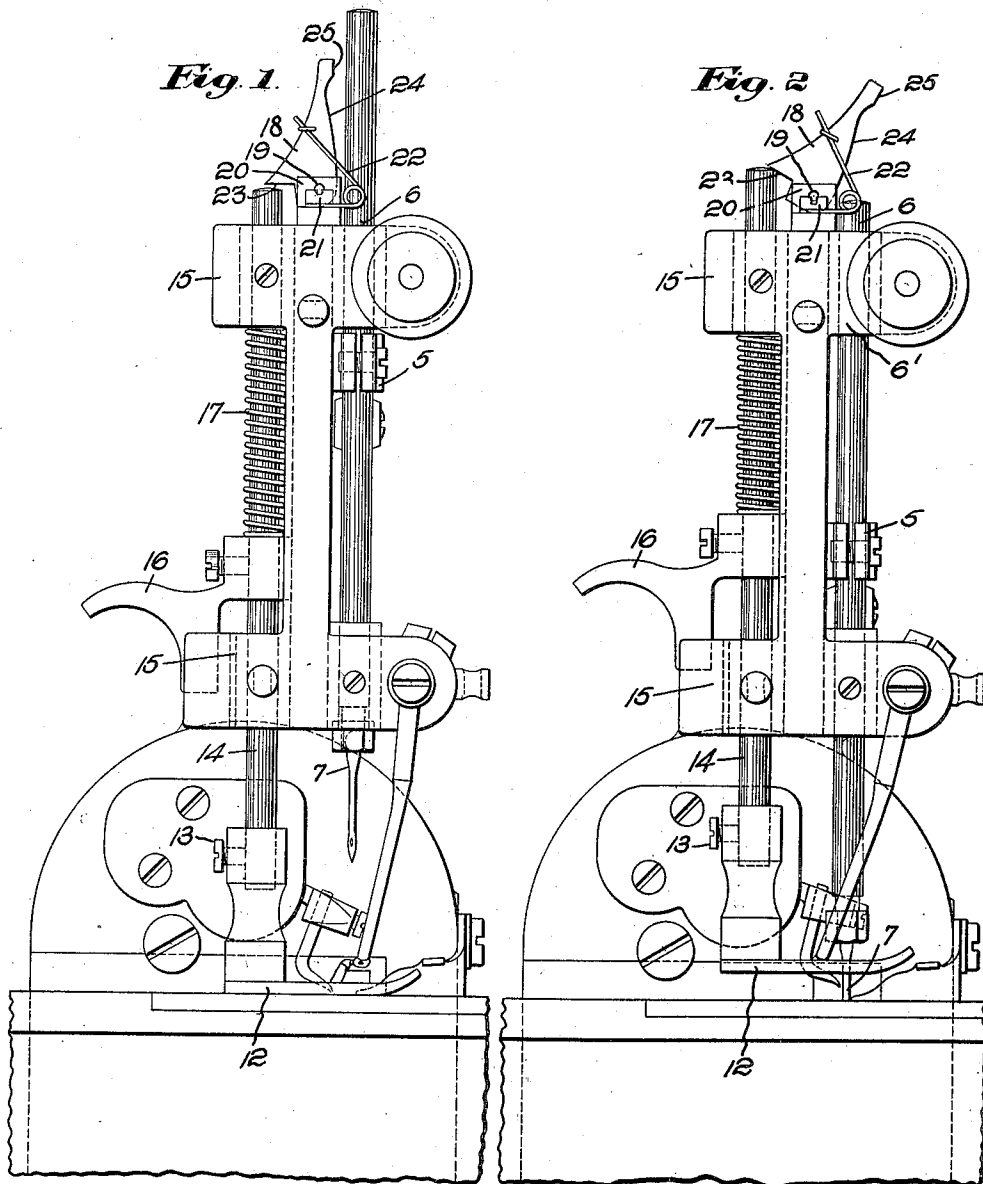


W. P. DRUMHELLER.
CROCHET OR OVERSEAMING MACHINE.
APPLICATION FILED DEC. 22, 1911.

1,057,375.

Patented Mar. 25, 1913.

2 SHEETS—SHEET 1.



Witnesses:

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Carl A. Choate.

Inventor:

William P. Drumheller
by Emory Booth, James H. Hays.

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2 SHEETS—SHEET 2.

Fig. 3.

