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ATTACHMENT HOLDER FOR SEWING MACHINES

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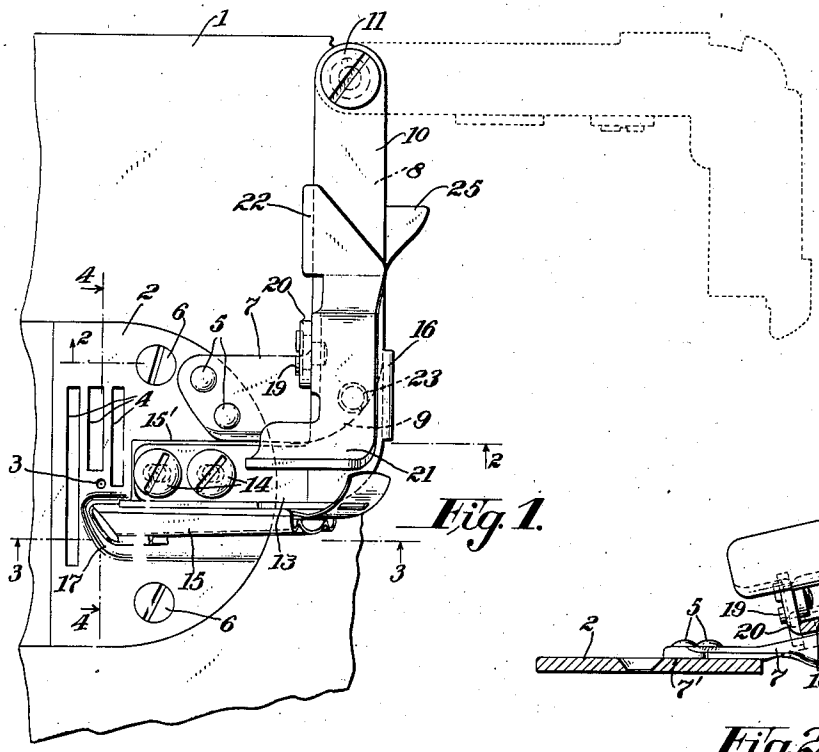


Fig. 1.

Fig. 2.

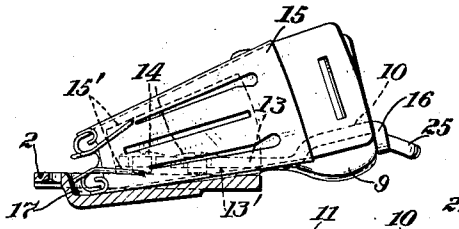


Fig. 3.

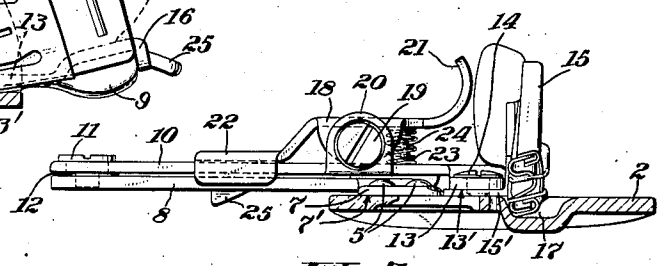


Fig. 4.

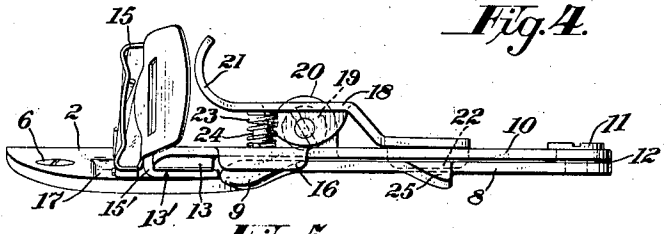


Fig. 5.

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ATTACHMENT HOLDER FOR SEWING MACHINES

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7 Claims. (Cl. 112—136)

The invention relates to an improved holder or support for work-guiding attachments for sewing machines. More specifically it is an improvement in attachment holders of the type by which a binder may be selectively moved into and out of an operative position.

