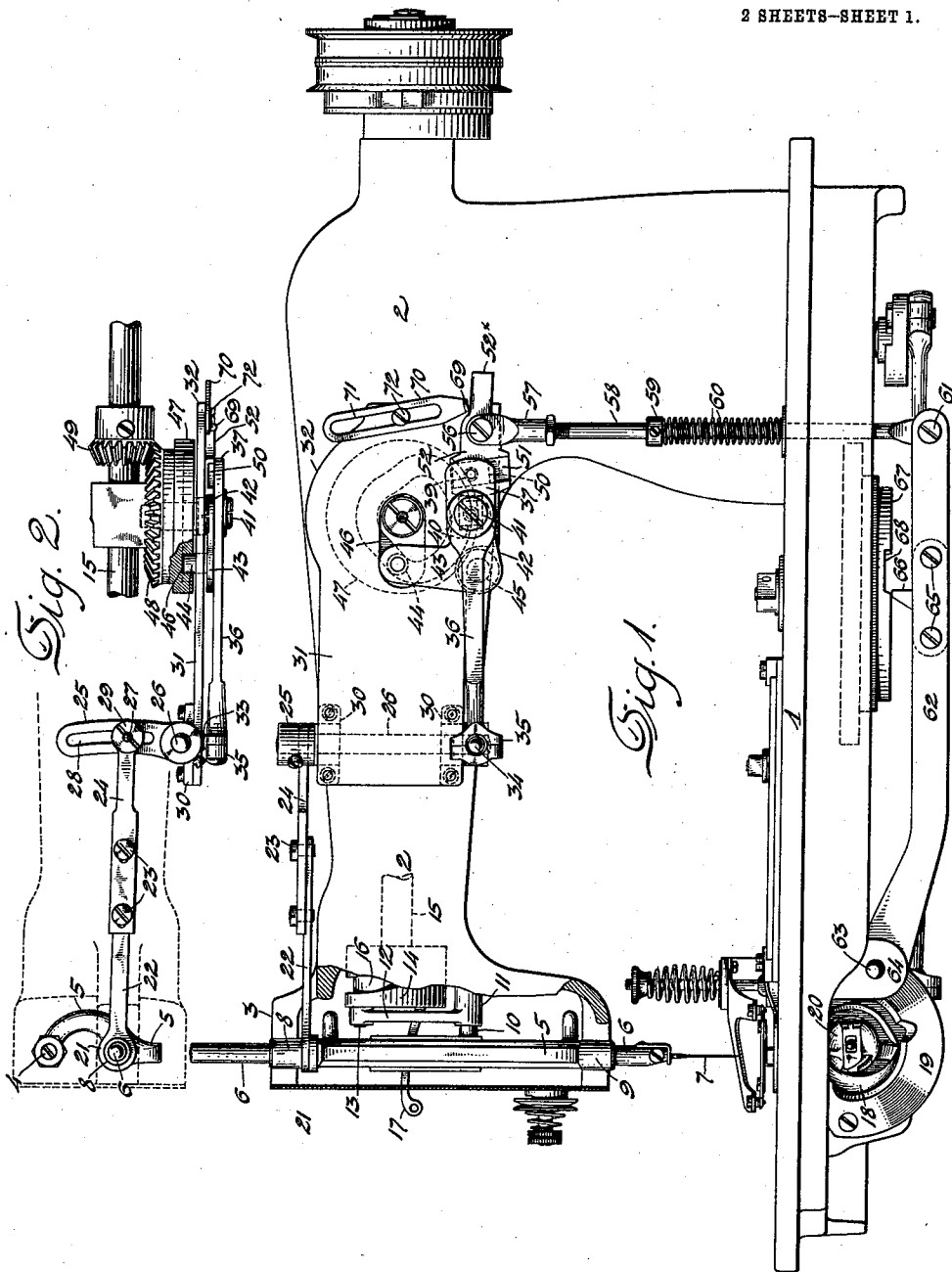


J. T. HOGAN.
OVERSEAMING MECHANISM FOR SEWING MACHINES.
APPLICATION FILED JUNE 17, 1911.

1,023,314.