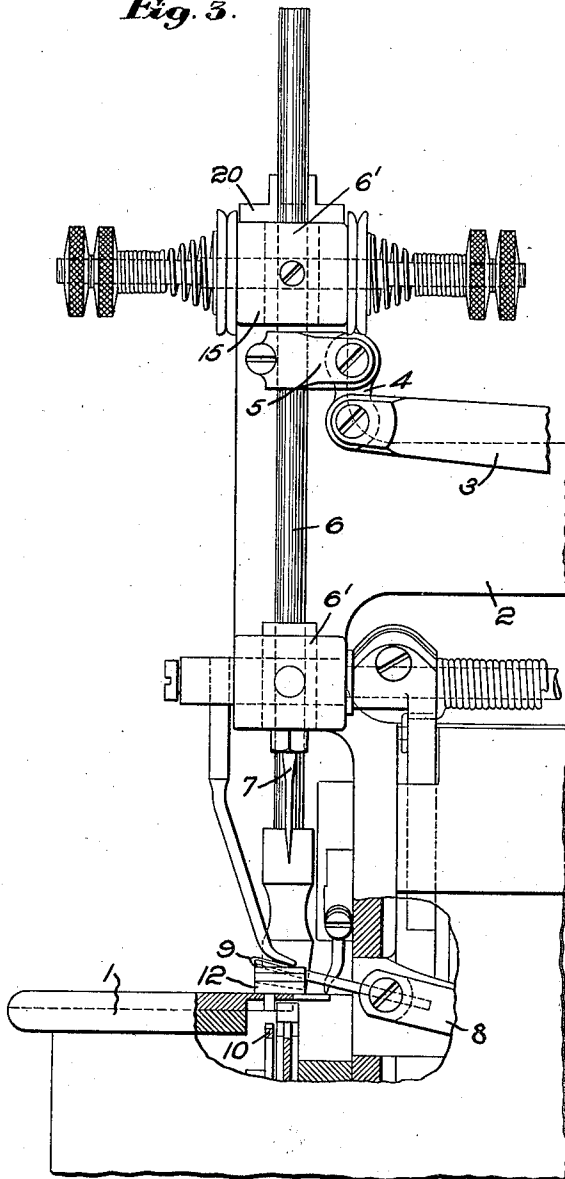
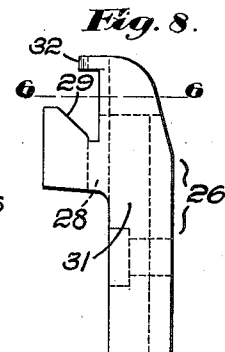
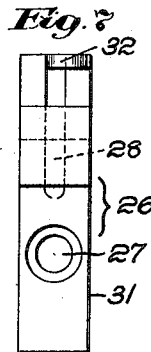
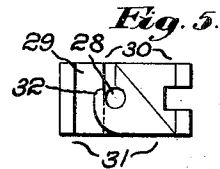
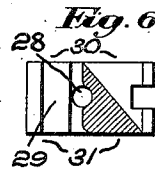
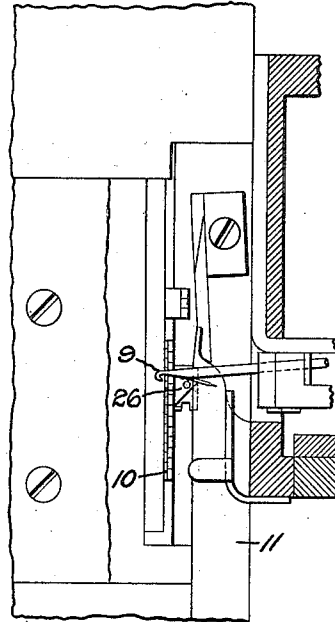


Fig. 4.



Witnesses:
Carl L. Choate.
Horace A. Croseman

Inventor:
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by Emory Borch, James W. Hany, Attys

UNITED STATES PATENT OFFICE.

WILLIAM P. DRUMHELLER, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE WILLIAM CARTER CO., OF NEEDHAM HEIGHTS, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

CROCHET OR OVERSEAMING MACHINE.

1,057,375.

Specification of Letters Patent.

Patented Mar. 25, 1913.

Application filed December 22, 1911. Serial No. 667,275.

To all whom it may concern:

Be it known that I, WILLIAM P. DRUMHELLER, a citizen of the United States, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented an Improvement in Crochet or Overseaming Machines, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to stitch forming machines and more particularly to crochet or overseaming machines.

