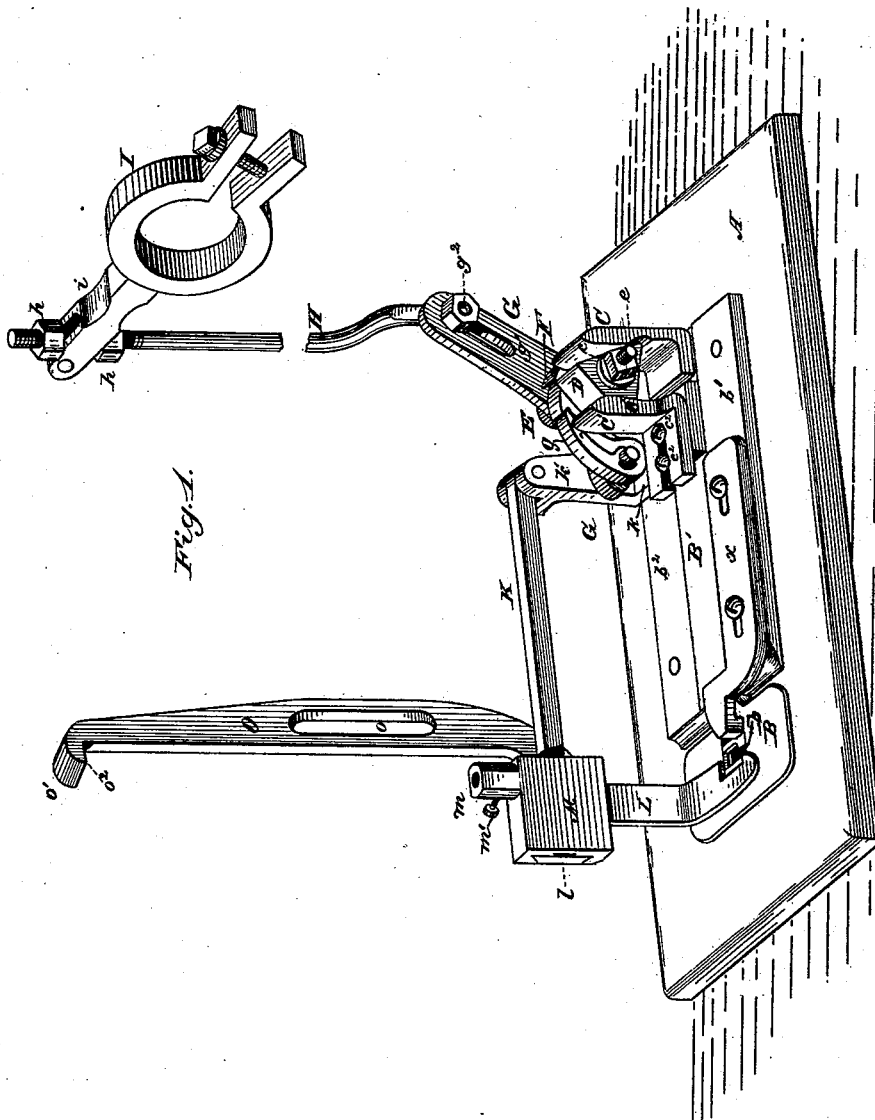


H. J. WATKINS.
Over Seaming Attachment for Sewing Machines.
No. 202,313. Patented April 9, 1878.



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Fig. 2.

