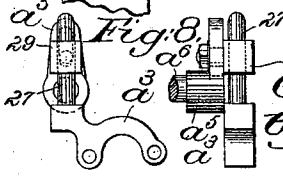
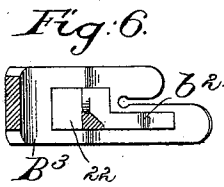
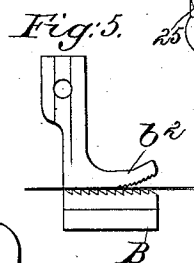
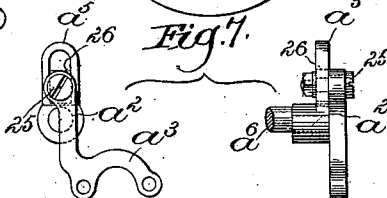
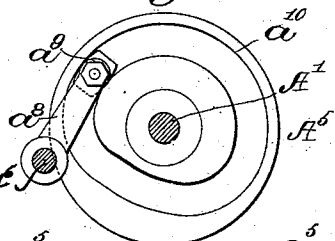
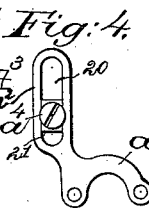
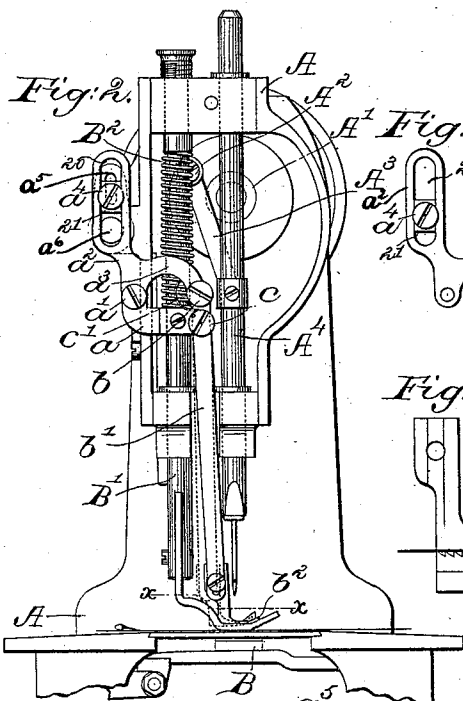
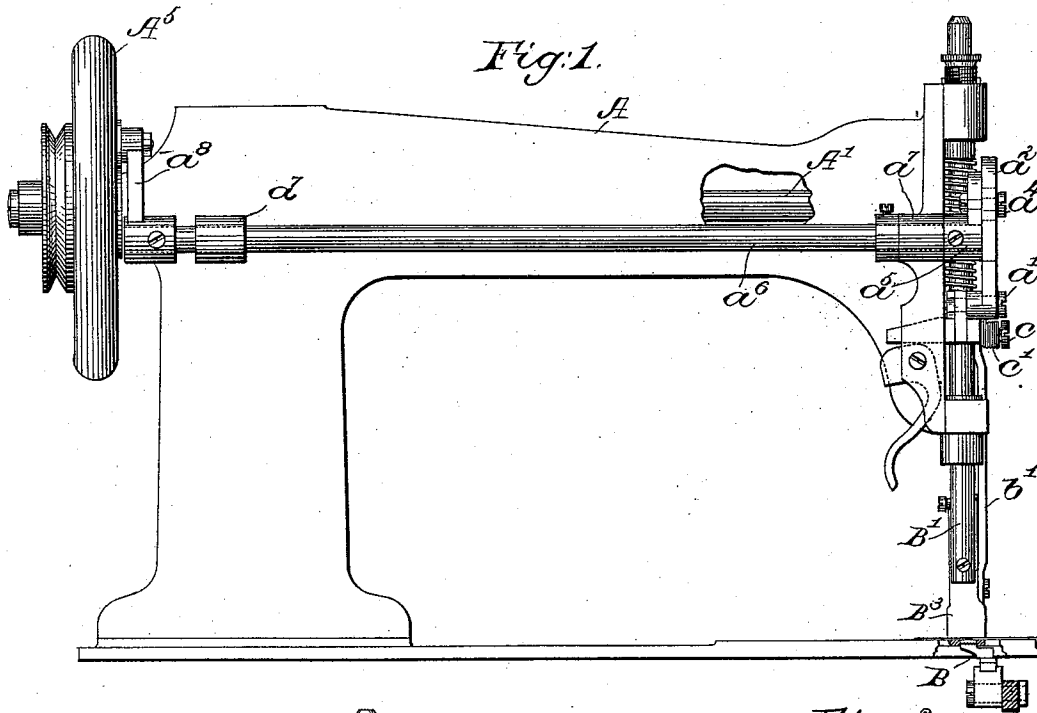


