support, means for rotating said shaft, means including operative connections with said feed-shaft for actuating said feed-dog, a rotary loop-taker actuating shaft extending through said tubular feed-shaft, means comprising an overload release clutch for rotating said loop-taker actuating shaft from said feed-shaft, and driving connections with said loop-taker actuating shaft for rotating said loop-taker.

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