

April 14, 1942.

S. MARSACK

2,279,628

APPARATUS FOR SEWING MATTRESS PADS AND QUILTS

Filed May 21, 1938

4 Sheets-Sheet 1

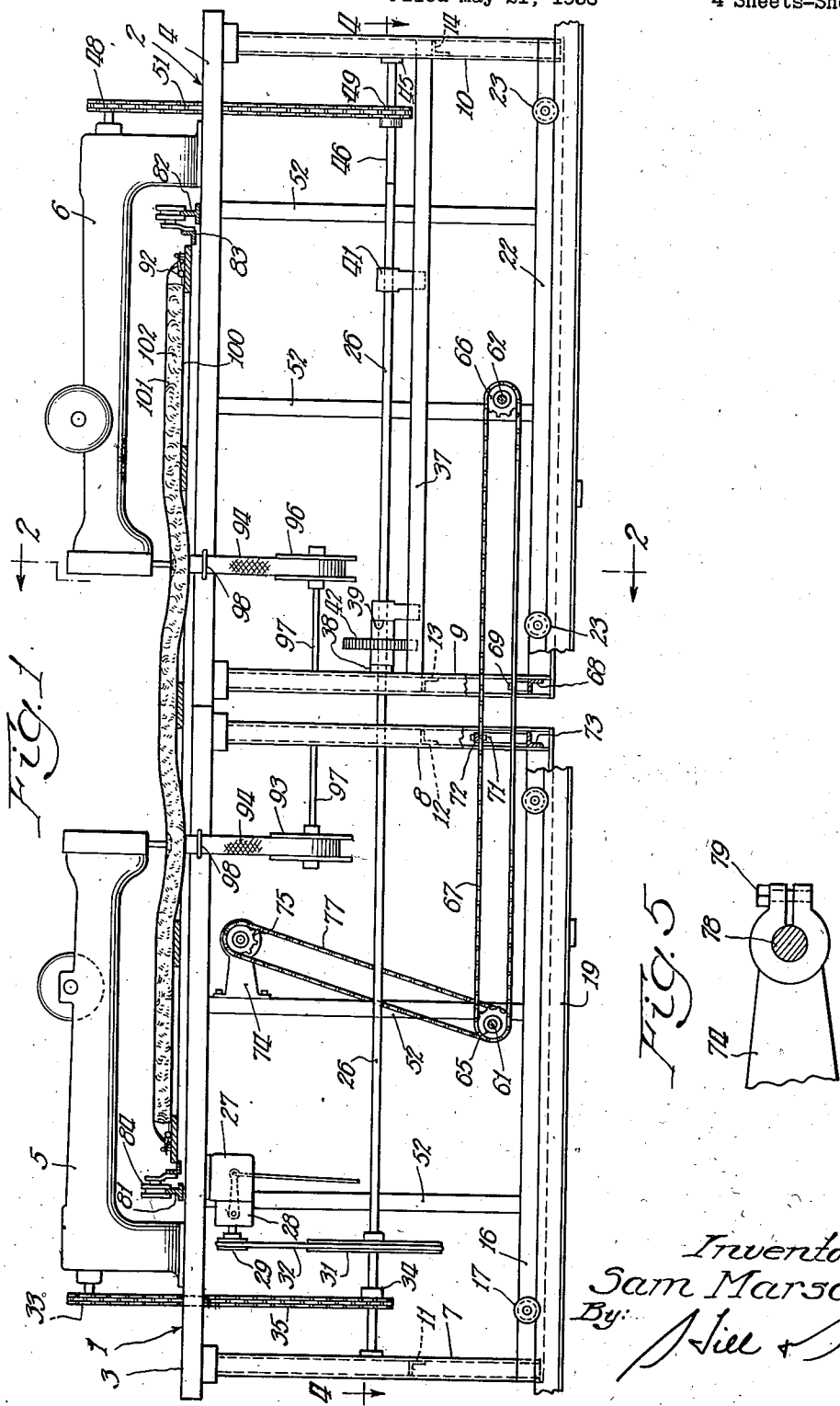


FIG. 1

FIG. 5

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4 Sheets-Sheet 2