Patented Apr. 16, 1912.

2 SHEETS-SHEET 1.



WITNESSES:

Giza Tuma
R. E. Fischer

INVENTOR

James T. Hogan

BY

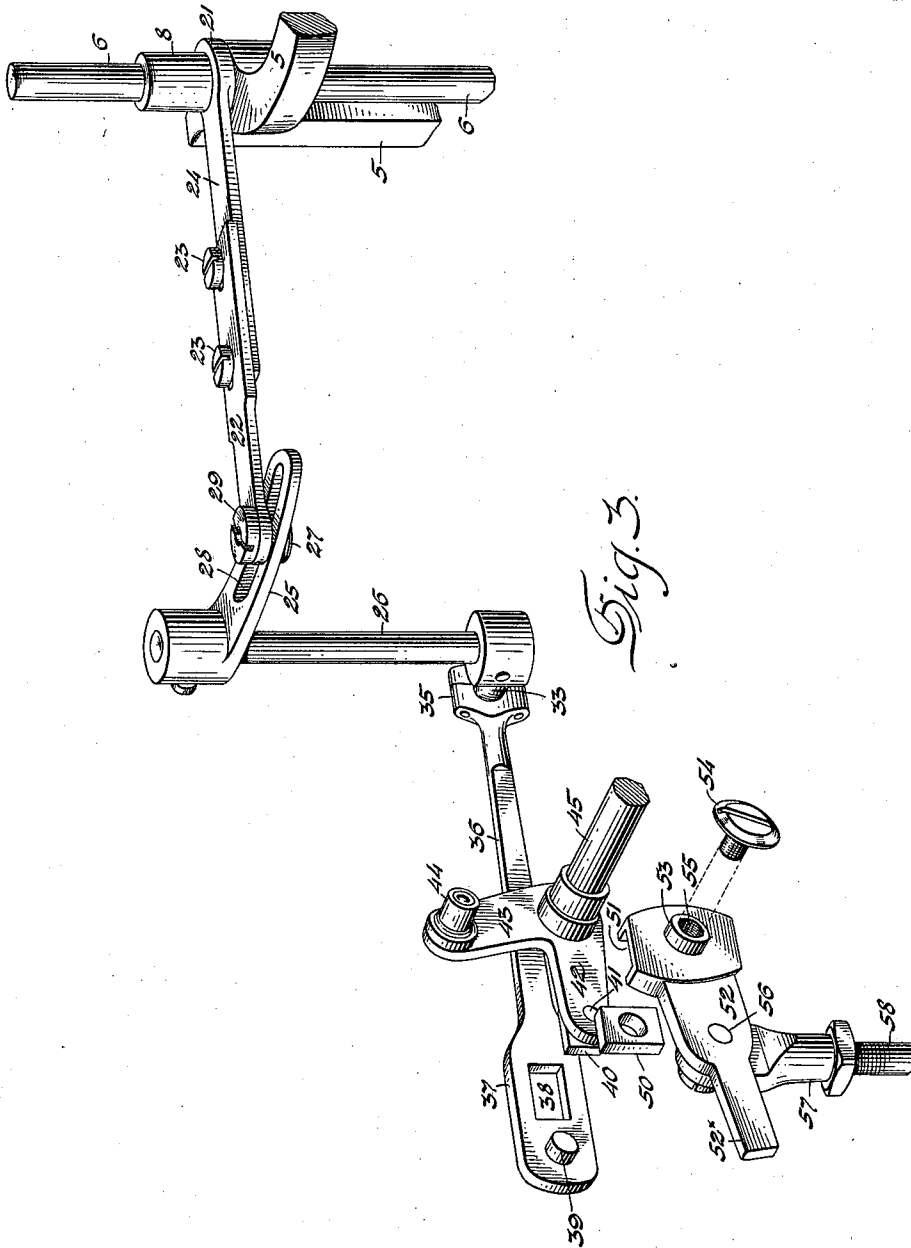
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WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES T. HOGAN, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

OVERSEAMING MECHANISM FOR SEWING-MACHINES.

