

Oct. 3, 1950

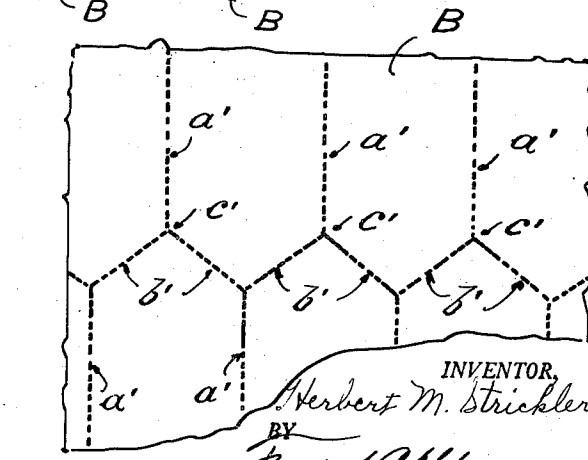
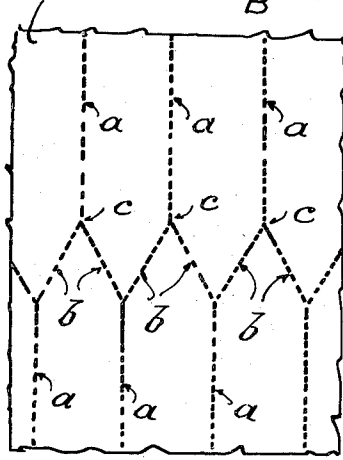
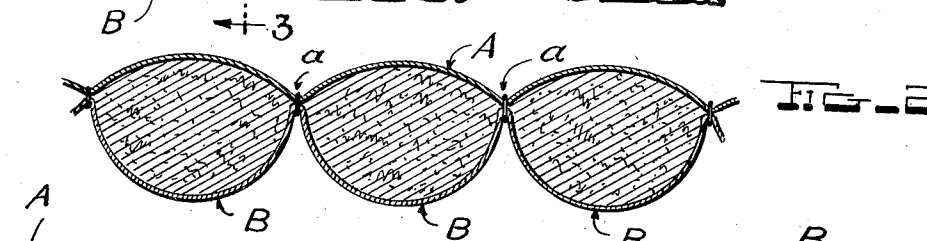
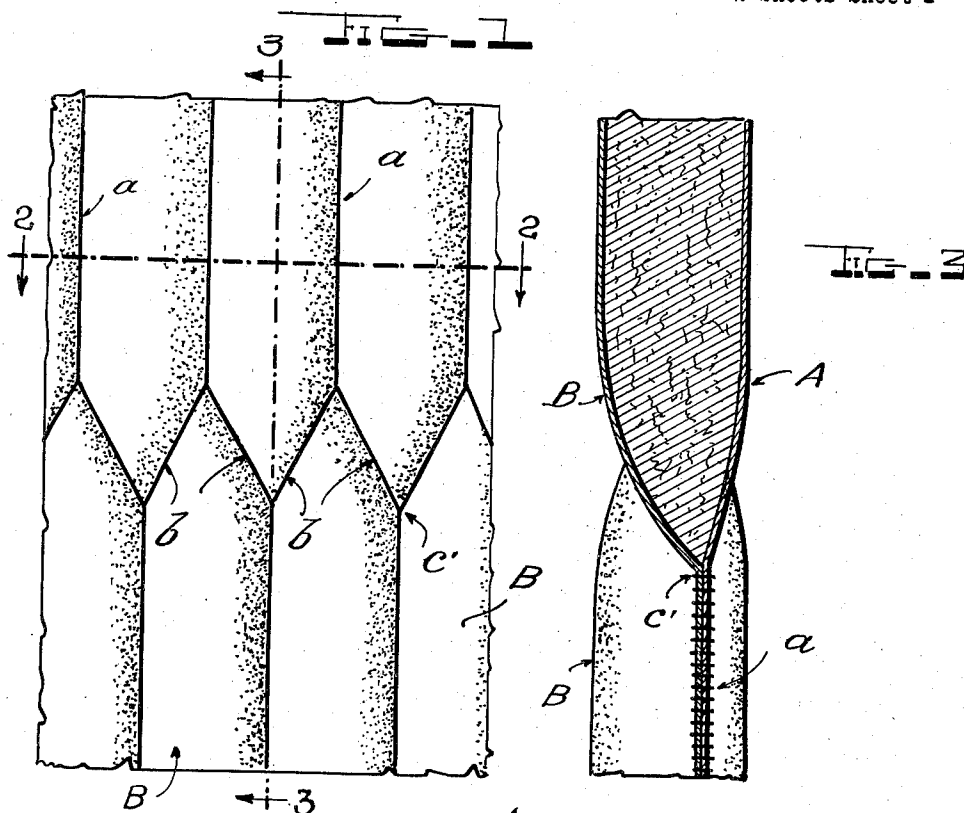
H. M. STRICKLER

