

W. WALKER.

Plaiting Attachments for Sewing-Machines.

No. 141,610.

Patented August 5, 1873.

Fig. 1.

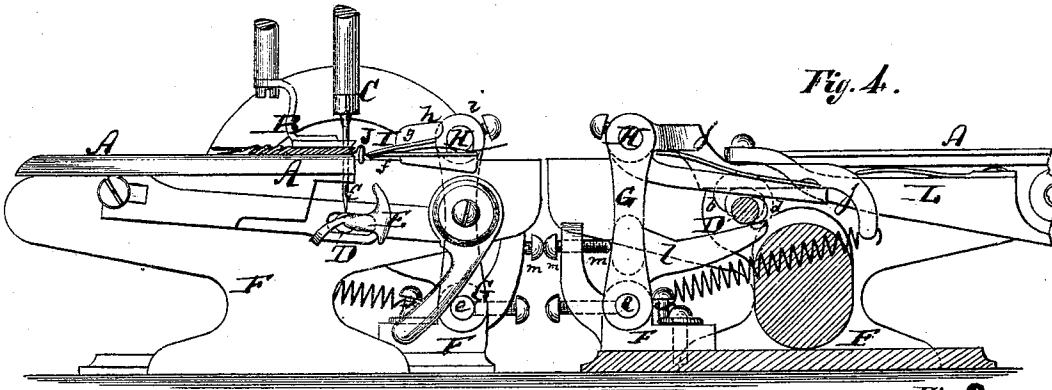


Fig. 4.

Fig. 2.

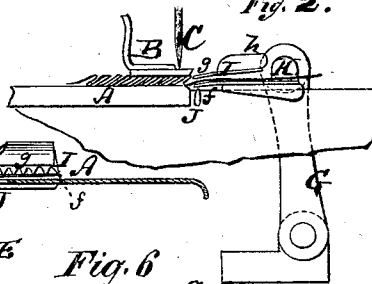


Fig. 3.

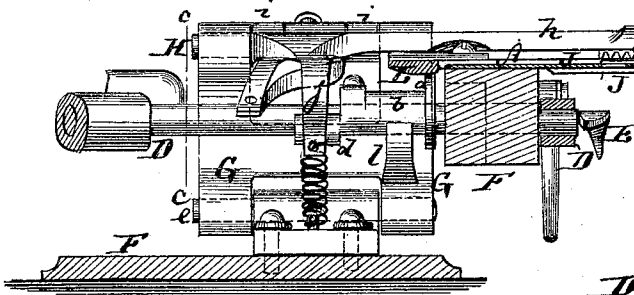


Fig. 6.

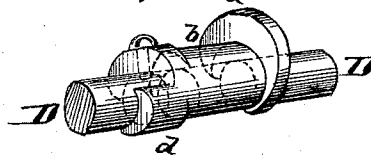
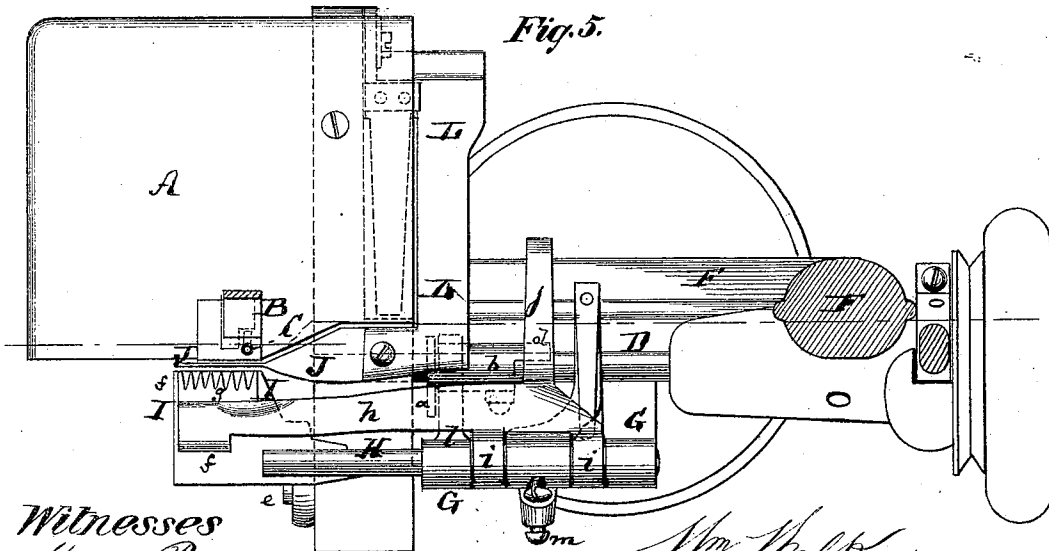


Fig. 5.



Witnesses
John Becker
Fred Haynes

Wm Walker
by his Attorneys
Brown & Allen

UNITED STATES PATENT OFFICE.

WILLIAM WALKER, OF BROOKLYN, ASSIGNOR TO GEORGE H. WOOSTER,
OF NEW YORK, N. Y.

IMPROVEMENT IN PLAITING ATTACHMENTS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **141,610**, dated August 5, 1873; application filed May 15, 1873.

CASE A.

To all whom it may concern:

Be it known that I, WILLIAM WALKER, of Brooklyn, in the county of Kings and State of New York, have invented an Improved Plaiting Attachment to Sewing-Machines, of which the following is a specification:

This invention relates to a new plaiting attachment to sewing-machines; and has for its object chiefly to form the plaits on the fabric before the same arrives upon the surface of the work-plate of the machine, and thereby to avoid the friction and uncertainty of effect which result from the present mode of plaiting on the surface of the sewing-plates. My invention consists, principally, in the use of a reciprocating pair of nippers, which are alternately opened and shut—opened when coming back to take a new hold on the fabric, and closed when moving forward to carry the fabric and hold the same.

