

J. C. RINGE.
SEWING MACHINE.
APPLICATION FILED NOV. 15, 1911.

1,056,368.

Patented Mar. 18, 1913.

2 SHEETS-SHEET 1.

Fig. 1.

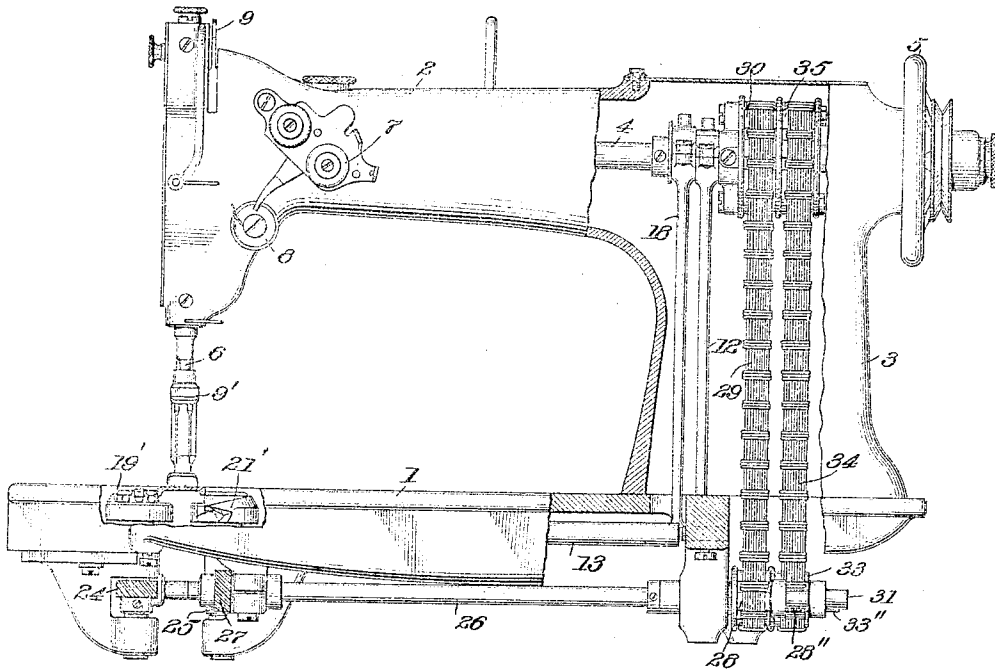
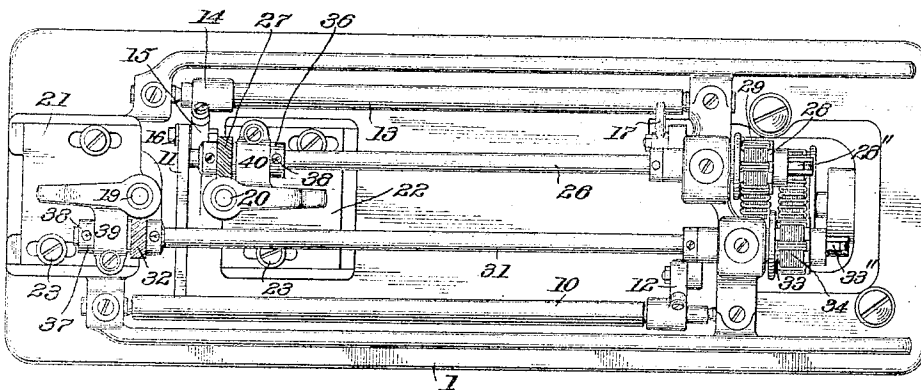


Fig. 2.



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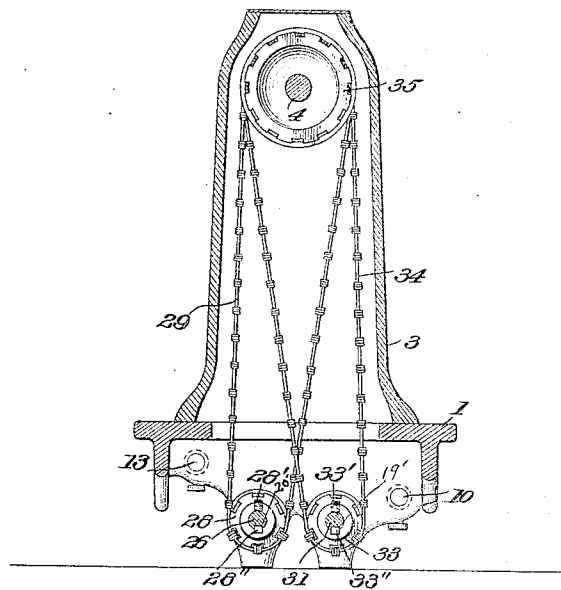
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2 SHEETS—SHEET 2.

