F. M. CARD.

RUFFLING DEVICE FOR SEWING MACHINES.

APPLICATION FILED FEB. 6, 1908.

926,047.

Patented June 22, 1909.

3 SHEETS—SHEET 1.

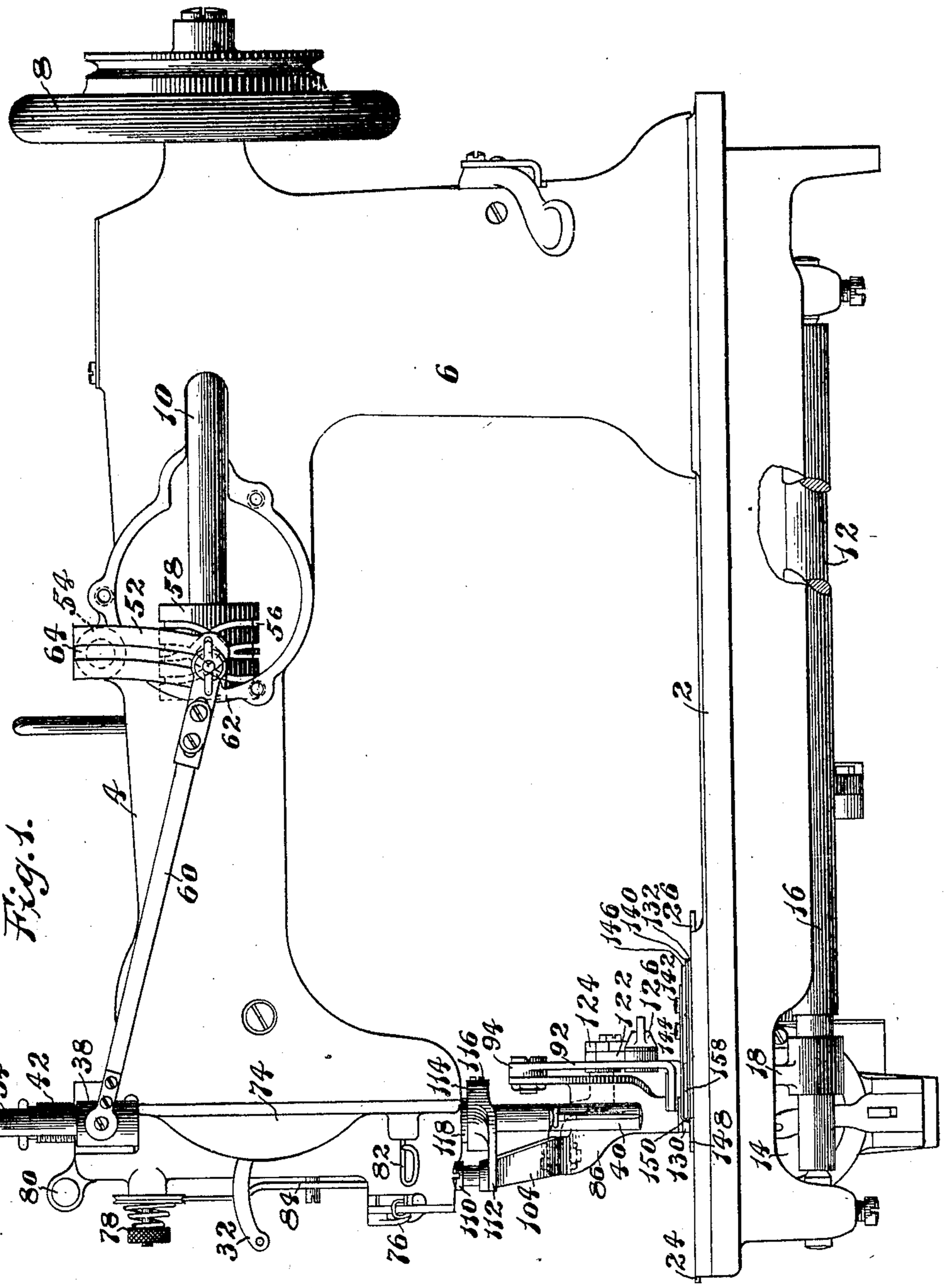

Fig. 1.