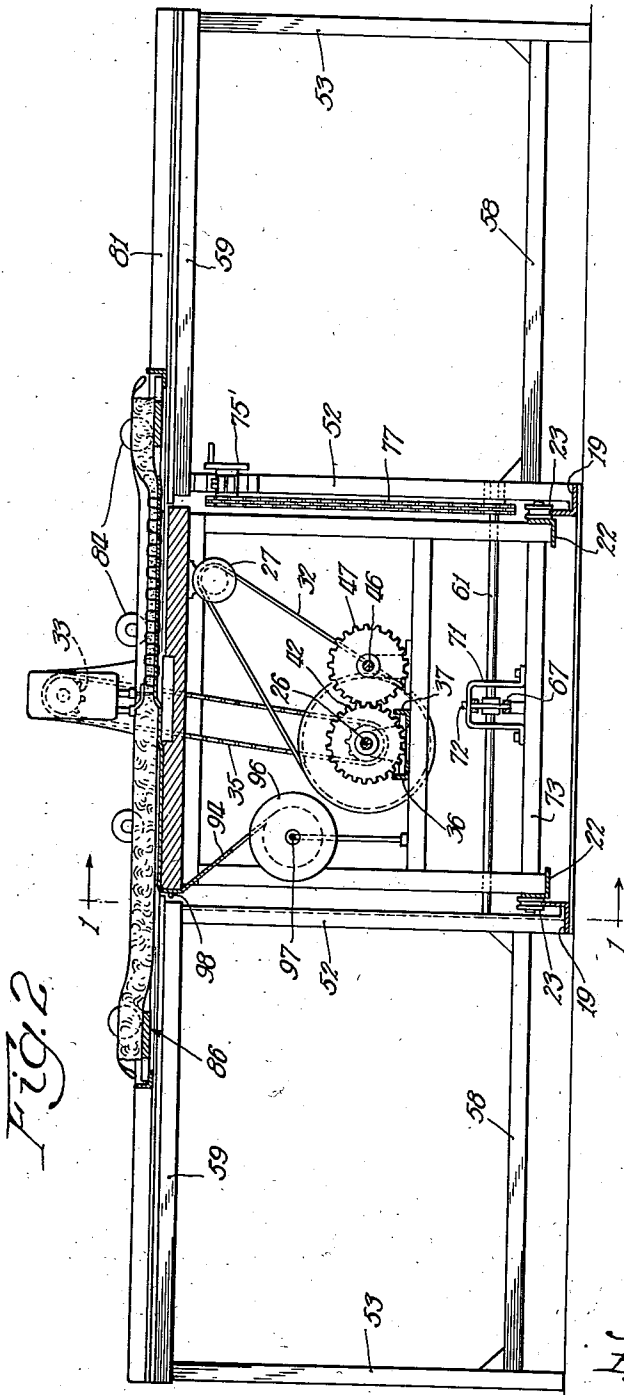


FIG. 2

FIG. 11

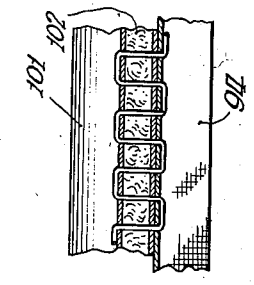


FIG. 10

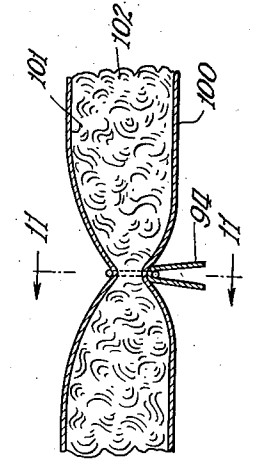
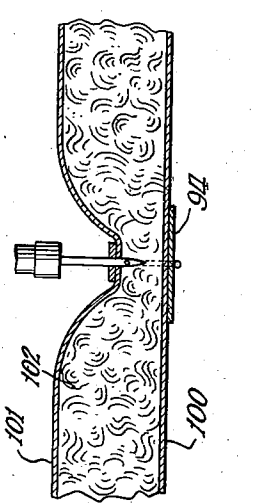