2,524,640

METHOD OF PRODUCING UPHOLSTERY FORMATIONS

Filed March 5, 1947

2 Sheets-Sheet 1



INVENTOR,
Herbert M. Strickler
BY
Frank A. Appelman,
attorney.

Oct. 3, 1950

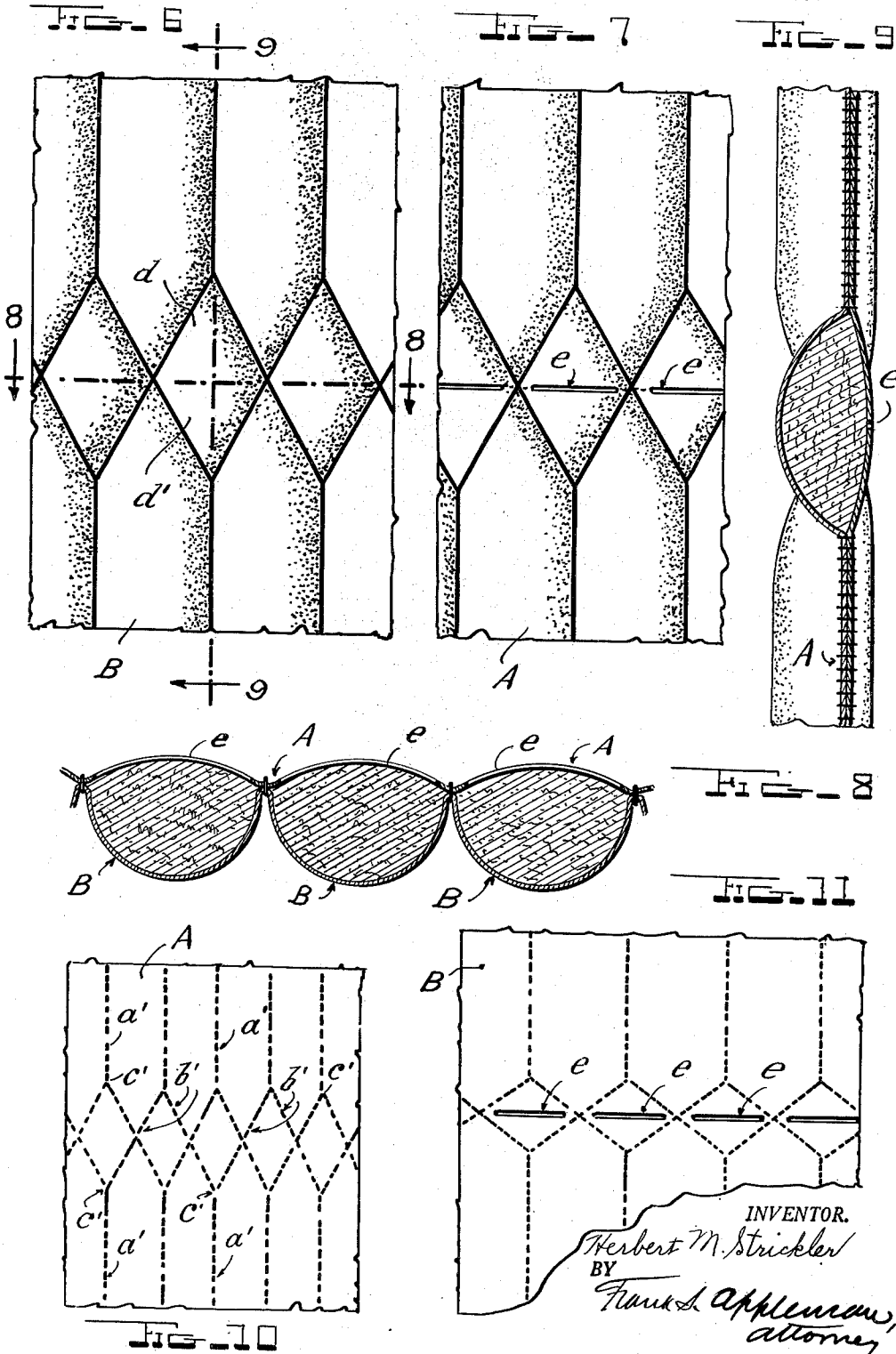
H. M. STRICKLER

2,524,640

METHOD OF PRODUCING UPHOLSTERY FORMATIONS

Filed March 5, 1947

2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

2,524,640

METHOD OF PRODUCING UPHOLSTERY FORMATIONS

Herbert M. Strickler, Danville, Ky.

Application March 5, 1947, Serial No. 732,532

4 Claims. (Cl. 112—262)

1

This invention relates to improvements in upholstery ensembles such as tufted backs, seats or arms of living room or bedroom upholstered furniture, and to the method of producing the same.

Upholstery of this type has generally involved the use of especially trained workmen and therefore has become a more or less expensive type of furniture and the like. This is due to the fact that to provide a proper finished appearance, the production of this portion of the upholstery under prior methods, has involved exceedingly careful and time consuming labor in order to provide the desired pleasing and finished appearance, it being necessary that the front and rear members be accurately positioned relative to each other as well as to provide for the proper location between these of the material used to stuff such back structure.

The present invention is designed to greatly simplify the proceeding and make it possible to produce backs of this type in a more simple manner and with less experienced labor than has been heretofore possible and yet produce the finished backs in such form as to be completely acceptable and to compare favorably with the products developed under the expensive conditions referred to.

Under the practice presented herein, the front and rear members of the back, seat or arm, are united along predetermined lines preliminary to the application of the stuffing material, to produce an embryo formation, the initial securing of the front and rear serving to form pockets of definite dimensions such as will enable the proper amount of stuffing to be added, and to add the stuffing in simple manner and with more or less inexperienced labor. Securing of the front and rear members is by sewing and by the use of the usual sewing machine structures, making it possible to produce the embryo formation with complete accuracy and with an assurance that the pocket effect produced in embryo by such sewing, will produce the desired pleasing tufted effect when the stuffing has been added.

The success, in this respect, rests mainly upon the sewing lines which are used to connect the two portions together. For instance, the markings for the sewing lines of the front member differ from the markings used for the rear member, but in securing the two together, these different markings—which, in effect, present similar characteristics with respect to the stitching progression—are stitched together in mark registration; the product thus produced would be use-

2

less without the stuffing, but when the stuffing is added, the embryo product produced by sewing becomes a finished front and rear ensemble which, in type, forms an efficient tufted back structure or assembly capable of being applied to the upholstery as a unit.

