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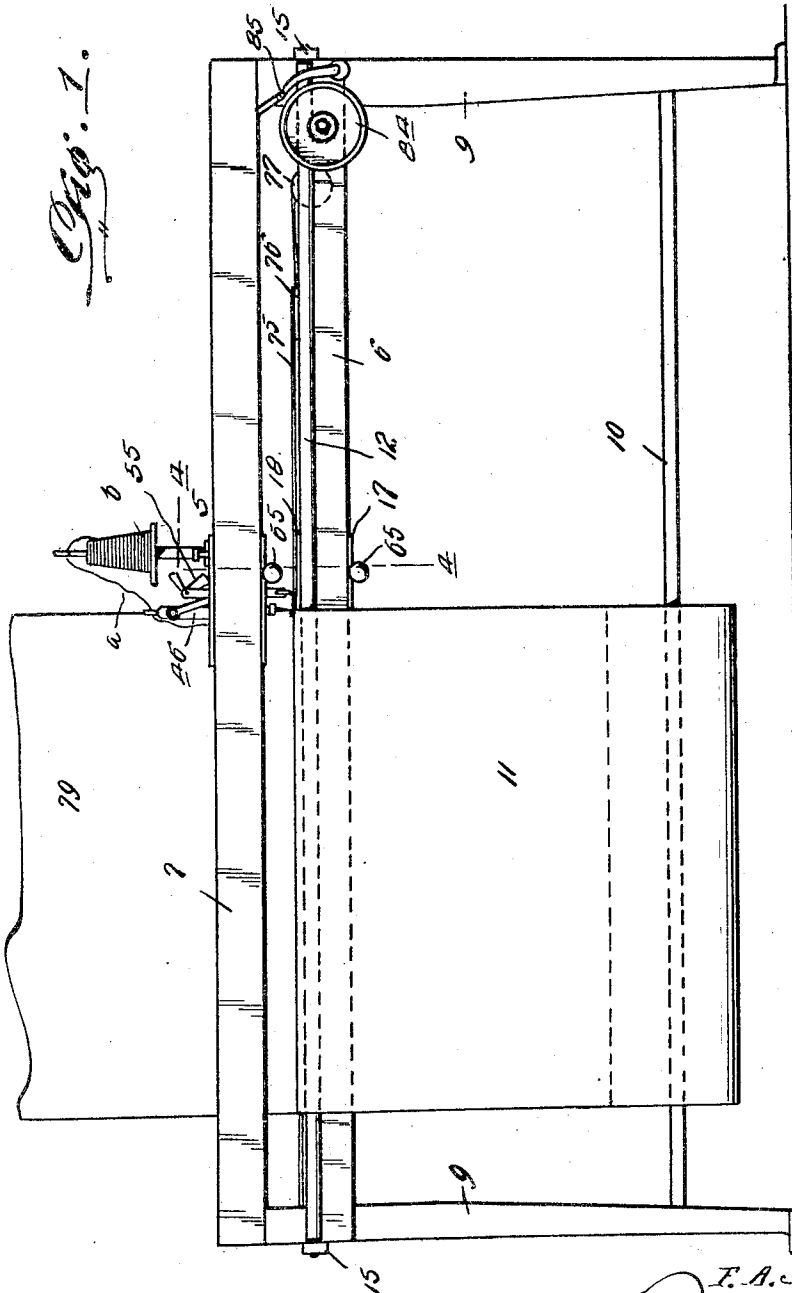
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F. A. SIEVERS

SEWING MACHINE

Filed April 28 . 1923

5 Sheets-Sheet 1



WITNESSES

H. L. Forgy
H. Berman

F. A. Sievers.
INVENTOR.

BY *Harmon C. Robinson*
ATTORNEYS.

Aug. 26, 1924.