FIG. 9



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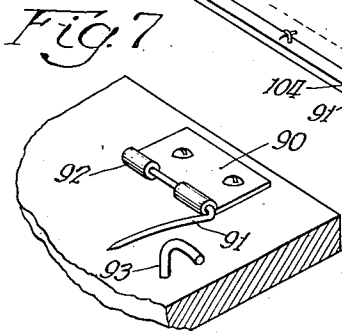
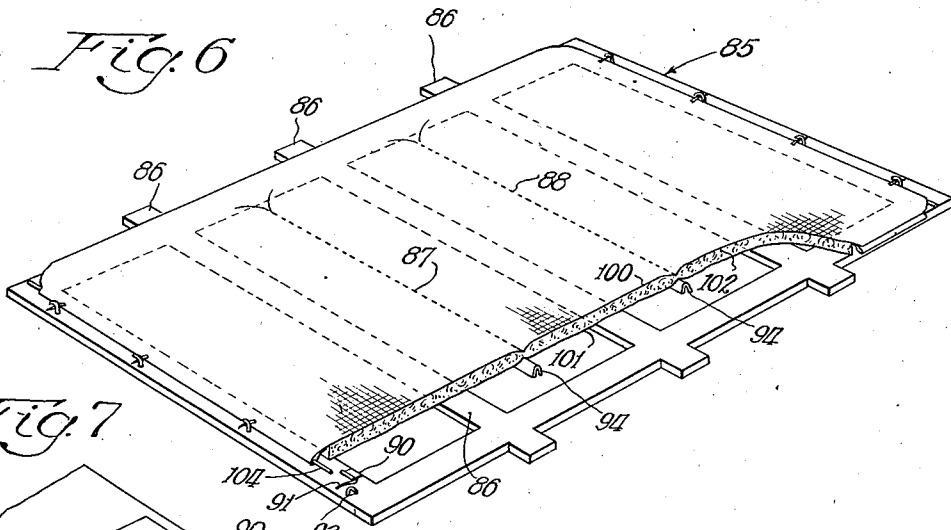
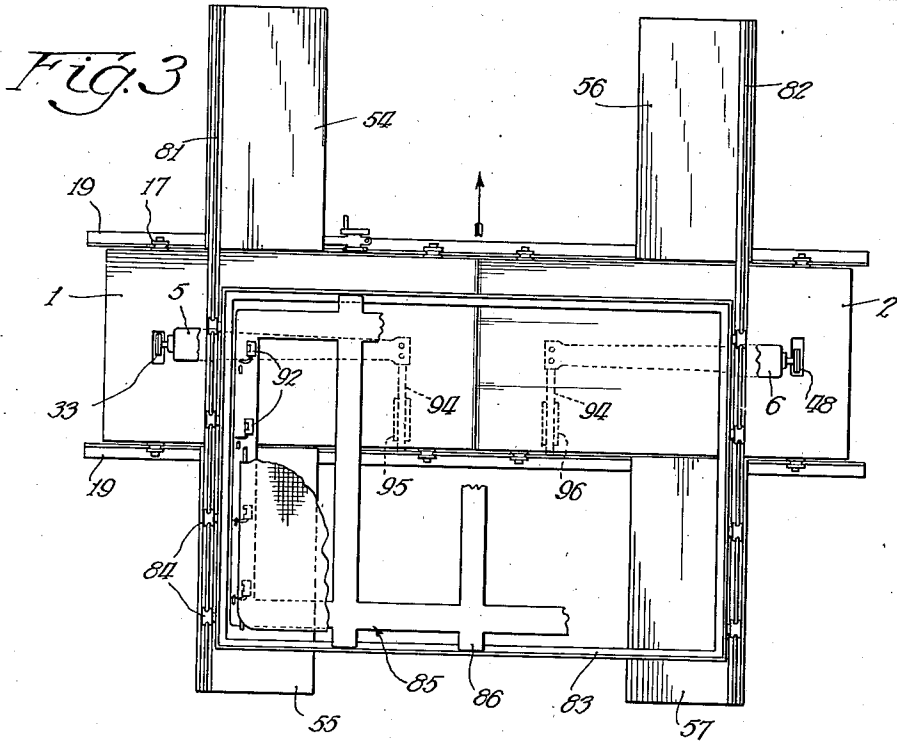
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APPARATUS FOR SEWING MATTRESS PADS AND QUILTS