In order that the principle of the invention may be readily understood, I have disclosed a single embodiment thereof in the accompanying drawing, wherein—

Figure 1 is an end elevation of said machine showing the sewing needle elevated and the presser foot depressed; Fig. 2 is a similar view representing the reverse position of said sewing needle and presser foot; Fig. 3 is a side elevation partially in section of the parts shown in Fig. 1 and also representing a portion of the operating means for the sewing needle and crochet hook; Fig. 4 is a view, mainly in plan and partially in transverse section of a portion of the stitch forming and work feeding mechanism; Fig. 5 is a plan view on an enlarged scale of a needle guard constituting a portion of my invention; Fig. 6 is a transverse sectional view of said needle guard upon the line 6—6 of Fig. 8; Fig. 7 is an elevation of the said needle guard; and Fig. 8 is an elevation thereof taken at right angles to Fig. 7.

The crochet or overseaming machine to which I have herein represented my invention as applied is preferably of that general type disclosed in the patents to Joseph M. Merrow, No. 414,233, November 5, 1889, and No. 428,508, May 20, 1890, to which reference may be had for a fuller disclosure of certain of the parts and the means for operating them. I have also represented my invention as applied to that type of such machine shown in the co-pending application of William H. Carter, No. 617,628, though obviously it may be embodied in other types of such machines.

The machine herein disclosed comprises

stitch forming instrumentalities including a sewing needle and a crochet hook or knitting needle with suitable means for operating them in coördination, together with a presser foot normally positioned upon the work but movable therefrom and preferably so constructed as to be lifted from the work by the operative. The operatives having charge of these machines, and which are usually worked under a piece work system at a high rate of speed, are exceedingly apt to elevate the presser foot to remove the work and then to start the mechanism as by movement of the treadle without having previously permitted the presser foot to return to its normal position. This results in the deforming engagement of the elevated presser foot by the stitch forming instrumentalities, and particularly by the crochet hook which moves in and out first above and then below the work. In accordance with my invention, I provide means to prevent the deforming engagement of the presser foot by the said stitch forming instrumentalities.

The mechanism of the type herein disclosed is provided with a needle guard positioned below and close to the work and having a passage therethrough for the sewing needle. The part of this needle guard that is positioned nearest the work is customarily located substantially wholly upon that side of the sewing needle that is nearer the operative. I have ascertained that the said needle is very frequently struck by the crochet hook and is deflected so as not to pass through the needle passage. In order to prevent needle deflection by the said crochet hook, I have provided the needle guard with an abutment extending substantially upon that side of the needle that is the more remote from the said hook when the latter is in retracted position.

Referring more particularly to the drawings, the bed of the machine is indicated at 1 and the frame or head at 2. Mounted in any suitable manner upon the head 2 is a needle operating lever 3, to which motion is imparted from the main drive shaft in a manner not herein necessary to disclose. As herein shown the said lever is connected by link 4 to a bracket 5 carrying the needle bar 6 mounted in suitable guide ways 6', 6'

in the head or frame 2, and to which the needle bar 6 is secured in any suitable manner so as to be vertically reciprocated. Also suitably operated from the main drive shaft and in coordination with the sewing needle 7 is a hook bar 8 carrying a crochet hook or knitting needle 9 of usual type. In the usual manner, the hook 9 is moved to and fro first above and then below the work to engage one of the threads, as more fully set forth in said patents.

Any suitable work feed may be employed. In Fig. 4, I have indicated at 10 a work feeding device substantially similar to that shown in said application. Adjacent thereto I have provided a forming finger 11 above and then below which the hook 9 passes in the loop and stitch forming operation.

The presser foot which may be of any suitable character is indicated at 12. It is herein represented as provided with a socket in which is secured by set screw 13 the lower end of the presser foot bar 14 which is vertically reciprocable in guide ways 15 in the said frame or head 2. Preferably the said presser foot bar is provided with a finger piece 16 detachably and adjustably secured thereto in any suitable manner, by which the presser foot may be manually elevated when desired to permit removal or insertion of the work. Preferably also the presser foot is provided with a coiled or other spring 17, between the upper guide way 15 and the finger piece 16 tending normally to depress the presser foot upon the work, but readily yielding as indicated in Fig. 2 to permit the manual elevation of said presser foot.

