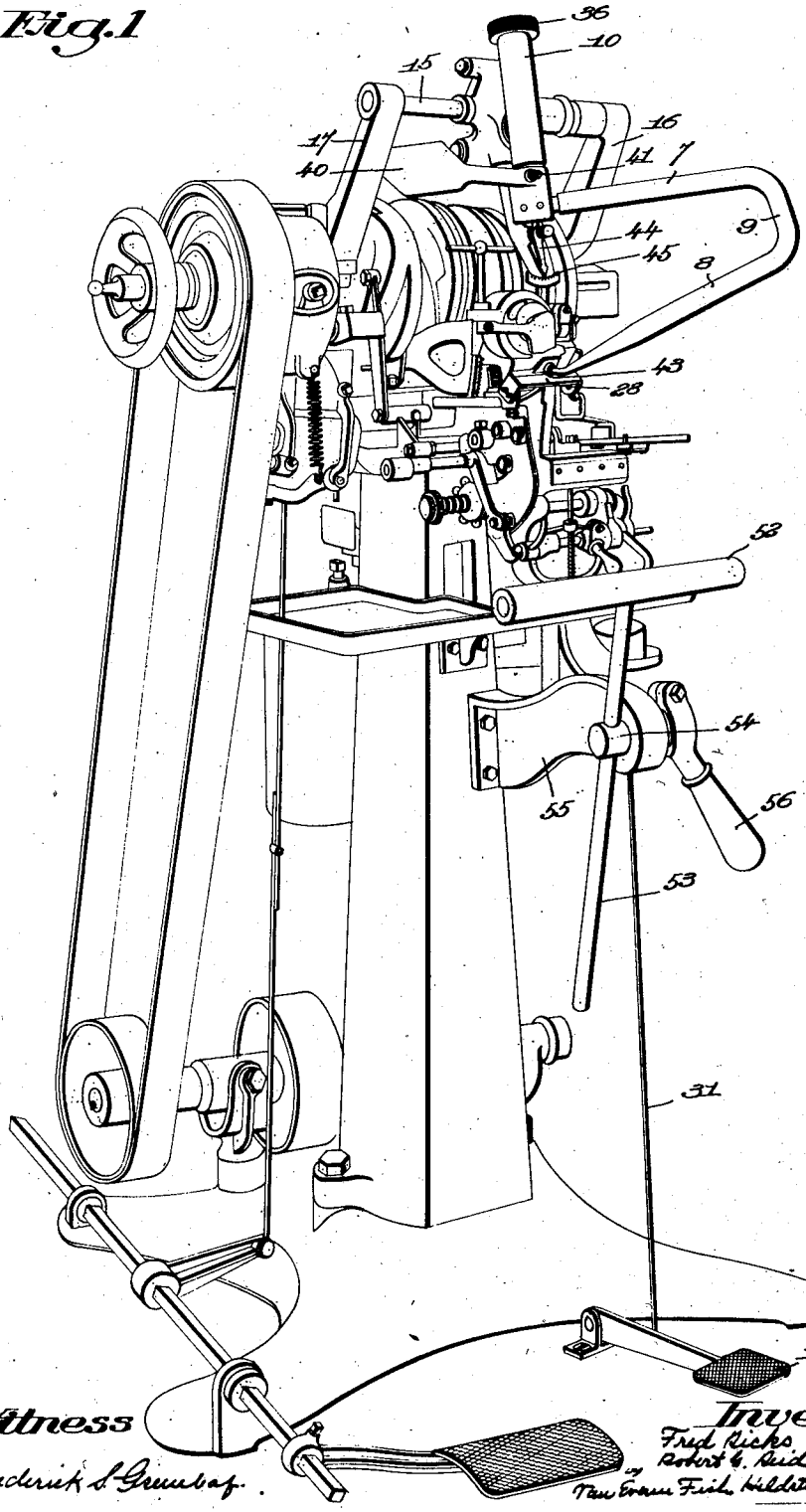
Dec. 18, 1928. 1,695,718

F. RICKS ET AL

MACHINE FOR SEWING BAGS

Filed Feb. 8, 1923 3 Sheets-Sheet 1

Fig. 1



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MACHINE FOR SEWING BAGS

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Fig. 6

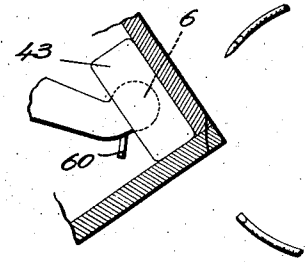


Fig. 7

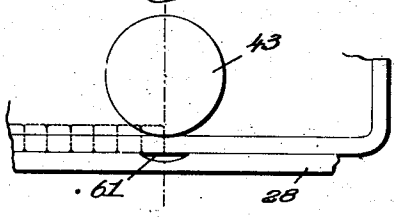


Fig. 8

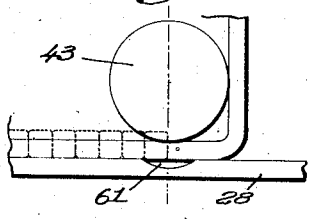


Fig. 9

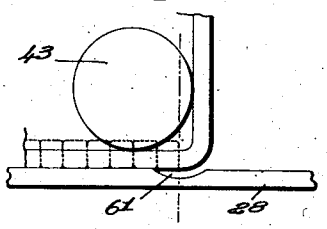


Fig. 10

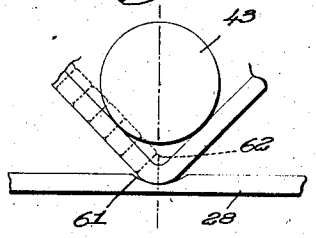


Fig. 11

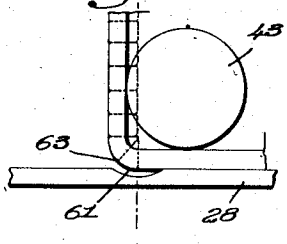
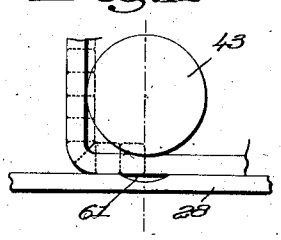


