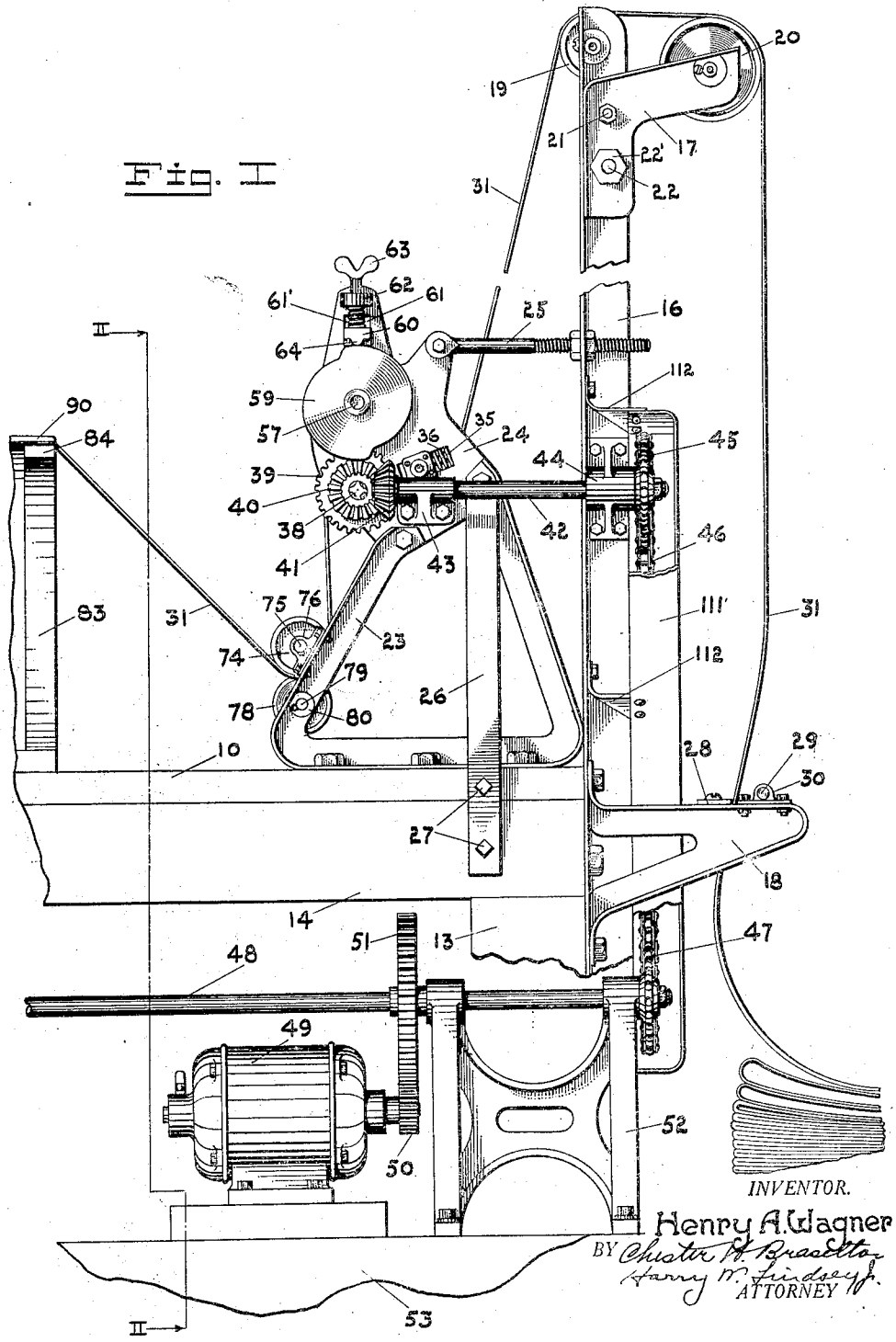
Oct. 14, 1924. 1,511,485

H. A. WAGNER

CLOTH MARKING AND FOLDING MACHINE

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Fig. 1



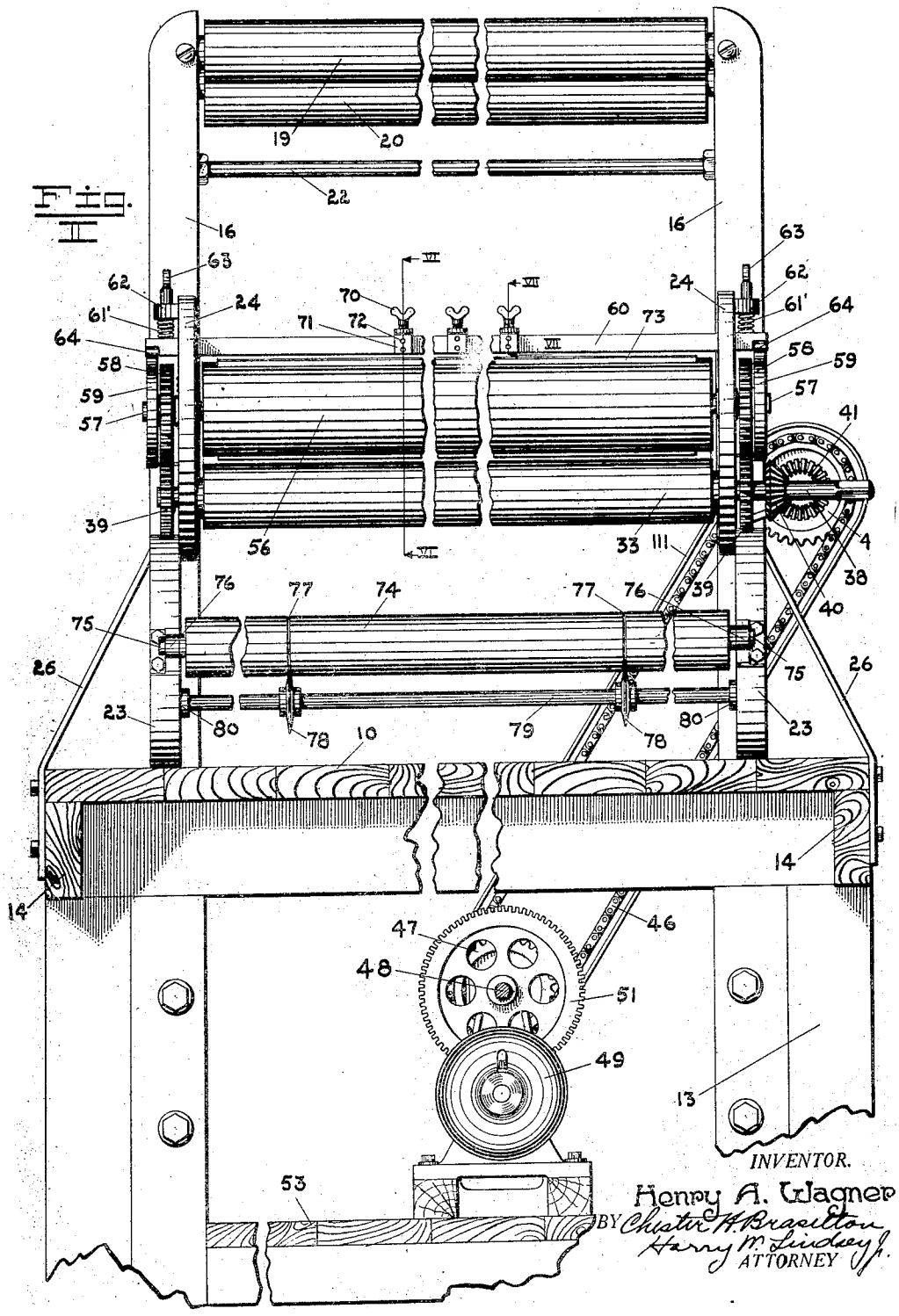
INVENTOR.
Henry A. Wagner
BY Chester B. Bradstreet
Harry M. Lindsey Jr.
ATTORNEY

