

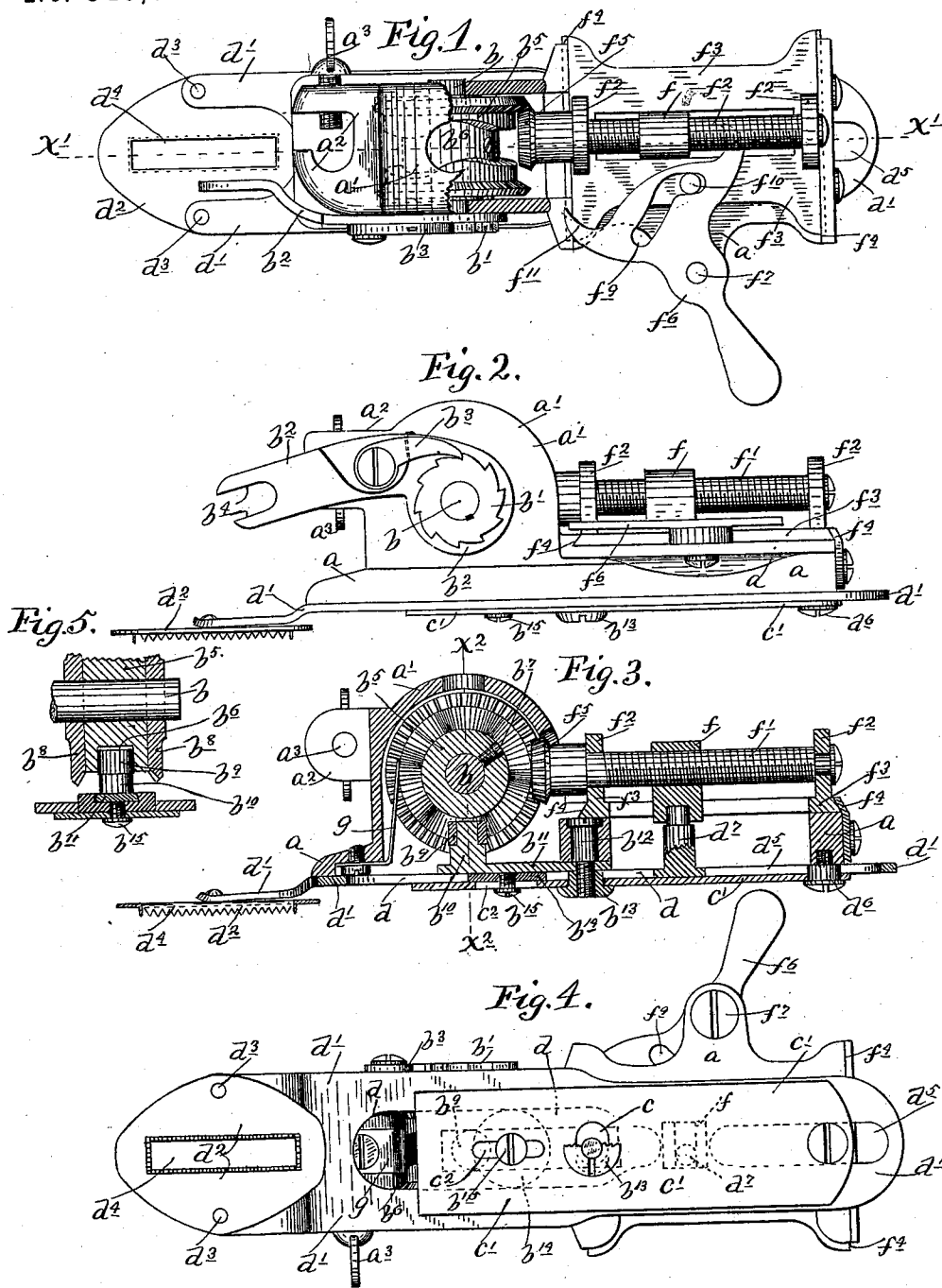
(No Model.)

J. D. SCHOONMAKER.

TACKING ATTACHMENT FOR SEWING MACHINES.

No. 549,537.

Patented Nov. 12, 1895.



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TACKING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 549,537, dated November 12, 1895.

Application filed May 22, 1893. Serial No. 475,168. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. SCHOONMAKER, a citizen of the United States, and a resident of the city of Chicago, county of Cook, State of Illinois, have invented certain new and useful Improvements in Tacking Attachments for Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the said invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings.