As previously set forth, the operative through haste or carelessness is exceedingly apt after having elevated the presser foot, as indicated in Fig. 2, to start the operation of the stitch forming instrumentalities, as by applying the foot to the treadle or otherwise, without having first released the presser foot and permitting the spring 17 to return the same to normal position. The presser foot when elevated is in or close to the path of movement of the hook 8, when moving above the work, and therefore the said hook frequently strikes the presser foot, damaging one or both of these parts. In order to prevent such occurrences, I have provided means to prevent deforming engagement of the stitch forming instrumentalities and the presser foot when the latter is in abnormal position, such means preferably acting to enforce return movement of the presser foot toward its normal position upon movement of the stitch forming instrumentalities or any suitable member thereof, as for example the sewing needle.

While different means may be provided for this purpose I have herein represented a

cam device 18 pivoted at 19 upon the head or frame 2 and preferably upon a bracket 20 secured by set screws 21 or otherwise to said head between the needle bar 6 and the presser foot bar 14. Said cam device 18 is normally spring pressed by a suitable spring 22 toward the presser foot bar 14, so that the portion 23 thereof overlies the upper end of said presser foot bar. That face of the cam device 18 that is adjacent the needle bar 6 is provided with a suitable projection or formation 24, 25 adapted, when the presser foot and the presser foot bar are elevated and the cam device is thereby shifted, as indicated in Fig. 2, to overlie the upper end of the needle bar 6 sufficiently to be engaged thereby when the said needle bar is elevated in the normal operation of the mechanism.

From the foregoing description, it will be apparent that when the operative has lifted the presser foot and the presser foot bar as indicated in Fig. 2, the cam device 18 is rocked until the portion 24, 25 thereof extends into the path of movement of the needle bar 6, so that if the operative should unwittingly start the mechanism before releasing her hold of the finger piece, the upward movement of the needle bar 6 at once swings the cam device 18 to the left viewing Fig. 2, thereby enforcing return movement of the presser foot toward its normal position, while at the same time warning the operative that the presser foot has been held elevated.

It is apparent that my invention is clearly applicable to other types of presser foot, and to presser feet which are manually lifted or removed from the work and returned thereto in any usual or approved manner.

A crochet or overseaming mechanism, such as herein disclosed, is provided with a needle guard indicated at 26 in Fig. 4, and upon a larger scale in Figs. 5 to 8 inclusive. This needle guard is removably attached in position in any suitable manner, as by means of a bolt entering the bolt hole 27, and serves also as a crochet hook latch opener. This needle guard has heretofore been provided with a needle passage 28 extending vertically therethrough and with an inclined needle guiding face 29 leading to said passage, as indicated most clearly in Figs. 5, 6 and 8. The inclined needle guiding surface 29 is customarily upon that side of the needle guard that is the more remote from the operative, and upon the side of the needle guard nearest the operative there is usually provided a needle guiding portion slightly recessed and extending through usually substantially 180° about the needle. The purpose of said recessed guide has been to guide or direct the needle toward the inclined face 29, which latter has been relied

upon to direct the needle toward the needle passage 28. The said needle passage 28 is usually positioned about mid-way between the lateral faces 30, 31 of the needle guard, and I have ascertained that the hook 9 is exceedingly apt to strike the needle 7 in the descent of the latter and to deflect it toward the face 31 of the needle guard and so far out of its true path that it will not pass through the passage 28, but will impinge upon the needle guard at the base of the inclined surface 29, and between said passage 28 and the face 31. In order to prevent this contingency, I provide the needle guard with an abutment or formation 32 extending to that side of the needle passage 28 and the needle 7 that is the more remote from the hook 9 when the latter is in its retracted position. This abutment 32 forms in effect a prolongation of the upper guiding portion of the needle guard and extends substantially as indicated and sufficiently far to prevent the needle, if deflected by the hook 8 or otherwise, from striking the extreme end of the said abutment. Preferably, however, the said abutment or prolongation 32 should not extend wholly about the needle, so as completely to encircle the same, as this would prevent the proper feeding of the thread with the needle 7. The abutment 32 so guides and directs the needle that even though it may be struck by the hook 9, it cannot be thereby deflected so as not to enter the passage 28 but will be directed therein by said abutment. Heretofore it has not been thought necessary in this type of machine to guard or direct the needle upon that side thereof that is diametrically opposite the hook 9 when in retracted position, but it has been thought sufficient to guide and direct the needle by the inclined surface 29 and the co-acting recessed surface diametrically opposite said surface 29. As above indicated, I have, however, discovered that the needle is apt to be deflected by the hook 9 in a direction that would carry it between the inclined guiding surface 29 and the guiding surface directly opposite thereto, and therefore have provided said abutment 32 to compel the needle, even though struck by the hook 9, to enter the needle passage 28.