Oct. 14, 1924. 1,511,485

H. A. WAGNER

CLOTH MARKING AND FOLDING MACHINE

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Oct. 14, 1924. 1,511,485

H. A. WAGNER

CLOTH MARKING AND FOLDING MACHINE

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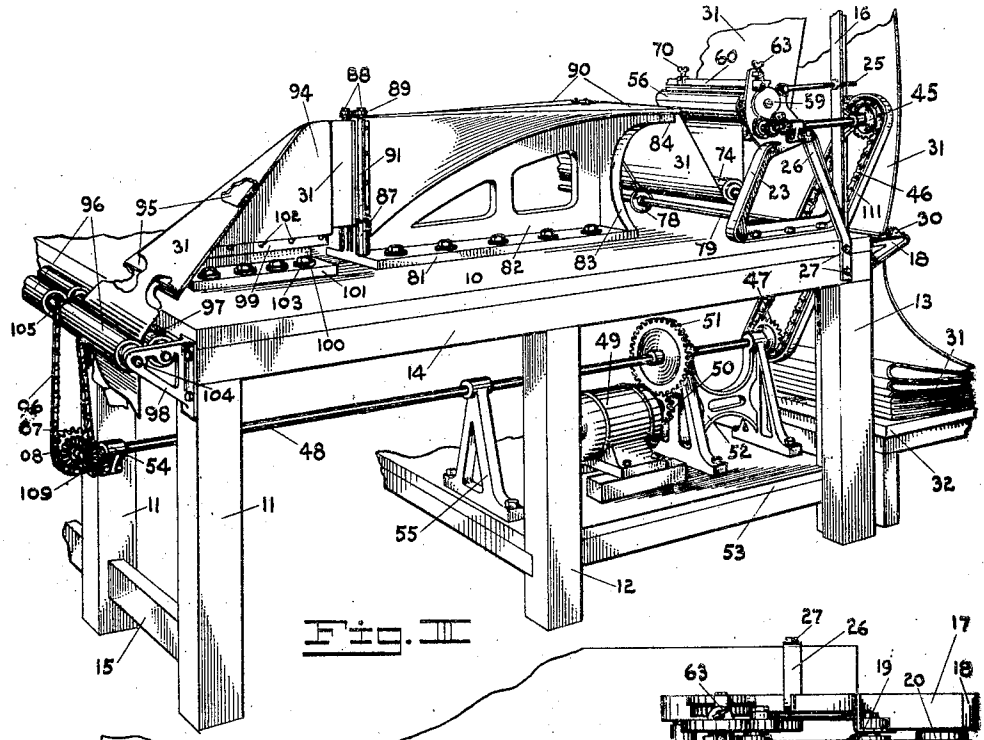