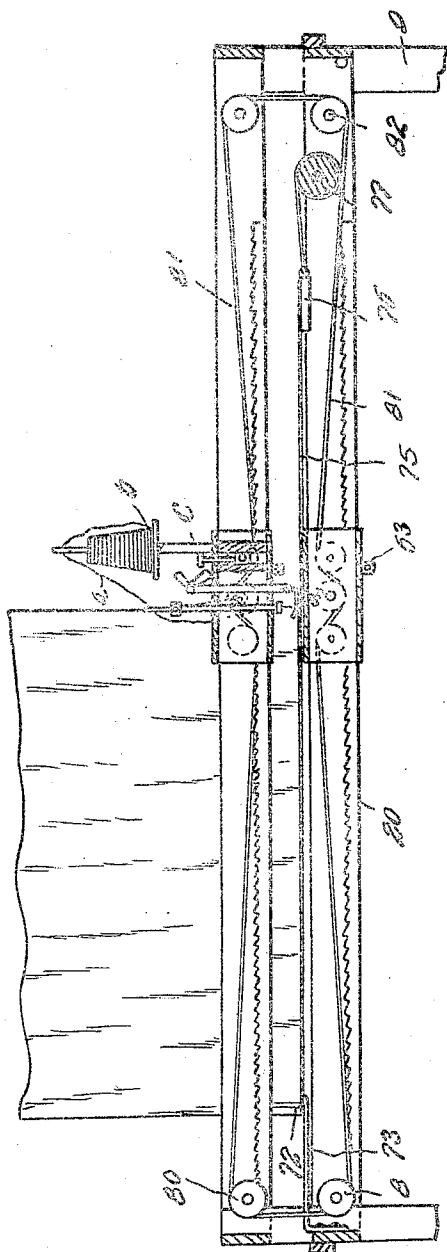
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F. A. SIEVERS

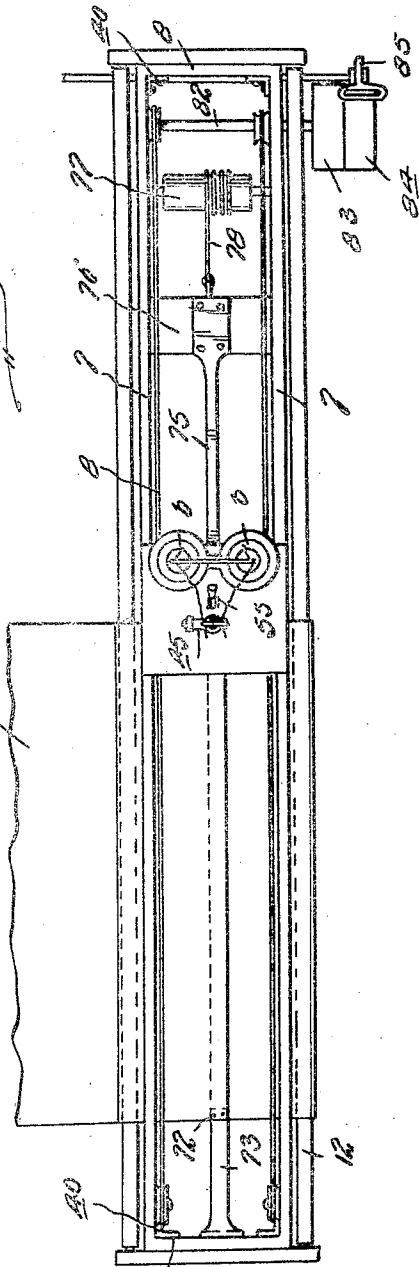
SEWING MACHINE

Filed April 28, 1923

5 Sheets-Sheet 2



Chas. B.



WITNESSES

J. L. Fox
H. Berman

Chas. B.

F. A. Sievers
INVENTOR.
BY *Arthur C. B. B.*
ATTORNEYS.

Aug. 26, 1924.