1,023,314.

Specification of Letters Patent.

Patented Apr. 16, 1912.

Application filed June 17, 1911. Serial No. 633,695.

To all whom it may concern:

Be it known that I, JAMES T. HOGAN, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Overseaming Mechanism for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an improvement in means for imparting lateral or jogging movements to the needle and for controlling said movements, and it has for its object to provide a simple and effective mechanism for this purpose in which the parts shall have a particularly convenient arrangement with reference to adjustment and to operation of the machine.

The present invention constitutes an improvement in the mechanism forming the subject of my United States Patent No. 787,177, of April 11, 1905, and it is designed more particularly for embodiment in that class of buttonhole machines comprising stitch-forming mechanism including a laterally jogging needle in conjunction with a traveling work-clamp to which is imparted by suitable means step-by-step longitudinal feeding movements to space the covering stitches along the sides of the buttonhole and transverse shifting movements for properly positioning the opposite sides and ends of the buttonhole in relation to the stitch-forming mechanism.

It comprises the usual swinging needle-bar frame mounted for movement upon a vertical axis and having an adjustable link connection with a lateral arm of a rock-shaft journaled upon the bracket-arm parallel with said axis of motion and provided with a second lateral arm to which is connected one end of a link-bar having imparted thereto uniform vibratory movements, the opposite end of the link-bar being provided with guiding means for confining it to a path of movement more or less inclined to its length. The link-bar preferably carries at its free outer end a stud entering a transverse slideway in a pivoted guide-lever connected by means of a spring-pressed rod extending below the bed-plate with a pivoted bar carrying a follower resting in contact with the bar-controlling cam

of the feed-wheel moving with and deriving a step-by-step rotary motion from the feed-wheel. Adjustment of the pitman attached to the needle-frame upon its respective arm of the rock-shaft serves to simultaneously determine the respective lengths of the side and barring stitches, and the adjustment of a stop provided upon the bracket-arm for the guide-lever acts to limit the range of inclination of the slot in such guide-lever, and hence to determine the length of needle-jog for the barring stitches relatively to that of the side stitches.

In the accompanying drawings, Figure 1 is a side elevation of a straight buttonhole sewing machine embodying the present improvement. Fig. 2 is a plan of the needle jogging means detached from the machine, and Fig. 3 is a perspective view, upon a larger scale, of the needle-jogging mechanism.

As shown in the drawings, the machine comprises the usual bed-plate 1 and overhanging bracket-arm 2 with hollow head 3 in which is journaled by means of center-screws 4 the swinging needle-bar frame 5. The needle-bar 6, carrying the needle 7, is journaled in the upper and lower bearing bosses 8 and 9 of the needle-frame in the usual manner and is provided with a lateral stud 10 slidingly fitted within the boss 11 of the pitman 12 connected with the crank-pin 13 which is carried by the take-up cam-cylinder 14 fixed upon the main-shaft 15 and formed with a cam-groove 16 for actuating the take-up arm 17. The needle operates in a manner well known with the shuttle 18 mounted in the race 19 beneath the bed-plate and provided with the thread-case 20.

The upper needle-bar bearing boss 8 is embraced by an eye 21 of the pitman section 22 adjustably secured by screws 23 to the pitman section 24 which is attached to a backwardly extending arm 25 secured to the upper end of the vertical rock-shaft 26 by means of the shouldered screw 27 of usual form which enters the segmental slot 28 of the arm 25 in which it is clamped by means of the nut 29.