The invention has for a primary object to provide an improved attachment holder for a sewing machine which is so constructed that the attachment may be readily shifted, in one manual operation, upward and away from engagement with a complementary pocket formed in the work-supporting plate of a sewing machine, whereby to readily adapt said machine for ordinary sewing with minimum obstruction at the work-supporting surface.

A further object of the invention is to provide a new attachment holder of the above type with an improved releasable latching means for securing the attachment in operative position.

A still further object of the invention is to provide an improved attachment holder of the above character in which the parts are so positioned that the operator, in normally grasping the attachment in one hand to shift it to its inoperative or out of the way position, may simultaneously release the latch to permit said shift.

With the above and other objects in view, as will hereinafter appear, the invention comprises the devices, combinations, and arrangements of parts hereinafter set forth and illustrated in the accompanying drawing of a preferred embodiment of the invention and the advantages attained thereby will be readily understood by those skilled in the art.

In the accompanying drawings Fig. 1 is a top plan view of a binder embodying the improved support applied to the throat-plate of a sewing machine and showing in broken lines the binder moved to inoperative position. Fig. 2 is a vertical section taken substantially on the line 2—2, Fig. 1. Fig. 3 is a vertical section taken substantially on the line 3—3, Fig. 1. Fig. 4 is a vertical section taken substantially on the line 4—4, Fig. 1. Fig. 5 is an elevational view of the binder taken from the side toward which it may be shifted.

Referring to the drawing, the present improvement is shown as embodied in a sewing machine having a cloth-plate 1 with a throat-plate 2 secured thereto by screws 6 and provided with the usual needle-hole 3 and feed-dog clearance slots 4 defining the line of feed of the work. Rigidly secured to the throat-plate 2 preferably by rivets 5 is the L-shaped supporting arm comprising a short portion 7 positioned transverse to the line of feed of the work and having a seating surface 7' and a longer portion 8 extending rearwardly, parallel to the line of feed of the work and bent to stand in a plane oblique to the seating surface 7' as shown best in Fig. 2. The juncture of portions 7 and 8 of the supporting arm provides a leading corner 9 which is turned down, rounded and made smooth whereby to reduce to a minimum the resistance offered by said corner to the passage of work through the machine when the attachment is shifted into its inoperative position and the machine is being used for ordinary sewing, as will be more clearly set forth later herein.

Swingably mounted on the rearwardly disposed free end of portion 8 of the supporting arm is an L-shaped swingable bracket 10 which pivots about a shouldered pivot screw 11 threaded into and secured to said arm-portion 8, and which bracket is held in proper spaced relation with said arm by means of washer 12. The bracket 10 is formed at its free end with a transverse portion 13 having an attachment-receiving seat 13' to which is adjustably secured by screws 14 an angle-bracket 15' carrying a binder 15 secured thereto by any suitable means such as soldering.

Inasmuch as the binder 15, per se, forms no part of the present invention, detailed illustration and description thereof is not deemed necessary herein. For a more complete disclosure of the specific binder shown herewith, reference may be had to my prior U. S. Patent No. 2,026,484, dated Dec. 31, 1935.

The transverse portion 13 of the bracket 10 is bent to stand in a plane oblique to the main portion of the bracket so that, as the bracket is swung about the pivot screw 11 from the inoperative position shown by the broken lines of Fig. 1 into the operative position, the plane of the attachment-receiving seat 13' approaches parallelism with the throat-plate 2; exact parallelism being reached when the binder 15 is in operative position and the bottom surface of the angle-bracket 15' is seated in a stable supported position on the top surface of the throat-plate 2, as shown by the full lines in Fig. 1 and more particularly in Figs. 3 and 4.

It is clear that, as the binder 15 is shifted about the axis of the pivot-screw 11, which is inclined to the plane of the throat-plate 2, it is, at the same time, raised above the surface of the throat-plate to provide clearance whereby said binder may be readily and conveniently shifted

to its extreme position away from the line of feed of the work.

