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MATTRESS STITCHING APPARATUS

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FIG. 4

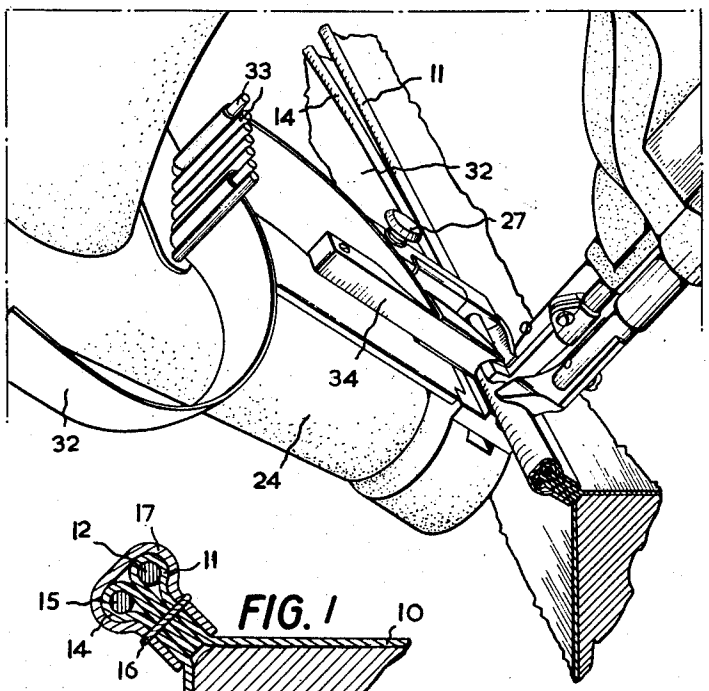

FIG. 1

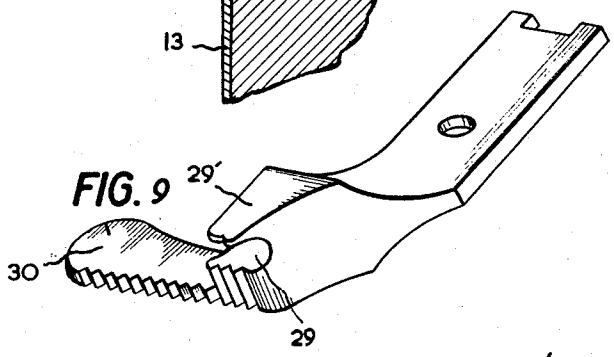

FIG. 9

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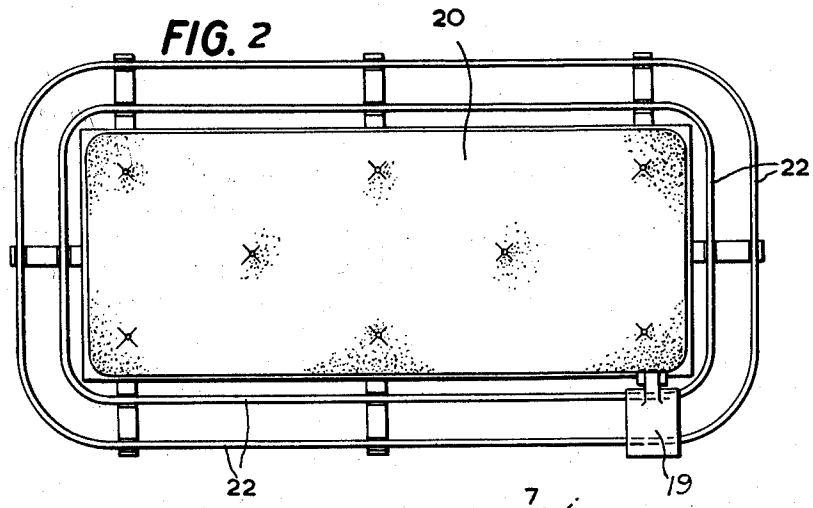
FIG. 2