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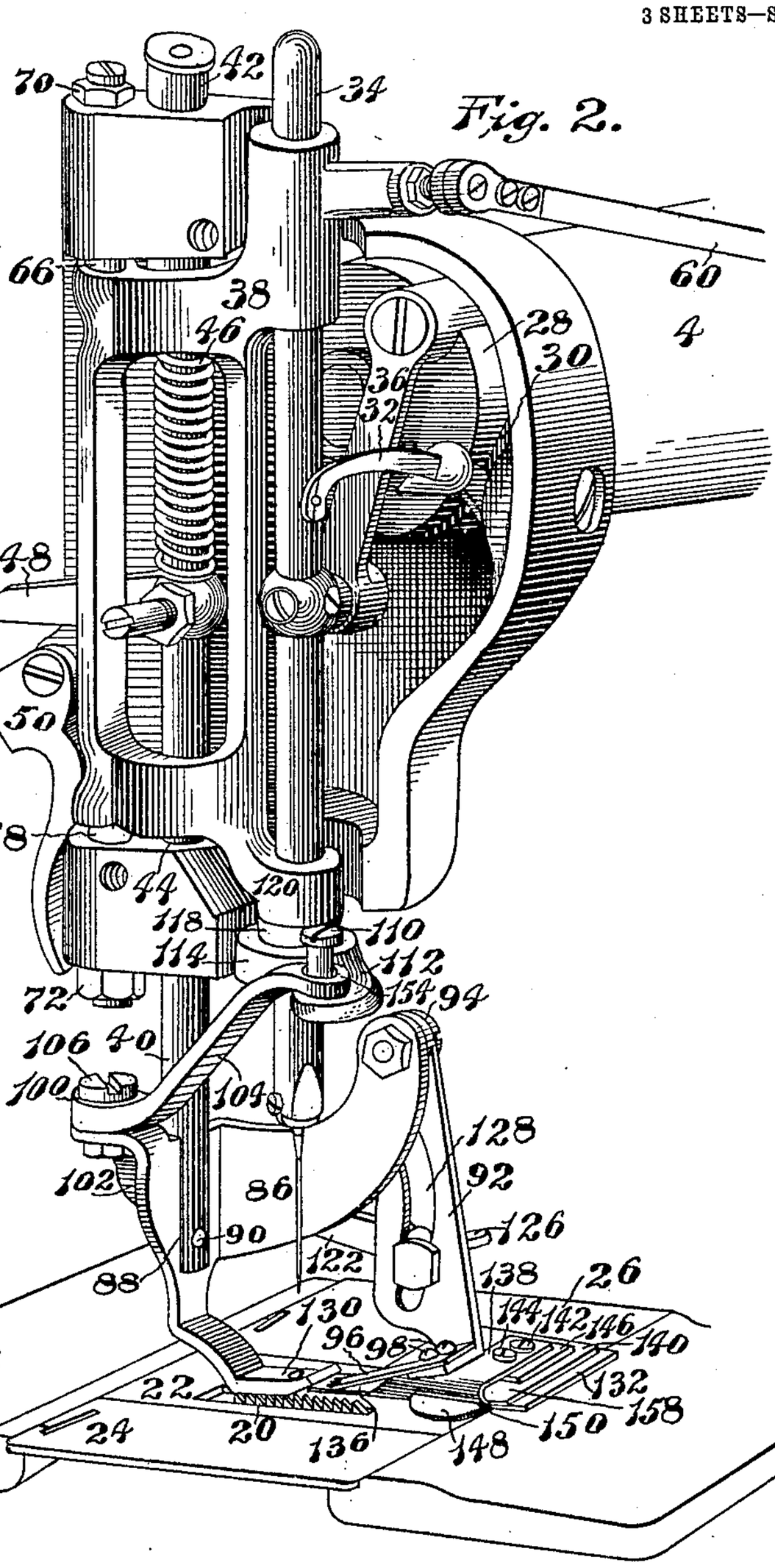
3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 3.