Fig. 12



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MACHINE FOR SEWING BAGS

Filed Feb. 8, 1923 3 Sheets-Sheet 2

Fig. 2

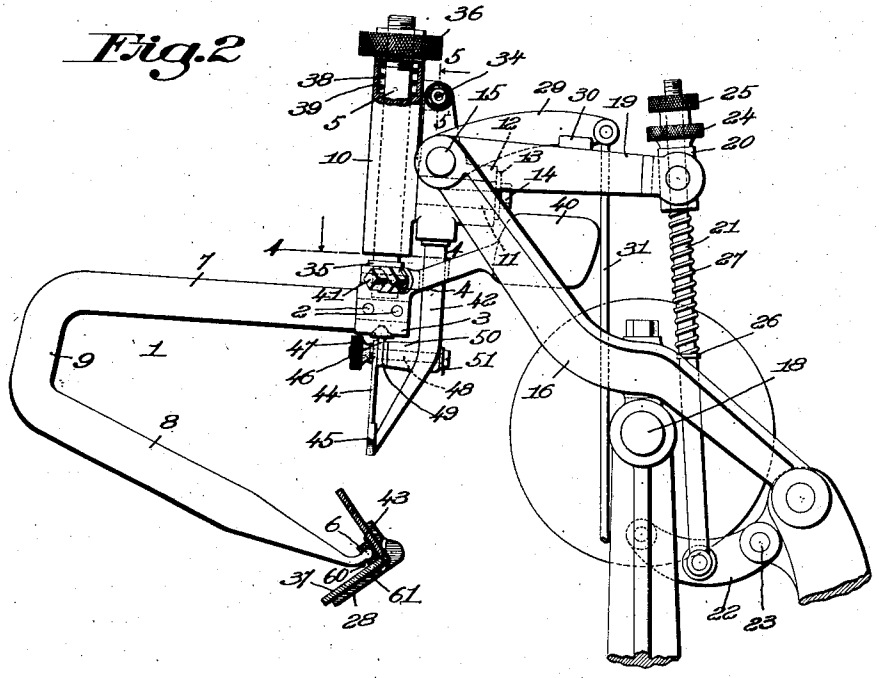


Fig. 3

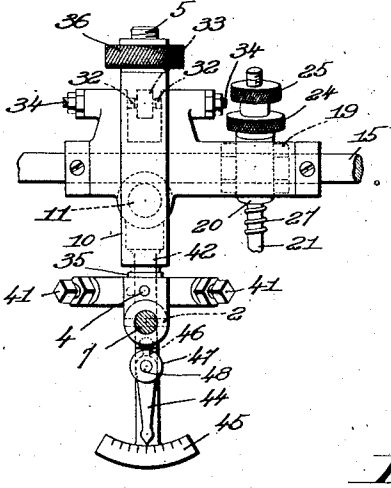


Fig. 4

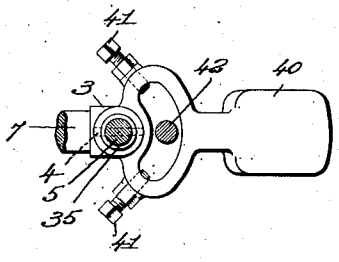
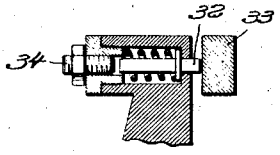


Fig. 5



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Patented Dec. 18, 1928. 1,695,718

UNITED STATES PATENT OFFICE.

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MACHINE FOR SEWING BAGS.

Application filed February 8, 1923, Serial No. 617,702, and in Great Britain March 2, 1922.

The invention relates to sewing the corner seams of leather bags or like articles the parts for which, such, for instance, as the side and bottom pieces, are secured together by stitches passing through their abutting edges at an inclination to both the adjoining faces of the article.

One object of the invention is to render unnecessary the accurate cutting to shape of the pieces of stock of which the bag or other article is made incident to the use of internal supporting forms which must fill and accurately fit the interior of the bag if they are to afford an efficient and satisfactory support during the sewing of the corners. With this object in view one feature of the invention contemplates the use of a horn or the like which enters the work and affords purely local support to the parts at the place and time where and when they are being sewn together, the horn or the like being given such capacity for movements as admits of its being effective throughout a continuous operation of sewing along different sides of a bag and round the corners without the necessity of retracting it from engagement with the work as the latter changes from one to another of widely differing positions in the course of this operation. Further features of the invention which are concerned with supporting the work internally in such manner as contrasted with supporting the work internally by a bag filling form are the provision of a movably mounted bag entering horn or the like having at its work engaging extremity a swivel tablet which seats itself snugly on the work in the different positions which the work takes up during the operation; and the provision of a bag entering horn operatively connected to the sewing machine and mounted to have freedom for both rotary movement and movement along the line of feed of the work during sewing.

