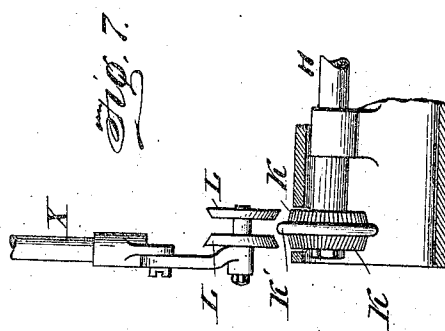
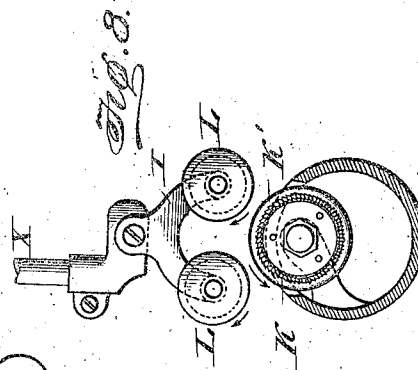
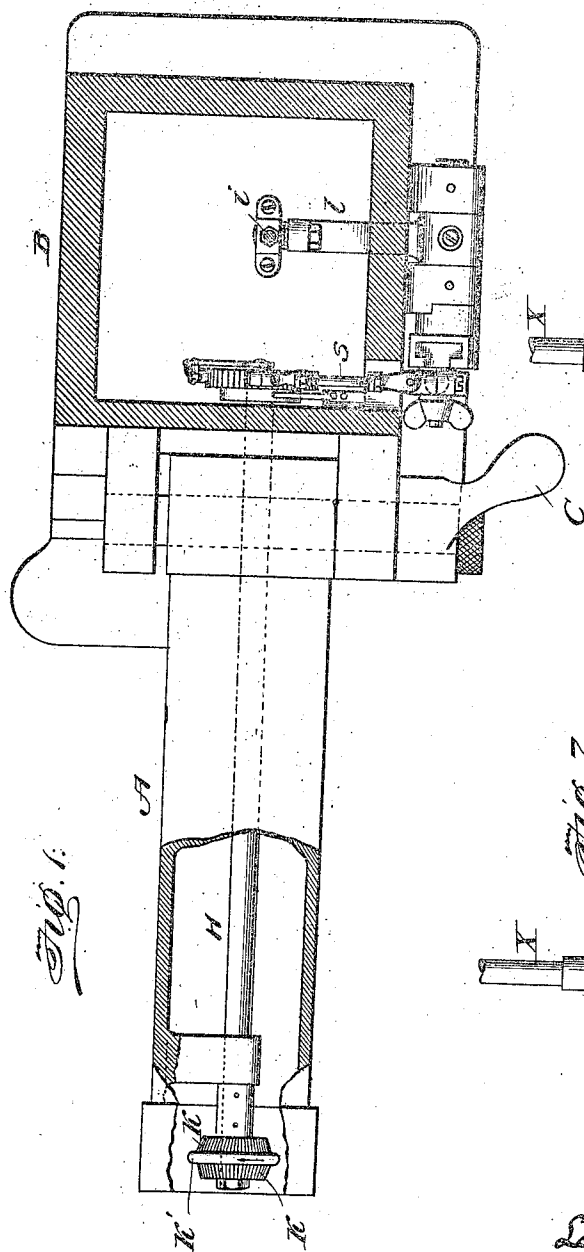


L. ONDERDONK.
 FEEDING MECHANISM FOR BLINDSTITCH SEWING MACHINES.
 APPLICATION FILED APR. 9, 1903.

982,219.

Patented Jan. 17, 1911.

