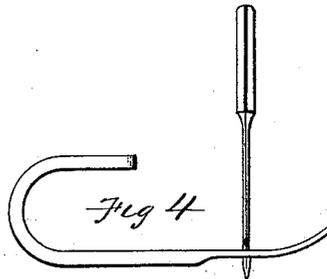
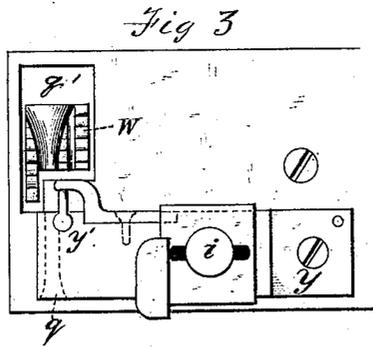
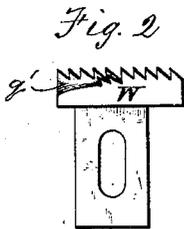
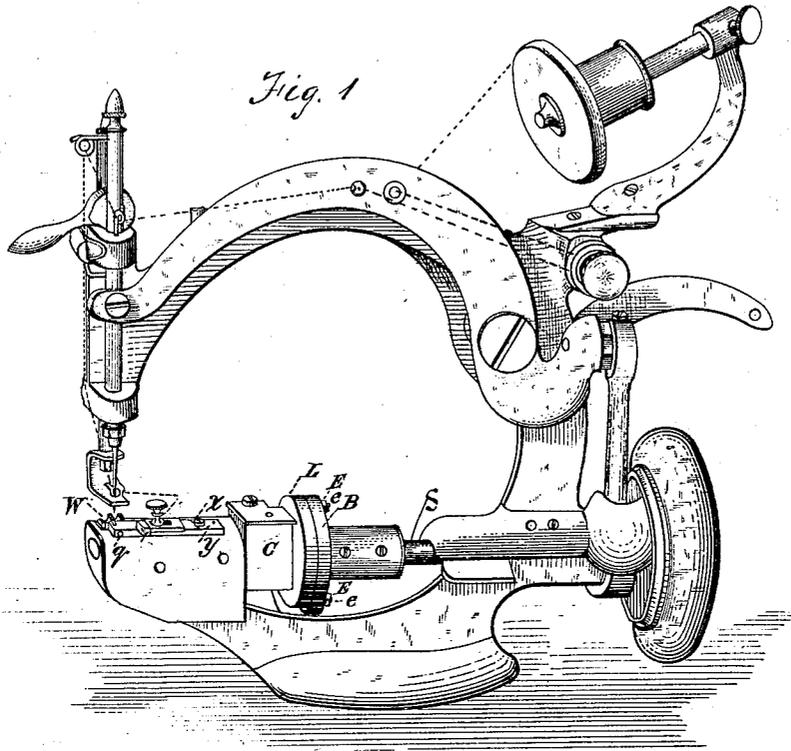


W. F. BEARDSLEE.

HAT WIRING SEWING MACHINE.

No. 245,781.

Patented Aug. 16, 1881.