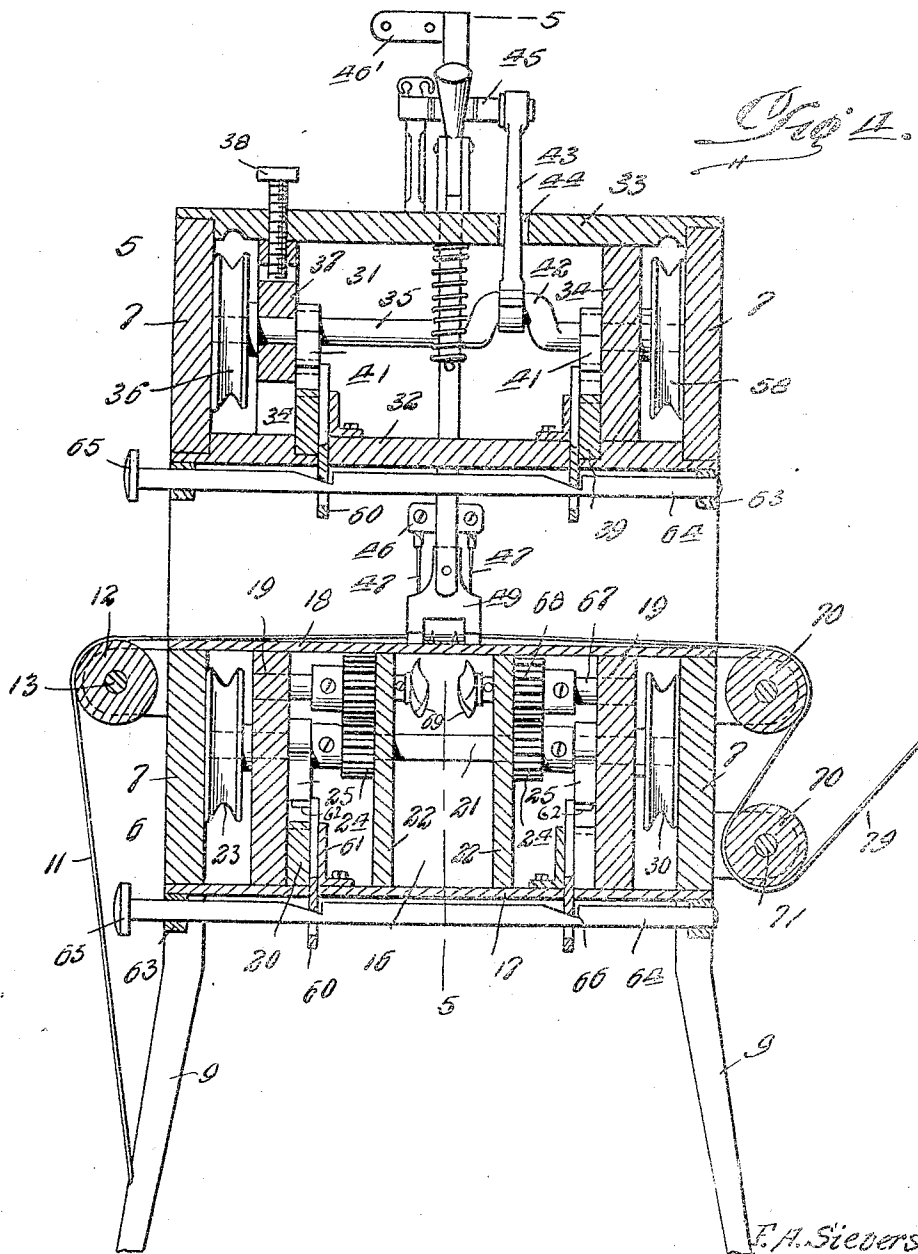
F. A. SIEVERS

1,506,261

SEWING MACHINE

Filed April 28, 1923

5 Sheets-Sheet 3



WITNESSES

J. L. Fox,
H. Berman

INVENTOR.

BY *Marion C. B. B.*
ATTORNEYS.

Aug. 26, 1924.