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4 Sheets-Sheet 3



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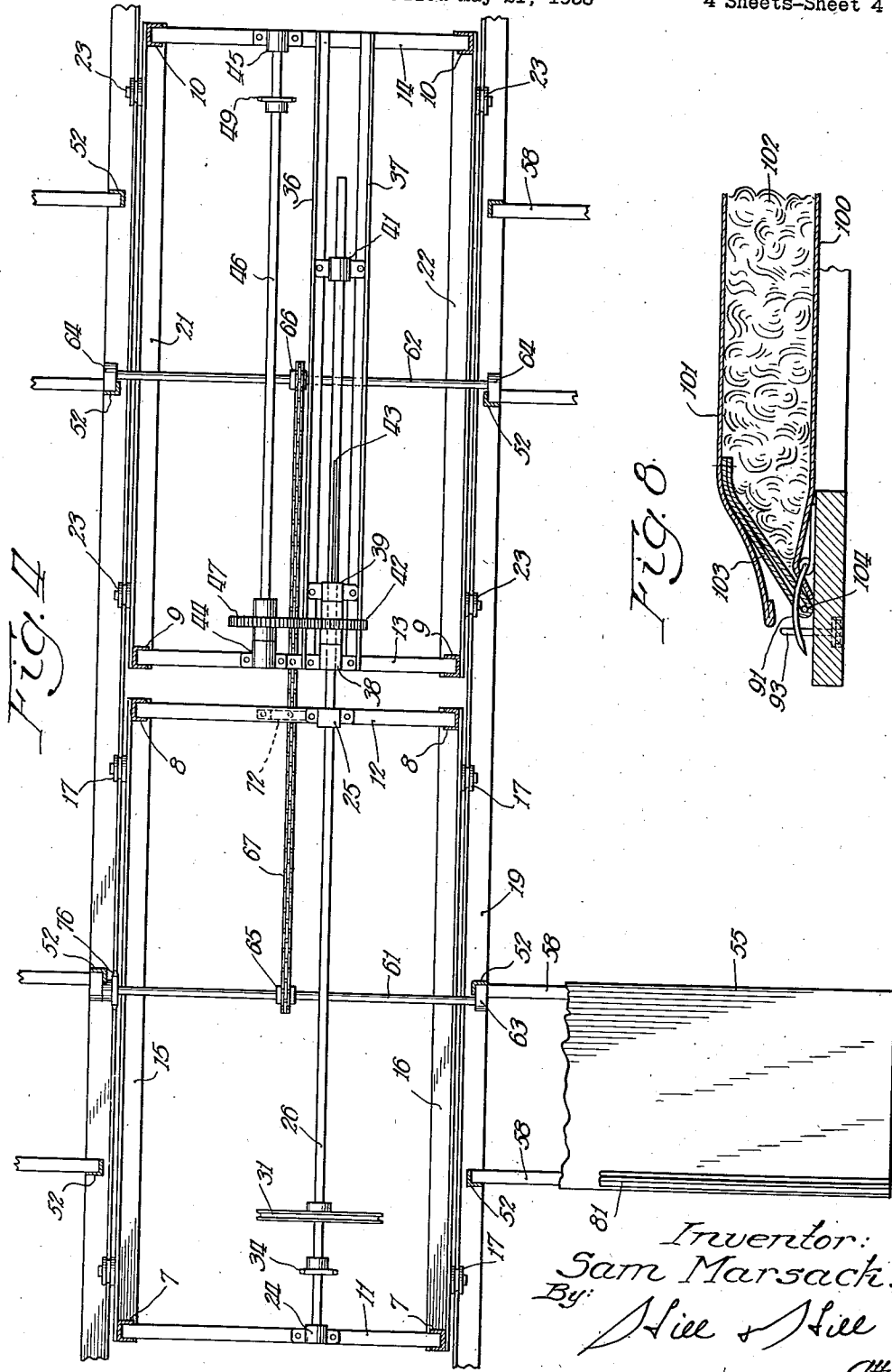
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APPARATUS FOR SEWING MATTRESS PADS AND QUILTS

Filed May 21, 1938

4 Sheets-Sheet 4



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# UNITED STATES PATENT OFFICE

2,279,628

## APPARATUS FOR SEWING MATTRESS PADS AND QUILTS

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Application May 21, 1938, Serial No. 209,221

8 Claims. (Cl. 112—117)

The invention relates to mattress stitching machines, and particularly to machines for pre-building mattress quilts wherein a plurality of plies of material are stitched together to be used in a mattress or the like.

The invention has among its objects the production of a machine which will perform a plurality of operations simultaneously as, for example, forming a plurality of lines of stitching securing a plurality of plies together simultaneously.

Another object of the invention is the construction of a machine which will make some types of unitary cover pads for mattresses and the like, in one operation.

Another object of the invention is the production of a machine of the kind described which will not only secure the various plies of the pad together, but will also secure attaching means thereto at the same time.

A further object of the invention is the production of a machine of the kind described which may be readily adjusted to provide for various forms of stitching as well as producing parallel rows of stitching spaced any desired distance from each other.

Another object of the invention is the construction of such a machine in which adjustments may be made accurately in a minimum of time and in which only one major adjustment of the machine is necessary, thus providing a machine which is extremely flexible in operation.

A further object of the invention is the production of such a machine in which the component elements of a cover pad may be accurately aligned with one another and securely held in place during the stitching operation.

Another objection of the invention is the novel method of constructing unitary cover pads and the like for mattresses.

A still further object of the invention is the production of a machine embodying novel means for guiding the components of the cover pad or similar member through the machine during the stitching operations.