To these and other ends, the nature of which will be better understood as the invention is hereinafter more particularly described, said invention consists in the improved constructions and combinations involved in producing the product, together with the method of producing the product, as will be more particularly described in the specification, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the accompanying drawings, in which similar reference characters indicate similar parts in each of the views:

Figure 1 is a front elevation of a simple form of an upholstery ensemble in accordance with the present invention;

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

Figure 3 is a longitudinal sectional view taken on line 3—3 of Fig. 1;

Figure 4 illustrates a plan view of a section of the rear member of the embryo pocket formation, the member being shown in sheet form and carrying the markings for indicating sewing lines;

Figure 5 illustrates a similar view of a section of the front member of the embryo pocket formation, the member being also shown in sheet form and presenting the markings indicating the sewing lines for this member;

Figure 6 is a front elevation of a second form of upholstery ensemble in accordance with the present invention;

Figure 7 is a rear elevation of the same;

Figure 8 is a cross sectional view taken on line 8—8 of Fig. 6;

Figure 9 is a vertical sectional view taken on line 9—9 of Fig. 6;

Figure 10 is a plan view of a section of the rear member of an embryo pocket formation of the type of Fig. 6, the member being shown in sheet form and carrying the markings for indicating the sewing lines;

Figure 11 is a plan view of a section of the front member of an embryo pocket formation of the type of Fig. 6, the member being shown in sheet form and presenting the markings for indicating the sewing lines for this member.

The backs, seats or arms contemplated by the present invention as disclosed in Figure 1, are

3

of the type in which the exposed front face is generally formed of one or more rib-like structures, with each rib or puff terminating in a pointed portion, the ribs having a rounded contour cross sectionally, so that where a plurality of ribs are used, they appear as connected individuals. Where the face is of extended area, the rib formation may present the appearance of opposing ribs in which the pointed end zones of one set of ribs are located relative to similar zones of ribs of the second series, thus providing a somewhat zigzag appearance between the two sets of ribs. In such case, the ribs are not aligned but are staggered relative to each other. In other forms—as in Fig. 6, for instance—this appearance is changed by placing the ribs in alinement, thus providing a succession of small areas of approximate diamond shape between the opposing sets of ribs.

In each of these forms, the rounded appearance of the ribs is provided by stuffing, and to permit such action, pockets must be formed by the use of a rear member which may be of a cheaper but strong material similar to that used, for instance, as bed ticking, the front face being formed of a desired high-grade material such as brocade, velour, damask and the like, the front and rear faces being secured together in order to provide the individual pockets.

Under prior practice in this particular field, the need for pleasing and acceptable appearance of the front face and the uniformity of the ribs and their rounded faces has practically required the use of expert upholstery workmen especially trained in this particular field, thus making the labor cost of production very high, since the workmanship that is essential is necessarily of a high order when attempting to produce the structure under prior practice conditions.

The present invention aims to produce a generally similar result in a greatly simplified manner and without the need of any unusual expertness on the part of the workmen, thus materially reducing the cost of production of the ensembles. This result is obtained by changing the practice in such manner that it is possible to produce the pockets by simple sewing machine operations rendered active along definite lines, thus producing an embryo formation which can be completed by hand or "tin stuffing" with cotton, felt, or other filling material, and causing the pockets to be puffed out into the desired shapes.

The underlying feature in producing this result is the development of the lines of stitching of the embryo formation; generally these lines are indicated on the material as individual to the front and rear members, the diagrams for the two faces having general similarity as to type, but presenting certain distinctive dimensional characteristic features. For instance, the lines of stitching for the sides of a rib are spaced a considerably greater distance in connection with the front member than are the similar lines for the rear member. The pointed end of the rib is present in the diagrams of both members, but here the two are also distinguished, but have a characteristic in common, in that the length of each of the lines of a side of the angle which provides the pointed end is of exactly the same length; since the side ends of such angles differ in spacing width in the two faces, however, it is apparent that the depth of the angle is materially less in the front member than in the rear member, when such angle sides are to be of equal length.

The relative formations in this respect are dis-

4

closed in Figs. 4 and 5, which show diagrams of the respective members as laid out when the material is in sheet form. In these views, A indicates the material used for the rear member, and B indicates the material used in connection with the front member of the embryo formation, these members being assumed to each be of proper material arranged in their sheet form and provided with markings to indicate the stitching lines, these figures pertaining to a simple form of the invention.