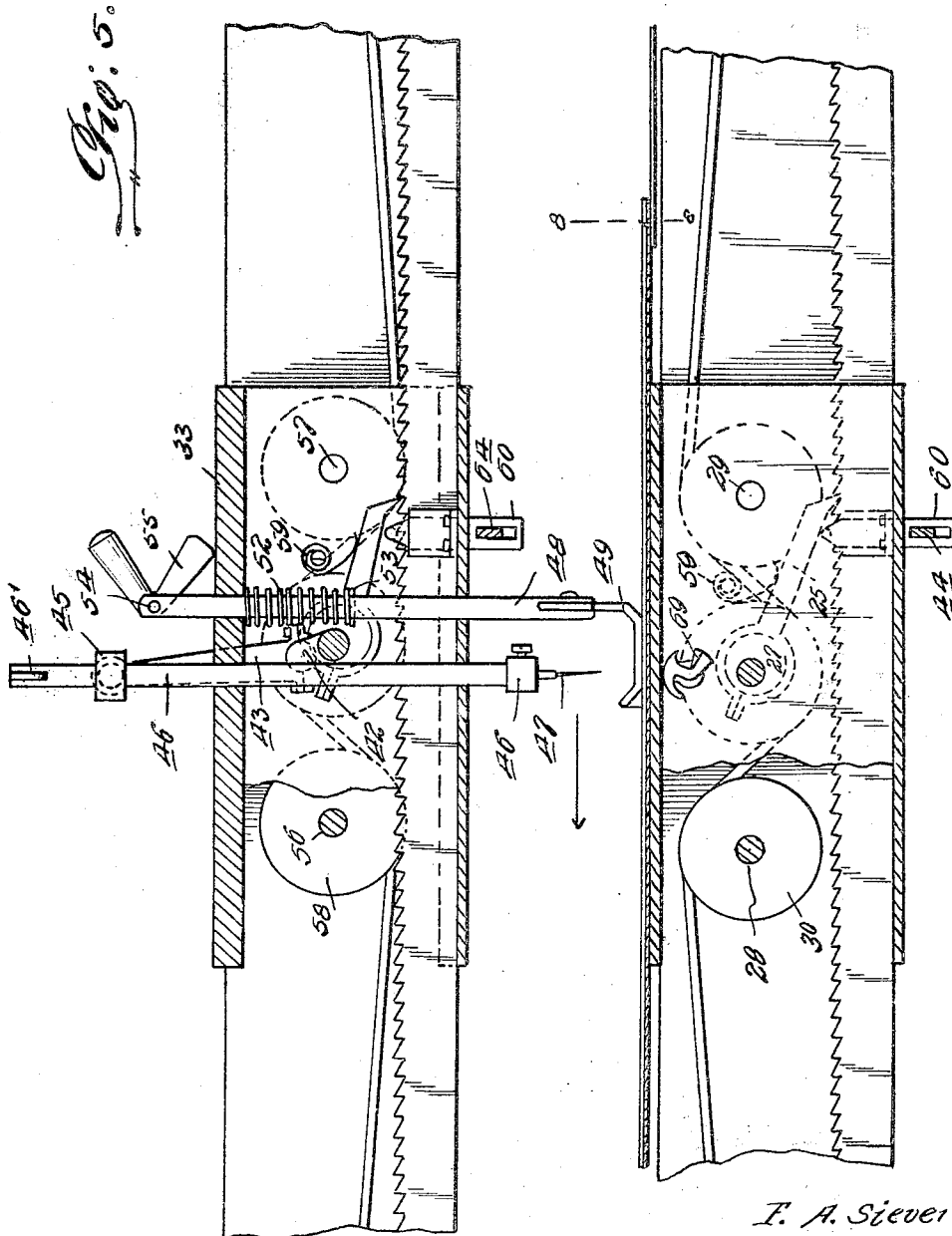
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F. A. SIEVERS

SEWING MACHINE

Filed April 28, 1923

5 Sheets-Sheet 4



F. A. Sievers.

INVENTOR.

WITNESSES

J. L. Mc...
H. Berman

BY *Charles C. B...*
ATTORNEYS.

Aug. 26, 1924.

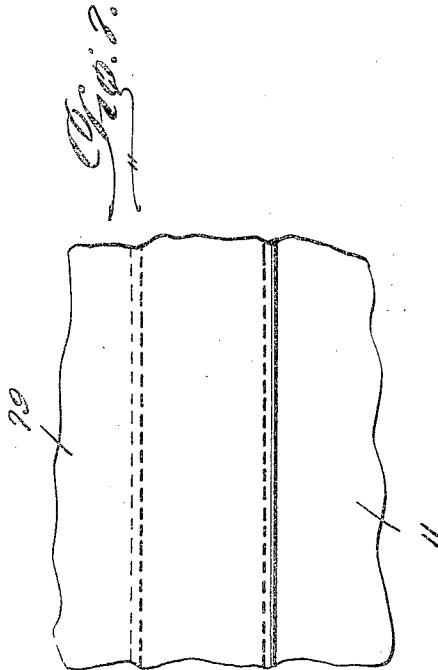
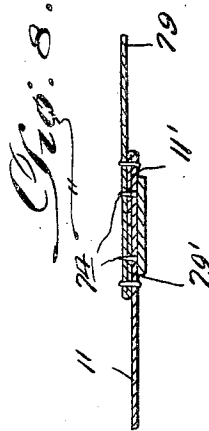
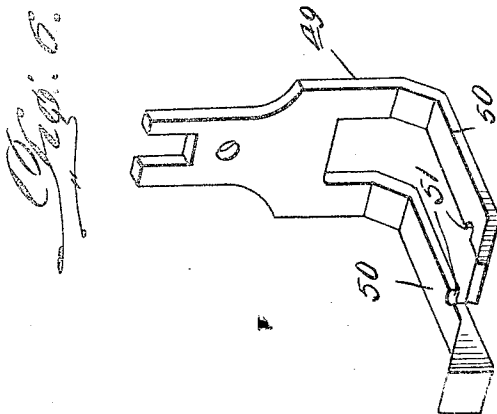
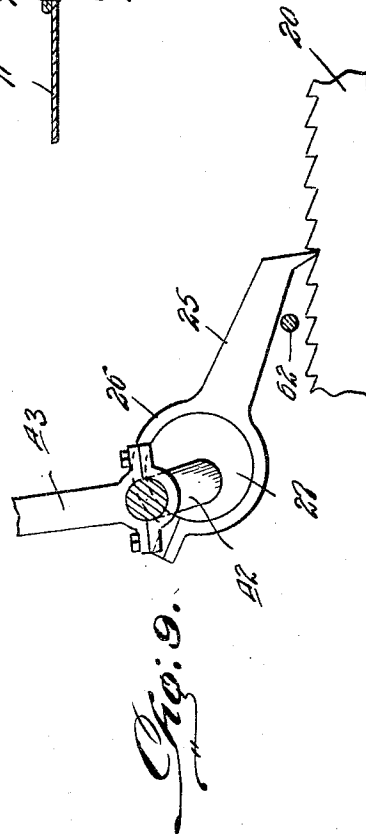
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F. A. SIEVERS