A portion 16 of the edge of the bracket 10 is bent down to form a stop which engages the lateral edge portion of the fixed arm portion 8 and bears against it when the binder is in operative position thus limiting the extreme position of the binder in the line of feed of the work. The delivery end of the binder is received within a depressed pocket 17 having rounded edge corners and a closed bottom, and formed in the throat-plate 2 so that the binding material is continuously positioned to properly enclose the edge of the fabric being bound. With this construction there is no opportunity for the fabric to be deflected into or foul the mechanism beneath the throat-plate with the result that the feed of the work is easy and unimpeded both for binding and ordinary sewing. Further, by providing in the throat-plate 2 a pocket 17 instead of an aperture, which is sometimes employed, the parts of the lower stitching mechanism are protected against the infiltration of foreign matter with a resultant decrease in servicing requirements.

A latch-member 18 pivotally secured by screw 19 to a supporting ear 20 struck up from one edge portion of the bracket 10 is formed at one end with a handle-portion 21 and at the other end with a downturned lip or finger portion 22 which engages the lateral edges of both the arm 8 and the bracket 10, as is best shown in Fig. 4. A helical compression spring 23 positioned by a guide pin 24 secured to the bracket 10 presses upwardly against the handle-portion 21 and thus urges the finger-portion 22 downwardly. A triangular-shaped portion 25 formed on one edge of the rearwardly extending portion 8 is bent slightly downwardly to stand in a plane oblique to the portion 8 and provides a guiding cam surface for the depending latch finger 22 so that, as the binder is swung from the inoperative to the operative position, the latch finger 22 rides up on the cam surface 25 and transversely across the fixed arm portion 8 to drop finally into a latched position of engagement with the lateral edges of both the arm 8 and the bracket 10 when said arm and bracket are substantially in register as clearly shown in the full lines of Fig. 1. The cam surface 25 further improves the manipulation efficiency of the device inasmuch as it eliminates the necessity of grasping the latch handle 21, to release the latch when returning the binder to the operative position. That is, the binder may be engaged by the hand of the operator at any convenient point and simply pushed to its operative position. It is clear that, in this latched position, the stop 16 prevents any further clockwise turning of the swingable bracket 10 while the latch-finger 22 prevents the counterclockwise rotation of said bracket. The binder is thus positively but releasably held stationary in operative position.

Whenever it is desired to swing the binder out of its operative position which, for example, may occur frequently where a single sewing machine is employed to handle several operations on one garment, it is only necessary to first apply a slight pressure downwardly at the handle end 21 of the latch-member 18 and then to pull said handle transversely away from the line of feed which will swing the bracket and binder about the axis of the inclined pivot screw 11 to adapt the machine for ordinary sewing. The handle portion 21 of the latch member 18 is formed with a turned-up concave cylindrical surface, positioned closely adjacent the head of the binder 15, so that, in order to conveniently grasp the device, the fore and middle fingers of the operator's hand are naturally pressed down on the handle portion with the thumb placed against the front of the binder head. In this manner, the operator, in normally grasping the binder to shift it to its inoperative position, may simultaneously release the latch at precisely the correct moment to allow the binder to be freely and conveniently shifted to its inoperative position. Downward pressure on the handle 21 raises the latch-finger 22 above the edge of the portion 8 of the fixed arm, thus permitting the bracket 10 to be freely swung out of register with the fixed arm-portion 8.

In this swung-out or inoperative position, the parts of the binder having any considerable vertical extent are removed sufficiently from the line of feed of the work to afford a minimum of obstruction to the passage of material through the machine in the course of ordinary sewing. In this connection, the rounded contour of the corner 9 of arm 7 and the inclined leading edge of the cam surface portion 25, which have little vertical extent, have been so shaped as to further reduce the resistance to the flow of material over the work-supporting surface.

From the foregoing it will be perceived that I have provided an improved holder for a binder for a sewing machine by means of which the binder may be automatically latched in operative position, conveniently released therefrom by slight downward pressure and swung away from or into said operative position by easy manipulation whereby the sewing machine is readily adapted to either of two sewing functions and with substantially no increased resistance to the flow of material through the machine due to the presence of the adapting device.

While the sewing machine attachment holder of the binder type has been herein described in general terms, it is to be understood that the invention is equally useful with other types of work-guiding attachments such, for example, as strip guides and hemmers. Further, the invention has been specifically illustrated herein as applied to a construction in which the sewing machine attachment holder is secured to a throat-plate. It is clearly within the scope of the invention to secure said holder to any work-supporting part of a sewing machine.