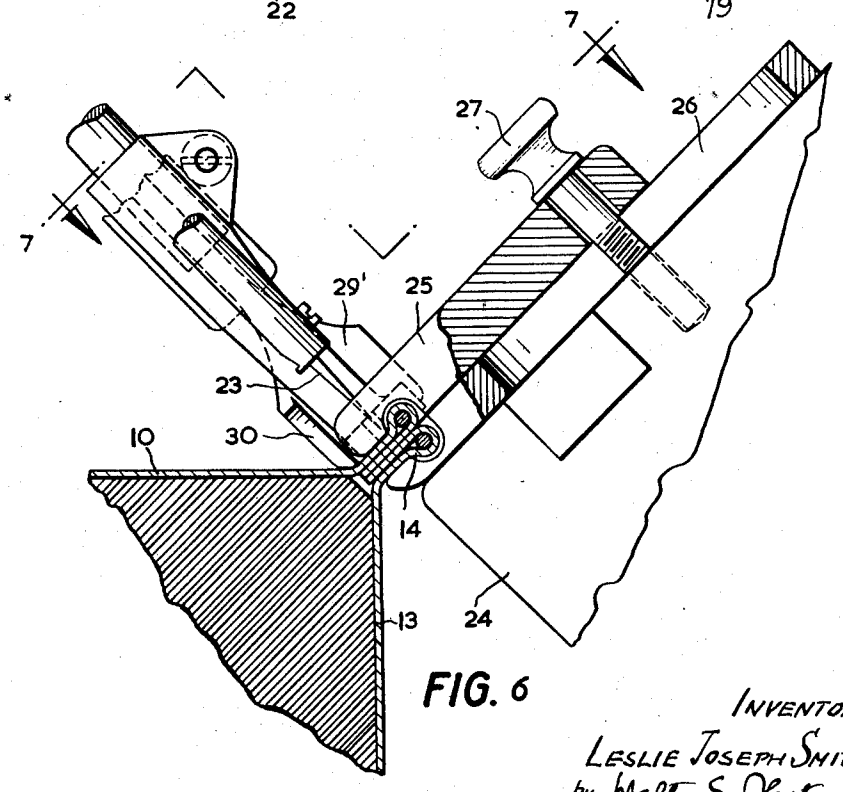


FIG. 6

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FIG. 5

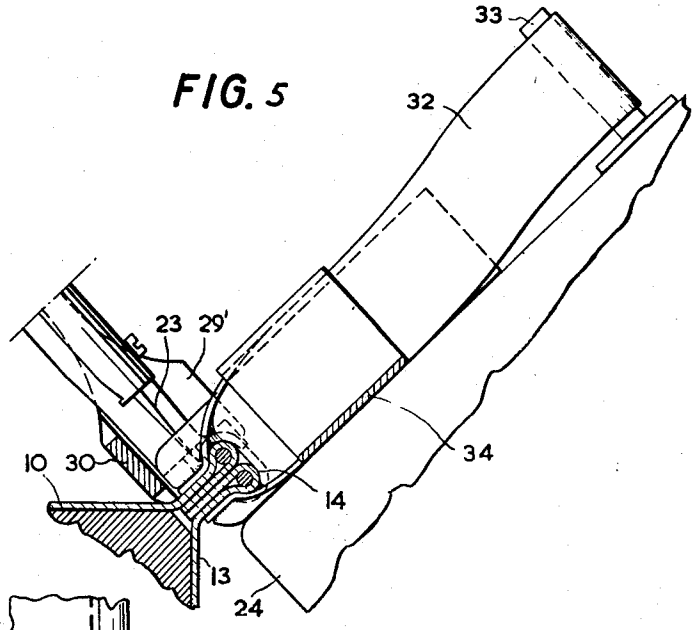
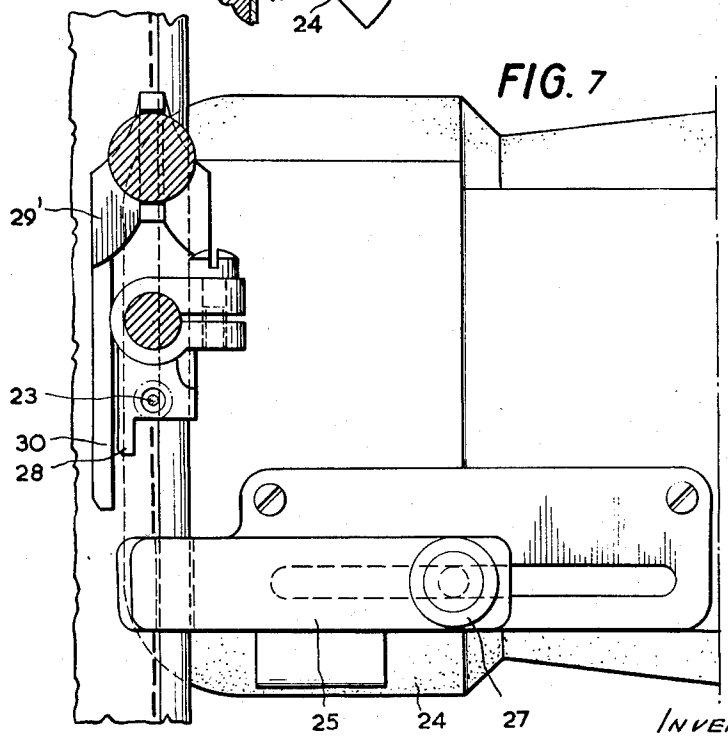


FIG. 7



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MATTRESS STITCHING APPARATUS

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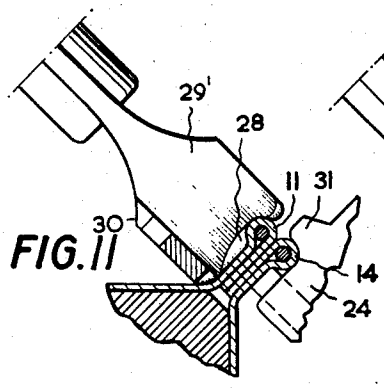

