

J. C. MOORE.
SEWING MACHINE.
APPLICATION FILED APR. 28, 1909.

979,537.

Patented Dec. 27, 1910.

4 SHEETS—SHEET 1.

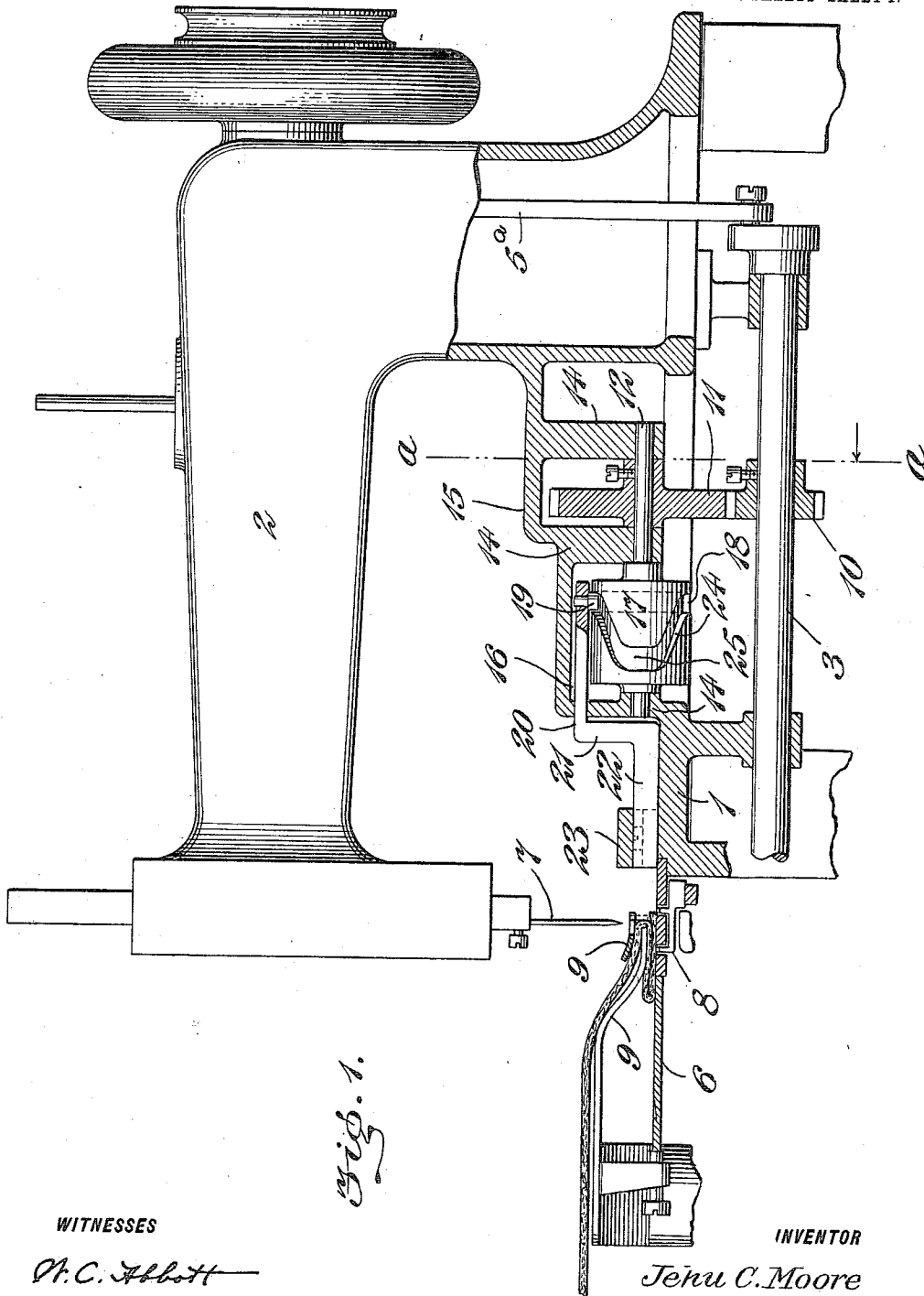


Fig. 1.