4 SHEETS—SHEET 1.



Witnesses
Fenton Stolt,
L. Onderdonk

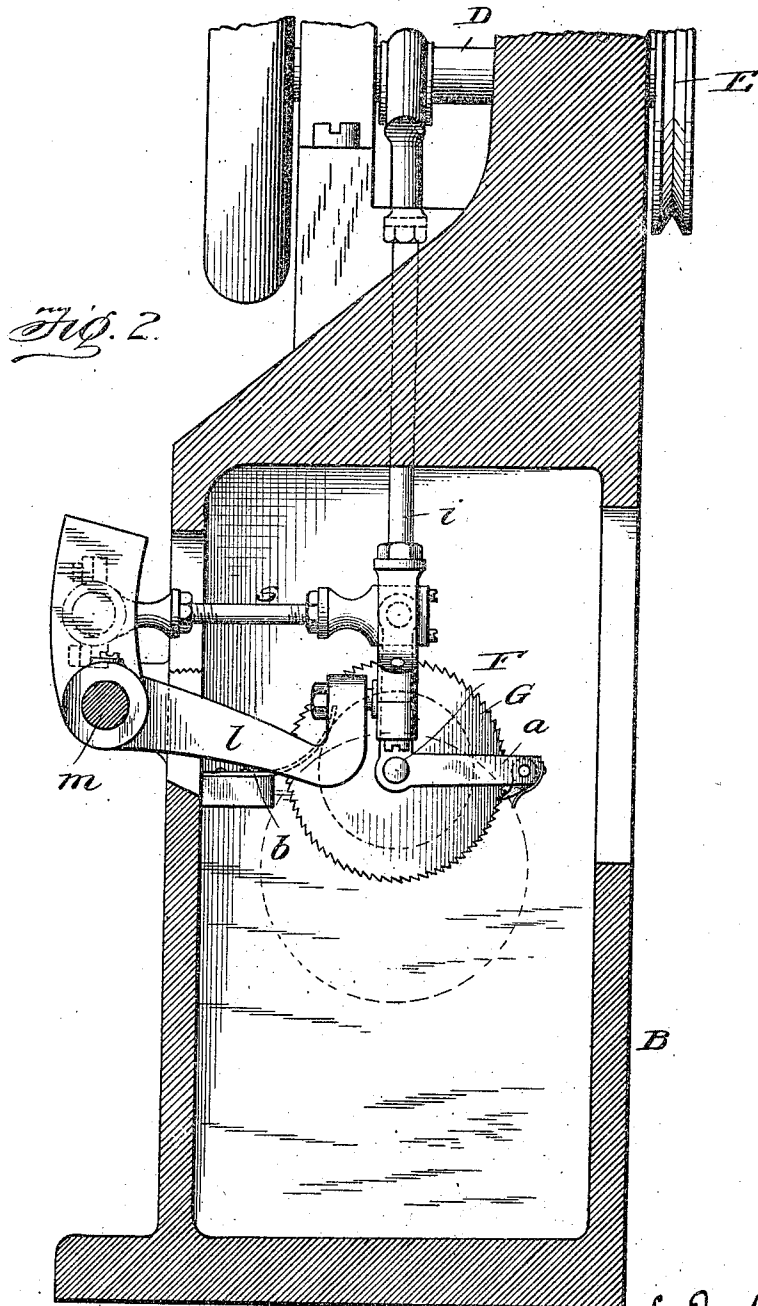
Inventor
Laming Onderdonk
C. S. Sturtevant
 Attorneys

L. ONDERDONK.
 FEEDING MECHANISM FOR BLINDSTITCH SEWING MACHINES.
 APPLICATION FILED APR. 9, 1903.

982,219.

Patented Jan. 17, 1911.