Witnesses:
T. Walter Fowler,
R. K. Evans

Inventor:
William F. Beardslee,
by A. H. Evans & Co

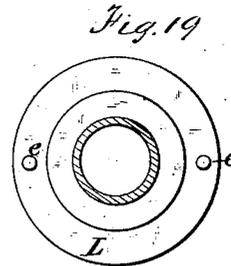
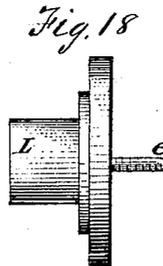
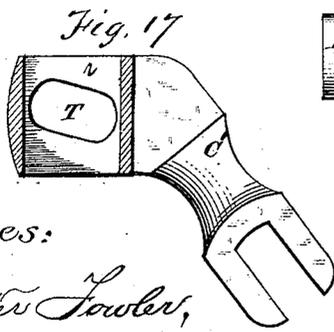
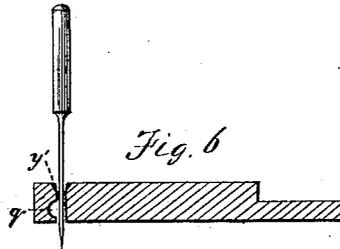
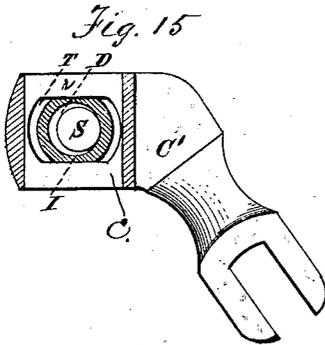
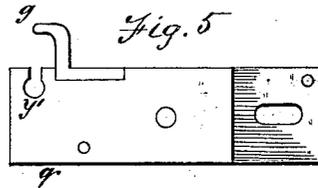
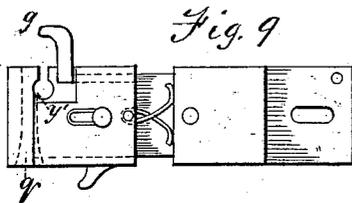
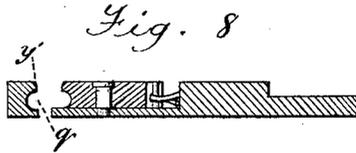
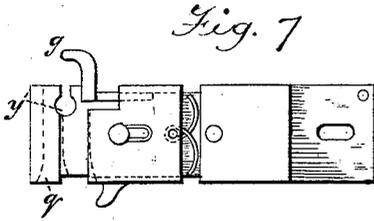
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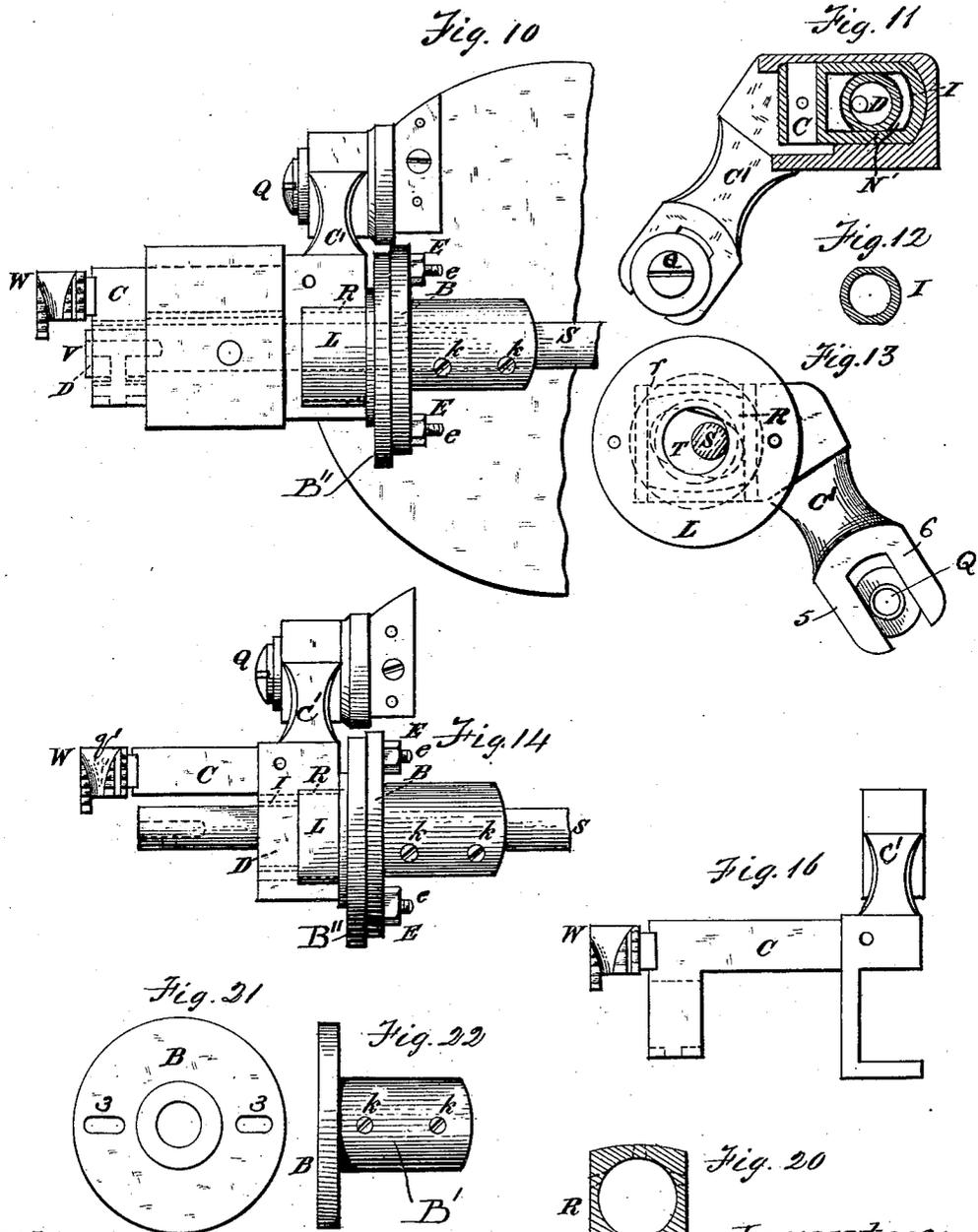
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Attys