In sewing bag corners or the like the placing of the stitches with accuracy in definite locations in the bag when sewing around a bag corner at the end of a bag is an important consideration and it is a further object of the invention to make effective provision for thus placing the stitches In pursuance of this object a feature of the invention comprises the provision of means for supporting the work externally by engagement of different faces thereof at the sewing location by respective parts of said means having faces in mutually perpendicular planes and allowing free movement of the work along the line of feed in sewing a straight section of the work together with means restraining such free movement when the bag is swung to sew round one of its end corners so as by reason of such restraint to temporarily locate the work in a definite relation, along the line of feed, to the sewing instrumentalities during such end corner sewing; and a further feature comprises the provision of movable indicating means operatively coupled both to the machine and workpiece and moving so as to indicate readily and with precision to the operator the point which the sewing has attained on the work or the point on the work which the next stitch will enter when the sewing operation is being conducted at or near a portion of the work, such as a bag end corner, which he cannot with readiness directly inspect.

The above and other objects and features of the invention will become manifest upon consideration of the following description of the construction shown in the accompanying drawings which embodies the various features of the invention in their preferred forms.

In the drawings Fig 1 is a perspective view showing so much of a curved needle lock stitch sewing machine as is necessary to illustrate the application of the preferred form of the invention thereto; Fig 2 is a side elevation partly in section and on a larger scale of the horn mechanism shown in Fig 1; Fig. 3 is a front elevation of a part of the horn mechanism; Fig. 4 is a sectional view on line 4—4, Fig. 2; Fig. 5 is a sectional elevation on an enlarged scale on line 5, Fig. 2; Fig. 6 shows a section of a bag and the operative relationship of a horn tip or swivel tablet of the horn mechanism and a needle sewing mechanism, and Figs. 7 to 12 illustrate diagrammatically various stages in the operation of sewing round a corner of a bag.