Another object of the invention is the production of such a machine which is durable, simple in construction, and efficient for the purpose intended.

Many other objects and advantages of the construction herein shown and described will be obvious to those skilled in the art from the disclosure herein given.

To this end my invention consists in the novel construction, arrangement and combination of

parts herein shown and described and more particularly pointed out in the claims.

In the drawings wherein like reference characters indicate like or corresponding parts:

Fig. 1 is an elevational view of the machine looking from the front or feeding side thereof;

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a plan view of the machine;

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1 showing the driving mechanism thereof;

Fig. 5 is an enlarged view of the clamping means for securing the tables in proper adjustment;

Fig. 6 is a perspective view of the frame adapted to carry the elements or components of the cover pad and showing a portion of the latter in position on the frame;

Fig. 7 is a perspective view showing in detail the means for securing the cover plies to the frame shown in Fig. 6;

Fig. 8 is a sectional view through a portion of the frame disclosed in Fig. 6 and showing the manner in which the securing means of Fig. 6 engages the plies of the cover pad;

Fig. 9 is a sectional view through the plies of the cover pad showing the manner in which they are compressed during the sewing operation;

Fig. 10 is a sectional view of the same after the stitching has been completed and showing the securing flap carried from the underside of the pad; and

Fig. 11 is a sectional view taken on the line 11—11 of Fig. 10.

Referring to the drawings and more particularly to Figs. 1, 2, and 3, 1 and 2 generally represent tables having tops 3 and 4 positioned end to end. These table tops carry sewing machines 5 and 6, respectively, which may be of any suitable type. These table tops are supported by the members 7, 8, 9, and 10, respectively, which may be constructed of any suitable material, and as shown in the drawings, are U-shaped members having connecting braces 11 and 12 of angle iron connecting the legs 7 and 8, respectively, braces 13 and 14 connecting the members 9 and 10, respectively, thus providing rigid supporting means for the table tops. The supporting members 7 and 8 are connected by the L-shaped members 15 and 16, respectively, the latter members being provided with grooved rollers 17 pivotally mounted on the upright portions of the members 15 and 16. Similar L-shaped members 18 and 19 are rigidly attached to the floor, the vertical

walls of these members engaging the grooves in the rollers 17, thereby providing a track along which the table 1 may be moved. A similar table 2 is provided with members 21 and 22 having corresponding rollers 23 adapted to engage the track members 18 and 19. It will thus be seen that I have provided two tables each carrying a sewing machine mounted thereon, said tables being movably carried upon supporting tracks whereby the tables may be moved to or away from each other, thus positioning the sewing machines closer to or farther from one another as the case may be, and in this construction, it will be noted that the only change in the operation of the machines will be that the lines of stitching made thereby will be spaced closer to or farther from each other. Mounted on the brace members 11 and 12 are the hangers or bearings 24 and 25, respectively, which carry the drive shaft 26, the latter being driven by the motor 27 through the clutch 28, pulleys 29 and 31 and the belt 32 connecting said last mentioned pulleys. The sewing machine 5 is in turn driven from the shaft 26 by any suitable means, for example, sprockets 33 and 34 and chain 35. Connecting the brace members 13 and 14 of the table 2 are members 36 and 37 formed of angle iron or other suitable material and which carry the hangers or bearings 38, 39 and 41. The shaft 26 extends through the bearings 38 and 39 at all times and depending upon the relative positions of the table may or may not extend through the bearing 41, the latter being designed merely to support the end of the shaft 26 when the tables are in the position shown in Fig. 4 which is at the maximum of their inward movement. Carried by the shaft 26 between the bearings or hangers 38 and 39 is a spur gear 42 which is provided with an integral key adapted to engage a suitable slot 43 located in the shaft 26. In this construction, the shaft 26 and the slot 43 slidably engage the gear 42 whereby the shaft 26 is free to slide laterally through the spur while at all times maintaining a positive driving connection therewith. It will thus be seen that no matter how far the tables may be extended from each other within the limits of the machine, the shaft 26 will continue to drive the spur 42, without any manual adjustments, etc. Also mounted on the brace members 13 and 14 are bearings 44 and 45, respectively, journalling the shaft 46 which is positioned parallel to the shaft 26. Rigidly carried by the shaft 46 is a spur 47 similar to the spur 42 and engageable therewith, whereby the shaft 26 will also drive the shaft 46 but in the opposite direction. The sewing machine 6 is driven by the shaft 46 through any suitable means, as for example, sprockets 48, 49 and the chain 51 similar to the sprockets 33 and 34 and chain 35.