WITNESSES

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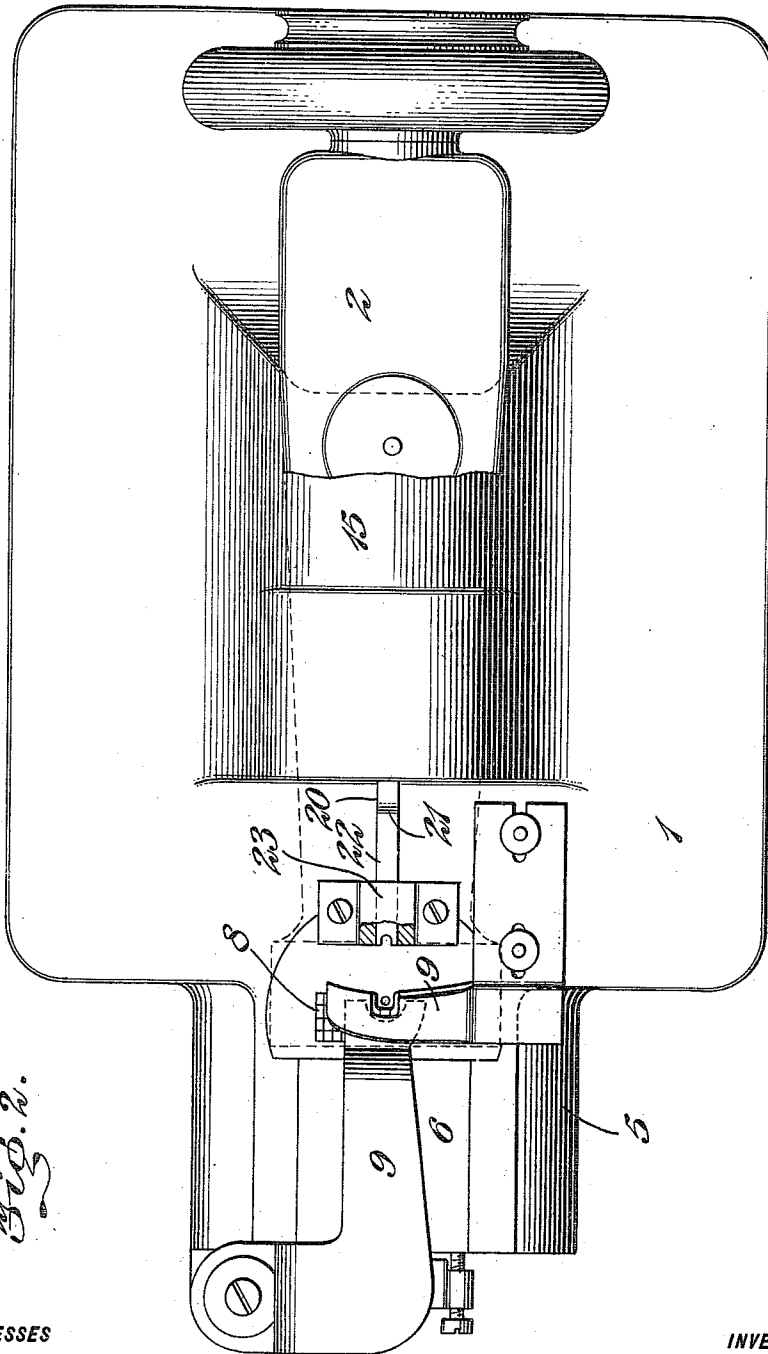


Fig. 2.

WITNESSES

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4 SHEETS—SHEET 3.

Fig. 3.