UNITED STATES PATENT OFFICE.

WILLIAM F. BEARDSLEE, OF BOSTON, MASSACHUSETTS.

HAT-WIRING SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 245,781, dated August 16, 1881.

Application filed June 25, 1880. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM F. BEARDSLEE, of the city of Boston, Commonwealth of Massachusetts, have invented certain new and useful Improvements in Hat-Wiring Sewing-Machines; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a front elevation of my sewing-machine. Fig. 2 is a side elevation of the feed-dog. Fig. 3 is a plan of throat-plate, wire-gage, hat-gage, and feed-dog. Fig. 4 is a side elevation of presser-foot and needle. Fig. 5 is a plan of a solid wire-gage. Fig. 6 is a sectional side elevation of a solid wire-gage and the needle of a sewing-machine. Figs. 7, 8, and 9 show two plans and section of a wire-gage which opens and shuts. Fig. 10 is a plan, showing the arrangement of the raising-and-lowering feed cam or eccentric and the feed-driving cam or eccentric, and disk to which it is attached, also the feed-bar and projecting arm which carries the improved feed-surface. Figs. 11 and 12 are side elevations, showing the arrangement of the cam or eccentric for raising or lowering the feed-surface and sleeve. Fig. 13 is a side elevation, showing the arrangement of the shifting and driving cam or eccentric. Figs. 14 and 15 are a plan and side elevation of the feed mechanism, showing how both cams or eccentrics may be arranged in juxtaposition. Figs. 16 and 17 show a detached plan and side elevation of the feed-bar. Fig. 18 is a side elevation of the driving cam or eccentric. Fig. 19 is a front elevation of the driving cam or eccentric. Fig. 20 is a section of the sleeve in which the driving cam or eccentric operates. Fig. 21 is an elevation of the disk to which the driving cam or eccentric is attached. Fig. 22 is a side elevation of the said disk and its sleeve. Fig. 23 is a longitudinal vertical section through the feed mechanism.

My invention relates to that class of sewing-machines used for sewing covered wire to hats, and for analogous purposes.

The object of my invention is to provide a machine wherein the feed-bar and the attached feed-dog shall receive absolutely a positive mo-

tion and thereby avoid the use of all springs or other elastic devices, so that I am enabled to run the machine at a very high velocity and retain perfect regularity in the length of stitch.

Another object of my invention is to provide, in connection with other essential elements of a hat-wiring machine, a flaring needle-guide which will not be affected as to the precision of its position by the wear of the moving parts of the machine.

It has further for its object to provide a feed-dog which will intermittently move forward both hat and covered wire evenly, without abrading the cover of the wire or puckering the hat.

The invention has also for its object the avoidance of any impediments in the thread being retarded in the tightening of the loop by coming in contact with the edge of the needle-hole in the gage-plate.

My invention consists, first, in a combination, on a single shaft, of two eccentrics to operate the feed-bar and attached feed-dog, one eccentric being fixed and the other eccentric being adjustable in a line at right angles to the axis of the shaft, for varying the horizontal throw of the feed-bar and consequent control of the length of the stitch; secondly, in providing the upper surface of the feed-dog with a longitudinal groove having a roughened bottom, in which rests the covered wire in its passage beneath the presser-foot; thirdly, in providing the before-mentioned groove in the feed-dog with a flaring end; fourthly, in providing a beveled needle-guide attached to a fixed portion of the machine, in combination with a needle and feed and a flaring wire-guide, arranged parallel to the feed movement; fifthly, in providing the covered wire-guide with a projecting toe, to form a bearing to sustain the covered wire proper from passing beneath the point of the needle, and at the same time avoiding any interference of the gage with the thread calculated to produce an imperfect looping of the stitch.

