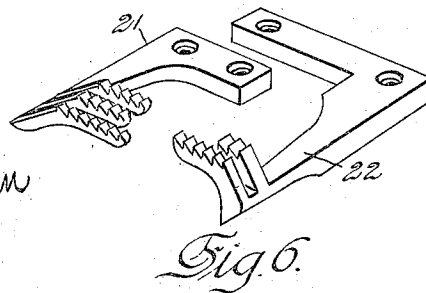
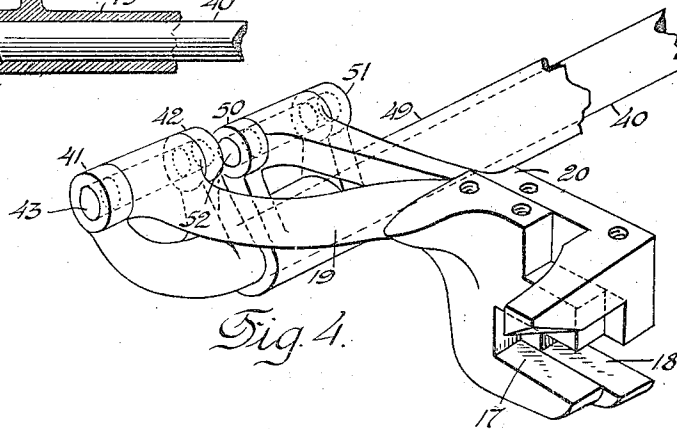
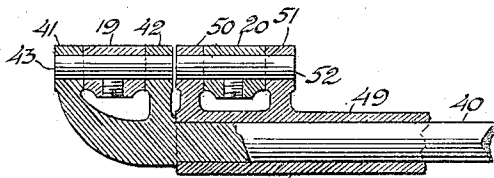
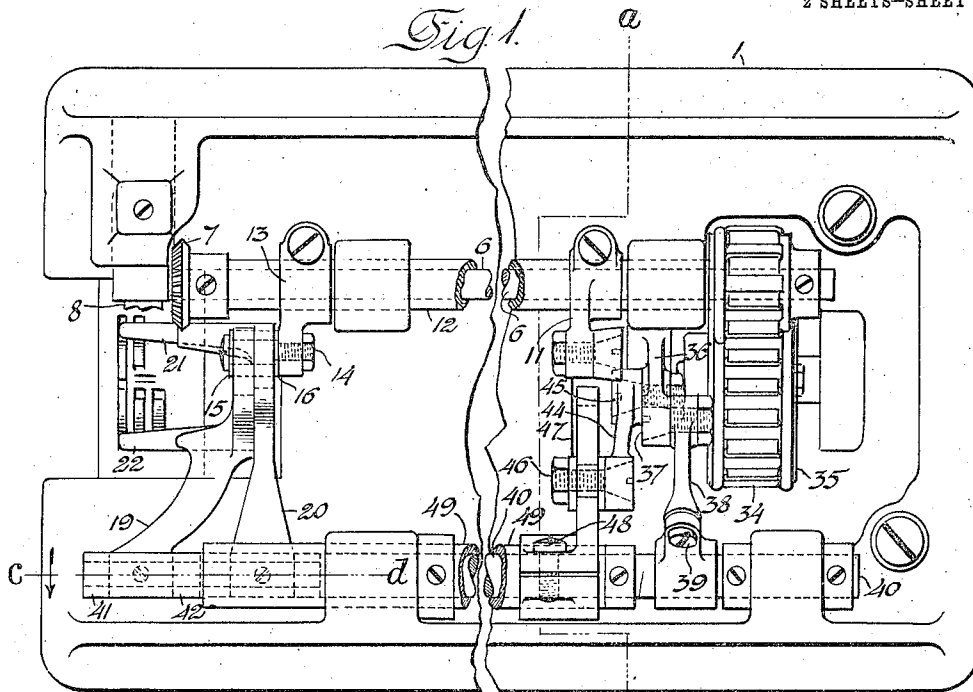


J. S. FINCH.
 FEEDING MECHANISM FOR SEWING MACHINES.
 APPLICATION FILED MAR. 19, 1909.

1,042,333.

Patented Oct. 22, 1912.

2 SHEETS-SHEET 1.



WITNESSES
H. K. Mann
D. C. Cincosol

INVENTOR
 JOHN S. FINCH,
 BY *E. W. C. C. C.*
 ATTORNEY

J. S. FINCH.
FEEDING MECHANISM FOR SEWING MACHINES.
APPLICATION FILED MAR. 19, 1909.

1,042,333.