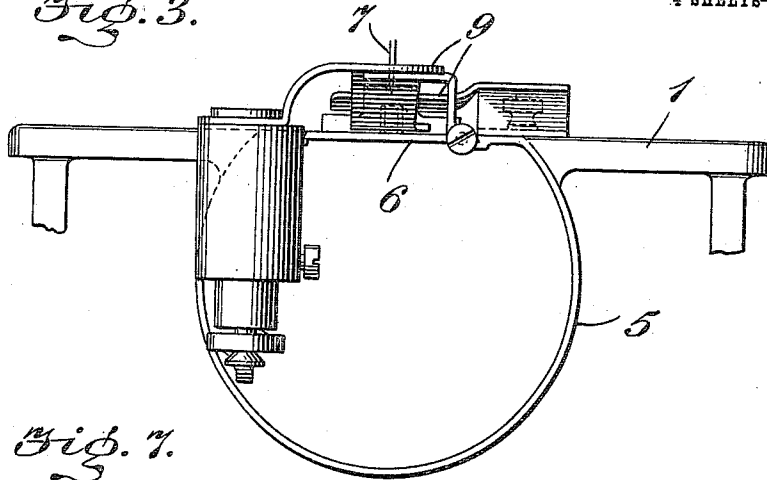
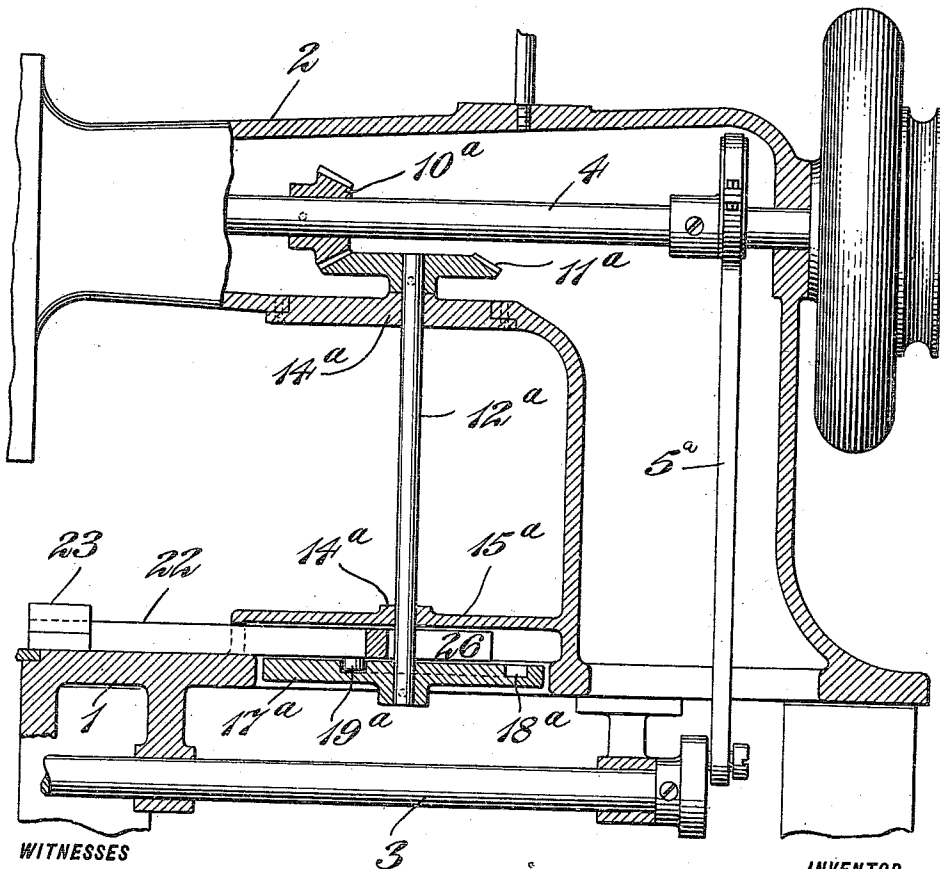


Fig. 7.



WITNESSES

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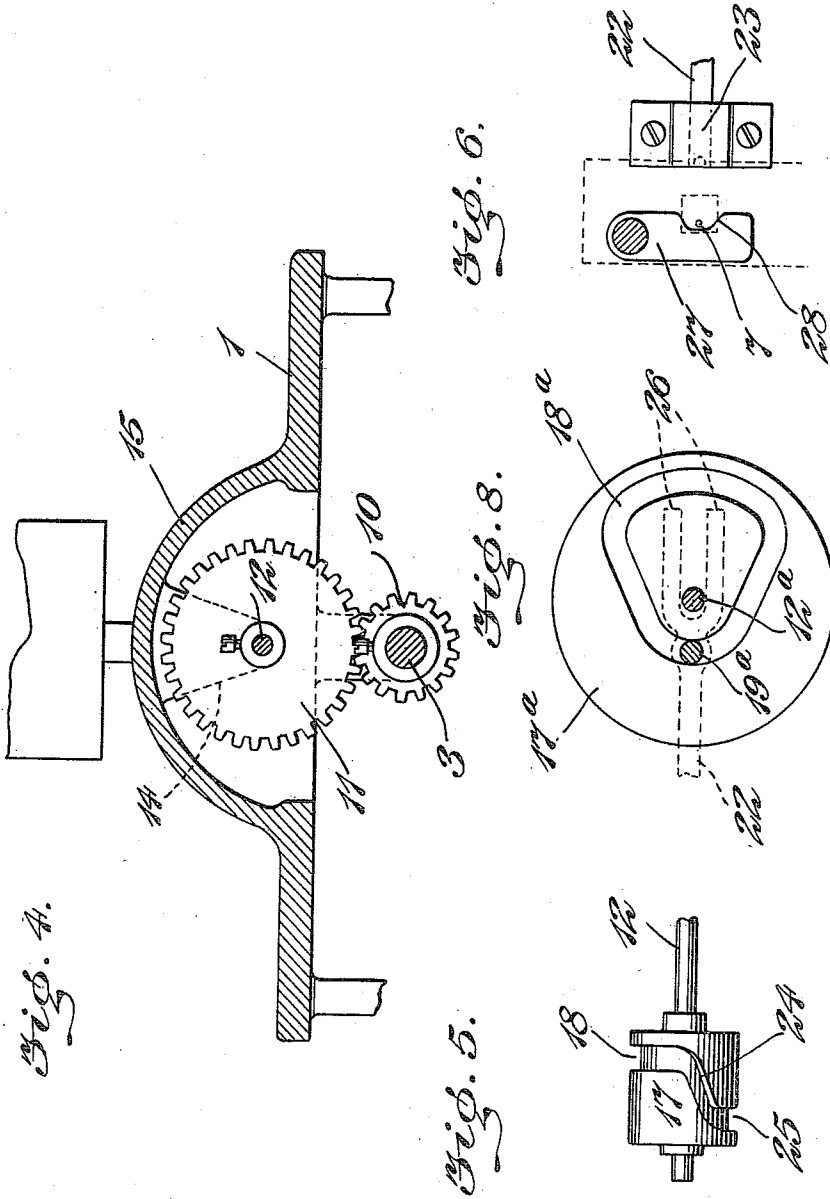
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4 SHEETS—SHEET 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