In order that those skilled in the art may make and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, S is the driving-shaft, carrying on its end the loop-former Z. Adja-

cent to the loop-former on the shaft S is a cam, D, which always maintains the same eccentricity to the shaft S, and is surrounded by a sliding sleeve, I, which moves in the recess N' in the end of the feed-bar C, and imparts to the feed-bar a rising and falling motion, whereby the work is raised preparatory to being fed forward beneath the presser-foot. The necessary lateral or vibratory motion is imparted to the feed-bar by means of an adjustable cam movement constructed as follows: On the shaft is secured a sleeve, B', provided with an annular head or disk, B, in which are cut two slots, 3 3, arranged in a line at right angles to the axis of shaft S.

Surrounding shaft S, and secured to the annular head B by means of bolts *e*, which pass through slots 3 3, is an annular head, B'', to which is attached a cam-sleeve, L, having an interior diameter considerably larger than the shaft S.

Surrounding the sleeve L is a yoke, R, provided with vertical exterior sides, and fitted into the slot *r* in the end of the feed-bar remote from the feed-dog. From the point where the slot *r* is made in the feed-bar there projects a bifurcated arm, C', the sides 5 6 of the bifurcation clasping the bolt Q inserted in the frame, and over which they have a reciprocating movement directly proportionate to the throw of the eccentric sleeve or cam L.

The head B and sleeve B', being bolted by the screws *k k* to the shaft S, always maintains an axis coincident with the axis of said shaft. Through the medium of the slots 3 3 and bolts *e e* the relationship of heads B'' and B is changed at will in a line at right angles to the axis of shaft S, and this changes the relation of the axial lines of the sleeves L and B, and makes the movement of sleeve L more or less eccentric to the shaft S, thereby giving a greater or less throw to the yoke R, and with it a corresponding horizontal throw to the feed-bar C. Thus the horizontal throw of the feed-bar can be readily altered without disturbing the cam giving the vertical movement.

In the said drawings, W is the feed-dog, provided with a longitudinal groove, *q'*, for the reception of the covered wire, and this groove I make flaring at its outer end and slightly roughen its lower surface. The flaring end in the groove enables the operator to sew the covered wire in very short curves, and the lower roughened surface enables the feed-dog to retain its hold on silk-covered or other covered wire which may be slippery, thereby insuring certainty of feed.

In order to insure the impinging of the needle-point on the side of the covering of the wire as it is fed to the sewing-point, I provide the throat-plate with a beveled needle-guide, *y'*, which directs the point of the needle to the proper place, and the said guide, being on a fixed portion of the machine, is not susceptible of change of position due to the wear of a moving part of the machine.

The wire-passage *q* in the needle-guide plate has projecting to its edge, and beyond the inner edge of the needle-guide plate, a toe, *g*, against the end of which the covered wire bears as it leaves the sewing-point, whereby it is steadied and directed, and the thread is not retarded when the slack is being drawn, for the reason that the slot between the needle-hole and the toe *g* gives ample room for the slack to be drawn up without crowding the thread against the edge of the needle-hole.

I am aware that heretofore in a hat-wiring sewing-machine a presser-foot having a beveled needle-guide has been used in combination with a feed mechanism and a wire-guide.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a sewing-machine feeding device, an eccentric adjustable across the axis of the actuating-shaft for moving the feed-bar laterally, in combination with an eccentric on the same shaft for moving the feed-bar vertically, substantially as and for the purpose described.

2. In a hat-wiring sewing-machine, the feed-dog provided with a groove, *q'*, having a lower roughened surface, as set forth.

3. The feed-dog provided with a groove, *q'*, having a flaring end, for the purpose described.

4. The combination, in a sewing-machine, of a needle and feed and a wire-guide, provided with a groove having a flaring end arranged parallel to the feed movement, and a beveled needle-guide attached to or forming a part of the throat-plate, whereby the position of the needle-guide is unaffected by the wear of the moving parts of the machine, substantially as and for the purpose set forth.

5. A needle-guide plate for hat-wiring sewing-machines, provided with the wire-passage *q* and the toe *g*, for the purpose set forth.

WILLIAM F. BEARDSLEE.

Witnesses:

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S. CRAGIN.