Fig. III

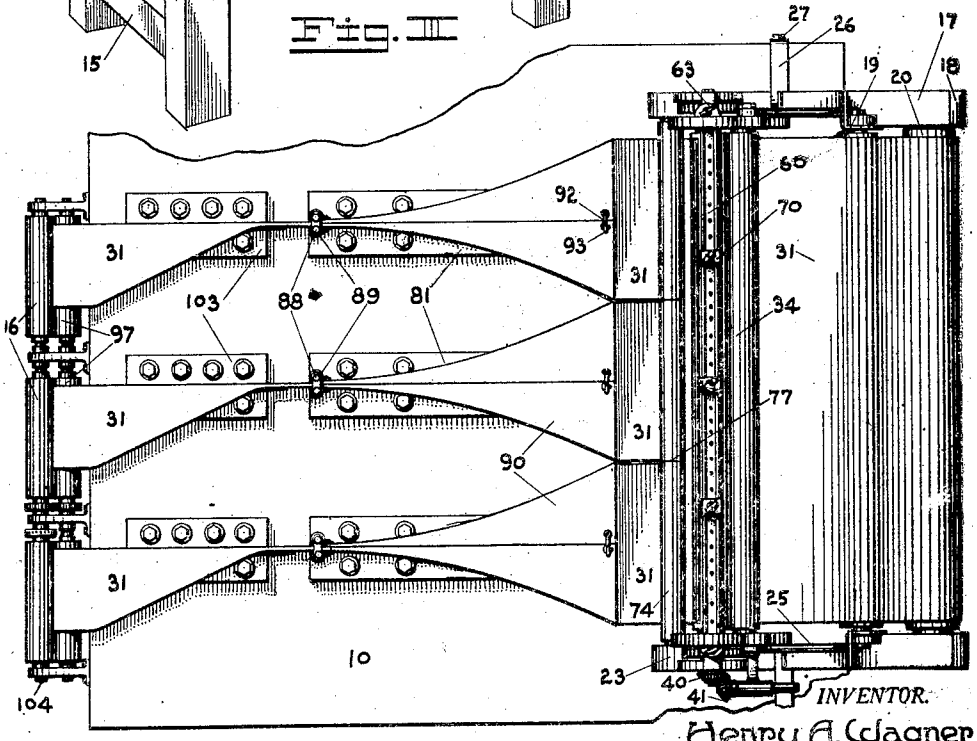


Fig. IV

INVENTOR.
Henry A. Wagner
BY Chester H. Braselton
Harry W. Lindsey Jr.
ATTORNEY

Oct. 14, 1924. 1,511,485

H. A. WAGNER

CLOTH MARKING AND FOLDING MACHINE

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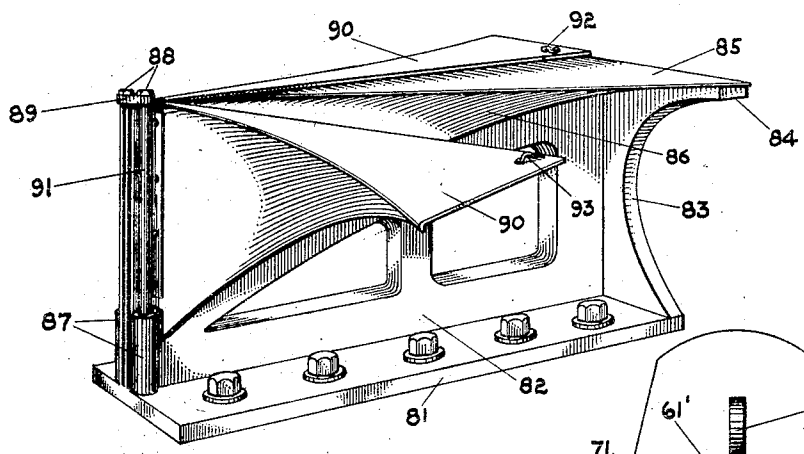