My invention has for its object to provide an attachment for sewing-machines which shall be adapted to tack the corners of pockets, buttonholes, crotches, &c., wherever the parts are subjected to special strain, which would otherwise tend to rip or tear the sewed parts of the garment.

To this end my invention consists of certain novel devices and combinations of devices, which will be hereinafter fully described, and be defined in the claims.

My attachment is illustrated in the accompanying drawings, wherein, like letters referring to like parts throughout the several views—

Figure 1 is a plan view of the device with some parts broken away. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical longitudinal section through the device on the line X' X' of Fig. 1. Fig. 4 is a bottom plan view of the device; and Fig. 5 is a partial vertical section on the line X² X² of Fig. 3, looking from the left, with some parts broken away and others omitted.

a a' a^2 represent, respectively, the bed portion, the cam-wheel casing, and the lugs for embracing the presser-foot bar, all of which parts are formed integral with each other and constitute what may be termed the "fixed body" or "frame" of the device. One of the lugs a^2 is provided with a jam-screw a^3 for clamping the device to the presser-foot bar of the sewing-machine, and thereby securing the same in its proper working position.

In the fixed casing a' is journaled a shaft b , which extends outward slightly beyond the casing at one end and has fixed to its external or projecting portion a ratchet-wheel b' . On

the said shaft b , between the casing a' and the ratchet-wheel b' , is pivoted a lever b^2 , which is provided with a spring-held pawl b^3 , in engagement with the ratchet-wheel b' . At its forward end the lever b^2 is provided with a pair of jaws b^4 , adapted to embrace the jam-screw which secures the needle to the needle-bar of the sewing-machine and be clamped by the said jam-screw to the needle-bar when the device is in working position. Hence, under the action of the needle-bar, the lever b^2 will be croked up and down, and, through the pawl and ratchet b^3 b' , the shaft b will receive a step-by-step rotary motion in a constant direction. On the said shaft b is mounted a peripheral cam-channel wheel b^5 b^6 , which is fixed to the shaft, as shown, by a set-screw b^7 . On the said shaft and fixed to the ends of the cam-wheel b^5 are mounted a pair of beveled gear-wheels b^8 , arranged so that the teeth of the two wheels face each other and project beyond the cam-wheel. The cam-channel b^6 of the cam-wheel b^5 is engaged from below by a roller b^9 on a stud b^{10} , formed integral with a lever b^{11} , which is pivoted to the fixed part of the frame at its rear end, as clearly shown in Fig. 3. As shown, the pivot consists of a set-screw b^{12} , the body or upper portion of which has screw-threaded engagement with a suitable seat formed in the fixed frame and the lower portion of which is reduced in respect to the body portion and is screw-threaded for adapting the same to be engaged by a nut b^{13} . The projecting stem of the set-screw b^{12} , as well as the shank of the nut b^{13} , works through a slot c in a clamping-plate c' and through a slot or opening d in the cloth-clamp slide d' . On the lever b^{11} and having dovetailed engagement therewith is mounted a cross-head slide b^{14} , which may be clamped to the said lever b^{11} in any desired position thereon by a set-screw b^{15} , which works through a longitudinal slot c^2 in the clamping-plate c' . The cloth-clamp slide d' is provided with a serrated cloth-clamp d^2 at its forward end, which is connected to the slide by loose rivets d^3 in such a way as to permit a limited pivotal movement of the said cloth-clamp d^2 in respect to the slide d' . The cloth-clamp d^2 is provided with a needle-passage d^4 of the proper

dimensions to afford the requisite play of the cloth-clamp in respect to the needle under the action of the device. The cloth-clamp slide d' is provided with a longitudinal slot d^5 in its rearward portion, through which works the body of a shouldered set-screw d^6 , the reduced or screw-threaded portion of which engages or is tapped into the fixed frame of the device. The said shouldered set-screw d^6 works through the clamping-plate c' and serves to form a pivot or fulcrum for the oscillatory or laterally swinging cloth-clamp slide d' and the clamping-plate c' when the parts are in working position.

