

L. ONDERDONK.
THREAD CONTROLLER FOR SEWING MACHINES.
APPLICATION FILED JAN. 23, 1905.

993,191.

Patented May 23, 1911.

3 SHEETS-SHEET 1.

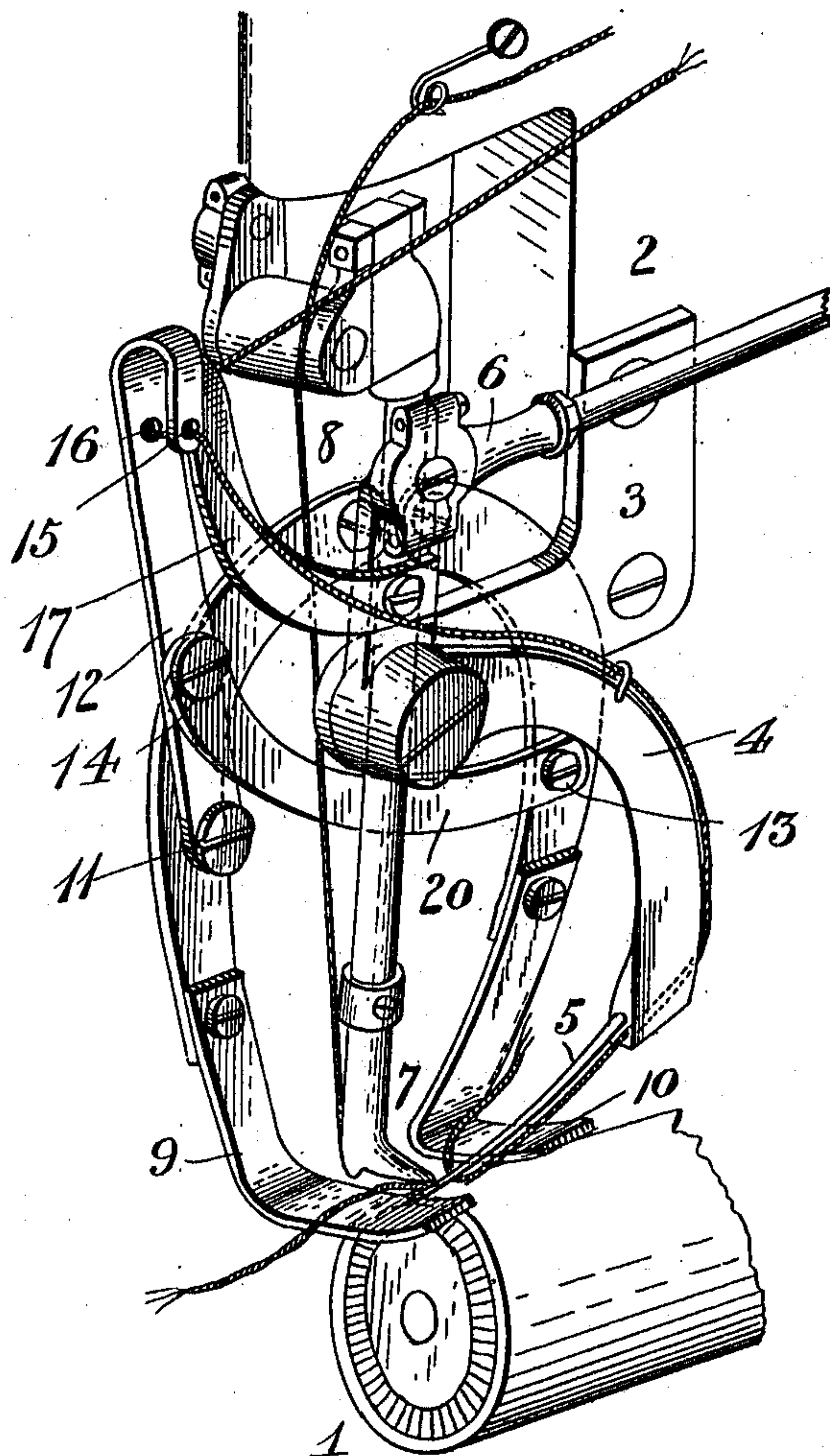


Fig. 1.