SEWING MACHINE

Filed April 28, 1923

5 Sheets-Sheet 5



WITNESSES

H. L. Fox,
H. Berma

F. A. Sievers,

INVENTOR.

BY *Marion C. Quinn*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

FREDERICK A. SIEVERS, OF ATLANTA, GEORGIA.

SEWING MACHINE.

Application filed April 23, 1923. Serial No. 635,182.

To all whom it may concern:

Be it known that I, FREDERICK A. SIEVERS, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented certain new and useful Improvements in Sewing Machines, of which the following is a specification.

My invention relates to an improvement in sewing machines and has for its primary object the provision of such a machine, that is specifically adapted for stitching the ends of rolls of fabric together in such a manner as to considerably lessen the liability of the same breaking apart.

A further object of the invention resides in the provision of such a machine wherein the ends of rolls of fabric are stitched together at two spaced points which will obviously double the strength of the securing means between the ends of the rolls of fabric, it being now the general case to attach these ends together by a single row of stitching.

A still further object of the invention is the provision of such a sewing machine that is comparatively simple of construction and one that will embrace at the same time the desired features of efficiency and durability and that may be manufactured and marketed at relatively small cost, comparatively speaking.

The nature and advantages of the invention will be better understood when the following detailed description is read in connection with the accompanying drawings, the invention residing in the construction, combination and arrangement of parts as claimed.

In the drawings forming part of this application, like numerals of reference indicate similar parts in the several views, and wherein:—

Figure 1 is a side elevation of my improved machine.

Figure 2 is a top plan view thereof.

Figure 3 is a vertical longitudinal cross-sectional view through the upper end of the machine.

Figure 4 is an enlarged detail cross-section taken substantially upon the line 4—4 of Figure 1.

Figure 5 is an enlarged fragmentary longitudinal cross-section taken upon the line 5—5 of Figure 4.

Figure 6 is a perspective of the presser

foot employed as an element of my machine.

Figure 7 is a fragmentary plan of the stitched ends of a pair of fabric rolls.

Figure 8 is a detail cross-section upon the line 8—8 of Figure 5, for more adequately adjusting the particular form of stitch between the ends of said rolls of cloth, and

Figure 9 is an enlarged fragmentary cross-section through a portion of the machine showing in side elevation one of the feed pawls comprised in the present invention.

Referring to the drawings in detail, my machine comprises upper and lower guide frames designated generally 5 and 6, respectively. Each of these guide frames comprises spaced parallel bars 7, and end connecting bars 8, the said frames 5 and 6 being supported at their opposite ends on the upper ends of standards 9 which are in the form of supporting legs.

Between alined supporting legs at the front side of the machine is a shaft 10 upon which is adapted for positioning a roll of cloth 11 the same adapted to be extended upwardly and passed over a roller 12 upon a shaft 13 which is positioned at its opposite ends within openings formed in forwardly projecting ears 15 upon the opposite ends of the machine and adjacent the upper edge of the front bar comprising the lower guide frame 6.