It will be seen from the above that I have provided positive means for driving the two sewing machines at all times regardless of whether the tables 1 and 2 are positioned close to each other or relatively farther apart and in which no changes or adjustments are necessary to perform this function, the same being accomplished automatically as the tables are separated. Rigidly mounted on the members 18 and 19 are legs 52 which in conjunction with the legs 53 support the smaller stationary tables 54, 55, 56, and 57 and may be provided with brace members 58 of any suitable material and, as shown, are formed of light angle iron similar to that used in the legs 52 and 53. Likewise, connecting the top of

the legs 52 and 53 and supporting the table tops are members 59 similar to the braces 58.

Extending across from the track 18 to the track 19 are shafts 61 and 62 suitably journaled on hangers 63 and 64, respectively, which may be mounted either directly on the members 18 and 19, or, as shown, on the legs 52, the shafts being mounted in either case on members which are stationary relative to the tables 1 and 2. Sprockets 65 and 66 on the respective shafts 61 and 62 are connected by an endless chain 67, the lower portion of this chain being securely attached to the cross brace 68 by means of a bolt 69 or other suitable means, the brace 68 being rigidly attached to the table 2. Likewise, the upper portion of the chain is secured to the U-shaped member 71, by means of the belt 72, said U-shaped member being in turn rigidly attached to a corresponding brace 73 rigidly connected to the table 1. A hanger 74 likewise mounted on a stationary member which as shown is one of the legs, carries a shaft 78 and sprocket 75 which is connected to the sprocket 76 located on the shaft 61 by means of the chain 77. The sprocket 75 may be connected with any suitable crank or handle 75' carried by the hanger 74 so that as the shafts 61 and 62 are rotated thereby, the upper and lower portions of the chain 67 will be moved in opposite directions, and as these portions are attached to the table 1 and the table 2, respectively, said tables will be moved toward or away from each other depending on the direction of the rotation of the shafts. Likewise, each table will be moved the same distance to or from the center line of the machine.

As shown in Fig. 5, a clamping bolt 79 may be provided to clamp the shaft 78 to the hanger 74, thereby preventing shafts 61 and 62 from rotating to lock the tables 1 and 2 in any given position. Obviously, if desired, the bolt 79 may or may not be provided with a handle as desired, a wrench being used if it is merely provided with a head, as shown in Fig. 5.

As shown in Figs. 3 and 1, extending from the top 54 to the member 55 is an inverted T-iron 81 and similarly extending from the table 56 to the member 57, is a corresponding inverted T-iron 82 thus providing a track for the carriage, to be hereinafter described.

A rectangular carriage 83 formed of angle iron or other suitable material is provided, and attached thereto are a plurality of rollers 84 adapted to engage the tracks 61 and 62 by means of which the carriage 83 may travel from the stationary tables 55 and 57 past the sewing machines to the tables 54 and 56, as shown in Fig. 3, the arrow indicating the direction of feed through the sewing machines. The space between the vertical legs of the angle irons of the carriage 83 provides a receptacle for a material-carrying frame. As shown in Fig. 6, a frame 85 of wood or other suitable material is provided, and extending across the frame are cross members 86 which are of a length to engage and rest upon the carriage 83, and to closely fit within the vertical legs of the angle irons forming the carriage, as shown in Fig. 3. The frame 85 is designed to carry the components of the mattress cover pad and maintain them in proper relation while they are being stitched together by the sewing machines 5 and 6. The cover pad illustrated in Fig. 6 is designed to have two parallel rows of stitching 87 and 88 which divide the pad into three parts, and it will be noted that the cross members 86 must neces-

sarily be positioned between said rows of stitching. If the pad were to have a different number of lines of stitching, obviously, it might be necessary to use a frame having the cross members 86 positioned differently so as not to conflict with the lines of stitching and may, if necessary, be positioned at the ends only. To maintain the component parts of the cover pad in proper relation on the frame 85, suitable fastening means is provided, the same being shown in detail in Fig. 7. This fastening means comprises, essentially, a flat plate 90 mounted on the end members of the frame 85. A sharp pin or needle 91 is pivotally connected to the plate 90, as shown at 92, wherein the plate 90 is bent around to encircle the pin 91. An inverted L-shaped member 93 is mounted on the frame 85 adjacent the sharp end of the pin 91, and is free to rotate about its vertical axis whereby it may be rotated around, as shown in Fig. 7, to allow the cover pad plies to be hooked on the end of the pin, after which the member 93 may be rotated until the horizontal portion of the member overlies the end of the pin 91, as shown in Figs. 6 and 8, thus locking the pin 91 in proper position. However, any suitable means for fastening the plies of the cover pad to the frame 85 may be utilized.