It will be apparent from the foregoing description that I have provided suitable means to prevent the deforming engagement of the abnormally positioned presser bar and the stitch forming instrumentalities, and particularly the crochet hook or knitting needle, and also have provided means to guide and direct the sewing needle even though it be struck by the said hook or knitting needle.

Having thus described one illustrative embodiment of my invention, I desire it to be understood that although specific terms are

employed, they are used in a generic and descriptive sense and not for purposes of limitation, the scope of the invention being set forth in the following claims.

Claims:

1. A crochet or overseaming machine comprising in combination stitch forming instrumentalities, a presser foot movable to and from the work, and means intermediate and co-acting with the said stitch forming instrumentalities and the presser foot, said means being actuated by said instrumentalities to move the presser toward normal position, thereby to prevent deforming engagement of said stitch forming instrumentalities and said presser foot when the latter is in abnormal position. 70
2. A crochet or overseaming machine comprising in combination stitch forming instrumentalities, a presser foot movable to and from the work, a spring to press said foot toward the work, and means distinct from said spring and intermediate and co-acting with the said stitch forming instrumentalities and the presser foot, said means being moved by said instrumentalities to move the presser foot toward normal position, thereby to prevent deforming engagement of the stitch forming instrumentalities and said presser foot. 85
3. A crochet or overseaming machine comprising in combination, a sewing needle, a thread manipulating hook device, means to operate them, a presser foot adapted to be lifted manually from the work, and means to enforce return movement of the presser foot toward normal position and out of the path of said hook device by movement of the stitch forming instrumentalities. 90
4. A crochet or overseaming machine comprising in combination, a sewing needle, a needle bar, a thread manipulating device, means to operate said parts, a presser foot, a presser foot bar, and means intermediate said needle bar and presser foot bar to enforce movement of the latter toward normal position, by movement of the former away from the work. 95
5. A crochet or overseaming machine comprising in combination, a sewing needle, a needle bar, a thread manipulating hook device, means to operate said parts, a presser foot movable into the path of movement of the hook device, a presser foot bar, and a cam device adapted to be impinged upon by said needle bar to cause movement of the presser foot toward normal position out of the path of movement of said hook device. 100
6. A crochet or overseaming machine comprising in combination, a sewing needle, a needle bar, a thread manipulating hook device, means to operate said parts, a presser foot, a presser foot bar, and means movable by lifting movement of the presser foot into the path of movement of the needle bar. 105

7. A crochet or overseaming machine comprising in combination, a sewing needle, a needle bar, a thread manipulating hook device, means to operate said parts, a presser foot, a presser foot bar, and a cam device pivoted adjacent the upper end of the presser foot and needle bars, overlying the former and adapted upon lifting movement thereof to be projected into the path of movement of the needle bar.

8. A crochet or overseaming machine comprising in combination stitch-forming instrumentalities including a sewing needle, a movable thread-manipulating hook device, means to operate them, a presser foot adapted to be lifted manually from the work, and presser-foot-depressing means having movement initiated by movement of said stitch-forming instrumentalities thereby to prevent deforming engagement of said hook device with the presser foot when elevated.

9. A crochet or overseaming machine comprising in combination a sewing needle, a needle bar, a movable thread manipulating hook device, means to operate said parts, a presser foot, a presser foot bar, and means intermediate said needle bar and presser foot bar to enforce movement of the latter out of the path of said hook device.

10. A crochet or overseaming machine comprising in combination a sewing needle, a needle bar, a movable thread-manipulating hook device, means to operate said parts, a presser foot, a presser foot bar and presser-foot-positioning means movable by lifting

movement of the presser bar into the path of movement of the needle bar.

11. A crochet or overseaming machine comprising in combination a sewing needle, a needle bar carrying the same and movable in a right line only, a movable thread manipulating hook device, means to operate said parts including means to move said needle bar in a right line only, a presser foot adapted to be lifted manually from the work, and connections between said needle bar and presser foot to enforce return movement of the presser foot toward normal position upon movement of the sewing needle away from the work.

12. A crochet or overseaming machine comprising in combination a sewing needle, a needle bar, a movable thread-manipulating hook device, means to operate said parts, a presser-foot, a presser-foot bar, and means intermediate said needle-bar and presser-foot bar and co-acting with both, said means being so located relative to said parts that it is impinged upon by movement of the needle-bar away from the work and thereby causes movement of the presser-foot toward the work.

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

WILLIAM P. DRUMHELLER.

Witnesses:

MARGARET A. CONNOR,
THOMAS C. MAHER.