Fig. V

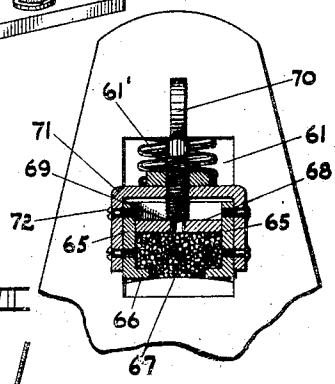


Fig. VII

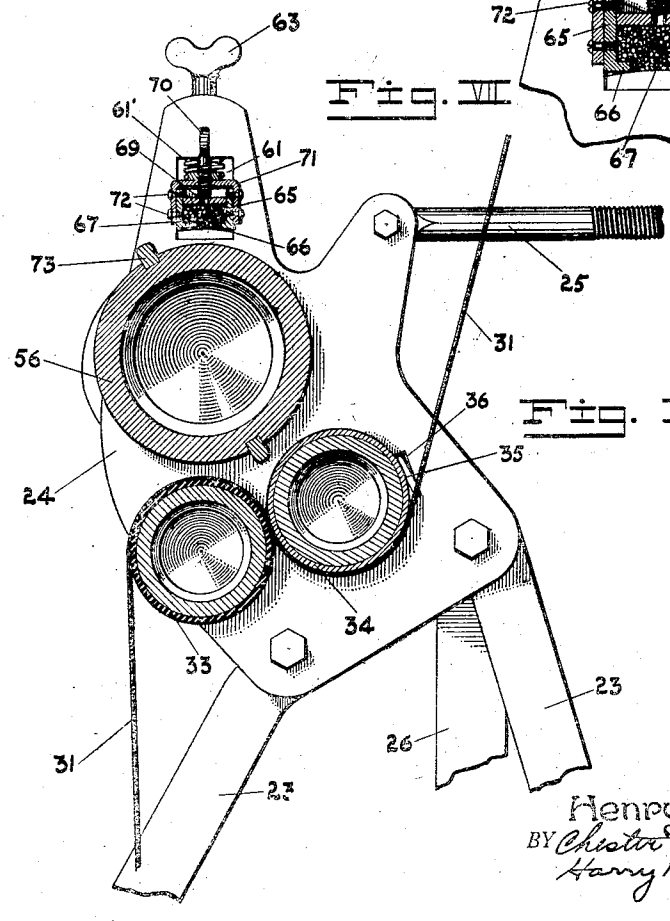


Fig. VI

INVENTOR.
Henry A. Wagner
BY Chester H. Bradstreet
Harry W. Lindsey
ATTORNEY

Oct. 14, 1924. 1,511,485

H. A. WAGNER

CLOTH MARKING AND FOLDING MACHINE

Filed Feb. 21, 1921 5 Sheets-Sheet 5

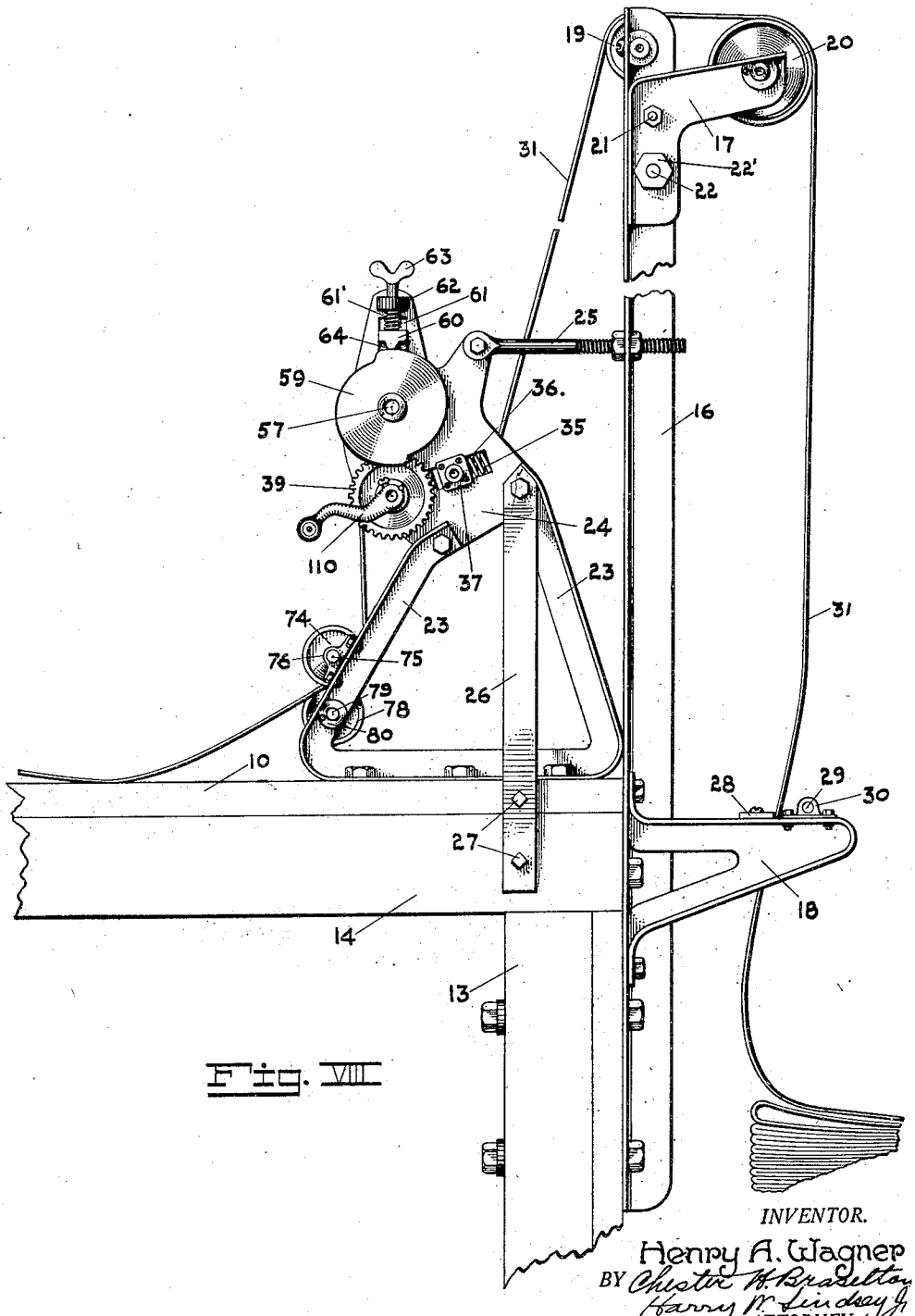


Fig. VIII

INVENTOR.
Henry A. Wagner
BY Chester H. Bradelton
Harry M. Lindsay Jr.
ATTORNEY

Patented Oct. 14, 1924. 1,511,485

UNITED STATES PATENT OFFICE.

HENRY A. WAGNER, OF TOLEDO, OHIO, ASSIGNOR TO THE WILLYS-OVERLAND COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO.

CLOTH MARKING AND FOLDING MACHINE.

Application filed February 21, 1921. Serial No. 446,923.

To all whom it may concern:

Be it known that I, HENRY A. WAGNER, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Cloth Marking and Folding Machines, of which I declare the following to be a full, clear, and exact description.

My invention relates to cloth marking and folding machines and has for its object to provide improved means for marking and folding cloth so that the lines marked thereon will register when the cloth is folded to facilitate the stitching of the cloth, the machine being adapted particularly for marking cloth used in the manufacture of Marshall springs, formed by stitching the cloth at predetermined intervals to provide pockets for receiving the springs, although it will be understood that the machine may be used for marking and folding cloth to be used for other purposes as well.

A further object of the invention is to provide an improved machine for marking, cutting and folding cloth to facilitate the stitching of the cloth to form pockets therein.

A further object of the invention is to provide an improved machine for cutting cloth in strips of predetermined widths.

A further object of the invention is to provide an improved machine for producing a plurality of parallel lines upon strips of cloth and folding the strips transversely of the lines to bring them into registering relation.

With these and other objects in view the invention comprises certain novel features of construction and arrangement of parts as will be hereinafter more fully pointed out and claimed, it being understood that the machine embodied herein is susceptible of various modifications, both in the detailed forms of construction as well as in the arrangement of parts and I therefore do not wish to be limited to the particular embodiment shown and described, except in so far as the same is limited by the claims appended hereunto.