The invention is shown applied to a lock stitch sewing machine having the construction and mode of operation of the machine shown and described in Patent No. 473,870 dated April 26, 1892. This machine is pro-

vided with stitch forming and work feeding devices fully shown and described in said patent and including a curved hook needle and an awl. The machine is also provided with a work support 28 having two work supporting faces arranged at right angles to each other and with their line of intersection extending along the line of feed. These surfaces form unyielding external supports for the faces of the work adjoining a corner and the work support is so mounted that both of these surfaces are at an inclination to the needle path, and that this inclination may be varied by adjustment of the support. A horn 1 is also provided which is fixed by pins 2 in a block 3 secured by a pin 4 on the lower end of a spindle 5 the axis of which is in alinement with the tip 6 of the horn so that the horn may rotate about this axis without displacing the tip. A clearance or horn gap of some seven inches between the tip 6 and the block 3 and of some ten inches perpendicularly of the line in which the tip 6 and spindle 5 lie is provided. The horn 1 comprises two practically straight limbs 7 and 8 joined by a straight portion 9. Both these limbs 7 and 8 lie in a single plane with the spindle 5 and that limb 7 connected to the block 3 is substantially perpendicular to the spindle while the other limb 8 makes an angle of some twenty-five degrees to said limb. The spindle 5 extends through a bearing 10 which has a shaft 11 perpendicular to the bearing. The shaft 11 is rotatably mounted in a member 12 and is prevented from endwise movement therein by a washer 13 and screw 14. The member 12 is rotatably mounted on a shaft 15 fixed in brackets 16, 17 secured to the frame. The shaft 15 is above and slightly in front of the cam shaft 18 of the machine and is parallel to the line of feed during sewing and the arrangement is such that the horn extends downwardly from the member 12 and can be swung by it, or can swing it, in a vertical plane extending perpendicularly of the cam shaft about the shaft 15. The normal position of the horn is such that the spindle 5 extends downwardly and forwardly at an angle of some five degrees to the vertical which angle is increased as the horn is swung about said shaft 15 to bring the horn tip at its lower end away from engagement with the work. The member 12 has a rearwardly extending arm 19 in which is trunnioned a block 20 through which slides a rod 21 pivoted at its lower end to a lever 22 pivoted on the frame of the machine at 23 and actuated by a cam on the cam shaft 18 (which may be the usual presser foot cam) so as to have the same timing of rise and fall as the boot or shoe presser-foot customarily has when it is present in the class of sewing machine to which these bag-sewing parts are considered as fitted. The rod 21 has upon it above the block 20 an adjustable nut 24 and lock nut 25 and below the block (and confined between the block 20 and a collar 26 on the rod 21) a compression spring 27 so that on upward movement of the rod the horn is yieldingly urged against the work on the work-support 28 and is on downward movement of the rod retracted positively from the work-operations which occur in each stitch forming cycle of operations of the machine to cause a to and fro movement of the horn tip to clamp the work at one time and free it for the feeding at another time. An arm 29 pivoted on the shaft 15 has a projecting lug 30 which, when the arm is pulled down through a rod 31 by depression against the action of a treadle spring, of a treadle 131 to which the rod is connected, engages the arm 19 and swings the arm and member 12 about the shaft 15 and thereby swings the horn tip away from the work to give an extra clearance for insertion or removal of the bag.