Patented Oct. 22, 1912.

2 SHEETS—SHEET 2.

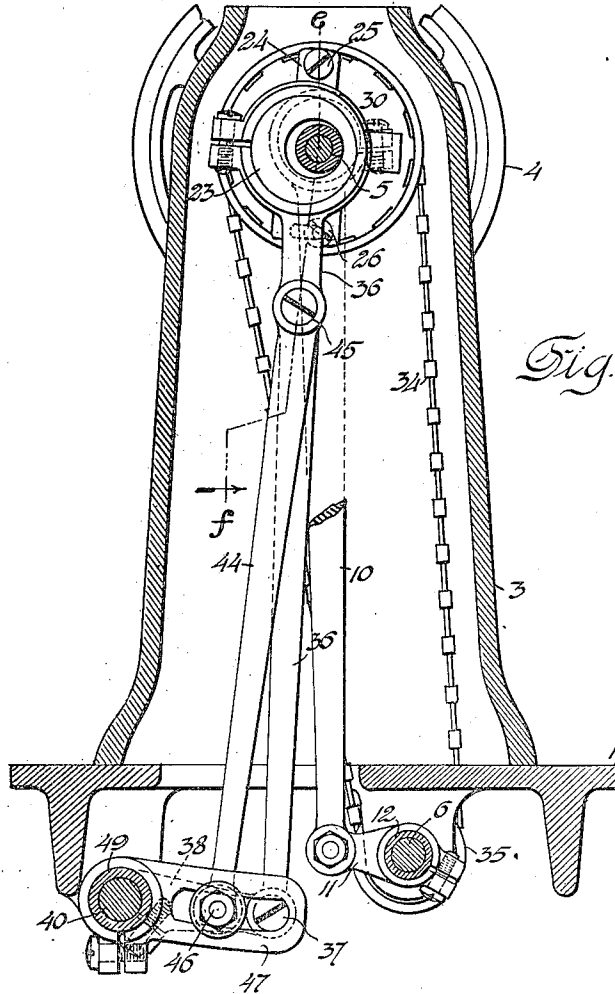


Fig. 2.

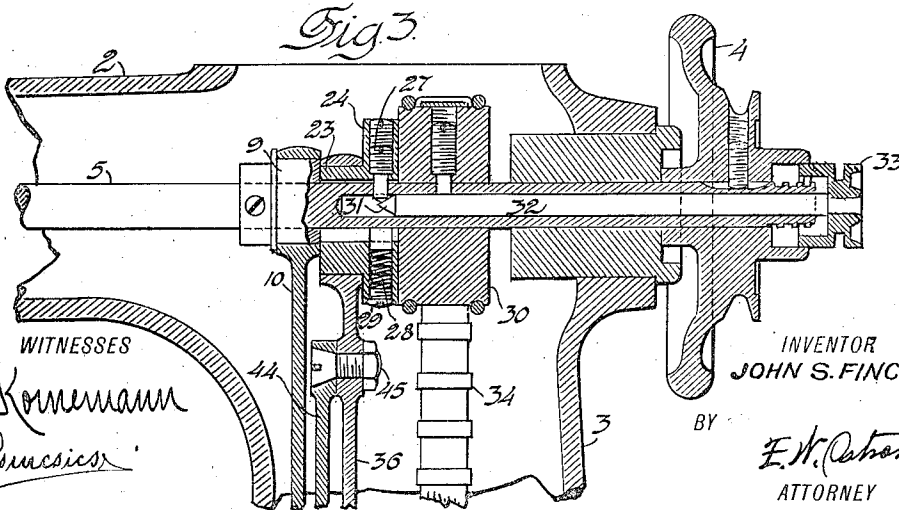


Fig. 3.

WITNESSES
H. K. Kimmann
W. C. Cressier

INVENTOR
JOHN S. FINCH,
BY
F. W. Catron,
ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN S. FINCH, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

FEEDING MECHANISM FOR SEWING-MACHINES.

1,042,333.

Specification of Letters Patent.

Patented Oct. 22, 1912.

Application filed March 19, 1909. Serial No. 484,401.

To all whom it may concern:

Be it known that I, JOHN S. FINCH, 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 Feeding Mechanism for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying 10 drawings.