Fig. 3.



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SEWING-MACHINE.

1,056,368.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN C. RINGE, 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 Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to improvements in multiple needle sewing machines, and has for its object to provide improved means for transmitting power from the main shaft to the loop-takers, and to facilitate the adjustment of the needles and loop-takers when changing the distance between the seams.

15 In the earlier constructions of multiple needle sewing machines, power is transmitted to the complemental loop-takers through a single connection leading from the main shaft and, accordingly, the effective action of the loop-takers with respect to their co-acting needles is, to a substantial degree, dependent upon this one connection.

20 In the present construction, each loop-taker is provided with an independent train of connections leading from the main shaft, making it convenient to adjust any element of either of said trains without in any way interfering with the relative action of the other elements comprising said trains.

25 In a two-needle sewing machine the adjustments most important to accuracy and convenience are those for changing the gage of the stitch-forming mechanism, which consist in first changing the gage of the needles by substituting a needle-holder of the required gage, followed by adjusting the loop-takers to correspond to the gage of the needles, and as the efficiency of the sewing machine depends upon maintaining the given relationship of the loop-takers and their co-acting needles when changing from one to another gage, the means for effecting the adjustment of the loop-takers becomes an important factor in the practical application of the machine. In the present construction, when it is desired to effect a change in the gage of the loop-takers, the operator loosens the hook-saddles from the bed-plate and the belt-driven pulleys from their respective shafts, and moves the latter endwise through said belt-driven pulleys a distance sufficient to effect the desired adjustment of the loop-

takers, then the operator secures said hook-saddles and driven pulleys in their proper positions, such adjustments being effected without in any way endangering a change in the driving relationship of the elements comprising the separate trains of connections. Further, the strain upon the looper-actuating elements, instead of falling upon a single train of connections, as heretofore, is equally distributed between said complementary trains; and that this last mentioned advantage is extremely important will be readily understood by those versed in the art of sewing machine constructions whose experiences have made them acquainted with the many different constructions calculated to overcome the strain incident to the transmission of power between elements subject to a sudden starting and stopping, as in the operation of sewing machines driven by power.

30 In describing the present improvements, 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.

35 In the accompanying drawings illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a view in front side elevation of a sewing machine equipped with the present invention, the bracket arm and bed-plate being broken out to better illustrate the details in construction. Fig. 2 is an underside view of the bed-plate shown in Fig. 1. Fig. 3 is a vertical cross section through the arm bracket standard and bed-plate, looking toward the front end of the machine.

40 Referring to the figures, 1 represents the bed-plate of the sewing machine upon which is mounted the bracket arm comprising the arm bracket 2 and standard 3, 4 the main or needle-bar-driving shaft carrying at one end the hand or band wheel 5 and at its opposite end operatively connected with the needle-carrying bar 6 through the commonly employed shaft flange and link connection (not shown), 7 and 8 needle-thread tensions, 9 the needle-thread take-up and 9' the needle-holding bracket secured upon the lower end of said needle-bar.

45 10 represents the feed rock-shaft connected at its forward end through the commonly employed arm and pintle screws (not shown) with the feed-dog-carrying bar 11, 110

and at its opposite end with a feed rock-shaft eccentric connection 12, the upper end of which embraces the usual feed-eccentric (not shown) carried by the main shaft 4.

13 represents the feed-lift rock-shaft which, at its forward end, is connected by collar 14, arm 15 and slide block 16 with said feed-dog-carrying bar and at its opposite end, by a connection 17, with the feed-lift eccentric connection 18 whose upper end embraces the commonly employed feed-lift eccentric (not shown) also carried by said main shaft.

19 and 20 represent vertically mounted left and right hand loop-taker shafts, respectively, each of which carries at its upper end its respective loop-taker 19' and 21', said shafts being mounted to rotate in suitable bearings formed in the respective hook-saddles 21 and 22 adjustably secured by screws, as 23, to the underside of the bed-plate 1, spiral gears 24 and 25 carried by the respective loop-taker shafts acting to connect the latter with their respective driving shafts, referred to hereinafter.