Spring pressed plungers 32, bearing on opposite sides of a lug 33 projecting from the bearing 10 normally centralize the bearing so that it lies in a vertical plane through the needle plane, are backed up each by an adjustable stop screw 34 so that the amount of rocking movement about the axis of the shaft 11 permitted can be varied. The horn spindle 5 has a limited adjustable axial movement in the bearing 10 its upward movement being limited by a collar 35 on the spindle engaging the lower surface of the bearing and its downward movement being limited by an adjustable collar 36 (threaded on to the upper end of the spindle) engaging the top of the bearing. This axial freedom of the horn spindle allows of the horn tip rising and falling slightly across the path of its swinging movement on the horizontal shaft 15 aforementioned so that its tip may move rectilinearly along the inner (upper) surface 37 of the lower of the two pieces to be joined as it moves into the corner formed by the two pieces which corner may be as will be understood differently positioned according to the thicknesses of the two pieces which are entirely located by their outer faces. A compression spring 38 confined between the lower face of the collar 36 and the bottom of a recess 39 formed in the bearing 10 is sufficient to balance the bulk of the weight of the horn while leaving it normally in its lowest position. The horn spindle 5 is free to rotate in its bearing 10 to lie in different directions in the bag and the horn is counter-balanced by a weighted arm 40 projecting from the block 3. The rotation of the horn is limited, by appropriate stop screws 41, 41 in the arm 40 with either of which a pin 42 extending from the member 12 may abut, to an angle of somewhat less than forty-five degrees to either

side of a central position in which the horn limbs lie extending forwardly towards the operator in a vertical plane perpendicular of the cam shaft.

The horn tip 6 is spherical and the work is actually engaged by a small tablet or roll 43 having a spherical seat for the spherical horn tip so that the tablet while securely held on the horn tip can freely rock on the latter in any direction.

Tipping movement of the roll 43 about the tip 6 on a horizontal axis when no work is in the machine is limited by a pin 60 projecting from the tip. The tip is thus prevented from taking up a position from which it would not readily seat itself in the angle formed by the two pieces of stock when it is swung into engagement with the stock.

The face of the tablet opposite to that in which is the spherical seat engages the inner surface of the upper of the two pieces of stock to be joined. The inner face of the other piece of stock is engaged by the edge face of the tablet which is perpendicular to the aforementioned face of the tablet.

During sewing the tablet 43 acts to hold the two pieces of stock securely against the two mutually perpendicular external work-supporting faces of the work support 28 and this action is (owing to the size of the tablet) extended for some little distance on each side of the needle plane. As the sewing proceeds into a bag end corner a point is reached at which the tablet is struck by the inside of the corner formed by the work pieces. The offset of this corner from the needle plane is such that the operator can be certain that between the point at which this contact occurs and the point at which the bag must be swung round to carry the stitching round the bag corner there is room at the very least for a complete stitch it being understood that the rotatable shaft 11 allows the tablet to move bodily with the bag during these corner stitching operations.

Having made this last mentioned stitch, the operator stops the machine momentarily and ascertains the relationship of a pointer 44 and a scale 45. The pointer 44 and an arm 46, having a rounded end which projects into a recess formed in a boss on the block 3, are clamped by a hand-nut 47 on a rod 48. By loosening the nut 47 the pointer and arm may be relatively adjusted to initially set the pointer. The rod 48 has on it a collar 49 against which the pointer and arm are clamped and is rotatably mounted in a bearing 50 on the pin 42 being held in the bearing by a screw and washer 51. The scale 45 is formed on the lower end of the pin 42. When the pointer 44 is in line with a definite one of the index marks on the scale 45 it is an indication that the work is in a position at which it has to be turned to bring the stitching round the bag corner and the time has been reached at which the work-feed action of the awl should be temporarily cut out. Accordingly if upon the operator inspecting this indicating mechanism at the time indicated he should observe that the point falls so far short of indicating the time for turning the work that he can insert another stitch either of full length or a shortened one he does so, after altering the position of the feed-length control lever if a shortened stitch is requisite, by allowing the machine to run for one revolution only. This revolution completed the operator cuts out the feed motion altogether and causes the machine to put in one or more corner stitches as he gradually swings the bag round on its corner. It will be understood that the needle pricks into the work at positions either at the same point or at very closely adjacent points on the one surface of the work but emerges during these corner stitches at positions successively spaced round the corner on the other face of the work. As the bag is swung round the tablet rotates with it and as soon as the work has been swung through a right angle (and is once more in full contact with the plane faces of the external work support) and the needle has once pierced the work and a stitch been set in this new position the feed mechanism is once more thrown into operation.