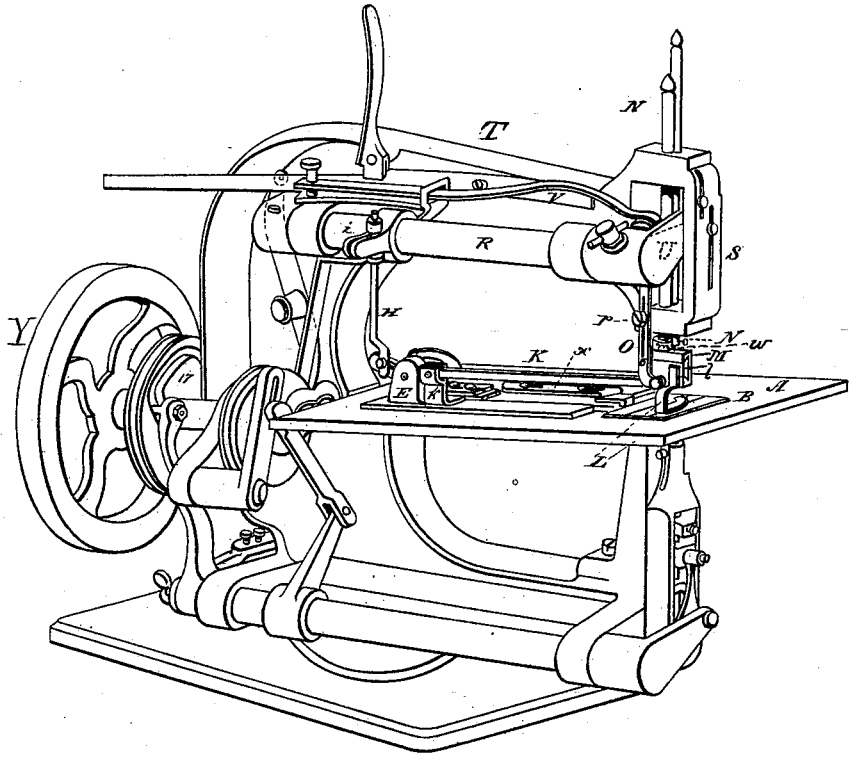


Fig. 1.

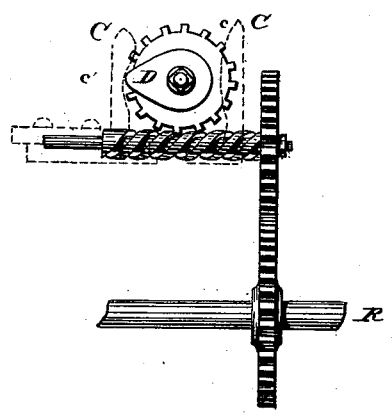
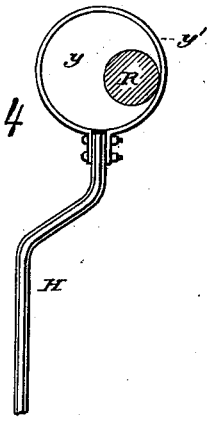


Fig. 4.



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Fig. 5.

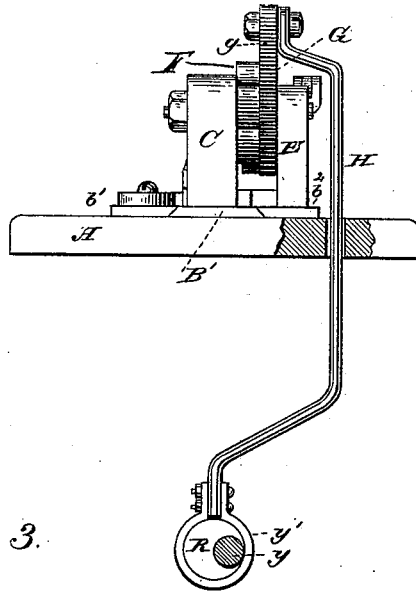


Fig. 3.

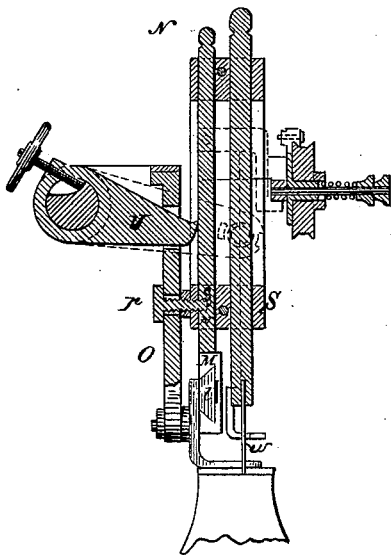
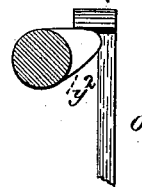


Fig. 6.



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UNITED STATES PATENT OFFICE.

HENRY J. WATKINS, OF HUDSON, MASSACHUSETTS, ASSIGNOR TO HIMSELF,
WILLIAM F. TROWBRIDGE, AND WILBUR F. BRIGHAM, OF SAME PLACE.

IMPROVEMENT IN OVERSEAMING ATTACHMENTS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **202,313**, dated April 9, 1878; application filed
January 9, 1878.

To all whom it may concern:

Be it known that I, HENRY J. WATKINS, of Hudson, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Sewing-Machine Attachments, of which the following is a specification:

This invention relates to an improved sewing-machine attachment, whereby is accomplished the lateral movement of the needle-plate and presser-foot, so that the needle in its vertical reciprocations will pass alternately through and outside of the work to form an overseam, and, further, by which is effected, at proper intervals, the lifting of the presser-foot to permit the feeding of the work.