A construction illustrating one embodiment of the invention is shown in the accompanying drawings in which:

Figure I is a side elevation of a machine embodying certain portions of the invention.

Figure II is a sectional elevation taken on line II—II of Figure I.

Figure III is a perspective view looking at one side of the machine with certain parts broken away.

Figure IV is a plan view of the machine with certain portions broken away.

Figure V is a detailed perspective view of a portion of the folding mechanism shown in Figure III.

Figure VI is an enlarged detailed section taken on line VI—VI of Figure II.

Figure VII is an enlarged detailed section taken on line VII—VII of Figure II, and

Figure VIII is a side elevation of that portion of the machine shown in Figure I which is constructed to be manually operated rather than motor driven.

Like reference characters refer to similar parts throughout the several views of the drawings.

The present invention is adapted for marking and folding cloth and other flexible material requiring stitching to complete articles of manufacture to be used for different purposes, the object of the marking being to produce guide lines upon the cloth the desired distances apart so that the sewing machine operators may readily determine at what point the several layers are to be stitched together. The invention further contemplates means for cutting the cloth into strips of the desired width when the bolts received from the mills are wider than necessary, the cutting being preferably done subsequent to the marking and previous to the folding. In the present instance the bolt used is of a width sufficient to produce three strips, each of which is folded upon itself transversely of the lines marked thereon. It will be understood that it is immaterial what the cloth is to be used for, so long as it is desired to stitch it along certain predetermined lines, serving as guide lines for the sewing machine operator, whereby the work may be more quickly and accurately performed. In the present instance, as stated above, it is desirous to mark, cut and fold each of the several strips longitudinally along its median line, to form a series of pockets of predetermined width in each strip, the pockets being closed at one end by the folding of the cloth upon itself and left open at their opposite ends. The cloth is such as is used in the making of what is known as "Marshall springs," comprising a series of

rows of relatively small coiled springs inclined within the pockets of the cloth and held securely in parallel relation thereby, the springs being used in the construction of mattresses, seat cushions and the like.