Freely slidable between the parallel bars 7 of the lower guide frame 6 is a casing designated generally 16, the same embodying a bottom plate 17, top plate 18 and side walls 19 spaced slightly inwardly of the opposite edges of said bottom and top plates 17 and 18, respectively, it being noted from a consideration of Figure 4, that the marginal edges of said plates 17 and 18 have close contact with the top and bottom surfaces of the parallel bars 7 of the guide frame 6.

Extending through this casing 16 are rack bars 20 inwardly of said side walls 19 and in sliding contact with the said bottom wall 17. Journalled within alined openings in the side walls 19 is a cross shaft 21 the same also extending through openings in a pair of central spaced partition plates 22. The ends of this shaft 21 extend outwardly from the side walls 19 and are equipped with cable pulleys 23. Keyed upon said shaft 21

and directly outwardly of said partitions 22 are spur gears 24. While eccentrically mounted upon said shaft and between said gears 24 and side walls 19 are feed pawls 25 which as more clearly shown in Figure 9 are formed at their shaft ends with round open heads 26. The said shaft 21 carries disks 27 that are within said open heads and rotate with the shaft for consequently moving the pawls rearwardly and then forwardly during the rotation of the shaft which pawls will co-act the said rack bars 20 in such a manner as to feed said casing 16 forwardly when the machine is being operated. At opposite sides of said shaft 21 and journaled within openings in the side walls 19 and partitions 22 in a manner similar to the shaft 21 are front and rear shafts 28 and 29, respectively, the opposite ends thereof being equipped with cable pulleys 30 mounted between the side walls and the parallel bars 7.

Immediately above the said casing 16 and slidable between the parallel bars 7 of the upper guide frame 5 is a casing designated generally 31 the same embodying a bottom wall 32, top wall 33 and side walls 34, these side walls being also spaced inwardly in the walls 32 and 33 and having their marginal edges mortised for receiving said parallel bar 7 of said guide frame. Journaled within the side walls 34 of this casing is a cross-shaft 35 the ends of which project outwardly of said side walls and are equipped with cable pulleys 36. It is preferably, for purposes hereinafter described, that one end of said shaft 35 is journaled within a movable bearing block 37 that slides within an opening in the adjacent side wall 34, the said block being movable within the slot through the medium of a screw 38. The bottom wall 32 has its inner face channelled adjacent opposite edges for receiving stationary rack bars 39, it being now herein well to note that these rack bars 39 as well as the first mentioned rack bars 20 are rigidly secured at their opposite ends at 40 to the cross bars 8 of said guide frames 5 and 6. This shaft 35 also carries feed pawls 41 that are similar in all respects to the feed pawls 25 above described.

The shaft 35 is provided with a crank portion 42 to which is secured one end of a connecting rod 43 the same being directed upwardly through an opening 44 in said top wall 33 which is, in turn, connected at its upper end through the medium of a laterally extending arm 45 to the upper end of a needle bar 46. As more clearly shown in Figure 5, this needle bar 46 has free vertical movement through alined openings in the top and bottom walls 33 and 32, respectively of said casing, the lower end of the same being equipped with a needle bar 46, which carries pendent needles 47.

The upper end of this needle bar 46 is equipped with a thread bar 46' provided with a pair of spaced openings and adapted for receiving therethrough a thread *a* from a pair of spools *b* that are positioned upon posts *c* of the top wall 33 of the casing 31.

Immediately behind the needle bar 46 and vertically movable within alined openings to said top and bottom walls of the casing 31 is a presser bar 48 the lower end of the same detachably carrying a presser foot 49, the forwardly extending toes 50 of which are of such a distance apart as to permit the entrance therebetween of the pair of needles 47, the inner edges of these toes being notched at 51 adjacent their forward ends for this purpose. The presser bar 48 is normally forced downwardly for maintaining the presser foot 49 in engagement with the fabric upon the top wall of the casing 16 through the medium of an expansion spring 52 that surrounds said bar within the casing between a cross pin 53 that is carried by the bar and the inner face of said top wall 33. Pivoted at 54 to the projecting end of this bar is a bell crank 55 the lower bar of which is adapted for engagement with said wall 33 of the casing when the bell crank is swung downwardly upon its pivot for consequently raising said bar and said presser foot 49.

At opposite sides of the shaft 35 and journaled within openings of the side walls 37 of the casing 31 are front and rear shafts 56 and 57, respectively, upon the opposite ends of which are cable pulleys 58.