This invention relates to improvements in sewing machines provided with feeding mechanism for effecting an elastic lock-stitch seam. It has been the common practice to effect such seam by employing multiple feed-dogs, as in the device of the application, one of such feed-dogs acting upon the fabric in advance of and the other at the rear of the needle, the feed-dog located 20 at the rear of the needle being given greater amplitude of feed movement than the feed-dog arranged at the opposite side of said needle, thus causing the fabric to be slightly stretched at the point of stitch formation.

In the operation of lock-stitch sewing machines employing an oscillating or rotating loop-taker, it is extremely important that there be an unobstructed space in front of the loop-taker to permit the operator to 30 conveniently engage and disengage the bobbin from its holder or case, which is not a consideration in connection with sewing machines having loopers as distinguished from loop-takers.

When using lock-stitch sewing machines in connection with many of the commonly-employed sewing machine attachments, such, for instance, as seam trimmers wherein the waste or trimmed off portions of the materials are passed through and below the sewing machine bed-plate, it is essential that the under forward portion of the bed-plate be as free from parts as possible in order to facilitate the mounting, actuating and manipulating of such accessories, and the purpose of the present invention is to simplify and mount the feed-dog-controlling elements so that attachments which require space below the sewing machine bed-plate may be conveniently accommodated. 50

Referring to the accompanying drawings, in the several figures of which like parts are similarly designated, Figure 1 is an under-side view of the frame or bed-plate of a

sewing machine equipped with the improved 55 mechanism. Fig. 2 is a sectional elevation on the line *a, b*, Fig. 1. Fig. 3 is a front side sectional elevation, on the line *e, f*, Fig. 2, of a portion of the arm standard and the overhanging arm. Fig. 4 is a view in 60 perspective of the feed-dog-carrying bars and the front end portions of the feed rock-shafts. Fig. 5 is a view, mainly in section, on the line *C, D*, Fig. 1, of the forward ends of the feed rock-shafts shown in Fig. 4. 65 Fig. 6 is a view in perspective of the complementary feed-dogs.

In describing the invention, only such reference will be made to the well-known parts of the sewing machine as is deemed 70 necessary for a proper understanding of the invention.

1 represents the frame or bed-plate of the sewing machine, 2 the overhanging arm, 3 the arm standard, 4 the band-wheel, 5 the 75 main or needle-bar-driving shaft and 6 the loop-taker-driving shaft carrying the beveled gear 7 which meshes with a beveled gear (not shown) carried by the loop-taker shaft 8, the loop-taker and loop-taker shaft 80 gear having been omitted from the drawings in order that the manner of mounting the feed-dogs might be more clearly illustrated.

9 represents the feed-lift eccentric secured upon the main shaft 5, and 10 the feed-lift 85 eccentric connection. The upper end of said connection encircles the eccentric 9, the lower end being pivotally attached to a crank-arm 11 carried by a tubular feed-lift rock-shaft 12 which in turn is mounted to oscillate 90 upon the loop-taker-actuating shaft 6, said tubular rock-shaft being provided at its forward end with a second crank-arm 13 carrying a stud-screw 14 provided with slide-blocks 15 and 16 which work in the respective 95 slots 17 and 18 formed in the respective feed-dog-carrying bars 19 and 20, whereby the vertical movements common to four-motion feeding mechanisms are transmitted from the eccentric 9 to the main feed-dog 100 21 and auxiliary feed-dog 22.

23 represents a feed-eccentric formed integral with a feed-eccentric frame 24 which is adjustably mounted, by pivot screw 25, steadying screw 26, adjusting screw 27, 105 spring 28 and spring-abutting screw 29, to the belt-driving pulley 30 carried by the main shaft 5. The inner end of the adjust-

ing screw 27 coacts with the beveled end 31 of the feed-adjusting screw 32, through the manipulation of the adjusting nut 33, to determine the length of the stitch, a belt 34 acting to connect the pulley 30 with the driven pulley 35 carried by the loop-taker-driving shaft 6.

All of the foregoing parts are in construction and operation the same as in the Singer No. 107-W-1 commercial machine, and may be as herein pointed out or of any approved form of construction.

Referring now to the parts more directly connected with the improved mechanism, 36 represents the main feed-eccentric connection, the upper end of which encircles the feed-eccentric 23, the opposite end being pivotally attached, by nut-bolt 37, to an arm 38 secured by pinch-screw 39 upon the main feed rock-shaft 40. The forward end of the rock-shaft 40 is provided with lugs 41 and 42 to which is secured, by hinge pin 43, the feed-dog-carrying bar 19. Thus it will be seen that feed movements are transmitted from the eccentric 23 to the feed-dog-carrying bar 19.