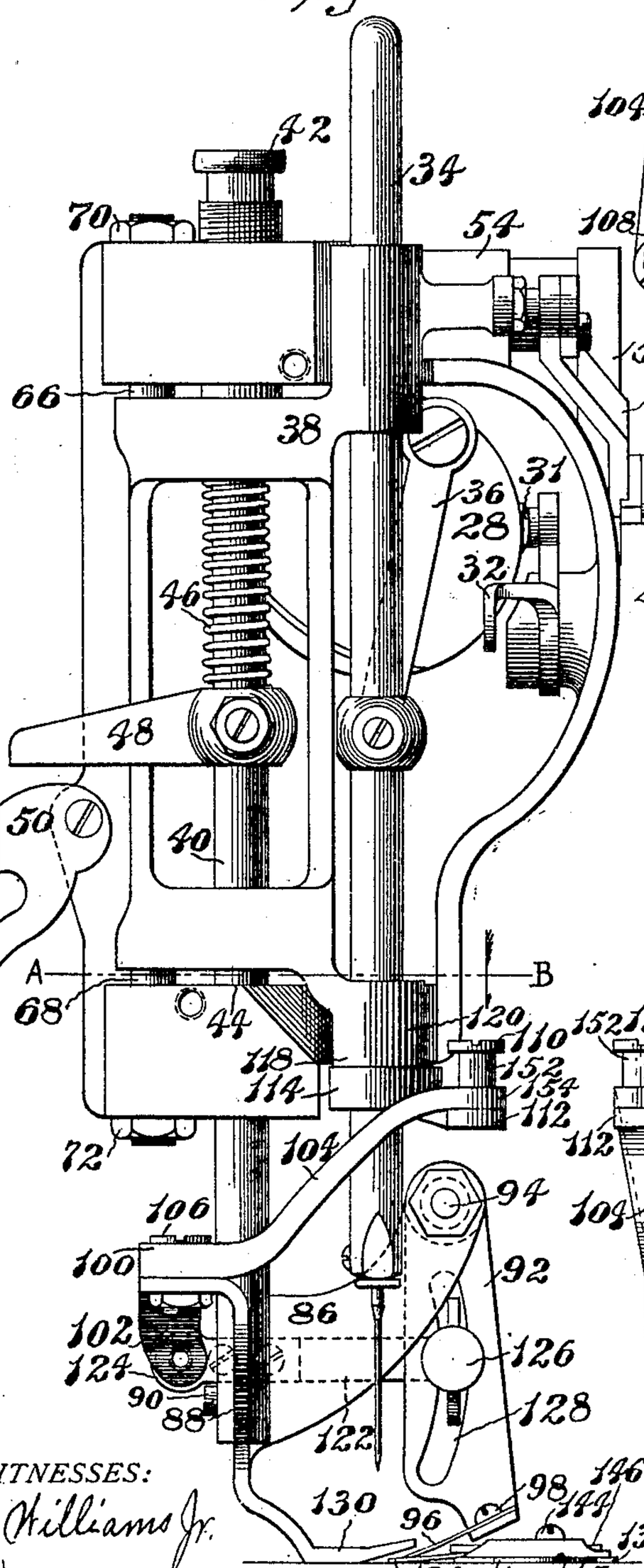


Fig. 4.

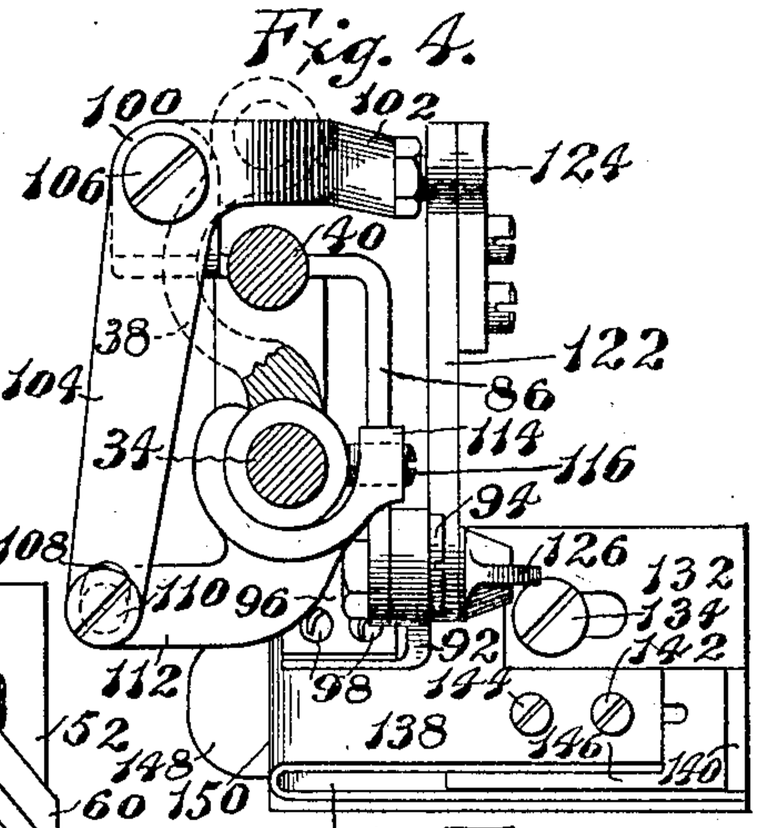


Fig. 6.