When it is desired to attach securing means to the cover pad, for example, a strip of material 94, as shown in Figs. 9, 10, this operation may be accomplished at the same time the various plies are stitched together and provision is made on the machine for feeding a ribbon beneath the cover pad plies and stitching the ribbon thereto, all in one operation. To accomplish this, spools 95 and 96 are provided and are carried by the inverted L-shaped rods 97 which are mounted on the brace members 12 and 13, respectively. A flat U-shaped member 98 guides the ribbons from the spools 95 and 96 to the table tops 1 and 2, and the mechanisms 5 and 6, respectively.

The operation of the machine is as follows:

First, the tables 1 and 2 are moved to or from each other as the case may be by means of the crank until the proper spacing between the lines of stitching is obtained. The component parts or plies of the cover pad desired to be stitched are then positioned on the frame 85, which may be positioned on another table for convenience and so that one pad may be prepared for the machine while another one is actually being sewed thereon. The plies of the pad are hooked, one after another, by means of the sharp pins 91. The inner ply 100 is hooked first and the cover sheet 101 last with a layer of padding 102 interposed between the two if desired. If desired, when the cover sheet is provided with a looped portion 103, a rod 104 may be inserted in the looped portion to reinforce the edge of the cover sheet and maintain the same evenly and uniformly on the frame 85. The frame 85 carrying the cover pad is then placed in the carriage 83 which is positioned adjacent the tables 55 and 57. If it is desired to attach a securing strip 94 to the underside of the pad, said strips are drawn up under the pad past the needles on the sewing machine. The sewing machines are then adjusted and the usual clamping foot of each machine lowered to engage the cover sheet, as shown in Fig. 3, after which the clutch 28 is engaged by means of a rope or other suitable means which will start the sewing machines and will stitch the various ele-

ments together, as shown in Fig. 2. Ordinarily, the feeding movement of the sewing machines will be sufficient to draw the cover pad through the same although, if desired, the operator may slightly urge the carriage 83 along the direction of the arrow and thus overcome the friction of the rollers 84, etc. After the stitching has been completed, the sewing machine feet are raised and the carriage drawn as far upon the tables 54 and 56 as possible, whereupon the frame 85 is lifted off the carriage and the latter returned to the tables 55 and 57 to begin another cycle of operation.

It will be seen from the above description that I have provided a very efficient machine for pre-building cover pads or the like, whereby the machine may be run practically continuously with very little time lost for adjustments or changing from one piece of work to another. That is, while one cover pad is being run through the machine, the pad finished and stitched prior thereto is being taken off a frame 85 and at the same time another pad is being prepared for the machine on another frame. Likewise, I have provided novel means for quickly and accurately varying the distance between the lines of stitching, and also for securing a strip or the like to the pad simultaneously with the stitching operation. I have also provided the novel method of constructing unitary cover pads and the like for mattresses.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein shown and described or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:

1. A stitching machine of the kind described comprising supporting means, a pair of opposed stitching mechanisms mounted thereon, means for simultaneously driving said mechanisms, a pair of spaced rails extending transversely to said mechanisms, each of said rails positioned adjacent a respective mechanism, a carriage providing a receptacle movable on the track formed by said rails, a frame engageable with said carriage and closely fitting in said receptacle, means adjacent the edges of said frame for maintaining the material to be stitched in operative position thereon, said carriage operative to carry said frame with the material to be stitched, during the latter's passage through the stitching mechanism.

2. A stitching machine of the kind described comprising a stationary bed, a pair of opposed tables slidably carried by said bed, a stitching mechanism mounted on each table in opposed relation, means for simultaneously driving said mechanisms, a shaft extending laterally across the lower portion of each table and rotatably supported by the bed, an endless belt member connecting said shafts and carried thereby, the opposite portions of said belt member being secured to the respective tables, means for rotating said shafts to selectively move said tables towards or away from each other, a pair of spaced rails extending laterally across said tables, means for supporting said rails over said tables in a fixed position relative said bed, a carriage movable on the track formed by said

rails, and a material-receiving frame engageable with said carriage, said carriage operative to carry said frame with the material to be stitched during the latter's passage through the stitching mechanisms.