To steady the work in this turning position and to prevent the stitches being drawn into the work when inserted diagonally at the corner and also to maintain the point or points at which the needle enters the work, when inserting stitches diagonally at a square corner, in line with the line of points at which the needle enters the work when stitching along a straight side a shallow groove 61 is formed in the needle plate in and transversely across the face of the lower external work-supporting face of the work-support 28 into which groove the bag corner where it rests on said face sinks somewhat when the bag is resting on that corner and which groove therefore at that time resists feeding movement of the work along that face so that the operator may have a certain amount of assistance from this part in limiting the movement of the work at that time to a purely swinging movement.

Figure 7 illustrates the relative position of the tablet 43 and groove 61 while stitching along a straight side of the bag, the tablet being at this time centrally alined with the groove.

In Figure 8 the tablet and groove are still in the same relative position and the stitching has proceeded along the side of the bag until the inside of the end of the bag is just in engagement with the edge of the tablet.

In Figure 9 the tablet has been moved

laterally about the axis of the shaft 11 by the movement of the bag which is now in a position to be turned for stitching at the corner.

Figure 10 shows the bag after it has been turned to put in a stitch 62 at the corner, at which time the feed has been cut out and the tablet has returned to its centralized, although somewhat raised position.

Figure 11 shows the bag again turned and the first stitch 63 of a fresh run put in, the tablet being displaced laterally in the opposite direction to that shown in Figure 9 and

Figure 12 shows the tablet again centralized and the first few stitches of the fresh run.

An auxiliary work support comprises a bar 52, covered with felt, from which projects downwardly a stem 53 which passes through a bolt 54 in a bracket 55 fixed on the column of the machine. A hand nut 56 is threaded on the bolt and clamps the stem 53 against the side of the bracket. By slackening the hand-nut the bar 52 may be raised or lowered and swung towards or from the machine as desired.

We claim:

1. A machine for sewing bags or like articles having, in combination, stitch forming devices, means for externally supporting the work with both faces adjacent a corner at an inclination to and intersecting the needle path, an internal support past which the work is fed, means for retaining the support at the sewing point during the sewing of a straight edge and permitting it to shift from side to side of the sewing point in the line of feed as the bag is turned to locate the stitches about an end corner.

2. A machine for sewing bags or like articles having, in combination, stitch forming devices, means for externally supporting the work with both faces adjacent a corner at an inclination to and intersecting the needle path, a movably mounted bag entering horn having at its work engaging tip a universally swivelled tablet for internally supporting the work in its different positions during the sewing.

3. A machine for sewing bags or like articles having, in combination, stitch forming devices, means for externally supporting the work with both faces adjacent a corner at an inclination to and intersecting the needle path, and a bag entering horn mounted for rotary movement during the sewing about an axis passing through its work engaging tip and for movement along the line of feed.

4. A machine for sewing bags or like articles having, in combination, stitch forming devices, means for externally supporting the work with both faces adjacent a corner at an inclination to and intersecting the needle path, a bag entering horn mounted for rotary movement during the sewing about an axis passing through its tip, and a swivel tablet at the tip of the horn for internally supporting the parts at the sewing point.

5. A machine for sewing bags or like articles having, in combination, stitch forming devices, means for externally supporting the work with both faces adjacent a corner at an inclination to and intersecting the needle path, and an internal support for engaging the parts at the sewing point, and means for actuating the internal support to clamp and release both parts of the work during each stitch forming and work feeding cycle.

6. A machine for sewing bags or like articles having in combination, stitch forming devices, means for externally supporting the work with both faces adjacent a corner at an inclination to and intersecting the needle path, a bag entering horn having a work engaging tip for internally supporting the parts at the sewing point, and mechanism for advancing and retracting the horn during each stitch forming and work feeding cycle.

7. A machine for sewing bags or like articles having, in combination, stitch forming devices, means for externally supporting the work with both faces adjacent a corner at an inclination to and intersecting the needle path, and a bag entering horn having a pivot shank, a work engaging tip in alinement with said shank and having a gap for the work between its tip and shank.

8. A machine for sewing bags or like articles having, in combination, stitch forming devices, means for externally supporting the work with both faces adjacent a corner at an inclination to and intersecting the needle path, a bag entering horn having a pivot shank, a tip in alinement with said shank and a horn gap for the work between the tip and shank, and a bearing for the shank in which it is free to rotate and move axially.