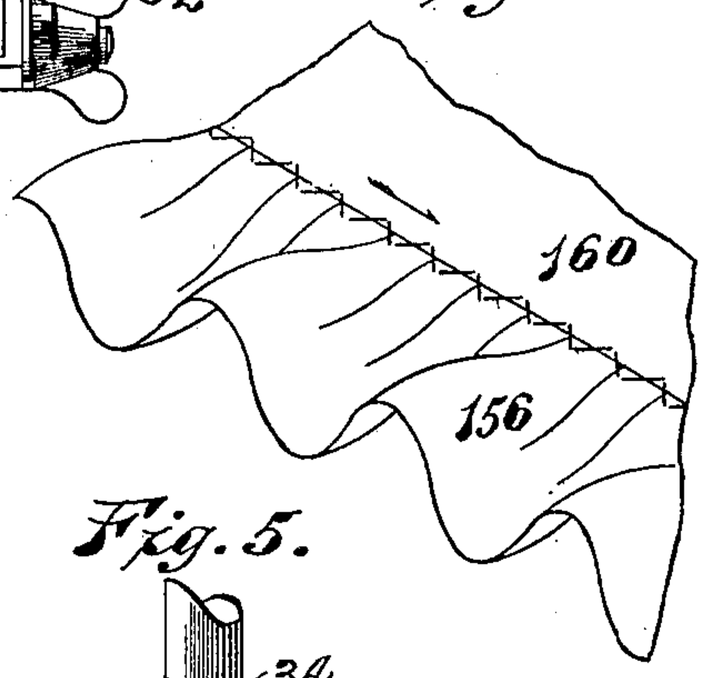
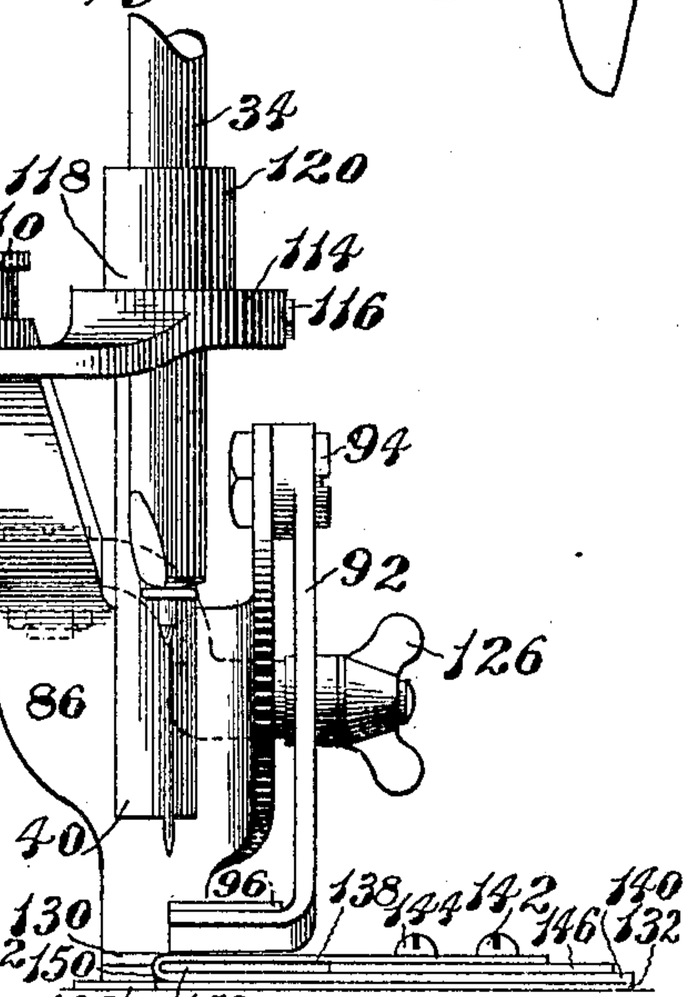


Fig. 5.