44 represents an adjustably secured auxiliary feed-eccentric connection which is pivotally secured at its upper end, by a nut-bolt 45, to the feed-eccentric connection 36, its opposite end being pivotally and adjustably attached, by a nut-bolt 46, to an arm 47 secured by pinch-screw 48, upon a tubular feed rock-shaft 49 which is mounted to oscillate upon the feed rock-shaft 40. The forward end of the tubular feed rock-shaft 49 is provided with lugs 50 and 51 to which there is attached, by hinge pin 52, the feed-dog-carrying bar 20; thus feed movements are transmitted to said bar from the feed-eccentric connection 36, the adjustability of the nut-bolt 46 making it possible to vary the extent of such feed movements, independently of the extent of movement of the feed-dog-carrying bar 19.

From the foregoing it will be readily understood that the feed-dog-carrying bar 19 is operatively connected, through the rock-shaft 40 and arm 38, with the main feed-eccentric connection 36 for effecting feed movements of the feed-dog 21 located at the rear of the needle; that the feed-dog-carrying bar 20 is operatively connected, through the rock-shaft 49 and arm 47, with the auxiliary eccentric connection 44 for giving feed movements to the feed-dog 22 located in front of the needle; that owing to the adjustment of the connection 44 with the arm 47, the feed-dog 22 can be given feed movements of the same or of greater amplitude than the feed-dog 21; that owing to the feed-dogs being given their feed movements from a single eccentric, their amplitude of feed movements can be proportionately increased or diminished by a single adjust-

ment; and that the mounting of the two feed rock-shafts upon a like axis and the feed-lift rock-shaft upon the hook or loop-taker-driving shaft makes it practical to operate the feed-dogs without interfering with the manual manipulation of the cop or bobbin.

Claims:—

1. In a feeding mechanism for sewing machines, a loop-taker-actuating shaft, a needle-bar-actuating shaft provided with a feed-eccentric and a feed-lift eccentric, a plurality of feed-dogs separately mounted and independently controlled in their amplitude of feed movements, a plurality of feed rock-shafts having oscillating movements upon the same axis, a feed-lift rock-shaft mounted upon the same axis as said loop-taker-actuating shaft, and connections for connecting said eccentrics with said rock-shafts.

2. In a feeding mechanism for sewing machines, a needle-bar-actuating shaft provided with an adjustably-mounted eccentric, a tubular feed rock-shaft mounted in suitable bearings located beneath the bed-plate of the sewing machine and having pivotally connected to it a feed-dog-carrying bar provided with a feed-dog, a feed rock-shaft mounted in said tubular rock-shaft and having pivotally connected to it a second feed-dog-carrying bar provided with a feed-dog, connections for connecting the rock-shaft mounted in said tubular rock-shaft with said eccentric including an arm carried by the latter rock-shaft, and a connection directly connected with said adjustably-mounted eccentric, said tubular rock-shaft being actuated through a connection located bodily below said needle-bar-actuating shaft and having its upper end pivoted to the connection directly connected with said adjustably-mounted eccentric, and means including a feed-lift eccentric carried by said needle-bar-actuating shaft for giving to said feed-dogs their vertical movements.

3. In a feeding mechanism for sewing machines, a needle-bar-actuating shaft provided with an adjustably-mounted eccentric, a tubular feed rock-shaft mounted on suitable bearings located beneath the bed-plate of the sewing machine and having pivotally connected to it a feed-dog-carrying bar provided with a feed-dog, a feed rock-shaft mounted in said tubular rock-shaft and having pivotally connected to it a second feed-dog-carrying bar provided with a feed-dog, connections for connecting the rock-shaft mounted in said tubular rock-shaft with said eccentric including an arm carried by the latter rock-shaft, and a connection directly connected with said adjustably-mounted eccentric, said tubular rock-shaft being actuated through a connection located bodily below said needle-bar-actuating shaft and having its upper end pivoted to the connec-

tion directly connected with said adjust-
ably-mounted eccentric, the opposite end of
the connection located bodily below said needle-
bar-actuating shaft being adjustably
5 connected with said tubular rock-shaft for
changing the amplitude of feed movement
of one of said feed-dogs independently of
the other, and means including a feed-lift
eccentric carried by said needle-bar-actuat-

ing shaft for giving to said feed-dogs their 10
vertical movements.

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

JOHN S. FINCH.

Witnesses:

CARLYLE W. THOMAS,
ABBIE M. DONIHUE.