JEHU C. MOORE, OF NEW YORK, N. Y.

SEWING-MACHINE.

979,537.

Specification of Letters Patent.

Patented Dec. 27, 1910.

Application filed April 23, 1909. Serial No. 492,663.

To all whom it may concern:

Be it known that I, JEHU C. MOORE, a citizen of the United States, and a resident of the borough of Brooklyn, in the city and State of New York, have invented certain Improvements in Sewing-Machines, of which the following is a specification.

This invention relates to certain improvements in sewing machines, and more particularly in that class of such machines which are especially adapted for use in overseaming, blind-stitching and the like, and has for its object to provide means of a simple and comparatively inexpensive nature and of a novel and improved construction, and capable of intermittent operation for moving or shifting the work laterally with respect to the path of the needle, so as to vary the stitching as is desirable in blind-stitching, overseaming and various other styles of fancy stitching.

The invention consists in certain novel features of the construction, and combinations and arrangements of the several parts of the improved work shifting means, whereby certain important advantages are attained, and said means are rendered simpler, less expensive and otherwise better adapted and more convenient for use, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

In order that my invention may be the better understood I will now proceed to describe the same with reference to the accompanying drawings, wherein—

Figure 1 is a sectional side view showing a sewing machine provided with my improvements; Fig. 2 is a fragmentary plan view of the machine illustrated in Fig. 1, the arm being broken away to illustrate the work shifting means below; Fig. 3 is an end view showing certain features of construction of the machine plate or table; Fig. 4 is a transverse section taken through the work shifting means in the plane indicated by the line *a-a* in Fig. 1; Fig. 5 is a view showing the cam of the work shifting means, detached. In the above figures I have shown my improvements applied for use in connection with the overseaming means illustrated in my pending application, Serial No. 469,144, filed December 24, 1908. Fig. 6 is a fragmentary view showing the application of my improvements for use in connection with a notched presser foot of the

type illustrated in my prior United States Patent No. 740,298, dated September 29, 1903; Fig. 7 is a fragmentary sectional view showing a modified construction of the improved work shifting means comprised in my present invention, and Fig. 8 is a view showing the work shifting cam detached.

In these views 1 represents the work plate or table of a sewing machine having an arm 2 extended above it and adapted to support the needle bar in a well known way.

3 and 4 represent the parallel lower and upper shafts commonly present in sewing machines, driven in any preferred way and connected for movement in unison by means of a link 5^a, the shaft 3 being journaled in bearings beneath the work plate or table 1, and being adapted for the actuation of the shuttle and feed slide while the upper shaft 4 is arranged to actuate the needle bar.

The machine herein shown is particularly designed and adapted for use in overseaming the turned up lower ends of trousers legs and the like, and to facilitate the application of the work beneath the needle, and its movement across the feed plate, I have provided the end of the machine plate or table 1 with a rounded extension or terminal part 5, adapted to be extended within the trousers leg, so that the same may be conveniently turned to direct the stitching along the turned up lower edge of the trousers leg, and to afford convenient access to the shuttle and other parts beneath the work plate or table 1, I have provided this extension or terminal part 5 with a longitudinally movable slide 6 in its upper surface.