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UNITED STATES PATENT OFFICE.

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RUFFLING DEVICE FOR SEWING-MACHINES.

No. 926,047. Specification of Letters Patent. Patented June 22, 1909.

Application filed February 6, 1908. Serial No. 414,464.

To all whom it may concern:

Be it known that I, FREDERIC M. CARD, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Ruffling Devices for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in ruffling devices for sewing machines, and has for its object to provide means for gathering and attaching the ruffling strip to a garment or main portion of material at a single operation, through the employment of a seam consisting of zigzag stitches.

Referring to the accompanying drawings, in the several figures of which like parts are similarly designated, Figure 1 is a front side elevation of a zigzag sewing machine, commercially termed "Wheeler & Wilson", equipped with my improved mechanism. Fig. 2 is a view in perspective of the front end of the overhanging arm and bed-plate of the sewing machine, together with a like view of my improved mechanism. Fig. 3 is a view in front end elevation of the overhanging arm, together with my improved mechanism. Fig. 4 is a view in cross section substantially on the line A—B, Fig. 3. Fig. 5 is a view in front side elevation of my ruffling device, together with a portion of the cloth presser bar and needle bar. Fig. 6 is a view illustrating a portion of the finished production, the arrow indicating the direction of the feed of the materials under the needle.

In describing my improvement, only such limited reference will be made to the usual well-known parts of the sewing machine as is deemed necessary for a proper understanding of the invention.

2 is the bed-plate of the sewing machine, 4 the overhanging arm, 6 the arm standard, 8 the band wheel, and 10 the needle-bar-actuating shaft, the latter being operatively connected, by the commonly employed quartering cranks (not shown), with the lower or loop-taker driving shaft 12.

14 is the loop-taker, operatively connected, through the commonly employed gears (not shown), with the lower driving shaft 12, which shaft acts, through the commonly employed connections including the feed rock-shaft 16 and crank 18, to transmit feed movements to the feed-dog 20.

22 is the throat-plate, 24 the front slide plate, 26 the back slide plate, and 28 the take-up cam, the latter being mounted upon the forward end of the shaft 10 and provided with a cam groove 30 which coacts with a cam follower 31 to transmit movements to the take-up 32.

34 is the needle-bar which is connected, through the needle-bar link 36 and cam 28, with its actuating shaft 10 and mounted to move in the swinging frame 38 in different vertical planes.

40 is the cloth-presser bar mounted in bearings 42 and 44 formed in the overhanging arm and provided with the usual spring 46 and lift collar 48, the latter being acted upon by the presser-bar lift lever 50 to move the cloth-presser bar in opposition to the resiliency of the spring 46.

52 is a segment lever pivoted to the overhanging arm at 54 and provided at its lower end with the usual cam follower (not shown) which tracks in the cam groove 56 of the switch cam 58 which, in turn, is secured upon the shaft 10.

60 is a segment lever connection pivoted at one end to the swinging frame 38, its opposite end being provided with the usual adjustable connection 62 through which said segment lever connection may be adjustably secured at any point in the groove 64 of the lever 52, thus, through the action of the switch cam 58, transmitting swinging movements to the gate 38 and positioning the needle-bar to be moved in different vertical planes, as in the formation of zigzag stitches.

The swinging gate 38 is pivoted upon pintle bearings 66 and 68 threaded into the overhanging arm and held against accidental movement by the respective nuts 70 and 72.

74 is the arm face plate provided with the usual thread controller 76, thread tension device 78, thread check 80, thread leader 82 and tension release lever 84.

All of the foregoing descriptive matter pertains to commonly employed means which may be as herein pointed out or of any other approved form of construction for giving to the needle its vertical and lateral movements and for advancing the

material to the action of the stitch-forming mechanism.

86 is a ruffler frame mounted in a slot 88 formed in the lower end of the presser-bar and secured by screw 90.

92 is a ruffling blade lever pivoted at 94 to the frame 86 and carrying at its lower end a ruffling blade 96 which is secured to said lever by screws 98, 98.

100 is an operating lever comprising arms 102 and 104, said lever being pivoted by a screw 106 to the frame 86. The arm 104 is provided with an opening 108 through which passes a stud screw 110 threaded into an arm 112 of a bracket connection 114, said connection being secured by a screw 116 to a lug 118 depending from the needle-bar bearing 120, said bearing and lug forming integral parts of the swinging frame 38.