4 SHEETS SHEET 2.



Witnesses
Anton Stelt,
Wm. C. Schaefer

By

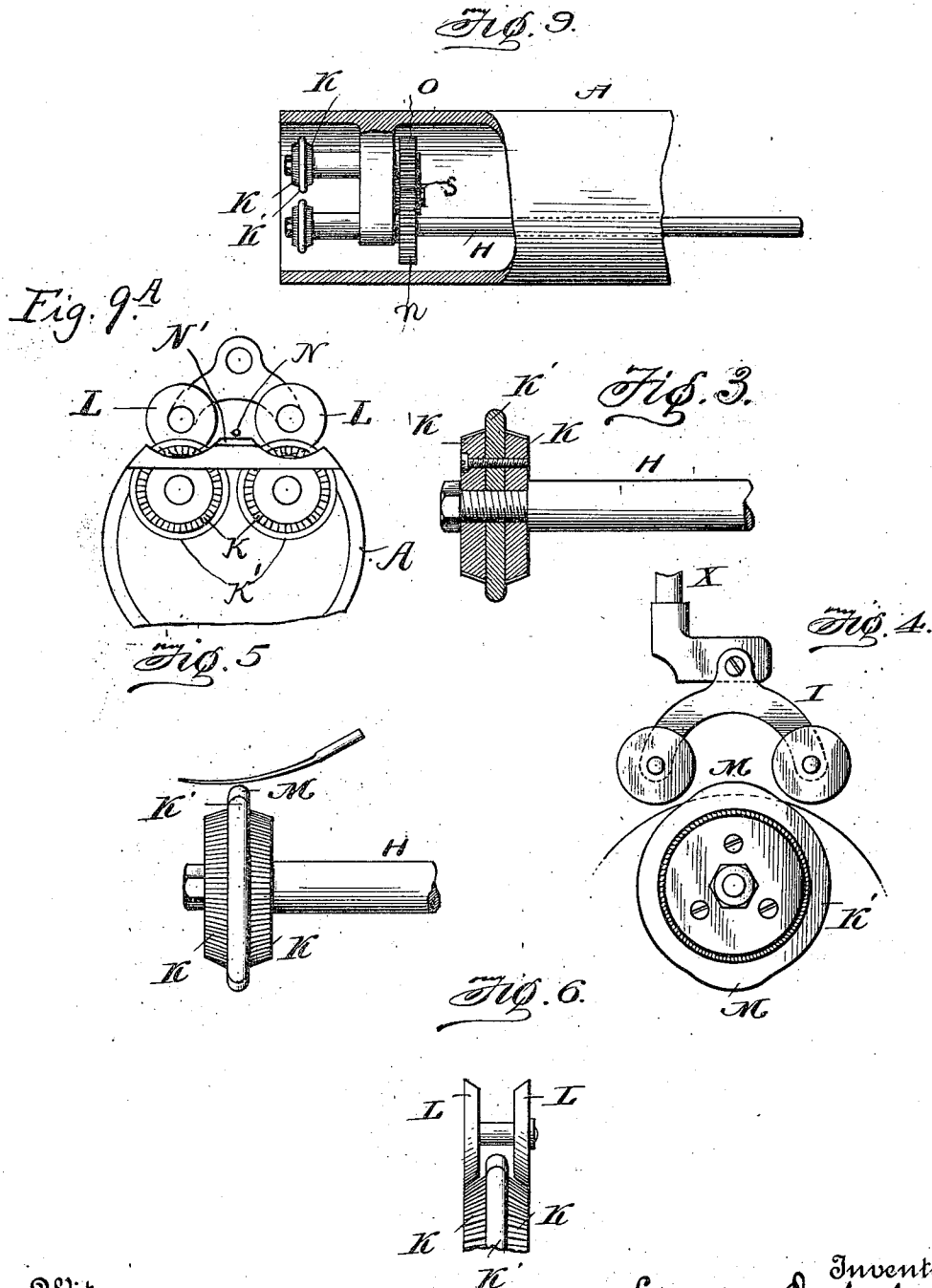
Inventor
L. Onderdonk
C. S. Stewart
 Attorneys

L. ONDERDONK.
 FEEDING MECHANISM FOR BLINDSTITCH SEWING MACHINES.
 APPLICATION FILED APR. 9, 1903.

982,219.

Patented Jan. 17, 1911.

4 SHEETS—SHEET 3.



Witnesses
Fenton St. Bell
Wm. C. Ashlee

Inventor
Laurens Onderdonk
 By *C. S. Stuart*
 Attorney

L. ONDERDONK.
FEEDING MECHANISM FOR BLINDSTITCH SEWING MACHINES.
APPLICATION FILED APR. 9, 1903.

982,219.

Patented Jan. 17, 1911.