(Model.)

G. H. DIMOND.
FEEDING MECHANISM FOR SEWING MACHINES.

No. 466,273.

Patented Dec. 29, 1891.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE H. DIMOND, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE
WHEELER & WILSON MANUFACTURING COMPANY, OF SAME PLACE.

FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 466,273, dated December 29, 1891.

Application filed May 26, 1891. Serial No. 394,100. (Model.)

To all whom it may concern:

Be it known that I, GEORGE H. DIMOND, of Bridgeport, county of Fairfield, State of Connecticut, have invented an Improvement in Feeding Mechanism for Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention, relating to sewing-machines, has for its object to improve the feed.

My invention consists, essentially, in a sewing-machine containing a vertically-reciprocating main presser-bar, a helper-bar, and attached foot, a collar mounted upon the main presser-bar, a lever mounted upon said collar and jointed to the helper-bar, an under-feed device to engage the material and in its feeding movement take with it the helper-bar, a spring to return the helper-bar to its normal position after the feeding operation, a rock-shaft having an arm to constitute a uniformly-moving actuating device, and a coupling between the said arm and lever, the said coupling being connected with one and adapted to slide on the other, whereby the actuating device having a uniform constant throw is enabled to impart to the lever a variable throw more or less in extent, that depends upon the thickness of the stock or material passing under the main presser-bar, the throw of the lever being increased as the material increases in thickness, and vice versa, substantially as will be hereinafter described. The said devices are so combined and arranged, substantially as will be described, as to automatically adjust themselves equally well to the thinnest or thickest material, increasing thickness of material effecting increase of action of the lever employed to raise alternately the feet referred to, so that they are enabled to engage, hold, and feed the material at the proper time irrespective of thickness of seams.

The particular features in which my invention consists will be hereinafter described, and pointed out in the claim.

Figure 1 is a rear side elevation of a sufficient portion of a Wheeler & Wilson sewing-machine with my improvements added to en-

able my invention to be understood. Fig. 2 is a front elevation of the sewing-machine shown in Fig. 1, the under-feeding device being in its lower position and the helper-foot fully forward, the dotted lines, however, showing the position that the said foot will occupy at the completion of the feeding movement. Fig. 3 is a sectional detail chiefly to show the cam and arm for moving the actuating device. Fig. 4 shows the lever in Fig. 2 detached and with the coupling or connection in a different position to give greater movement to the lever; Fig. 5, a detail showing part of the under-feeding device as engaging the stock or material against the helper-foot. Fig. 6 is a section below the dotted line *x*, Fig. 2; to show the presser and helper feet in place, and Figs 7 and 8 show modifications of the actuating device and lever.

The frame A of the machine, the rotating shaft A' in the overhanging arm thereof, the crank-pin A², the link A³, connected with a collar on the needle-bar A⁴, the under-feeding device B, the presser-bar B', and its depressing-spring B² are and may be of any usual construction. The presser-bar B' has at its lower end a clamping presser-foot B³, slotted or cut away (see Fig. 6) to receive the helper-foot to be described.