FIG. 11

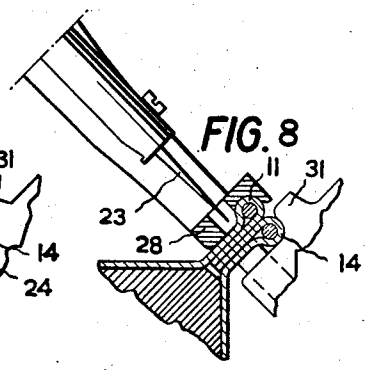

FIG. 8

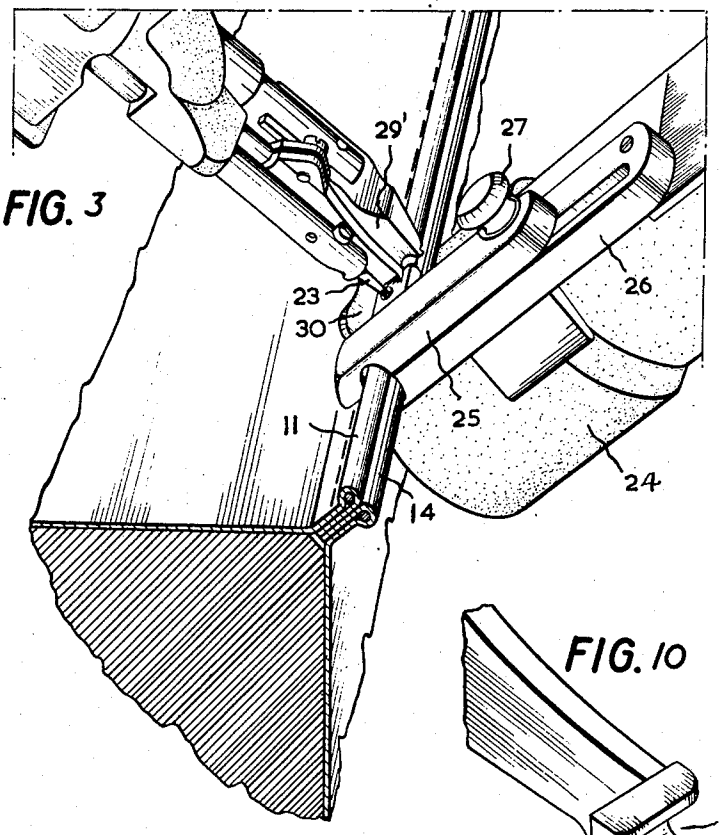

FIG. 3

FIG. 10

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United States Patent Office 2,915,027 Patented Dec. 1, 1959

2,915,027

MATTRESS STITCHING APPARATUS

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Application July 2, 1957, Serial No. 669,658

Claims priority, application Great Britain July 14, 1956

2 Claims. (Cl. 112—3)

This invention relates to improvements in the manufacture of mattresses and other articles in which one operation is the stitching together of the adjacent edges of fabric components which form parts of a case enclosing a filling.

In mattresses of the spring center type the filling, which consists of a spring center and appropriate padding, is usually enclosed in a case or cover comprising top and bottom tickings secured around their edges to a preformed fabric border.

Hitherto, in finishing the case or cover of a mattress the usual practice has been to bring the edges of the tickings and of the outer layer of the border together, fold a tape over them, and stitch through the tape and through the fabric. This operation is performed by a sewing machine travelling on a rail or guide around a table on which the assembled mattress is placed, the edges of the fabric being guided into the machine by an operator.

One object of this invention is to enable the stitching together of the edges of fabric components to be effected completely automatically.

The invention comprises a method of securing together adjacent edges of fabric components of a mattress or other article consisting in forming beaded edges on the components by folding the fabric around a cord and stitching the fabric, and securing the edges together by a sewing machine having means for receiving and automatically bringing into correct alignment the two beaded edges and for applying a line of stitching through the edges on the inner sides of the beads.

The machine may also feed and apply a tape which is folded over the beaded edges and stitched simultaneously but the tape is not essential and its omission reduces the cost of the article.

The provision of the beaded edges enables the operation of sewing together two fabric components of a mattress to be made entirely automatic so that the services of a skilled operator can be dispensed with.

In a practical application of the invention to the assembly of a mattress case or cover, the mattress is placed on a table round which the sewing machine is guided on a rail, and the machine has a presser foot with two co-operating interconnected grooves or recesses.

The two beaded edges to be joined are placed in these grooves or recesses at the beginning of the operation, and then the machine runs around the mattress stitching the two edges together without any hand guiding since the beading of the edges forms a sufficient guide to keep the presser foot in its correct location. On completion of the stitching operation the machine automatically comes to a halt when it reaches the end of the beaded edge.

Where the usual tape is still included, it is fed automatically into the same machine and is secured by the same stitching operation that secures the two edges together.

This improved method of finishing can be used equally well whether or not the mattress is provided with a roll edge.

One practical apparatus for carrying the invention into practice is illustrated by way of example in the accompanying drawings in which:

Figure 1 is a section through one corner of a mattress.

Figure 2 is a plan of a mattress on a table on which the case is finished.

Figure 3 is a perspective view of the operative parts of a sewing machine by which the beaded edges of adjacent portions of the mattress case are brought together and stitched.

Figure 4 is a perspective view of the operative parts of the machine from the other side showing the application of a tape over the beaded edges of the mattress case.