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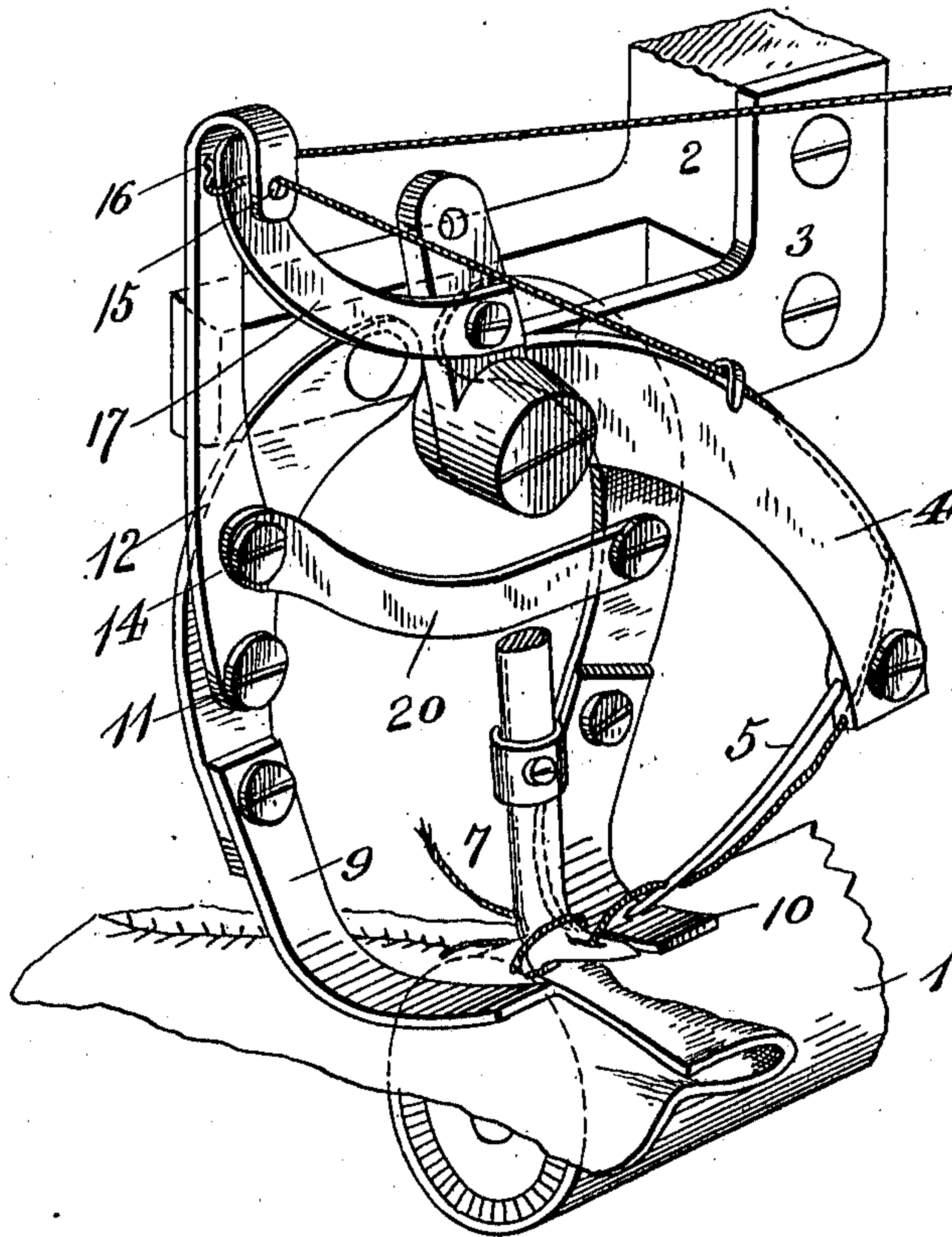


Fig. 2.