122 is a connection, one end of which is pivotally connected at 124 with the arm 102, its opposite end being provided with an adjustable connection 126 for varying the adjustment of said connection relatively to the slot 128 formed in the lever 92.

130 is a cloth-presser of the usual construction which, in the present instance, forms an integral part of the frame 86.

132 is a base plate adjustably secured, relatively to the needle actuation, by a screw 134 which passes through the slide plate 26 and is threaded into the bed-plate 2, said base plate being provided with a stripper blade 136 which extends beneath the ruffling blade 96. The plate 132 is provided with a gage plate constructed in the form of a loop and comprising the members 138 and 140, and between said members is adjustably mounted, by screws 142 and 144, an edge guide 146. The member 140 is provided with a lip or plate 148 which rests against the throat plate 22 and over which the body portion of the material travels, and which acts to insure a smooth and uninterrupted guidance of the edge of the material along the edge 150 of the gage plate. While the plate 148 is considered desirable, it is not essential to the practical operation of the device.

The body portion 152 of the stud screw 110 is of sufficient length to permit the presser 130 to be raised without the end 154 of the arm 104 contacting with the head of the screw 110.

The operation of the device is as follows:— The ruffling strip 156 is passed through the opening 158, between the ruffling blade 96 and the stripper blade 136, and then beneath the presser-foot 130. The main portion of the material 160 is passed over the plate 148 and beneath the presser-foot with its edge in contact with the guiding edge 510. As the machine is put in action, the swinging gate 38 is oscillated in the usual manner in opposite directions transversely of the line of feed of the material, thus causing the needle to pierce each material at alternate descents. In the present instance, as the needle-bar is carried to the left the needle is caused to penetrate the main or body portion of the material 160, and when the needle-bar is moved to the right the needle is caused to penetrate the ruffling strip 156, and owing to the action of the ruffling blade being controlled by the swinging gate, the ruffling blade is moved back or away from the needle while the stitches are being formed in the material 160, and in the direction of the needle to form the gathers as the stitches are being formed in the ruffling strip 156, thus causing a plait to be laid in the ruffling strip just before the needle penetrates such strip to form the stitch.

What I claim is:—

1. In a ruffling device for sewing machines, a needle-carrying bar, a ruffling blade, a swinging frame operatively connected with the actuating mechanism of the sewing machine and in which said needle-bar is mounted to move in different vertical planes, and connections between said ruffling blade and said swinging frame for giving to said ruffling blade movements in the same direction at alternate descents of the needle.

2. In a ruffling device for sewing machines, a needle-carrying bar, a ruffling blade, a stripper blade, a swinging frame operatively connected with the actuating mechanism of the sewing machine and into which said needle-bar is mounted to move in different vertical planes, and connections between said ruffling blade and said swinging frame for giving to said ruffling blade movements in the same direction at alternate descents of the needle.

3. In a ruffling device for sewing machines, a swinging frame operatively connected with the actuating mechanism of the sewing machine, a needle-bar mounted in said frame, a cloth-presser bar, a ruffler frame carried by said presser-bar, a ruffling blade lever provided with a ruffling blade, and connections, including an operating lever, for transmitting motion from said swinging frame to said ruffling blade lever.

4. In a ruffling device for sewing machines, a swinging frame mounted at the forward end of the overhanging arm and operatively connected with the actuating mechanism of the sewing machine, a cloth-presser bar mounted in said arm, a ruffler frame carried by said presser-bar and provided with a cloth-presser, a ruffling blade lever and an operating lever both pivoted upon said ruffler frame, said operating lever being connected at one end with said swinging frame, and a connection for adjustably connecting said ruffling blade lever with the opposite end of said operating lever, substantially as described.

5. In a ruffling device for sewing machines, a swinging frame operatively connected with the actuating mechanism of the sewing machine, a needle-bar mounted in said frame, a cloth-presser bar, a ruffler frame carried by said presser-bar, a ruffling blade lever provided with a ruffling blade, and connections, including an operating lever, for transmitting motion from said swinging frame to said ruffling blade lever, in combination with edge guides for guiding the abutting edges of the materials, substantially as described.

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

FREDERIC M. CARD.

Witnesses:

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J. S. FINCH.