Referring to the drawings, 10 represents a frame or table supported preferably by three sets of legs as indicated at 11, 12 and 13, which are connected at their upper ends by longitudinally extending rails 14, the lower ends of the legs 11 being connected by the transverse members 15, as indicated in Figure III. The table is provided at one end with the upright frame members 16 carrying the upper and lower brackets or arms 17 and 18 as shown in Figure I. A roller 19 has its opposite ends journaled in the upper end of the frame members 16 and a somewhat larger roller 20 is spaced therefrom and has its opposite ends journaled in the arms 17, connected with the frame members 16 preferably by means of the bolts 21. The frame members 16 are preferably tied together adjacent their upper ends by means of a transverse bar 22, the opposite ends of which preferably extend through the brackets 17 to receive the nuts 22'. Mounted upon the table 10 are the triangular-shaped upstanding brackets 23 the upper ends of which are connected with and adapted to support plates 24 which are connected with the upright frame members 16 by means of the tie bars 25 as shown in Figure I. The frame members 23 are braced laterally by means of the upstanding braces 26, the lower ends of which are secured to the table 10 and side rails 14 by means of the bolts 27. The arms 18 on the frame members 16 are tied together by means of the transversely extending plate 28 and also the tie rod 29 spaced therefrom and connected with the arms by means of the brackets 30 as shown in Figures I and VIII. The cloth 31 may be disposed upon a suitable stand or table 32 at one end of the machine, as shown in Figure III and is extended upwardly between the plate 28 and tie rod 29 and then over the pulleys 19 and 20 and downwardly between the feed rolls 33 and 34 as shown in Figure VI. The feed roll 34 is friction driven and is yieldingly pressed toward the feed roll 33 by means of springs 35 seated in recesses 36 formed in the plates 24, the inner ends of the springs engaging the slidably mounted bearings 37 in which the opposite ends of the feed roll 34 are journaled. The feed roll 33 is carried by a shaft 38, the opposite ends of which are journaled in the plates 24, said ends being adapted to project through the plates to receive the gears 39 as shown in Figure II. The shaft 38 is provided at one end with a bevel gear 40 meshing with a similar gear 41 on a shaft 42, one end of which is journaled in a bearing 43 carried by the plate 24 and the other in a bearing 44 carried by the upright frame member 16 as shown in Figure I. The shaft 42 is provided with a sprocket 45 over which extends the sprocket chain 46 having its lower end engaging a sprocket 47 on a shaft 48 driven by a motor 49 through a pinion 50 and gear 51, the shaft 48 being journaled at one end in a bracket 52 on the platform 53 upon which the motor 49 is mounted. The opposite end of the shaft 48 is journaled in a bracket 54 secured upon one of the legs 11 of the table 10 as shown at the left of Figure III. The shaft 48 is also journaled intermediate its ends in a bracket 55 mounted on the platform 53.

The means for marking this cloth is mounted upon the plates 24 and comprises preferably a rotatable tubular member 56 having its opposite ends provided with trunnions 57 extending through and journaled in the plates 24, said trunnions being provided with gears 58 meshing with the gears 39 on the shaft 38 carrying the feed roll 33. Rigidly secured upon the trunnions 57 are cams 59 adapted upon rotation to raise a trough-like holder 60, the opposite ends of which project through and are guided in openings 61 in the plates 24. The holder 60 is yieldingly held in contact with the cams by means of the springs 61' engaging projections 62 on the plates 24, said springs being held against displacement by means of the screws 63 threaded through the projections 62 and extending partially into the springs. The ends of the holder 60 are preferably cut away and rounded as indicated at 64 to facilitate operation of the cams. The holder 60 comprises a pair of spaced plates 65 closed at their ends and having inwardly turned flanges 66 adapted to receive and retain a felt pad or other suitable material 67 upon which is superimposed a plate 68 having a plurality of holes 69 therein, through which ink or other suitable marking material is adapted to feed when placed in the holder from time to time. The plate 68 may be forced into engagement with the felt pad to compress the same by means of screws 70 threaded through the inverted U-shaped members 71 connected with the side plates 65 of the holder by means of the screws 72 as shown in Figure VII. The rotatable member 56, driven by the gears 39 and 58 is provided with a pair of oppositely positioned marking strips 73 constructed of any suitable material the same being adapted to contact with the saturated felt 67 on the downward stroke of the holder 60 when the ends of the latter drop off of the high portions of the cams 59, said strips being adapted to contact with the felt at each revolution of the member 56 and also to contact with the cloth 31 at the point where it is carried over the feed roll 33. It will be understood that as many of the contact members 73 may be