9. A machine for sewing bags or like articles having, in combination, stitch forming devices, means for externally supporting the work with both faces adjacent a corner at an inclination to and intersecting the needle path, a bag entering horn having a shank in alinement with its tip and a horn gap for the work between the tip and shank, a bearing for the shank in which it is free to rotate, and mechanism for oscillating the bearing crosswise of the feed during the sewing.

10. A machine for sewing bags or like articles having, in combination, stitch forming devices, means for externally supporting the work with both faces adjacent a corner at an inclination to and intersecting the needle path, a bag entering horn having a shank in alinement with its tip and a horn gap for the work between the tip and shank, a bearing for the shank in which it is free to rotate, and means for supporting the bearing

to swing in the line of or crosswise of the feed.

11. A machine for sewing bags or like articles having, in combination, stitch forming devices, means for externally supporting the work with both faces adjacent a corner at an inclination to and intersecting the needle path, a bag entering horn having a pivot shank, a tip in alinement with said shank at right angles to the line of feed, and a swivel tablet at the tip of the horn.

12. A machine for sewing bags or like articles having, in combination, stitch forming devices, means for supporting the work externally having work engaging faces in mutually perpendicular planes inclined to the needle path and allowing free movement of the work in sewing a straight section, and means for restraining such free movement to locate the work with relation to the stitch forming devices when it is swung to sew around one of its end corners.

13. A machine for sewing bags or like articles having, in combination, stitch forming devices, and a work support having work engaging faces in mutually perpendicular planes at an inclination to the needle path and having a groove extending across one of said faces in the plane of the needle to locate the end corner while sewing about it.

14. A machine for sewing bags or like articles having, in combination, stitch forming devices, means for supporting the work to sew a corner seam, and means for indicating the relation of an end corner to the sewing point as the sewing of a straight section is completed.

15. A machine for sewing bags or like articles having, in combination, stitch forming devices, means for externally supporting the work with both faces adjacent a corner at an inclination to and intersecting the needle path, an internal support for engaging the parts at the sewing point and movable in the line of feed when engaged by an end corner of the bag, and an indicating device actuated by said movement to indicate the relation of the end corner to the sewing point.

16. A machine for sewing bags or like articles having, in combination, stitch forming devices, unyielding work-supporting means for engaging both external faces adjacent a corner and positioning them at an inclination to and intersecting the needle path, and a yieldingly mounted internal support for engaging and supporting the work at the sewing point.

17. A machine for sewing bags or like articles having, in combination, stitch forming devices, a work-support having unyielding work-engaging faces in mutually perpendicular planes at an inclination to the needle path, a bag-entering horn, and means for yieldingly pressing the horn tip into the angle between the faces of the work-support.

18. A machine for sewing bags or like articles having, in combination, stitch forming devices, unyielding work-supporting means for engaging both external faces adjacent a corner and positioning them at an inclination to and intersecting the needle path, a bag-entering horn mounted to swing freely during the sewing about an axis passing through its tip and for movement along the line of feed, and means for yieldingly pressing the tip into the angle between the internal faces of the work at the sewing point.

19. A machine for sewing bags or like articles having, in combination, means for externally supporting the work with both faces adjacent a corner at an inclination to the needle path, a rotary horn freely movable to lie in different directions within the work during the sewing, and supporting means for the horn permitting movement of the horn along the line of feed during the sewing.

20. A machine for sewing bags or like articles having, in combination, means for externally supporting the work with both faces adjacent a corner at an inclination to the needle path, a horn freely movable about an axis to lie in different directions within the work, and a support for the horn mounted to swing in the line of feed.

21. A machine for sewing bags or like articles having, in combination, means for externally supporting the work with both faces adjacent a corner at an inclination to the needle path, a horn freely rotatable about an axis passing through its tip to lie in different directions within the workpiece during the sewing, and a support for the horn mounted to swing in the line of feed and transversely thereof.

22. A machine for sewing bags or like articles having, in combination, stitch forming devices, means for externally supporting the work with both faces adjacent a corner at an inclination to and intersecting the needle path, an internal support past which the work is fed and means for retaining the support at the sewing point during the sewing of a straight edge while permitting it to shift to one side of the sewing point in the direction of feed as the seam approaches the end corner of the bag.

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