All of the foregoing parts are usually found in sewing machines of the present class, and are herein shown as best representing one form of construction to which the present invention is applicable.

26 represents a loop-taker-driving shaft mounted in suitable bearings formed at the underside of the bed-plate, connected at its forward end by a spiral gear 27 with the spiral gear 25 carried by the loop-taker shaft 20, and provided at its opposite end with a belt-pulley 28 secured by screws, as 28', and held against rotation independent of said shaft by key 28'' and keyway, as 20' and driven by a belt 29 actuated from a belt-pulley 30 carried by the main shaft. 31 represents a second loop-taker-driving shaft mounted in the manner of shaft 26, connected at its forward end by a spiral gear 32 with a spiral gear 24 carried by the loop-taker shaft 19 and provided at its opposite end with a belt-pulley 33 (complemental to the pulley 28) secured by screws, as 33', and held against rotation independent of said shaft by key 33'' and keyways, as 19' and driven by a belt 34 (complemental to the belt 29) actuated from a belt-pulley 35 carried by said main shaft. Each of the loop-taker shafts 19 and 20 is operatively connected with the main shaft by an independent train of connections. The shafts 26 and 31 are provided with the respective collars 36 and 37 secured by screws, as 38, to hold said shafts against endwise movements in the bearings 39 and 40 when said shafts are free to be moved endwise through their respective pulleys 28 and 33.

From the foregoing it is to be understood that when the hook saddles are free to be adjusted and the loop-taker shafts free to

be moved endwise, each of the elements comprising the separate trains of loop-taker connections are held against stitch-forming movements independent of the remaining elements, and this is accomplished by the employment of a suitable key and coacting keyways for operatively connecting said loop-taker shafts with either a driving or driven element carried thereby, the preferred form of construction being to place said sliding connection between said shafts and their respective belt-driven pulleys, as in the machine of the application.

Claims:—

1. In a sewing machine, the combination with a bed-plate, a bracket-arm carried by said bed-plate, fabric-feeding and stitch-forming mechanisms including multiple loop-takers each coacting with a suitable eye-pointed needle to form stitches, and a main shaft mounted in said bracket-arm, of means for actuating said loop-takers, said means comprising independent trains of connections leading from said main shaft to their respective loop-takers, said trains of connections being capable of adjustment to meet the requirements of different widths between seams, and when free to be adjusted the elements comprising said trains being held against accidental displacement with respect to their stitch-forming movements.

2. In a sewing machine, the combination with a bed-plate, a bracket-arm carried by said bed-plate, fabric-feeding and stitch-forming mechanisms including multiple loop-takers each coacting with a suitable eye-pointed needle to form stitches, and a main shaft mounted in said bracket-arm, of independent trains of connections leading from said main shaft to their respective loop-takers, each of said trains including a belt connection leading from said main shaft, said trains of connections being capable of adjustment to meet the requirements of different widths between seams, and when free to be adjusted the elements comprising said trains being held against accidental displacement with respect to their stitch-forming movements.

3. In a sewing machine, the combination with a bed-plate, a bracket-arm carried by said bed-plate, fabric-feeding and stitch-forming mechanisms including multiple loop-takers each coacting with a suitable eye-pointed needle to form stitches, and a main shaft mounted in said bracket-arm, of independent trains of connections leading from said main shaft to their respective loop-takers, each of said trains including a loop-taker-actuating shaft connected by a belt connection with said main shaft, said trains of connections being capable of adjustment to meet the requirements of different widths between seams, and when free to be adjusted the elements comprising said

trains being held against accidental displacement with respect to their stitch-forming movements.

4. In a sewing machine, the combination
5 with a bed-plate, a bracket-arm carried by
said bed-plate, fabric-feeding and stitch-
forming mechanisms including multiple
loop-takers each coacting with a suitable
eye-pointed needle to form stitches, and a
10 main shaft mounted in said bracket-arm, of
independent trains of connections leading
from said main shaft to their respective
loop-takers, each of said trains including a
loop-taker-actuating shaft connected by a
15 belt connection with said main shaft and

provided at one end with a belt-driven pulley and at the opposite end with a gear, and means including a key and keyway having sliding relationship with each other for holding said shafts against independent rotation when free to be adjusted in the direction of their length. 20

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

JOHN C. RINGE.

Witnesses:

ABBIE M. DONIHUE,
JAMES J. COX.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."