provided as desired, depending upon the spacings between the lines to be marked upon the cloth. In the present instance, for each revolution of the member 56 two lines will be marked upon the cloth transversely thereof in parallel relation. As the cloth passes downwardly from the feed roll 33 it is fed under a roll 74 having at its opposite ends trunnions 75 journaled in brackets 76 mounted upon the frame members 23 as shown in Figures I and II. The roll 74 is provided with a plurality of circumferential grooves 77. Extending within the groove 77 of the roll 74 are knives 78 carried by a shaft 79, the opposite ends of which are journaled in bearings 80 upon the frame members 23. The knives 78 are provided for the purpose of cutting the cloth into strips of predetermined widths previous to the folding of the strips in a manner which will presently be described. The cloth upon leaving the knives is fed through the folders, which in the present instance are three in number, to accommodate the three separate strips as indicated in Figure IV. A description of one of the folders will suffice for all, it being understood of course that the number of folders depends upon the number of strips of cloth the machine is designed to accommodate. The folders are best shown in Figures III to V inclusive; the latter being a perspective view of that portion of the folder adjacent to the cutting mechanism, which comprises a plate 81 bolted to the table 10 and provided with an upstanding central frame portion 82 connected with a transverse end member 83 having arms 84 extending upon both sides of the central member 82. The arms 84 are adapted to carry a cloth folding plate 85 the outer end of which is equal in width to the strip of cloth before the same is folded, said plate being of triangular construction and tapering to a point and terminating at the inner end of the upright frame member 82 upon which the plate rests. The plate 85 is also provided with downwardly extending triangular curved cloth guiding portions 86 which extend inwardly from the outer extremities of the arms 84 to engage the opposite sides of the upright frame member 82 at the inner end thereof. At the inner end of the members 81 and 82 is mounted a pair of spaced upstanding tubular members 87 each carrying an upwardly extending pin 88, said pins being spaced apart and connected at their upper ends by a tie 89 lying above the top surface of the triangular plate 85. Upon the pins 88 are pivoted cloth retaining and guiding plates 90 connected with said pins by means of the hinges 91 as shown in Figure V. The guide plates 90 are of the same general shape as plates 85 and when in normal closed position as shown in Figure IV, form with the plates 85 and 86 a runway for the cloth, serving to fold it along its median line and transversely of the lines marked thereon so that the two extremities of each of the lines will register one with the other or substantially so, after the cloth has been folded. It will be understood that the hinged plates 90 when closed, are spaced from the plates 85 and 86 far enough to afford sufficient room for the cloth to freely pass between the plates. The plates 90, at their outer ends, are connected by any suitable means, such as the hook 92 carried by one of the plates and connected with the other by means of the upstanding loop 93. When the cloth leaves the folding mechanism just described it is fed between two vertically positioned plates 94 and 95 which are spaced apart a sufficient distance to permit the cloth to freely travel therebetween, the outer extremities of said plates being bent as indicated in Figure III to cause the cloth to travel downwardly through the horizontally positioned feed rolls 96 and 97 the opposite ends of which are journaled in brackets 98 carried by the table 10. By bending the plates in this manner so that one of the triangular shaped portions will overlie the other the cloth will emerge therefrom with one fold traveling upon the upper plate and the other between the plates as indicated at the left of Figure III. The bottom edges of the plates 94 and 95 are offset or flanged inwardly as indicated at 99, said flanged portions being disposed upon and connected with the web portion 100 of a T-bar 101 by means of the transversely extending bolts 102, said T-bar being connected with the table 10 by means of bolts 103. The feed rolls 96 are carried by a shaft 104 upon which is mounted a sprocket 105 over which extends a sprocket chain 106 engaging a gear 107 arranged to drive a bevel gear 108 meshing with a similar gear 109 on the end of the drive shaft 48. By this mechanism the cloth is fed through the folders and at the same time is drawn under the roll 74 upon which the cloth is cut into the several strips by means of the rotatably mounted knives 78 on the shaft 79.

In the modification shown in Figure VIII the motor and driving mechanism have been omitted and a crank 110 secured upon the outer end of the shaft 38 to rotate the same whereby operation of the marking mechanism is effected in the same manner as in Figure I, it being understood that the shaft 104 may also be operated manually by a crank to feed the cloth through the folding mechanism if desired.

The sprocket chain 46 is preferably provided with a guard 111 connected with the upright frame members 16 by means of brackets 112 as shown in Figure I.

While I have illustrated and described

one embodiment of my invention it will be obvious that those skilled in the art may construct modifications thereof without departing from the spirit of the invention and I wish therefore not to be restricted or limited to the precise embodiment shown, except in so far as same is limited by the appended claims.

Having thus described my invention, what I claim as new and desire to cover by Letters Patent is:

1. In a device of the class described, a frame, cloth feeding mechanism mounted thereon, a marking strip rotatably mounted adjacent the cloth and adapted to periodically contact therewith, a spring-pressed holder provided with a layer of material saturated with a marking fluid and means controlled by said feeding mechanism adapted to cause said strip to rotate and said holder to be moved outwardly, and thence inwardly by the action of the spring to cause the saturated material to contact with the marking strip previous to contacting with the cloth.

2. In a device of the class described, a frame, a shaft rotatably mounted upon the frame and provided with a feed roll over which a strip of cloth is adapted to be conveyed, a member rotatably mounted adjacent said roll and provided with a marking strip adapted to periodically contact with the cloth, gears connecting said shaft with said member to drive the latter, cams driven by said gears, a spring-pressed holder provided with material saturated with a marking fluid, said holder being adapted to be actuated outwardly by said cams and inwardly by the said springs to cause said saturated material to contact with said marking member and means by which operation of said shaft is effected.