The feed pawls 25 and 41 of the casings 16 and 31, respectively, are normally forced downwardly into engagement with the teeth of the rack bars 20 and 39 through the medium of springs 59, Figure 5, and as a means for releasing these pawls from said rack bars for facilitating the rearward sliding movement of the casings 16 and 31 within the guide frames 6 and 5, respectively, there is provided within said casings vertically movable arms 60 that slide within brackets 61 inwardly of said rack bars. The upper ends of these arms 60 are provided with outwardly directed pins 62 that engage directly beneath said pawls whereby when the arms are raised the pawls will be consequently raised from the teeth rack bars. The bottom wall of each casing is provided adjacent its rear end and at opposite sides thereof with pendent ears 63 the same being provided with openings for receiving a cross rod 64 provided at one end with a head 65. Each of these rods 64 are provided with a pair of relatively elongated notches 66, the bottom edges of which are inclined as clearly shown in Figure 4, it being of course, understood that these rods are directed through openings within the lower ends of said arms 60 whereby a forward movement

of the rods within said ears 63 will consequently force the arms 60 upwardly for thereby disengaging said pawls from their corresponding rack bars.

5 Having further reference to the first mentioned casing 16 and as clearly set forth in Figure 4, there is provided within this casing a pair of stub shafts 67 that are journaled within openings of the side walls 19 and partitions 22. Each of these stub shafts is equipped with a spur gear 68 that intermeshes with the complementary spur gear 24 of the shaft 21 for consequently rotating said stub shafts 67.

15 The inner ends of these stub shafts are equipped with thread loopers 69, of conventional structure, the position of the same being in direct alinement with openings that are provided from the top wall 18 of the said casing 16 to permit of the passage of said needles 47 therethrough.

25 The rear side of the lowermost guide frame 6 is provided with a pair of spaced longitudinally extending rollers 70 that are upon shafts 71 and in actual practice the end of the cloth of the roll 11 is directed upwardly over the roll 12 and thence forwardly, the extreme end of this cloth 11 being turned over at 11' in Figure 8, one side of this cloth being secured upon vertical pins 72 upon one end of an arm 73 that is carried by the adjacent cross member 8 of said parallel bars 7 of the guide frame 6. The opposite side of this lapped over end of the cloth 11 is secured to vertical pins 74 upon one end of an arm 75, the opposite end thereof being secured to a cross head 76 that is slidable upon the top of the bars 7 of said guide frame. Journaled between the parallel bars of said guide frames and adjacent one end thereof is a cable roller 77 to which is secured one end of a cable 78 the opposite end of this cable being secured to said cross head 76 and it will at once be apparent that when said cable roller 77 is rotated in one direction the cable 78 will be wound thereon, consequently sliding said cross head 76 rearwardly for thereby stretching fabric.

50 The machine is adapted to be positioned adjacent a fabric winding machine and the free end of the cloth 79 that is upon this machine is extended beneath the lowermost roller 70 and thence upwardly over the upper roller 70, the fabric being, in turn, extended over the top wall of the casing 16 and having its edge lapped under at 79', the adjacent ends of the rolls of fabric being superimposed in a manner clearly shown in Figure 8, it being, of course, understood that the sides of this lapped over end of said cloth 79 is also engaged over the pins 72 and 74 of the arms 73 and 75, respectively.

65 As a means for moving the casings 16

and 31, simultaneously forwardly and for consequently actuating the needle bar 46 there is provided within the guide frames 5 and 6, and at opposite ends thereof stationary cable pulleys 80 trained around which are endless cables 81, the lower portions of which are trained over the pulleys 30 upon the ends of the shafts 28 and 29, as well as beneath the pulleys 23 of the central shaft 21. The upper portions of the said cables are trained beneath the pulleys 58 upon the ends of the shafts 56 and 57 and over the pulleys 36 of the central shaft 35 of the casing 31 whereby when the said cables are moved around the rollers 80 in one direction the members 16 and 31 will be moved forwardly. The pulleys 80 at one end of the guide frame 6 are mounted upon a cross shaft 82 one end of which projects outwardly of the frame and is equipped with a loose pulley 83 and a rigid pulley 84, the same adapted for receiving a belt from a suitable source of power, this belt being actuated by desirable form of belt shifter 85 for selectively moving said belt from the loose to the rigid pulley for consequently imparting motion to the machine.