In combination with these tongs, in order to effect by their means the desired result, I use an up-and-down movable wedge or blade, which is interposed between the aforementioned nippers and the edge of the sewing-plate, and which is elevated while the nippers move toward the plate to bulge or bend the fabric up, and insure the plait to be formed upward, and not downward, on the fabric. Without this up-and-down movable wedge or blade, the bulge of the fabric produced by the action of the nippers might be formed downward and upward irregularly, as accident might occasion. The nippers are composed of two plates, the lower of which has only a reciprocating movement in a nearly horizontal plane, while the upper plate, besides said movement, in which it joins the lower plate, also plays up and down for opening and shutting the tongs.

To carry my invention into effect, I use a series of cams on the main spindle of the sewing-machine for the purpose of moving the nippers back and forward, opening and closing the same, and elevating and lowering the blade, all as hereinafter more fully described.

In the accompanying drawing, Figure 1 represents a side view, partly in section, of a sewing-machine provided with my improved at-

tachment. Fig. 2 is a similar view of the parts, showing them, however, in different positions. Fig. 3 is a front elevation, partly in section, showing the rotary spindle and its cams. Fig. 4 is a vertical transverse section thereof taken on the plane of the line C C, Fig. 3. Fig. 5 is a top view of the same; and Fig. 6, a detail perspective view of that portion of the spindle which carries the cams.

Similar letters of reference indicate corresponding parts in the several figures.

The letter A represents the work-plate of a sewing-machine of suitable construction. B is the presser-foot of the same; C, the needle-bar and needle. D is the rotary main spindle of the machine, carrying a shuttle, E, or hook or other device, according to the construction of the machine. Upon the spindle are mounted three cams, *a b d*, which may all be made in one piece, as indicated in Fig. 6, or separately applied thereto. To the supporting-frame F is pivoted, at *e*, a frame, G, which, at its upper end, carries a pin or rod, H. This pin or rod extends parallel to the spindle D, toward the side of the machine, and carries at its end, and on a plane slightly above the surface of the plate A, the lower jaw or plate *f* of the plaiting-nippers I. The upper jaw *g* of these nippers is attached to an arm or bar, *h*, which is hinged at *i* to the rod H. A laterally-projecting arm, *j*, of the bar *h* rests on the cam *d* of the spindle, so that during the rotations of the spindle the upper jaw will be vibrated to alternately open and shut the nippers. The cam *b* of the spindle D bears against a laterally-projecting arm, *l*, of the frame G, and causes, during the rotations of the spindle D, the vibration of the frame G in such manner that the nippers I will be alternately carried toward the sewing-plate A, to enter beneath the presser-foot and away from said plate A. The outward motion of the frame G, by which the nippers are carried off the plate A, is limited by a screw, *m*, bearing against the said frame, and can, by turning said screw, be regulated so that said frame will swing back to a greater or less extent. Suitable springs are used in connection with

the vibrating frame G and bar *h* to keep the same in contact with the cams of the spindle D, and to produce the motions in direction opposite to that in which they are moved by said cams. Between the edge of the plate A and the nippers I is interposed a wedge or blade, J, which is attached to a pivoted bar, L, that rests in part on the cam *a* of the spindle D. By means of this cam the blade is moved alternately up and down.

The operation of this apparatus is as follows: The fabric to be plaited or formed into ruffles is drawn through the nippers and under the presser-foot of the sewing-machine. Whenever the nippers move back away from the plate A they open, by the upper plate *g* swinging up, and move loose on the fabric, which is being held in place by the presser-foot. As soon as the backward stroke of the nippers has been completed they close upon the fabric, and are then moved forward, the presser-foot still holding the forward part of such fabric. At the same time that the nippers move forward with the fabric which they gripe the blade J is moved up, and carries the fabric into an upward fold, preventing thereby the bulge from being formed downwardly, which otherwise, without the use of such blade, might every now and then be the case. Just before the nippers arrive at the edge of the plate A the blade J swings down out of the way of such nippers, allowing the same to move forward over the face of the plate A, and to carry the plait of the fabric under the presser-foot. The foot is carried down to hold the plait in position until the needle descends to sew it fast, and the operation is repeated as long as desired.

The nippers I, in their reciprocating motion, actually vibrate on the pivot *e* of the frame G; but the vibration, or rather the up-and-down displacement, is so little as to be imperceptible, and without any effect during operation.

Box-plaits may be formed by making the blade J slotted or double, to come in contact with both sides of the fabric, and moving it with a double cam on a counter-shaft, so that it will move the plate upward and downward alternately, the distance between the plaits being governed by the speed of the counter-shaft relatively to the spindle D.

I claim as my invention and desire to secure by Letters Patent—

1. The reciprocating or vibrating nippers I, arranged, in combination with the work-plate A of a sewing-machine and with the vertically-movable blade J, to form the plaits in the fabric before the same arrives on top of said plate A, as set forth.

2. The jaw *g* of the nippers, hinged to the holder H of the lower jaw *f*, and provided with the projecting arm *h j* to receive, by means of the rotary cam *d* bearing against the arm *j*, the independent oscillating movement above such lower jaw, as specified.

3. The vertically-movable wedge or blade J, interposed between the reciprocating nippers I and the plate A of the sewing-machine, substantially as and for the purpose herein shown and described.

WM. WALKER.

Witnesses:

FRED. HAYNES,
MICHAEL RYAN.