3. A stitching machine of the kind described comprising a stationary bed, a pair of opposed tables slidably carried by said bed, a stitching mechanism mounted on each table in opposed relation, a longitudinally extending driving shaft journaled on one table below the top thereof and a parallel driven shaft journaled on the other table below the top thereof, said shafts being operatively connected by a pair of gears carried by their respective shafts, one of said gears being slidably laterally along its respective shaft, belts operatively connecting said shafts and the respective mechanisms, a shaft extending laterally across the lower portion of each table and rotatably supported by the bed, a sprocket on each shaft, an endless chain carried on said sprockets connecting said shafts, opposite portions of said chain being secured to the respective tables, means for rotating said lateral shafts to selectively move said tables towards or away from each other, a pair of spaced rails extending laterally across said tables, means for supporting said rails over said tables in a fixed position relative said bed, a carriage movable on the track formed by said rails, and a removable material-receiving frame engageable with said carriage, the latter operative to carry said frame with the material to be stitched during the latter's passage through the stitching mechanisms.

4. A stitching machine of the kind described comprising a stationary bed, a pair of opposed tables slidably carried by said bed, a stitching mechanism mounted on each table in opposed relation, a longitudinally extending driving shaft journaled on one table below the top thereof and a parallel driven shaft journaled on the other table below the top thereof, said shafts being operatively connected by a pair of gears carried by their respective shafts, one of said gears being slidably laterally along its respective shaft, belts operatively connecting said shafts and the respective mechanism, a pair of spaced rails extending laterally across said tables respectively contiguous to said mechanisms, means for supporting said rails in a fixed position relative to said bed, a carriage movable on the track formed by said rails, a removable material-receiving frame engageable with said carriage, fastening means on said frame adapted to hold the material against movement relative to said frame, the carriage being operative to carry said frame with the material to be stitched during the latter's passage through the stitching mechanisms.

5. In a stitching machine for pads, quilts, and similar articles comprising a plurality of sheets of material of the kind described, two oppositely positioned inwardly projecting stitching mechanisms, a support on which said mechanisms are adjustably movable towards and away from each other, means operable to simultaneously actuate said mechanisms regardless of adjustable movement thereof, a carriage reciprocally movable transversely to the direction of adjustable movement of said mechanisms, said carriage providing a receptacle, a frame removably mounted in and closely fitting said receptacle and providing a

support for material to be stitched, said frame being so positioned that the material carried thereby is fed through said mechanisms.

6. In a stitching machine of the kind described, two oppositely positioned inwardly projecting stitching mechanisms, a support on which said mechanisms are adjustably movable towards and away from each other, a drive shaft, means operatively connecting said shaft with said mechanisms regardless of adjustable movement thereof, a track extending transversely to the direction of adjustable movement of said mechanisms, a carriage movable on said track, said carriage providing a receptacle, a frame removably mounted in and closely fitting said receptacle and providing a support for material to be stitched, and fastening means adapted to hold and maintain said material to be stitched against movement relative to the frame, said frame being so positioned that the material carried thereby is operatively engaged by said mechanisms and parallel lines of stitches formed therein.

7. In a stitching machine of the kind described, two oppositely positioned inwardly projecting stitching mechanisms, a support on which said mechanisms are adjustably movable towards and away from each other, means operable to actuate said mechanisms regardless of adjustable movement thereof, a track extending transversely to the direction of adjustable movement of said mechanisms, a carriage movable on said track, said carriage providing a receptacle, a frame mounted in and closely fitting said receptacle and providing a support for material to be simultaneously stitched by said mechanisms, fastening means adapted to hold said material to be stitched against movement relative to the frame, said frame being so positioned that the material carried thereby is operatively engaged by each of said mechanisms, a pair of spools of fabric strips mounted on said support and respectively contiguous to said mechanisms, the strips carried by the spools being adapted to be unwound and stitched to the material carried by the frame as said material is fed through the mechanisms.

8. In a stitching machine of the kind described, two oppositely positioned inwardly projecting stitching mechanisms, a support on which said mechanisms are adjustably movable towards and away from each other, means operable to move said mechanisms towards and away from each other to selectively vary the spacing of the lines of stitches respectively formed thereby, power actuated means operable to actuate said mechanisms regardless of adjustable movement thereof towards and away from each other, a track extending transversely to the direction of adjustable movement of said mechanisms, a carriage movable on said track, said carriage providing a receptacle, a frame mounted in and closely fitting said receptacle, and providing a support for a plurality of layers of fabric to be simultaneously stitched together by said mechanisms, and a pair of spools of fabric strips respectively positioned contiguous to said mechanisms and adjustably movable therewith, the respective strips carried by said spools being adapted to be unwound and stitched to the material carried by the frame as said material is fed through the mechanisms.