3. In a device of the class described, a frame, a rotatable member for marking transverse lines on a strip of cloth, a holder saturated with a marking fluid, means adapted to periodically effect movement of the holder to and from contact with said rotatable marking member, a device for cutting said strip into a plurality of narrower strips, a device for longitudinally folding each of said narrower strips, a feeding mechanism, and a common means for driving said feeding mechanism and rotating said rotatable member.

4. In a device of the class described, a frame, cloth feeding mechanism mounted thereon, a marking strip adapted to produce parallel lines upon the cloth transversely of the direction in which it is fed, a fluid holder for the strip adapted to be automatically moved into engagement therewith at predetermined intervals, means adapted to actuate said feeding and marking mechanism, and mechanism adapted to fold the cloth so that a portion of each line will overlie or register with the remaining portion thereof.

5. In a device of the class described, a cloth feeding mechanism mounted thereon, a marking strip adapted to produce parallel lines upon the cloth transversely of the direction in which it is fed, a fluid holder for the strip adapted to be automatically moved into engagement therewith at predetermined intervals, means adapted to actuate said feeding and marking mechanisms, and means adapted to fold the cloth transversely of the lines.

6. In a device of the class described, a frame, cloth feeding mechanism mounted thereon, a marking strip adapted to produce parallel lines upon the cloth transversely of the direction in which it is fed, fluid supply means for the strip adapted to be periodically moved to and from contact therewith, mechanism adapted to fold the cloth transversely of the lines, mechanism adapted to feed the cloth through said folding mechanism and common means adapted to actuate said marking and feeding mechanisms.

7. In a device of the class described, a frame, cloth feeding mechanism mounted thereon, a marking strip adapted to produce parallel lines upon the cloth transversely of the direction in which it is fed, a fluid holder for the strip adapted to be automatically moved into engagement therewith at predetermined intervals, means adapted to cut the cloth in strips with the lines running transversely of the strips, means adapted to independently fold each of the strips transversely of the lines, feeding mechanism adapted to draw the cloth through said folding means and common means adapted to actuate all of said mechanisms.

8. In a device of the class described, a frame, cloth feeding mechanism mounted thereon, a marking member mounted adjacent the cloth, a member saturated with a marking fluid, mechanism adapted to cause said saturated member to periodically move to and from contact with said marking member, means adapted to move the marking member into contact with the cloth to produce lines thereon at predetermined intervals, mechanism for cutting the cloth in separate strips and common means adapted to actuate said first and second mentioned mechanisms.

9. In a device of the class described, a frame, cloth feeding mechanism mounted thereon, a marking member mounted adjacent the cloth, a member saturated with a marking fluid, mechanism adapted to cause said saturated member to periodically

move to and from contact with said marking member, means adapted to move the marking member into contact with the cloth to produce lines thereon at predetermined intervals, mechanism adapted to fold the cloth transversely of the lines and common means adapted to actuate said first and second mentioned mechanisms.

10. In a device of the class described, a frame, cloth feeding mechanism mounted thereon, a marking member mounted adjacent the cloth, a member saturated with a marking fluid, mechanism adapted to cause said saturated member to periodically move to and from contact with said marking member, means adapted to move the marking member into contact with the cloth to produce lines thereon at predetermined intervals, means adapted to fold the cloth transversely of the lines, mechanism for feeding the cloth through said folding means and common means adapted to actuate all the said mechanisms.

11. In a device of the class described, a frame, cloth feeding mechanism mounted thereon, a marking member mounted adjacent the cloth, a member saturated with a marking fluid, mechanism adapted to cause said saturated member to periodically move to and from contact with said marking member, means adapted to move the marking member into contact with the cloth to produce lines thereon at predetermined intervals, means adapted to cut the cloth in separate strips when marked, means adapted to fold the strips transversely of the lines and common means adapted to actuate all said mechanisms.

12. In a device of the class described, a frame, a cloth feeding mechanism mounted thereon, a rotatable marking member having a projection adapted to contact with said cloth at each revolution, a receptacle carrying a marking fluid reciprocally mounted in said frame to move toward and from said marking member, and mechanism for causing said receptacle to periodically move into a position to be engaged by said projection.

13. In a device of the class described, a frame, a cloth feeding mechanism mounted thereon, a rotatable marking roller having a longitudinal rib thereon, adapted to contact with the cloth passing through said feeding mechanism, a receptacle carrying a fluid saturated pad mounted in said frame to reciprocate toward and from said marking roller, and mechanism including a cam rotatable with said roller for controlling the movement of said receptacle.

14. In a device of the class described, a frame, a cloth feeding mechanism mounted thereon, a movable marking strip for the cloth, a holder provided with a marking fluid, means for periodically moving the holder into and out of fluid supplying position with respect to the strip, and means for periodically moving the strip into engagement with the cloth.

In testimony whereof, I affix my signature.

HENRY A. WAGNER.