Figure 5 is a fragmentary transverse section of part of the mechanism shown in Figure 4, showing the feeding of the tape on to the beaded edges.

Figure 6 is a side elevation in part section of the operative parts of the machine.

Figure 7 is a section on the line 7—7 of Figure 6.

Figure 8 is a fragmentary section of the presser foot of the sewing machine showing the needle.

Figure 9 is a fragmentary section showing the feed dog of the sewing machine.

Figure 10 is a perspective view of the presser foot.

Figure 11 is a fragmentary section showing the disposition of the feed dog in relation to the machine.

In Figure 1, which is a section through one corner of a finished mattress, **10** is the top ticking of the mattress case which is provided with a beaded edge **11** formed by folding the fabric around a cord **12** and stitching it. The border **13** of the mattress is provided with a similar beaded edge **14** formed by folding the fabric around a cord **15** and stitching it.

The two beaded edges are brought into alignment and are secured together by a line of stitching **16** on the inner side of and parallel to the cords. If desired, a tape **17** may be folded over the beaded edges and stitched simultaneously to make a neat and attractive finish but the tape is not essential.

The bringing together and stitching of the beaded edges are effected automatically by a sewing machine travelling around a table on which the mattress to be finished is placed as shown in the remaining figures of the drawings and as described below. The sewing machine, as disclosed in the drawing, is of the type having an overhanging arm, including a feed dog, presser foot and needle mechanism, and a spaced, lower supporting arm.

The mattress **20** is placed on a table **21** around which extend rails **22** on which a sewing machine **19** is guided. The machine is mounted on the rails in such a position that the line of movement of the needle **23** is at an angle of 45° to the plane of the top or ticking of the mattress, and the work is backed by a rigid arm **24** at right angles to the line of movement of the needle.

Co-operating guide members **25**, **26** mounted on the arm **24** in advance of the needle receive the beaded edges **11** and **14** and bring them together in correct alignment. The outer guide member **25** is held in position by a milled screw **27** which is slackened off to allow the guide members to be separated while the beaded edges are introduced into the channel formed by co-operating grooves in the inner ends of the guide members. The beaded edges are maintained in alignment by a groove **27'** in the presser foot **28** of the machine, a groove **29** in a flange **29'** on the feed dog **30**, and a shoulder **31** on the arm **24** while the needle stitches

through the two parts of the mattress case on the inner side of the beaded edges.

If it is desired to enclose the beaded edges in a tape a roll of tape is mounted on the body of the machine, and the tape **32** is taken over feed regulating pins **33** as shown in Figure 4 and fed to a fitting **34** of known type which folds it over the beaded edges just in advance of the needle.

Once the beaded edges on the mattress case have been inserted into the guides and the machine has been started the operation proceeds entirely automatically, the machine travelling around the table until it again reaches its starting point where it is stopped.

It will be appreciated that the sewing machine illustrated in the drawings is shown by way of example only and that any other type of machine can be used provided it has means for receiving the beaded edges on the mattress case and holding them in alignment while the stitching takes place.

I claim:

1. In a machine of the type described, a sewing machine having an overhanging arm and a work supporting arm, sewing instrumentalities including a needle and presser foot in the overhanging arm, a table adapted to support a mattress thereon, means for guiding the sewing machine adjacent the edge of the table for movement therearound, means for superimposing and aligning the beaded, folded-over edges of ticking adjacent the forward edge of the presser foot, a feed dog mounted in the said overhanging arm to the rear of said presser foot, said presser foot and said feed dog being grooved to receive in the grooves one of the said beaded edges, and shoulder means on said supporting arm extending in the direction of movement of the material through the machine and forming an abutment below one of the walls of the grooves in the presser foot and feed dog so as to engage the other bead.

2. A device as in claim 1, further comprising strip guide means mounted on said work supporting arm having an outlet positioned between said superimposing and aligning means and said presser foot for directing a tape around said beaded edges.

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