4 SHEETS-SHEET 4.

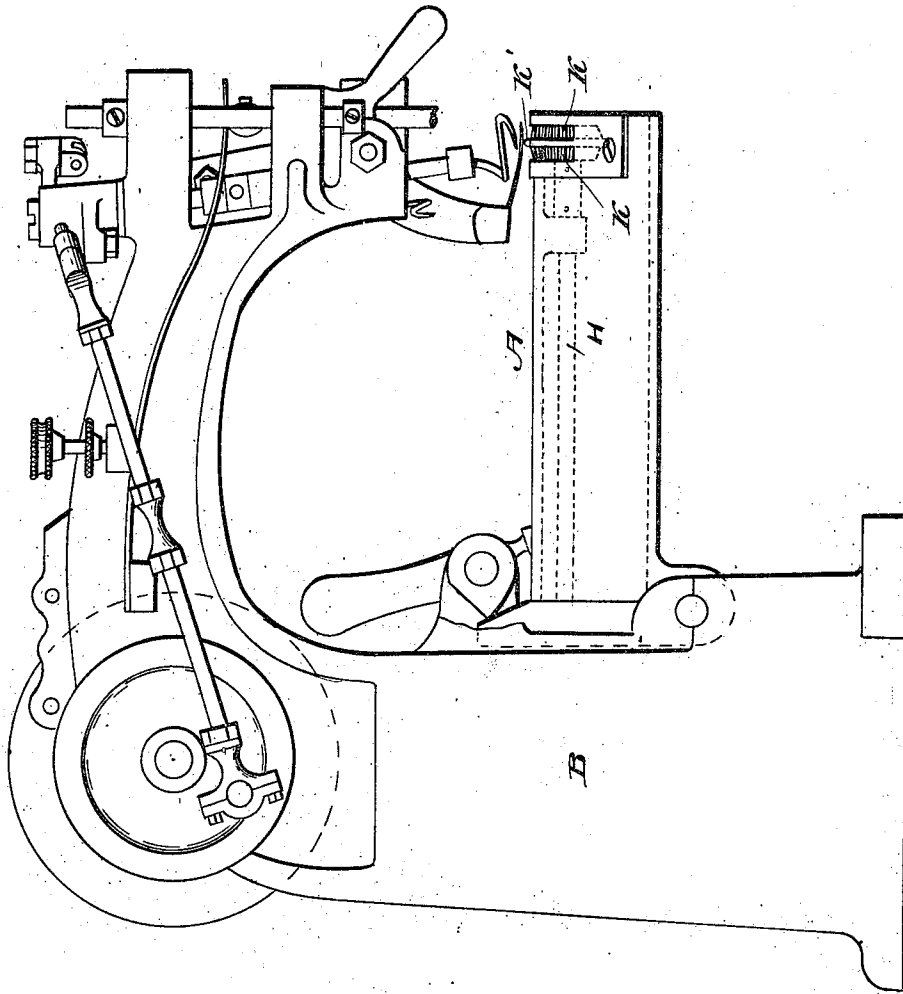


Fig. 10.

Witnesses
F. L. Ourand

[Signature]

Inventor
L. Onderdonk

By *[Signature]*
Attorney

UNITED STATES PATENT OFFICE.

LANSING ONDERDONK, OF NEW YORK, N. Y., ASSIGNOR TO UNION SPECIAL SEWING MACHINE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

FEEDING MECHANISM FOR BLINDSTITCH SEWING-MACHINES.

982,219.

Specification of Letters Patent. Patented Jan. 17, 1911.

Application filed April 9, 1903. Serial No. 151,788.

To all whom it may concern:

Be it known that I, LANSING ONDERDONK, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Feeding Mechanism for Blindstitch Sewing-Machines, of which the following is a description, reference being had to the accompanying drawing and to the letters and figures of reference marked thereon.

My invention relates to an improvement in feeding mechanism for sewing machines, and particularly to a wheel feed mechanism for a blind stitch sewing machine of the type set forth in various patents granted to me February 17, 1903, Nos. 721,077, *et seq.*

The invention consists in the various matters hereinafter described and referred to in the appended claims.

In the accompanying drawings which illustrate the invention, Figure 1 is a top plan view partly in section, of so much of a blind stitch sewing machine as is necessary to a complete understanding of the invention. Fig. 2, is a sectional rear end view of the same; Fig. 3, is a detail sectional view showing the construction of the wheel feed; Fig. 4, is a detail end view of the feed mechanism showing a modified construction of ridge forming ring; Fig. 5, is a side view of a portion of Fig. 4, illustrating the relation of the needle; Fig. 6, is a side view of Fig. 4; Figs. 7 and 8 are respectively side and end views of the wheel feed mechanism and presser foot; Fig. 9 is a sectional plan view of a modification of a feeding mechanism. Fig. 9^a is an end view, showing the two feed wheels and their relation to the presser rollers. Fig. 10 is a rear elevation of a blind stitch sewing machine, embodying the invention.

In these drawings, A represents the cylindrical work support, which is hinged at its rear end to the standard B and adapted to be raised and lowered by means of the lever C, to allow of the removal and insertion of the work.