The rock-shaft 26, which is disposed parallel with the needle and with the axis of oscillation of the needle-frame, is journaled in the bearings 30 secured upon the inner

face of a forward extension 31 of the cover-plate 32 for the cam-wheel cavity in the front of the bracket-arm, and the rock-shaft has secured to its lower end the vibratory
 5 forwardly extending arm 33 provided with a ball-stud 34 which is embraced by a strap 35 at the forward end of the link-bar 36 whose enlarged opposite end portion 37 is formed with a longitudinal slot 38 and an
 10 adjacent inwardly extending stud 39. Within the side walls of the slot 38 is fitted a slide-block 40 secured in position by means of the screw 41 upon the extremity of the rearwardly extending arm 42 of a bell-crank
 15 lever having the upwardly extending arm 43 carrying upon its inner face the roller-stud 44 and fixed at the junction of its arms upon the transverse rock-shaft 45 journaled in a suitable bearing in the lower side of
 20 the bracket-arm. The stud 44 enters a cam-groove 46 in the outer face of the cam-wheel 47 provided upon its rearward side with the bevel-wheel 48 meshing with a smaller bevel pinion 49 fixed upon the main-
 25 shaft 15, the cam-wheel 47 operating through the bellcrank 42 43 to impart uniform jogging movements to the free rearward end of the link-bar 36.

The stud 39 has journaled thereon the
 30 rectangular slide-block 50 fitted within the transverse guideway 51 of the jog-controlling guide-lever 52 provided upon the opposite face and centrally of the guideway with an integral fulcrum-stud 53 entering a suit-
 35 able bearing aperture in the cover-plate 32 in which it is secured by means of the screw 54 entering a threaded aperture 55 in said stud. The lever 52 carries a screw-pin 56 embraced by the apertured head 57 of the
 40 rod 58 passing through an aperture in the bed-plate and having interposed between the latter and a collar 59 thereon the spring 60 normally pressing the rod upwardly. The lower end of the rod 58 is pivotally con-
 45 nected by means of the screw-pin 61 with the rearward end portion of a lever 62 fulcrumed at its opposite end by means of the pin 63 upon a lug 64 depending from the bed-plate, and having secured thereto inter-
 50 mediate its ends by means of the screws 65 the stud 66 resting upon the lower operative edge 67 of the jog-controlling cam which has a flat operative face excepting where in-
 55 terrupted by notches or recesses 68 therein, which are diametrically arranged in practice.

The threaded upper end of the rod 58 enters a correspondingly threaded socket of the head 57 by means of which the latter is
 60 made adjustable in such manner that the normal inclination of the guideway 51, when the follower-lug 66 is maintained against the portion 67 of the controlling cam-wheel by means of the spring 60, will cause the to-
 65 and-fro traverse of the block 50 under the

action of the jogging cam 47 to produce a slight endwise motion of the link-bar 36 and hence a corresponding jogging move-
 ment of the needle through the described connections with the needle-frame. 70

In practice, the notches 68 are made of a depth sufficient to give the maximum throw to the guide-lever 52 and corresponding in-
 clination of the guideway 51 to produce the maximum change in amplitude of jogging; 75 movements of the needle for the side-stitching and bar-stitching, and in order to provide means whereby the length of the bar stitches may be varied relatively to the side
 80 stitches, the guide-lever 52 is provided with an extension 52* which is adapted to engage the outwardly projecting lower extremity 69 of a stop member 70 provided with a longitudinal slot 71 embracing the clamp-
 85 screw 72 by means of which the member 70 is adjustably secured upon the outer face of the cover-plate 32. The adjustment of the stop member 70 serves to determine the po-
 90 sition of its operative portion 69 so as to limit the range of upward movement of the guide-lever and hence the inclination of the guideway 51.

As will be observed by reference to the drawings, the employment of the interme-
 95 diate rock-shaft 26 for transmission of motion between the link-bar 36 and the needle-frame permits the employment of short connecting parts and a convenient and effective arrangement of the component elements of
 100 the mechanism with the provision of simple means of adjustment for simultaneously determining the amplitude of the needle-jog-
 105 ging movements for the side-stitching and barring operations, the parts being entirely out of the way of the operator while they are readily accessible for adjustment and other purposes.

The provision of the stop member 70 serves to positively limit the throw of the
 110 guide-bar for the stitching of the opposite ends of the buttonhole, and this member may obviously be so adjusted as to entirely prevent the movement of the lever 52 under the action of the spring 60, in which case
 115 overseam stitches of uniform length will be applied along both sides and across the ends of the buttonhole.