In view of the above description it is believed by me that the nature and advantages of the machine of this character will be readily appreciated by those skilled in the art and even though I have herein shown and described my machine as comprised of certain specific structural elements, it is nevertheless to be understood that these elements may be modified from time to time to suit a certain demand without departing from the spirit and scope of the invention as claimed.

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

1. In a machine of the class described, a pair of spaced guide frames adapted for receiving the ends of fabric therebetween, independent members movable, one within each pair of guide frames, a needle bar movable within one of said members and carrying a pair of needles engageable through openings in the top of the other of said members, thread loopers within said last mentioned member, means carried by the guide frames for moving said members in said guide frames simultaneously and means for simultaneously actuating said needle bar and said thread loopers.

2. In a machine of the class described, a pair of guide frames, casings movable, one within each of said guide frames, a needle bar within one of said casings and carrying a pair of needles at its lower end adapted for engagement within openings in the other of said members, thread loopers within said last mentioned member, means for moving said members longitudinally within said

guide frames and means for simultaneously actuating said needle bar and said thread loopers.

3. In a machine of the class described, a pair of guide frames, casings movable within said guide frames, a needle bar within one of said casings and carrying a pair of needles at its lower end adapted for engagement within openings in the other of said members, thread loopers within said last mentioned member, means for moving said members longitudinally within said guide frames and means for simultaneously actuating said needle bar and said thread loopers, and means for holding the ends of lengths of fabric between said guide frames.

4. A machine for sewing cloth ends, including a pair of spaced parallel guide frames mounted at the end portions in a suitable supporting frame, a pair of casings, one casing movably mounted on each guide frame, cooperating parts of a stitching mechanism mounted on each casing, and means for moving said casings simultaneously on said guide frames and for operating said stitching mechanism adapted to stitch the ends of two pieces of cloth together held in overlapped relation between the guide frames and said casings.

5. A machine of the class described, including a supporting frame, a pair of spaced parallel guide frames carried by said frame and secured thereto at the ends, a pair of casings, each of said casings being mounted on one of said guide frames in a predetermined relation, cooperating parts of a stitching mechanism carried by said casings, means for moving said casings simultaneously on said guide frames and operating said stitching mechanism, and means for holding the overlapped ends of the fabric to be stitched between the guide frames and the casings, secured to the frame adjacent the ends of the guide frames.

6. A machine of the class described, including a pair of spaced parallel guide frames, supporting elements for said guide frames connected thereto at the ends, casings movably mounted on said guide frames, cooperating parts of a stitching mechanism mounted in each casing, means for operating in line with said guide frames for simultaneously moving the casings on the guide frames and operating the stitching mechanism, and means for supporting the overlapped transverse ends of the fabric strips in line with and between said parallel guide

frames and the casings movable thereon, the length of said fabric extending transversely with relation to the guide frames, whereby the stitching mechanism may be operated to unite the ends of said fabric strips mounted between the casings.

7. A machine of the class described, including spaced parallel guide frames, each formed of a pair of spaced bars connected at their ends, supporting elements connected to the ends of said guide frames for holding them in spaced parallel relation, a casing slidably mounted on and between the spaced bars of a guide frame, a cooperating part of a stitching mechanism carried by each of said casings, and inter-connection means positioned between the spaced bars of each guide frame for operation to move the casings in said guide frames simultaneously and for operating said stitching mechanism, whereby the transverse ends of the strips of cloth held between said guide frames, may be stitched together by said stitching mechanism through the cooperation of the parts thereof in the movement of the casings on said guide frames.

8. A machine of the class described, including a pair of spaced parallel guide frames, each formed of a pair of spaced bars connected at their end portions, supporting elements for said guide frames secured to the ends thereof for holding them in spaced relation, a pair of casings, one of said casings being mounted between the guide bars of each guide frame for movement thereon, a cooperating part of a stitching mechanism carried by each casing, ratchet bars carried by each guide frame and positioned between the bars thereof, a pawl mechanism mounted in each casing for cooperation with the ratchet bars to produce a movement of the casing on the spaced bars of the guide frame in the movement of the pawl mechanism, and means positioned between the spaced bars of each guide frame and inter-connected at the ends thereof operable for operating the pawl mechanism of each casing for moving said casings in a simultaneous predetermined relation on said guide frames, and also for operating said stitching mechanism to present a cooperation between the parts thereof to stitch the overlapped ends of two lengths of cloth extending transversely to the guide frames between said frames and casings.

In testimony whereof I affix my signature.
FREDERICK A. SIEVERS.