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3 SHEETS--SHEET 3.



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UNITED STATES PATENT OFFICE.

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

THREAD-CONTROLLER FOR SEWING-MACHINES.

993,191.

Specification of Letters Patent.

Patented May 23, 1911.

Application filed January 23, 1905. Serial No. 242,372.

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 Thread-Controllers for 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 thread controllers for sewing machines wherein the supply of thread is regulated to accord with varying thicknesses of fabric being sewed.

My invention consists in a means operated directly by the needle bar for pulling thread from the supply and setting the stitch in the type of machines in connection with which my invention is illustrated.

My invention consists further in a thread guiding arm and the means for controlling the position of the same relative to the pull off arm.

My invention consists further in the arrangement of parts and improvements set forth in the description and defined in the claims.

Figure 1 is a perspective view of a portion of the head of a sewing machine embodying my invention; Fig. 2 is a similar view with the needle retracted and the non-essential parts omitted. Fig. 3 is a front plan view of the forward end of a sewing machine embodying my invention.

In the embodiment of my invention as disclosed, the improvement is shown applied to a blind stitching machine of the type shown in my pending application Serial Number 222,612, filed August 29th, 1904. Said machine consists of a bed plate 1, an overhanging arm 2, a bracket 3 carried by said arm, a needle lever 4 pivoted to said bracket, a needle 5 carried thereby, a link 6 for operating said lever, a looper 7, a rock arm 8 supporting the same, a pivoted presser foot 9 bearing on the fabric on one side of the seam and a pivoted presser foot 10 bearing on the fabric on the other side of the seam. All of these parts are constructed and operated as fully set forth in the above referred to application and will not need further description at this time.

Pivoted to the presser foot 9 at 11 is a thread guiding arm 12; said arm is bent

upon itself at its upper or free end and spaced to form an inverted U-shaped member. In the outer end of said member is a thread eye 15 and in the body of the arm is a corresponding thread eye 16. Pivoted to the presser foot 10 at 13 is a link 20 which is pivoted at its opposite end to the thread guiding arm at 14. The pivot 14 is located about one third the distance between the pivot 11 and the guide eyes 15—16. Rigidly secured to the needle lever 4, preferably above the pivot thereof, is an arm 17. Said arm is curved upwardly and has its free end extending into the U-shaped end of the thread guiding arm. The needle thread is led from the supply through the usual guides to the guide eye 16 and thence to the guide eye 15 and thence through the usual guides on the needle lever to the needle. As the needle lever swings the arm 17 comes in contact with the thread between the eyes 15 and 16 and a continued movement of said arm sets the stitch by a pull on the thread and after the stitch is set a continued movement of said arm draws thread from the supply through the usual tension.

It will be noted that the throw of the needle lever is constant and therefore, the arm 17 moves a predetermined distance to the left of a vertical line passed through the axis of the needle lever.

The action of the thread guiding arm as influenced by the presser feet will now be described.

Supposing first, the position of the foot 10 remain as fixed and the foot 9 be moved outward by an increase in the thickness of the fabric on left of the seam. This movement of the foot 9 will turn the guiding arm 12 about 14 as a pivot moving the free end of said arm to the right and nearer a vertical line passing through the axis of the needle lever. Consequently the arm 17 engages the thread at an earlier time and, as its throw is constant, more thread will be pulled through the tension, and the demand for additional thread in the stitch owing to the increased thickness be accurately met. On the other hand suppose the foot 9 remain as fixed and the foot 10 be moved outward by an increase in thickness of material under the same. The arm 12 will now be turned by the link 20 about the pivot 11 as a fulcrum and the free end again moved toward a vertical

line through the axis of the needle lever and more thread drawn from the supply. If, however, both presser feet move outward at the same time, then the pivot 11 moves outward or to the left while the pivot 14 moves to the right and the movements above referred to are added to each other. It is very evident that a movement of the presser feet inwardly or toward each other will have the opposite effect, that is, less thread will be supplied the needle.