My invention is susceptible of use in connection with the various kinds of sewing-machines employing rotary or rock shafts either above or below the work-plate, and with slight and obvious modifications of its connecting devices may be adapted to any variety of such machines now in use. It is especially intended, however, as an attachment for single wax-thread machines used in uniting leather by chain stitch overseams; and consists, essentially, first, in the combination, in a sewing-machine attachment, of a needle-plate and a connected presser-foot, both adapted for lateral reciprocation in overseaming, with a presser-foot lifting-bar, connected with the presser-foot and adapted for attachment to a sewing-machine, so as to be lifted at every other forward movement of the feeding device; second, in a sewing-machine attachment, consisting of a needle-plate having a laterally-projecting arm provided with a cam bearing or bearings, combined with a cam operating against said bearing or bearings, and mounted upon a shaft adapted to receive motion from a sewing-machine shaft, suitable guides for the needle-plate arm, a presser-foot connected to a standard on the arm of the needle-plate by a pivoted link, a guide-block fitted loosely to a horizontal slide on the shank of the presser-foot, and adapted for attachment to the presser-foot bar of a sewing-machine, and a lifting-bar jointed to the presser-foot, and adapted for attachment to a

sewing-machine and operation by a suitable moving part thereof.

In the accompanying drawing, Figure 1 represents a front perspective view of an embodiment of my invention. Fig. 2 is a rear perspective view, showing the same attached to a sewing-machine and operated by a rock-shaft above the work-plate. Fig. 3 is a detail view, showing the attachment of the foot lifting-bar. Fig. 4 shows a modification of the devices as transmitting motion from a rotary shaft above the work-plate to the needle-plate. Fig. 5 shows a form of devices for transmitting motion to the needle-plate from a rotary shaft below the work-plate. Fig. 6 shows a form of devices for transmitting motion to the foot lifting-bar from a rotary shaft above the work-plate. Fig. 7 shows a modification of the cam for moving the needle-plate, and also of the devices for operating the shaft of said cam.

The letter A designates the work plate or table of a sewing-machine. B is the needle-plate, having an opening, *b*, large enough to permit the needle to reciprocate therethrough and vibrate therein when the plate is in its different positions. B' is a lateral arm extending from the needle-plate, and having its longitudinal edges beveled to fit under the under-cut edges of the guide-plates *b*¹ *b*². Upon the rear part of the arm B' are standards C C', having inner inclined faces *c* *c*¹, against which strike the faces of a triangular cam, D, mounted between the standards upon a stationary shaft, *e*, projecting from a standard, E, on the rear end of the guide-plate *b*². The cam D is rigidly connected to a ratchet-wheel, F, mounted on the same shaft, and adapted to be rotated by a spring-pawl, *g*, pivoted to a bent lever, G, which is fulcrumed also on the cam-shaft. The long arm *g*¹ of the lever is slotted, and provided with an adjustable connecting-bolt, *g*², whereby is attached a link or rod, H, the upper end of which is screw-threaded and provided with nuts *h* *h*, to form an adjustable connection for the arm *i* of a clamp-collar, I, adapted to be firmly secured to the rock-shaft R of a sewing-machine, as shown in Fig. 2.

An arm, k , extends from the arm B' of the needle-plate over the guide-plate b^2 , and is bent upward to form a standard, k' , to the top of which is pivoted one end of a link or rod, K , the other end of which is pivoted to the slide l , which is firmly attached to the shank of the presser-foot L , located above the needle-plate. The edges of this slide l are beveled to fit in a dovetail recess in a guide-block, M , which is provided with a collar, m , and clamp-screw m' , by which the guide-block may be secured to the presser-foot bar N of a sewing-machine, as shown in Fig. 2. By the same pin which holds the link or rod K to the slide l a presser-foot lifting-bar, O , is also pivoted to said slide, and this bar is slotted longitudinally, as shown at o , through its middle portion, and at its upper end is provided with a projecting head, o^1 , the upper surface of which is curved, but its under surface forms a square shoulder, o^2 , at one side of the bar.

In attaching my invention to a sewing-machine, as shown in Fig. 2, a screw-pivot, p , is passed through the slot of the bar O , and a suitable washer placed over its inner projecting portion. The attachment ordinarily projecting from the presser-foot bar of the machine and intended to project over the foot-lifting arm of the rock-shaft is to be removed. The bar O is then placed vertically alongside the head S of the goose-neck or shaft-supporting arm T of the machine, and between the shaft R and said head, so that the shoulder o^2 of the lifting-bar will project over the edge of the arm U , which projects from said rock-shaft R , and the pivot p is then screwed into a hole, s , tapped for it in the head S , leaving the arm free to oscillate and to play vertically.

The spring V bears upon the curved upper surface of the head o^1 of the bar O and keeps said bar pressed down, except when raised by the upward vibration of the arm U of the rock-shaft, which will strike the shoulder o^2 only in its alternate vibrations, as the outward movement of the presser-foot with the needle-plate will throw outward the lower end of the bar O , and cause the upper end of said bar to move inward or backward and remove the shoulder o^2 from the path of the arm U until the inward movement of the presser-foot with the needle-plate again throws outward the upper end of the said bar O .