From the foregoing statements it is obvious that the cloth-clamp slide d' is held between the bed portion a of the frame and the clamping-plate c' by the parts $b^{12}b^{13}b^{15}$ and the pivot-screw d^6 . The slot c in the clamping-plate c' and the opening or longitudinal slot d in the forward part of the clamp-slide d' are of the proper lateral dimension to afford clearance, with respect to the fixed nut b^{13} , for the lateral swinging motion of the cloth-clamp. The cross-head slide b^{14} is of a size to exactly fit the opening d in the cloth-clamp slide. Hence, when the parts are in working position, under the rotary motion of the cam-wheel b^5 the lever b^{11} will be swung back and forth in the horizontal plane and will impart a similar swinging motion to the cloth-clamp d^2 and the forward end of the cloth-clamp slide d' . In this swinging motion of the cloth-clamp d^2 and the forward end of the slide d' the clamping-plate c' will also swing at its forward end with the cloth-clamp slide d' and both will turn on the pivot-screw d^6 as their fulcrum. The extent of throw given to the cloth-clamp d^2 in its lateral swinging motion is determined by the position of the cross-head slide b^{14} on the cam-lever b^{11} . If this cross-head b^{14} be at its outermost limit on the lever b^{11} , the full stroke of the lever b^{11} will be imparted to the cloth-clamp d^2 ; but if the said cross-head b^{14} be in any other position nearer to the pivoted end of the said lever b^{11} the lateral stroke or throw of the cloth-clamp d^2 will be correspondingly decreased.

Having regard now to the sliding motion or longitudinal feed of the cloth-clamp slide d' , it may be seen on reference to Fig. 3 that the said slide d' is provided with a vertical lug d^7 . This lug detachably engages with a suitable seat in a nut f , which is mounted on and has screw-threaded engagement with a screw-shaft f' . This screw-shaft f' is mounted in suitable vertical bearing-lugs f^2 of a lateral slide-plate f^3 , which has dovetailed engagement with flange-lugs f^4 , fixed to or forming a part of the main frame a or a' . The forward end of the screw-shaft f' is provided with a beveled pinion f^5 , which may be made to engage with either one of the beveled gear-wheels b^8 on the shaft b and cam-wheel b^5 or be thrown into an idle position, where it will be out of gear with either of said wheels b^8 . It is therefore, of course, obvious that the

said screw-shaft f' will be turned in one or the other direction, according to which one of the said beveled gear-wheels b^8 the said beveled pinion f^5 is made to engage. The laterally-movable slide f^3 , on which the said screw-shaft f' is mounted, is under the control of a pivoted cam-action shipper-lever f^6 . This lever is pivoted to the bed-plate a , as shown at f^7 , and is provided with a cam-slot f^9 , which is engaged by a stud f^{10} , rising from the said laterally-movable slide-plate f^3 . In virtue of the relation of the cam-slot f^9 and the stud f^{10} the said plate f^3 may be shifted by operating the pivoted lever f^6 , so as to stand in either one of its extreme positions or in its intermediate and idle position. The said lever f^6 is provided with a pair of projections or cam-tips f^{11} , one or the other of which will be in the path of the traveling nut f whenever the pinion f^5 is in engagement with either of the beveled gears b^8 .

It should have been noted that the screw-shaft f' is held against longitudinal movement and that the nut f travels lengthwise of the shaft f' through a slot f^{12} in the slide-plate f^3 . Hence whenever the nut f reaches the limit of its travel in either direction on the shaft f' it will have engaged one or the other of the cam-tips f^{11} on the lever f^6 and have rocked the said lever into its opposite extreme position, which movement of the said lever f^6 will move the slide-plate f^3 from one to the other extreme of its lateral movement, and thereby shift the pinion f^5 from one to the other of the said beveled gears b^8 and reverse the direction of the travel of the nut f and the cloth-clamp slide d' . The longitudinal feed of the cloth-clamp slide d' and its reversal in direction is, therefore, automatic. The lever f^6 is, however, capable of hand action, so as to permit the longitudinal feed of the cloth-clamp to be reversed at any intermediate point and permit the slide-plate f^3 to be thrown into position to render the pinion f^5 idle or out of gear with either of the beveled gear-wheels b^8 . In both directions of the cloth-clamp slide's travel the oscillatory or laterally-swinging motion of the cloth-clamp d^2 will be maintained under the action of the cam-channel b^6 of the wheel b^5 , the cam-lever b^{11} , and cross-head b^{14} .

A flat spring g is shown as fixed to the forward part of the frame and as bearing at its free end against the continuous peripheral portion of the cam-wheel b^5 , and serves to operate as a check-brake to prevent the backward movement of the said cam-wheel.

From the foregoing detailed description it is thought that the construction and operation of this device must be clear and distinct. It will, of course, be understood that when this device is applied to the sewing-machine a cover is placed over the ordinary cloth-feed of the sewing-machine and the ordinary presser-foot is removed.