7 represents the needle, 8 the feed slide movable beneath the machine plate or table 1 and actuated from the lower shaft 3, and 9 indicates, as a whole, the presser foot for holding the work accurately upon the feed slide, in order to insure the feeding movement necessary in sewing. As shown in Figs. 1 to 5 of the accompanying drawings, such presser foot is of the type shown and claimed in my pending patent application, Serial No. 469,144, filed December 24, 1908, but I do not desire to be understood as limiting myself to the application of my present invention for use in connection with such presser foot exclusively, since it will be obvious that the present invention is capable of employment in connection with other forms of presser foot, with equally good results. For example, in Fig. 6 I have shown

my improvements applied for use in connection with the laterally recessed form of presser foot shown and described in my prior Patent No. 740,298, dated September 29, 1903.

Referring first to Figs. 1 to 5, inclusive, 10 represents a toothed gear wheel or pinion, secured upon the lowermost machine shaft 3, and having its gear surface in mesh with the teeth of a larger gear wheel 11, secured upon a short shaft 12 parallel with shaft 3 and with the work plate, and adjacent thereto, being journaled in pendent bearings produced, as shown at 14, upon the under surface of an upwardly directed hood or casing 15 integrally produced at the central upper part of the machine plate or table 1, and provided, at its end which is adjacent to the needle, with a chamber 16, wherein is housed a cam 17, of cylindrical formation, which is keyed or otherwise secured upon the end of said short shaft 12 in such a manner as to turn therewith when said shaft 12 is revolved from the lower machine shaft 3 through the medium of the intermeshing gear wheels 10 and 11. The gear wheel or pinion 10 upon the lower machine shaft 3 is made of half the diameter of the upper gear wheel 11 which meshes therewith, whereby the short shaft 12 is driven at half the speed of said lower machine shaft 3, and is caused to make one revolution to each two revolutions of said machine shaft 3, and since, a downward reciprocatory impulse is imparted to the needle 7 at each revolution of the said lower machine shaft 3, it will also be seen that said short shaft 12 is caused to make one complete revolution while two downward reciprocatory impulses are imparted to the needle. The peripheral surface of the cylindrical cam 17 is provided with a cam groove 18 extended around it, wherein is engaged a roller or other appropriate projection 19 carried upon the rear end portion of a slide member 20, which is arranged for reciprocatory movement within the chamber 16 of the hood or casing 15, above the cam 17, and in the direction of the axis of the shaft 12 whereon said cam is carried, the forward end of said slide member 20 being extended through and guided in an aperture produced in the forward wall of the casing or hood 15, and having a downwardly directed part 21, the lower end of which is integrally connected with a pushing or shifting member 22, arranged for reciprocatory movement across the machine plate or table 1 in a direction transverse to the direction of feed imparted to the work by the feed slide 8. The forward end of the pushing or shifting member 22, adjacent to the needle 7, is guided in a slide bearing 23 upon the machine plate or table 1, and is notched out, as shown in Fig. 2, so as to be capable

of engagement with the edge of the work at opposite sides of the needle in order that such work may be pushed or shifted laterally out of the path of the needle when said pushing or shifting member is actuated and moved longitudinally, so that the descending needle may clear the edge of the work as is requisite in overseaming, blind-stitching, and various other kinds of fancy stitching. As herein shown, the member 22, together with its actuating cam 17 and the shaft 12 therefor, are extended above the work plate parallel with and substantially in vertical alinement with the lower shuttle shaft 3, both said shafts 12 and 3 being extended in the same vertical plane with the needle bar and at right angles to the path thereof, so as to be closely adjacent to each other, thereby affording a material advantage and simplification by permitting the employment of the shuttle shaft as ordinarily provided in rotary shuttle machines for the actuation of the work shifting member, and dispensing with the employment of more complicated driving connections such as would be required were the shifting member actuated from some more remote driven part of the machine. The groove 18 of the cylindrical cam 17 is provided with a forwardly directed part 24, along which the roller or projection 19 of the slide member 20 is caused to travel during each revolution of said cam, whereby it will be seen that at each revolution of the short shaft 12, and at each alternate descent of the needle 7, a forward impulse is imparted to said slide member 20, to cause the notched extremity of the shifting or pushing member 22 to contact upon the edge of the work and to push or shift the same laterally out of the path of the descending needle, in order that the needle may clear the edge of the work at every other descending movement. The forwardly directed part 24 of the cam groove 18 is provided, as shown in Figs. 1 and 5 of the drawings, with a straight portion 25, along which the roller or projection 19 is caused to travel after each forward movement of the slide member 20, whereby it will be evident that the pushing or shifting member 22 is retained in contact with the edge of the work for a sufficient interval to permit the needle to descend beneath the machine plate and to rise above the same and above the work, so that binding or breakage of the needle, such as might be caused by contact of the edge of the work therewith, is effectively prevented. The structure of the forwardly directed portion 24 of the cam groove 18 is such that the slide member 20 is retracted after each forward shifting impulse of the shifting or pushing member 22, and said laterally or forwardly directed portion 24 of said cam groove is so proportioned as to be com-