The presser-bar B' has mounted upon it in usual manner a collar *a*, and upon it is pivoted by a suitable stud-screw *a'* a lever *a² a³*, the arm *a²* being represented as slotted at 20 to receive a coupling or connection. (Shown in Figs. 2 and 4 as a crank-pin *a⁴* on an arm *a⁵* of a rock-shaft *a⁶*, mounted in suitable bearings *a⁷* of the arm of the frame and having a loose block 21.) The rock-shaft *a⁶*, as herein represented, has an arm *a⁸*, provided with a roller or other usual stud *a⁹*, which enters a groove *a¹⁰* in the hub of the usual hand-wheel A⁵; but instead of the particular device shown for rocking the shaft *a⁶* I may use any other usual or suitable device. The arm or end *a³* of the lever *a² a³* has jointed to it by a suitable stud-screw *b* the upper end of a helper-bar *b'*, provided at its lower end with a helper or walking foot *b³*, shaped to enter and be moved in the cut-away portion 22 of the clamping presser-foot. The helper-foot, as

represented, has a stud c to support a spring c' , one end of which is represented as connected with the said stud, the opposite end of the said spring being represented as abutting against the arm a^3 of the lever $a^2 a^3$, so that the said spring, when the said lever is turned in a direction to lift the helper-foot from the material, will throw the said foot to the right (see dotted lines, Fig. 1) or into feeding position.

The rock-shaft a^6 and its arm a^5 , having a uniform vibration, constitute an actuating device for the lever $a^2 a^3$, and the arm and lever are operatively joined by a connection or coupling connected with one and sliding with relation to the other, the said coupling in the form of my invention shown in Figs. 1, 2, and 4 being the stud a^4 and loose block 21; but it will be obvious that the block might be omitted and the stud a^4 enter the slot 20 of the said lever, or that the arm a^2 of the lever might have a stud 25 to enter a slot 26 in the arm a^5 , as in Fig. 7, or that the upper end or arm of the lever might be made round, as at 27 in Fig. 8, to enter a swivel-box 29, carried by the arm a^5 .

The gist of this invention is comprehended in the fact that the connection or coupling between the arm and lever shall be carried by one and have a sliding connection with the other, the arm and lever being also so constructed that while the arm is always moved for a uniform distance it will move the lever a variable distance according to the position of the block 21 in the said slot, this change of position being effected by or through variation in thickness of stock or material passing under the presser-foot, the throw being increased as the stock increases in thickness, and vice versa. When the material passing under the main presser-foot increases in thickness, the lever receives a greater motion, because the block 21 then stands closer to the fulcrum a' , the greater motion enabling the foot to readily mount upon and engage the material of increasing thickness, and enabling the said helper-foot to always be in proper position with relation to the material, of whatever thickness, to step over or upon the seam.

Instead of the particular under-feeding device shown I may use any usual or suitable under-feeding device, either four motion or wheel, the particular form of feeding mech-

anism herein shown being that common to the Wheeler & Wilson machine.

From the foregoing it will be noticed that one and the same lever, actuated about or through a rock-shaft, actuates the helper-bar, the upper end of which is directly pivoted to one arm of the said lever.

In the construction herein shown the helper-bar is a short bar, and its upper end is pivoted directly upon its actuating-lever, and the upper end of the said bar is not guided in the head of the machine.

I am aware that prior to my invention a feeding presser-bar has been operated much in the manner set forth herein but by not only a rock-shaft and an arm but by an elbow-lever deriving its movement from a cam on the main shaft.

In this my invention I accomplish the purpose with the fewest parts compactly arranged.

I claim—

A sewing-machine containing the following instrumentalities, viz: a vertically-reciprocating main presser-bar, a helper-bar and attached foot, a collar mounted upon the main presser-bar, a lever mounted upon said collar and jointed to the helper-bar, an under-feed device to engage the material and in its feeding movement take with it the helper-bar, a spring to return the helper-bar to its normal position after the feeding operation, a rock-shaft having an arm to constitute a uniformly-moving actuating device, and a coupling between the said arm and lever, the said coupling being connected with one and adapted to slide on the other, whereby the actuating device having a uniform constant throw is enabled to impart to the lever a variable throw more or less in extent that depends upon the thickness of the stock or material passing under the main presser-bar, the throw of the lever being increased as the material increases in thickness, and vice versa, substantially as described.

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

GEORGE H. DIMOND.

Witnesses:

GEO. W. GREGORY,
ISAAC HOLDEN.