The device, as described, will produce an even stitch; but by placing a thread or cord

at the side of the needle and holding the same in such a way that it will shift laterally with the cloth-clamp, so that the needle will make its downstroke on opposite sides of the cord alternately, a raised tack may be produced whenever so desired.

My device herein disclosed is, as must be apparent from the description, of extremely simple construction for the purposes had in view. It should also be especially noted that in view of the fact that the casing a' for the cam-wheel b^5 , beveled gear-wheels b^8 , and the pinion f^5 is formed integral with or secured to the bed a , it protects the parts which require the most oil from dust and dirt and shields the cloth and the operator completely from the oil, which would be otherwise liable to escape from the rotary cam-wheel, beveled gears, and pinion. This form of frame also protects the working parts in such a way that they are not liable to injury from handling and knocking around under rough usage.

It should be especially noticed in regard to the action of this device that when in working position it is rigidly secured to the presser-foot bar of the sewing-machine, and hence the attachment is movable up and down with the presser-foot bar, thereby affording clearance for the free manipulation of the cloth in the same way as under the ordinary action of the sewing-machine.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a sewing machine attachment, the combination with the cloth clamp slide, of the pair of bevel gears receiving motion from the needle-bar, a shiftable screw-shaft having a pinion engageable with either of said bevel-gears, a traveling nut on said shaft connected with said cloth clamp slide, and a shifting device for shifting said screw-shaft, substantially as described.

2. In a sewing machine attachment, the combination with the cloth clamp slide, of the pair of bevel-gears receiving motion from the needle bar, a shiftable screw-shaft having a pinion engageable with either of said gears, a traveling nut on said screw shaft connected with said cloth clamp slide, and a screw-shaft shifter operated by said traveling nut to alternately shift said pinion from one to the other of said gears, for automatically reversing the feed of the cloth clamp, substantially as described.

3. In a sewing machine attachment, the combination with the cloth clamp slide, of the pair of bevel-gears receiving motion from the needle-bar, a shiftable screw-shaft having a pinion engageable with either of said gears, a traveling nut on said shaft connected with said cloth clamp slide, and a cam action pivoted lever arranged to shift said screw shaft and provided with a pair of tips or projections which are alternately acted upon by

said traveling nut, to effect the shift and reverse the feed, substantially as described.

4. The combination with the cloth clamp slide d' , of the bevel gears b^8 receiving motion from the needle-bar, of the lateral slide plate f^3 , the screw shaft f' having the pinion f^5 , the traveling nut, f , the lug d' on said clamp slide engaging said nut, the shifting lever f^6 having the cam slot f^9 and the cam action tips f^{11} and the stud f^{10} on the slide-plate f^3 working in said cam slot f^9 , substantially as described.

5. In a sewing machine attachment, the combination with a cloth clamp slide mounted for pivotal and longitudinal movement, of a rotary shaft receiving motion from the needle bar, a cam-wheel on said shaft, a pivoted lever subject to the action of said cam-wheel and connected with said cloth clamp slide, for imparting a lateral swinging motion to said clamp slide, a pair of beveled gears also on said shaft and facing each other, a shiftable screw shaft having a pinion engageable with each of said beveled gears, and a traveling nut on said screw-shaft having a connection with said cloth clamp slide, for imparting the longitudinal feed thereto, substantially as described.

6. In a sewing machine attachment, the combination with a suitable fixed frame, securable to the machine, of a cloth clamp slide mounted on said frame, with freedom for longitudinal sliding motion and lateral swinging motion, a rotary shaft provided with a ratchet, a lever pivoted on said shaft having a pawl engaging with said ratchet and securable to the needle-bar, for turning said shaft with a step-by-step motion, a cam-wheel on said shaft having a peripheral cam-channel, a pivoted cam-lever subject to the action of said cam-wheel, an adjustable cross-head connecting said cam-lever with said cloth clamp slide, for imparting the swinging motion to said slide, a pair of beveled gears on said shaft, a laterally movable slide-plate on said frame, a screw-shaft on said slide-plate having a pinion engageable with either of said beveled gears, a traveling nut on said screw-shaft working through a slot in said plate and engaging a lug on said clamp-slide, for imparting the longitudinal feed thereto and a shifting-lever having a cam slot and stud connection with said plate f^3 , which lever is capable of hand action and is also provided with cam tips subject to the action of said traveling nut, for shifting said plate and screw shaft either to stop or to reverse the feed of the cloth clamp slide, substantially as described.

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