D represents the driving shaft of the machine, to which power is applied by a belt, of the belt wheel E. Projecting from this main shaft is an eccentric connecting rod *i* which at its lower end is secured by a ball and socket connection to the horizontal lever *l*. The lever *l* is fixed at its outer end to

the shaft *m*, journaled in bearings in lugs on the front of the machine standard, and is provided at its forward end with a curved, slotted cross-head, in which is fitted the head of a bolt. On this bolt is a ball sleeve, held firmly in place by a nut and washer. Around the ball sleeve is clamped one end of the connecting lever *s*, the opposite end of which has a ball and socket connection with a bell crank or similar lever F, one arm of which *a*, carries a pawl adapted to mesh with a ratchet wheel G, fixed to the feed shaft H. Bell crank lever F is fulcrumed or pivoted on the end of the shaft H and as the main shaft rotates, an intermittent rotary motion will be imparted to the shaft H.

It will be understood that instead of the pawl and ratchet clutch, a friction clutch may be used, and whether one or the other is used, a friction spring *b*, as shown in Fig. 2, would have to be used to overcome the back action of the pawl or clutch, and the inertia of the shaft H.

The feed shaft H carries, at its outer end, the wheel feed mechanism, one form of this being shown in detail in Fig. 3. It is made up of three parts K, K, being the rotating feed wheels, and K' being a ring larger in diameter than the feeding parts and having a smooth, rounded, beveled periphery, and acts as a ridge or rib, over which the goods are crimped to enable the needle to take a proper bite therein. This part is clamped between the feed dogs K. The three parts are firmly fastened to the feed shaft H. It will be seen, therefore, that in the oscillation of the driving shaft D, motion is transmitted to the parts of the feed wheel, which project up through the work support and by coöperation with a suitable presser foot, the goods are crimped and the feed takes place. The presser foot is preferably of the construction shown in Figs. 4, 6, 7 and 8, that is, it embodies a rocking frame I pivoted to the presser bar X, each arm of the frame I carrying two rollers L which are beveled to conform to the periphery of the feed dogs K, and which have a space between them, which coöperates with the ridge forming ring K', to crimp the goods. This form of roller presser is of special advantage in a machine of this construction for various reasons, some of which are, that both rollers resting on the same feed, one forward the

other back of the line of needle travel, they hold the material to be sewed down, and with proper pressure upon them, sufficiently firm for the needle to puncture the material without the material or edges to be sewed or overcast, getting out of place, at the same time making a good opening in which the needle and looper may operate and for the operator to see and guide the work. This arrangement will also hold the material taut, so that when the needle moves back, it will cast a proper loop for the looper to enter, it being understood that if the material sewed would not hold firmly or taut, when the needle receded, the cloth moving with it, would prevent the casting of the loop from the needle. The purpose of pivoting the roller supporting frame I, is to permit either roller to ride over a seam or bunch, without lifting the other off of the work.

As shown in Figs. 4, 5 and 6, the ridge forming ring, is provided at intervals with projections M, whereby, as for instance, in the sewing of a hat sweat to hats with the reed and covering, at intervals the goods may be crimped more than at other times and thus a stitch is taken into the body of the hat at such intervals.

In Fig. 9, is shown a modification of my invention, in which two roller feeds, arranged on shafts, side by side, are used, the one in the rear being operated from the other by gears *n o* and *s*, thus providing a separate wheel feed for each set of rollers of the presser foot. The gear *s* is used so that the feed wheels will move in the same direction. As shown in said Fig. 9, the rear shaft is preferably made to travel faster than the forward one, which arrangement acts to keep the material between the front and the rear rollers taut. The work support A is provided with the usual crimping rib N', when the two roller feeds are used, and the needle N passes through the material supported on said rib, to make the blind stitch in the well known manner. This same result might be secured by a difference in size of the feed wheels, running them at the same speed. Should it be desirable to full the material being sewed, then the front feed wheel should be made to travel faster than the other.

Various minor modifications and changes may be made without departing from the spirit of my invention.

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

1. In a sewing machine having a work support, with means for raising and lowering it to allow of the insertion and removal of the work, a feeding device carried thereby, and comprising rotating feed wheels adapted to project above the work support,

and a ridge forming ring located between the feed wheels and rotating therewith, and means for rotating said feed wheels, comprising a shaft extending lengthwise of the work support and means for intermittently rotating said shaft, comprising a driving shaft, a ratchet wheel fixed to the feed shaft, a bell crank lever fulcrumed thereon, one arm carrying a pawl, engaging the ratchet and connections between the driving shaft and the bell crank lever; substantially as described.