For the general working of the machine, to which I have shown my attachment applied, and as just explained, I refer to the Letters Patent granted to E. E. and F. Bean, April 8, 1873, and numbered 137,528.

The operation of my attachment in conjunction therewith is as follows: The pieces of material to be joined are laid flatwise together with even edges, and placed under the presser-foot so that the awl w will pierce said material at the desired distance within the edges thereof. The inner standard C' is then adjusted by means of set-screws c^2 passing

through a slot in its base, so that the cam D will give the needle-plate the proper extent of movement to insure the passing of the awl and needle alternately through and outside the work. The guide x is then adjusted to the inner limit of the travel of the work. Now, turn the balance-wheel Y , and the awl will descend and pass through the material, and then rise therefrom, followed by the needle, the open eye of which catches the thread, and the presser-foot now lifts and the needle vibrates forward, feeding the work along, and then descends, drawing the thread downward, and thus forming a stitch within the work. The further turning of the wheel causes the spring-pawl g to turn the ratchet-wheel one tooth, and the cam, striking the inclined face of the standard C' , moves the needle-plate and presser-foot outward, thus carrying the work away from the path of the needle and awl, so that they will pass outside of the work in their next reciprocation. At the same time the lower end of the bar O is thrown outward, and the shoulder o^2 thus removed from the path of arm U , so that the next upward movement of said arm will not lift the presser-foot, which will, consequently, be held firmly upon the work by the spring V while the needle is drawing the thread over and outside the edges of the work, and forms the outside stitch. Further rotation of the wheel causes the cam to move the needle-plate and presser-foot back to the original position, so that the awl and needle will pass through the material, and the presser-foot will be raised to allow the work to be fed along by the needle, as before explained.

Though, for convenience of explanation of its operation, I have shown my attachment connected to a particular sewing-machine and a rock-shaft, I wish it to be understood that I do not confine myself to its combination with such machine, or with any machine using an upper rock-shaft, as the essential features of my invention are adapted to attachment to different classes of machines with slight and obvious modifications of the connecting and attaching devices. For instance, in Fig. 4 an eccentric, y , is placed upon the rotary shaft R , and is inclosed by an eccentric-strap, y^1 , which is attached to the rod H , and y^2 , Fig. 6, indicates a cam on the rotary shaft for lifting the presser-foot by striking the shoulder of bar O .

In Fig. 5 the rod H simply extends downward through the bed of the machine, and is attached to a rotary shaft. With this arrangement should be used the foot-lifting mechanism described and shown in Bean's patent, before referred to.

Fig. 7 shows a single-throw cam and a gear-and-worm connection with the rotary shaft, through which motion is communicated to the cam-shaft.

My attachment may be manufactured with the various styles of connection shown, made

replaceable and of sizes to correspond to the shafts of different machines with which its use is desirable.

Having thus described my invention, what I claim is—

1. A sewing-machine attachment, consisting of a needle-plate having a laterally-projecting arm provided with a cam bearing or bearings, and moving in suitable guides, combined with a cam operating against said bearing or bearings, and mounted upon a shaft, and adapted to receive motion from a sewing-machine shaft, a presser-foot connected to a standard on the arm of the needle-plate by a pivoted link, a guide-block fitted loosely to a horizontal slide firmly attached to the shank of a presser-foot, and adapted for attachment to the presser-foot bar of a sewing-machine, and a lifting-bar jointed to the presser-foot and adapted for attachment to a sewing-machine and operation by a suitable moving part thereof, whereby an overseam may be formed and the presser-foot lifted to allow the material in process of sewing to be fed at alternate stitches, substantially as described.

2. The combination, in a sewing-machine at-

tachment, of a needle-plate and a connected presser-foot, both adapted for lateral reciprocation in overseaming, with a presser-bar and a lifting-bar connected with the presser-foot, and adapted for attachment to a sewing-machine, as described, whereby said presser-foot is lifted automatically at every other forward movement of the feeding device of the machine, substantially as set forth.

3. In a sewing-machine attachment, the combination of the needle-plate B, having arm B', arranged to move longitudinally in suitable guides, and provided with the cam-faced standards *c c*, rotary cam D, adapted to receive motion from a sewing-machine shaft, presser-foot L, adapted for lateral movement, and connected with plate B, and a suitable device for lifting said presser-foot, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of the subscribing witnesses.

HENRY J. WATKINS.

Witnesses:

FRANK S. BRIGHAM,

F. W. TROWBRIDGE, 2d.