Having thus set forth the nature of the invention, what I claim herein is:—

1. In a sewing machine, the combination 120 with a swinging needle-bar frame and a reciprocating needle-bar journaled therein and carrying a needle, of a vibrating link-bar, means for imparting to said link-bar uniform vibratory movements of one-half the
 125 frequency of the needle-bar reciprocations, guiding means for confining a point of said link-bar to movement in a path inclined to its length, a rock-shaft, an arm on said rock-shaft having an adjustable link connection 130

with the needle-bar frame, and a second arm on said rock-shaft pivotally connected with said link-bar.

2. In a sewing machine, the combination
5 with a reciprocating needle-bar carrying a
needle, and a needle-bar frame adapted to
swing upon an axis parallel with said needle-
bar, of a vibrating link-bar, means for im-
parting to said link-bar uniform vibratory
10 movements, guiding means for confining a
point of said link-bar to movement in a
path inclined to its length, a rock-shaft dis-
posed parallel with the axis of movement
of the needle-bar frame, a lateral arm fixed
15 upon one end of said rock-shaft and having
an adjustable link connection with the
needle-bar frame, and a second and oppo-
sately extending lateral arm fixed upon the
other end of said rock-shaft and pivotally
20 connected with said link-bar.

3. In a sewing machine, the combination
with a reciprocating needle-bar carrying a
needle, and a needle-bar frame adapted to
swing upon an axis parallel with said needle-
25 bar, of a vibrating link-bar provided at one
end with a lateral stud and an adjacent
slideway, a rock-shaft disposed parallel
with the axis of movement of the needle-
bar frame, a lateral arm fixed upon one end
30 of said rock-shaft and having an adjustable
link connection with the needle-bar frame,
a second and oppositely extending lateral
arm fixed upon the other end of said rock-
shaft and pivotally connected with the end
35 of said link-bar opposite that containing
said stud and slideway, an angle-lever dis-
posed in a plane parallel with said rock-
shaft and having one arm carrying a stud
entering the slideway of said link-bar and
40 another arm carrying a second stud, an
actuating cam in operative engagement with
the second-named stud of said angle-lever,
a pivotally mounted guide-lever formed
with a transverse guideway entered by the
45 stud of said link-bar, a spring-pressed con-
troller-rod pivotally connected with said
guide-lever and normally acting to shift the

same to bring its guideway into extreme re-
lation with the link-bar, and a cam acting
in opposition to said spring for timing the
50 shifting movements of the guide-lever.

4. In a sewing machine, the combination
with a swinging needle-bar frame and a re-
ciprocating needle-bar journaled therein and
carrying a needle, of a vibrating link-bar, 55
an operative connection between said link-
bar and the needle-bar frame, means for
imparting to said link-bar uniform vibra-
tory movements, guiding means for confin-
ing a point of said link-bar to movement in
60 a path inclined to its length, automatically
controlled and spring-actuated means for
shifting said guiding means to change the
direction of movement of said link-bar un-
der the action of its vibrating means, and 65
an adjustable stop for limiting the range of
movement of said shifting means under the
action of its spring.

5. In a sewing machine, the combination
with a swinging needle-bar frame and a re- 70
ciprocating needle-bar journaled therein and
carrying a needle, of a vibrating link-bar,
an operative connection between said link-
bar and the needle-bar frame, means for
imparting to said link-bar uniform vibra- 75
tory movements, guiding means for confin-
ing a point of said link-bar to movement in
a path inclined to its length, an actuating
spring for shifting said guiding means to
change the direction of movement of said 80
link-bar under the action of its vibrating
means, a cam for controlling the timing of
operation of the shifting means, and an ad-
justable stop for limiting the range of move- 85
ment of said shifting means under the ac-
tion of its spring.

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

JAMES T. HOGAN.

Witnesses:

HARRIS W. STAHL,

JOHN J. SHAW.