prised within substantially one-half the circumference of the cam 17, whereby it will be seen that upon one descending movement of the needle the shifting or pushing member 22 will be moved endwise to push the work laterally out of the path of said needle, and will be retracted at the termination of the upward movement of the needle, while at the next descending movement of the needle, the shifting or pushing member 22 will not be actuated, and consequently the work will be presented in the path of the needle, in order that each alternate stitch of the needle may be passed through the edge of the work.

From the above description it will be seen that the improved sewing machine constructed according to my invention is of an extremely simple and comparatively inexpensive nature and is particularly well adapted for use in overseaming, blind-stitching, and various other kinds of fancy stitching, by reason of its compactness and the accuracy of its operation, and it will also be obvious from the above description that the invention is not limited in its application to the machine herein illustrated, and for this reason I do not desire to be understood as limiting myself to any special application of my improvements. For example, in certain cases, the construction shown in Figs. 7 and 8 may be employed with good results. As shown in these views, the gearing beneath the machine plate or table 1 is omitted, and in lieu thereof, a bevel pinion 10^a is provided upon the upper horizontal shaft 4 within the arm 2 of the machine, said bevel pinion being in mesh with a larger bevel wheel 11^a of double the diameter of said pinion, mounted upon an upright shaft 12^a which depends at right angles beneath the arm 2 and has a bearing for its lower end in a raised part 15^a of the machine plate or table 1, as clearly shown at 14^a. 17^a represents a cam disk carried upon the lower end of the vertical shaft 12^a, beneath the raised part 15^a of the machine plate 1, and adapted, by reason of the difference in size of the gear wheels 11^a and 10^a, to complete one full revolution for each two descending movements of the needle, and this cam is provided in its upper surface with a cam groove 18^a wherein is engaged a roller or projection 19^a upon the rear end of the pushing or shifting member 22, which is, by reason of the formation of said cam groove, caused to push or shift the work laterally out of the path of the needle at the commencement of one descending

movement of said needle, being retracted at the termination of the succeeding upward movement of the needle, and is thereafter held retracted out of position for engagement with the work during the next descending movement of the needle. As shown on the drawings, the rear end of the pushing or shifting member is bifurcated and guided upon the shaft 12^a, as seen at 26 in Figs. 7 and 8.

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

1. A sewing machine having work feeding means, means for pressing the work to said feeding means, a needle bar movable toward and from the feeding means, a driven shaft extended in the same plane with the needle bar but at right angles to the path thereof, a shifting bar engageable with the work to move the same out of the path of the needle carried by the needle bar, and means for imparting movement to the shifting bar comprising a shaft parallel with the driven shaft and also extended in the same plane with the needle bar, means whereby the second shaft is rotated by the driven shaft at one half the axial velocity thereof and means on the second shaft for imparting movement to the shifting member positively in opposite directions, in a plane parallel with the second shaft, and in the same plane with said first-named driven shaft and with the needle bar.

2. A sewing machine having a work plate, a needle bar vertically movable toward and from the same, a driven horizontal shuttle shaft below the work plate and in the same vertical plane with the path of the needle bar, a second shaft in the same vertical plane with the path of the needle bar, gearing for continuously driving said second shaft from the shuttle shaft at one half the axial velocity of the shuttle shaft, a shifting member aligned with said second shaft and engageable with the work to move the same out of line with the needle carried by the needle bar, and means carried by said second shaft for reciprocating the shifting bar at each rotation of said second shaft.

In witness whereof I have hereunto signed my name this 24th day of April 1909, in the presence of two subscribing witnesses.

JEHU C. MOORE.

Witnesses:

JOHN A. BLOOMINGTON,
C. C. BREUER.