By the above arrangement of parts the thread for the needle is kept under constant control and the exact amount needed for varying thickness whether on one side or the other of the seam or on both sides is furnished to said needle. This enables the movement of the parts to be adjusted to a nicety, so that sufficient thread may be given the needle to enable the same to pass through the material being sewed to its extreme point without straining the thread in the eye of the needle at the same time not allowing the needle so much thread as to cause a loose stitch.

It is obvious that many changes in the form and proportion of parts may be made without departing from the spirit of my invention as set forth in the description and defined in the claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States, is:—

1. The combination of stitch-forming mechanism, a plurality of independent work-engaging members, and a thread controller connected to each of said work-engaging members, so that the supply of thread may be varied according to the combined thickness of the goods passing under both of said work-engaging members.

2. The combination with a pivoted needle lever, means for operating the same, a needle carried at one end of said lever, of a thread engaging arm carried at the opposite end of said lever and a pivoted cooperating thread guiding arm having its free end bent up on itself, and provided with thread eyes.

3. The combination of stitch forming mechanism, including a pivoted needle lever, a needle carried thereby, means for operating the lever, a thread engaging arm carried by the lever, a thread guiding arm cooperating therewith, a plurality of work engaging members, and means for automatically adjusting the thread guiding arm according to the combined thickness of the material in contact with each of the work engaging members.

4. The combination with a thread-engaging arm, means for operating the same, of a cooperating thread-guiding arm, presser foot mechanism including a plurality of independently operable presser feet, and mechanism for controlling the position of

said arm by movements of either of said presser feet.

5. The combination with a thread engaging arm, means for operating the same, of a thread guiding arm, a presser foot mechanism, including a plurality of presser feet and mechanism for independently controlling the position of said guiding arm from each of said presser feet.

6. The combination with a thread engaging arm, means for operating the same, of a thread guiding arm, a presser foot mechanism including a plurality of presser feet and mechanism whereby movements of one presser foot are communicated to said thread guiding arm and movements of said other presser foot are similarly and additionally communicated to said thread guiding arm.

7. In a blind stitching machine, the combination with a work support, a needle mechanism and a presser foot mechanism including two presser feet independently movable, of a thread controller comprising a thread engaging arm, means for operating the same, a thread guiding arm and means for independently controlling the positions of said guiding arm by varying the thickness of fabric under either presser foot.

8. In a blind stitching machine, the combination with a work support, a needle mechanism and a presser foot mechanism including two presser feet independently movable, of a thread controller comprising a thread engaging arm, means for operating the same, a thread guiding arm, pivotally connected to one of said presser feet, and operatively connected with said other presser foot whereby variations in the thickness of fabric under either foot will be communicated to said guiding arm.

9. In a blind stitching machine, the combination with a work support, a needle mechanism and a presser foot mechanism including two presser feet independently movable, of a thread controller comprising a thread engaging arm, means for operating the same, a thread guiding arm pivotally connected to one of said presser feet, a link pivoted to said other presser foot and connected to said thread guiding arm.

10. In a blind stitching machine, the combination with a work support, a needle mechanism, and a presser foot mechanism including two presser feet independently movable, said needle mechanism including a needle lever, of a thread controller comprising a thread engaging arm rigidly connected to said needle lever, a thread guiding arm operatively connected to each of said presser feet whereby variations in the thickness of the fabric under either foot will control the position of said guiding arm.

11. In a blind stitching machine, the combination with a work support, a needle mechanism and a presser foot mechanism

including two presser feet independently movable, said needle mechanism including a needle lever, of a thread controller comprising a thread engaging arm rigidly connected to said needle lever, a thread guiding arm pivoted to one of said presser feet and operatively connected to said other foot whereby variations in the thickness of the fabric under either foot will proportionally control the position of said guiding arm relative to the normal position of said thread-engaging arm.