2. In a sewing machine having a work support, with means for raising and lowering it to allow of the insertion and removal of the work, a feeding device carried thereby, and comprising rotating feed wheels adapted to project above the work support, and a ridge forming ring located between the feed wheels and rotating therewith, and means for rotating said feed wheels, comprising a shaft extending lengthwise of the work support and means for intermittently rotating said shaft, comprising a driving shaft, a ratchet wheel fixed to the feed shaft, a bell crank lever fulcrumed thereon, one arm carrying a pawl, engaging the ratchet and connections between the driving shaft and the bell crank lever, said connections including an eccentric connecting rod, a horizontal lever attached thereto, and pivoted to a rock shaft on the machine standard, and a connecting rod having an adjustable connection with said rock shaft and connected at its inner end with the bell crank lever; substantially as described.

3. In a sewing machine having a work support extending horizontally from the standard and having its free end located beneath the needle and looper mechanism, means for raising and lowering said work support, a feed shaft, extending lengthwise of said work support, annular feeding devices carried on the outer end of said shaft, and a ridge forming ring between said feeding devices and moving therewith, and having projections at intervals on its periphery; substantially as described.

4. In a sewing machine having a work support extending horizontally from the standard and having its free end located beneath the needle and looper mechanism, means for raising and lowering said work support, a feed shaft, extending lengthwise of said work support, annular feeding devices carried on the outer end of said shaft, and a ridge forming ring between said feeding devices and moving therewith, and a presser foot having rollers bearing upon the feed wheels upon opposite sides of the ring; substantially as described.

5. In a sewing machine having a work support extending horizontally from the standard and having its free end located beneath the needle and looper mechanism,

means for raising and lowering said work support, a feed shaft, extending lengthwise of said work support, annular feeding devices carried on the outer end of said shaft, 5 and a ridge forming ring between said feeding devices and moving therewith, and a pressing device comprising a pivoted frame having sets of rollers in front and in rear of the needle and looper, each set being composed of two rollers bearing upon the feed 10 wheels upon opposite sides of the ring; substantially as described.

6. In a sewing machine having a work support, a feeding mechanism carried thereby and projecting above said work support, 15 said feeding mechanism including two beveled wheels having serrations thereon, a ring secured thereto, and located between them and having a rib projecting above the feed 20 wheels, means for giving said feed wheels a movement relative to said work support for moving the material on said work support and a complementary pressing device; substantially as described.

25 7. In a sewing machine having a work support, a feeding mechanism including two feeding wheels, one in front and one in rear of the stitch forming mechanism, each feeding wheel including a ridge forming ring 30 and stitch forming mechanism including a needle intersecting a plane containing said ridge forming rings.

8. In a sewing machine having a work support, a crimping rib, a needle moving 35 across said rib and a feeding mechanism including two feeding wheels one in front and one in rear of said needle and means for operating said feeding wheels.

9. In a sewing machine having a work 40 support, a feeding mechanism including two sets of feeding wheels, one in front and one in rear of the stitch forming mechanism, each set including a ridge forming ring and stitch forming mechanism including a needle

intersecting a plane containing said ridge 45 forming rings; substantially as described.

10. In a sewing machine having a work support, a feeding mechanism including two sets of feeding wheels, one in front and one 50 in rear of the stitch forming mechanism, each set including a ridge forming ring, and pressing devices cooperating with each set and stitch forming mechanism including a needle intersecting a plane containing said 55 ridge forming rings; substantially as described.

11. In a sewing machine having a work support, a feeding mechanism including two sets of feeding wheels, one in front and one 60 in rear of the stitch forming mechanism, each set including a ridge forming ring, and means for rotating the sets at varying rates of speed and stitch forming mechanism including a needle intersecting a plane containing said ridge forming rings; substan- 65 tially as described.

12. In a sewing machine having a normally stationary work support, with means for raising and lowering it, a feeding mechanism carried thereby and projecting above 70 said work support, and including a beveled rotating feeding ring having serrations thereon and a ridge forming ring secured thereto, the latter projecting above the surface of the annular feeding ring and a 75 needle and looper arranged above the work support, with a pressing device bearing upon the annular feeding ring, provided with a space to allow the ridge forming ring to project for the purpose of crimping the 80 goods; substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses.

LANSING ONDERDONK.

Witnesses:

F. A. NORTH,
W. L. SWIFT.