It will be obvious to those skilled in the art that the invention may, without departure from is essential attributes, be embodied in various specific forms other than that shown and described, which latter is to be considered in all respects as illustrative of the invention and not restrictive; reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

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

1. In a sewing machine, the combination of a binder, a throat-plate having a needle-hole, feed-dog clearance slots and a closed-bottomed pocket formed therein for receiving the delivery-end portion of said binder, and supporting means for pivotally securing the binder to the throat-plate, said supporting means including a pivotal axis inclined to the throat-plate whereby the single act of swinging the binder away from the line of feed also effects a raising of the binder above the throat-plate and out of said pocket.

2. In a sewing machine, the combination with a detachable throat-plate having a needle-hole and a closed-bottomed pocket, of a work-guiding element removably received in said pocket, and means for supporting said work-guiding element on the throat-plate and in the pocket of said throat-plate comprising a horizontal supporting arm fixed to the throat-plate, a bracket carrying said guide and swingable in a plane oblique to the throat-plate and pivoted at one end to said supporting arm, and latching means including a spring-pressed lever having a handle portion positioned closely adjacent said work-guiding element and carried by the swingable bracket for automatically and releasably engaging the fixed supporting arm when said bracket and arm are substantially in register.

3. An attachment holder for sewing machines comprising, a supporting arm having a seating surface and adapted to be secured to a sewing machine work-supporting member, a swingable attachment-supporting bracket pivotally mounted at one end on said arm and having at the opposite end an attachment-receiving seat, and a lever disposed longitudinally of said swingable bracket and fulcrumed on an axis transverse thereto and having a handle portion at the end adjacent the attachment-receiving seat and a depending latch finger at the end remote therefrom for releasably securing said swingable bracket to said supporting arm in a predetermined relative position.

4. In a sewing machine attachment holder having an operative and an inoperative position, a fixed supporting arm, a swingable bracket fulcrumed on said arm and formed with a downturned edge-portion affording a stop member against which an edge-portion of the arm bears when the bracket is swung into operative position, a pivoted spring-pressed latch member carried by said bracket and formed at one end with a handle-portion and at the other end with a depending finger-portion which engages edge-portions of both the arm and bracket to form with said stop member a releasable locking means to hold said arm and bracket in register.

5. In a work-directing attachment holder for sewing machines having an operative and an inoperative position, a supporting arm, a bracket fulcrumed on said supporting arm and having an attachment-receiving seat remote from said fulcrum, and a latch-lever pivotally mounted on said bracket for releasably locking said bracket in its operative position, said latch-lever having at one end a lip for engaging the supporting arm and having at its other end an operating handle disposed adjacent the seat for the work-directing attachment and in position so that the operator, in grasping the work-directing attachment in one hand to shift it to its inoperative position, may simultaneously release the latch permitting the attachment to be conveniently shifted to its inoperative position.

6. In a sewing machine attachment holder having an operative and an inoperative position, a fixed supporting arm having an edge-portion bent down to afford a cam surface, a swingable bracket fulcrumed on said supporting arm and having an attachment-receiving seat remote from said fulcrum, a pivoted spring-pressed latch lever carried by said bracket and formed at one edge with a depending lip which rides upon said cam surface and transversely across the top of the fixed arm to drop into a latched position of engagement with the lateral edges of both said arm and bracket when the bracket is swung from an inoperative to an operative position.

7. In a sewing machine attachment holder having an operative and an inoperative position, a fixed supporting arm provided at one end with a seating surface, a swingable bracket fulcrumed at one end on said arm at that end of the arm remote from said seating surface, said bracket carrying at its other end an attachment-receiving seat, and a latch-lever mounted on and extending longitudinally of said bracket and formed with a handle portion at the end adjacent the attachment-receiving seat and with a depending latch-finger portion at the end remote therefrom, said lever being pivoted between its two ends on an axis transverse to said bracket, whereby a slight downward pressure on said handle raises said latch-finger to permit the bracket to be freely shifted from an operative to an inoperative position.

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