12. In a blind stitch machine, the combination with a work support, a needle mechanism and a presser foot mechanism including two presser feet independently movable, said needle mechanism including a needle lever, of a thread controller comprising a thread engaging arm rigidly connected to said needle lever, a thread guiding arm pivoted to one of said presser feet, a link pivoted to said other foot and connected to said thread guiding arm.

13. In a sewing machine, suitable stitch forming mechanism, a plurality of independently movable presser feet, bearing surfaces resting upon the fabric to be stitched, a thread controlling device and connections between said controlling device and the presser foot bearing surfaces whereby a movement of either of said presser foot bearing surfaces will be communicated to said thread controlling device.

14. In a sewing machine, suitable stitch-forming mechanism, including a needle operating upon opposite sides of the center line of the seam, a presser foot having independently movable bearing surfaces resting on the fabric to be stitched, a thread controlling device, and connections between the bearing surface of the presser foot and the thread-controlling device whereby movement of either bearing surface will be communicated to the thread controlling device; substantially as described.

15. In a sewing machine, suitable stitch-forming mechanism, including a needle operating upon opposite sides of the center line of the seam, a plurality of independently movable presser feet resting upon the fabric to be stitched, a thread-controlling device acting upon the thread as the thickness of the material under the presser feet varies, and including a vibrating arm, and means to operate it and connections between the presser feet and the thread-controlling device whereby the movements of either presser foot is communicated to said thread controlling device; substantially as described.

16. A sewing machine including in combination, a thread controlling device, means for varying the action of said thread controlling device including independent members in contact with one surface of the mate-

rial and connections between said members and said thread controlling device whereby the variations in the thickness of the fabric passing under either of said members will cause variable movements in said thread controlling device to supply the proper amount of thread for the thickness of material operated upon.

17. A sewing machine including in combination a thread controlling device, means for varying the action of said thread controlling device including independent members in contact with one surface of the material, said members being located upon opposite sides of the center line of the seam being formed, and connections between said members and said thread controlling device whereby the variations in the thickness of the fabric passing under either of said members will cause variable movements in said thread controlling device to supply the proper amount of thread for the thickness of material operated upon.

18. In a sewing machine, a work support for the fabric comprising a ridge over which the goods are crimped, a thread controlling device operating as the thickness of the fabric on the work support varies, and a plurality of presser feet in contact with the fabric, and connected with said thread controlling device to operate it.

19. In a sewing machine, a work support, a thread controlling device operated as the thickness of the fabric on the work support varies, a plurality of presser feet in contact with one face of the fabric, connections between the presser feet and the thread controlling device for operating it, to provide a greater or less amount of slack thread.

20. In a sewing machine, a work support comprising a ridge over which the goods are crimped, a thread controlling device operating as the thickness of the material on the work support varies, a plurality of pivoted presser feet in contact with one face of the fabric, and connections between the pivoted presser feet and the thread controlling device for operating it to provide a greater or less amount of slack thread.

21. In a blind stitch sewing machine, a work support provided with a ridge over which the goods are crimped, a thread controlling device operating as the thickness of the fabric on the work support varies, a pivoted presser foot in contact with one face of the fabric, connections between the pivoted presser foot and the thread controlling device, for operating it to provide a greater or less amount of slack thread, said connections being movable in a plane at right angles to said crimping ridge.

22. The combination of a work support, a ridge forming rib carried thereby, a needle moving back and forth across the ridge forming rib, a presser foot mechanism for

holding the material on said ridge forming
rib, thread guides, a thread engaging arm
coöperating with said thread guides, and
means for moving said thread guides when
5 said presser foot mechanism and said work
support are moved relative to each other,
whereby the amount of thread taken up by
said thread engaging arm is varied accord-
ing to the thickness of the material between

said work support and the presser foot 10
mechanism.

In testimony whereof I affix my signa-
ture, in presence of two witnesses.

LANSING ONDERDONK.

Witnesses:

W. H. BOYER,

JOHN H. HOWELL, Jr.

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