Referring first to the stitching diagram carried by sheet A, *a* indicates the stitching lines at the sides of the ribs or puffs; *b* indicates the lines extending angularly from an end of lines *a* and forming an angle having its apex at *c*. As shown in Figure 4, the lines *a* for the upper zone of the sheet lead from apex *c* of the diagram of the lower portion. As a result, the lines *b* of a succession of rib stitchings provide a zigzag course across the sheet between the two series or ribs. In sheet B (Figure 5), the similar diagrams have the stitching lines indicated respectively at *a'* and *b'* with the apex at *c'*.

In these two diagrams, the length of lines *b* and *b'* is exactly the same. The distinction between the diagrams of the two views lies in the fact that successive lines *a'*, *a'* are spaced a materially greater distance apart than are lines *a*, *a*; as a result, the angle between lines *b* and *b* is more acute than that between lines *b'* and *b'* while the depth of the angle from the apex *c'* is considerably less than the depth of the angle from apex *c*. The length of lines *a* and *a'* simply represents the length of the rib or puff body portion, and may be of any preferred length dependent upon the particular service for which the back is to be used.

As heretofore pointed out, the two sheets are sewed together under the usual machine sewing practice, but, due to the differences above pointed out, the operator is required to provide proper care in aligning the markings of the two sheets.

For instance, the sheets are initially placed under the presser foot of the machine with a line *a* underlying and registering with line *a'* of the upper surface, care being taken that the inner ends of these lines register, since these ends form the beginning of the angle which provides the point effect for the puff. With the two sheets sewed together on this line *a*, *a*, up to such line end—the sewing needle can be left in its penetrating position at such time—the upper sheet B is shifted so that its apex *c'* will register with apex *c* of the under sheet A—this shift places the line *b'* of one side of the angle as directly overlying and registering with the similar line *b* of the under sheet, the superposed lines *b*, *b'* then being stitched to the apex point, at which the sewing needle can be retained in its lower position. By then shifting the upper sheet to place line *b'* of the other side of the angle in superposed registering relation to line *b* of the same side of the angle of sheet A and sewing, the angle is completed for the ribs or puffs of both zones, so that when this angular line is stitched, the stitching of the opposite side of the rib can be provided by simply stitching along line *a'*, since line *a* properly underlies and registers with line *a'* in such position. Since apices *c* and *c'* are fixed by the stitching of the opposite sides of the angle, it is apparent that lines *a'* and *a* of the upper portion of the sheets are also in alinement so that these superposed lines can be stitched to provide the side of the upper puff, and this can

5

be provided following the sewing of the second stitching lines a' , a' , as above indicated. Or, as is apparent, the superposed lines a' and a can be stitched after the completion of the stitching of superposed lines b' and b of the first side of the angle, the superposed lines a' and a of the upper half extending from the superposed apices, thus completing a longitudinal stitching, covering both zones of the sheets; to continue the stitching to complete the angle, the sheets are then returned to bring the apices c' and c properly positioned with respect to the sewing needle, after which the top sheet B is manipulated to bring its other line b' into overlying relation with line b , as above indicated, to complete the angle between successive lines a' , a' , so that with the sewing of the second lines the material for the first rib pocket of the lower zone will have been completed. By then bringing the sheets so that the needle is located at the meeting point of the second lines b and b' with lines a' and a —such meeting point becoming an apex point for a rib or puff of the upper zone—the cycle or cycles thus described are repeated to complete the succeeding rib or puff structures of the upper and lower zones, this operation being continued until the proper width of the desired assembly is secured.

As is apparent, the completion of the sewing operation provides a succession of pockets located on each side of the pointed areas provided by the sewing on lines b and b' , with each pocket having its width the distance represented by the spacing of the sewing lines a , a , of the rear member, the material of the front member being excessive so far as the width of the pocket is concerned, with the result that the excess material of the front face is active in producing the major actual depth of the pocket. These pockets each includes an open end through which the stuffing material can be readily inserted, as by hand operation or the operation of the usual tinfilling device, the stuffing material being properly positioned within the pocket so as to completely fill the latter.

One of the main features provided by the stitching operation in this particular manner is found when considering the pointed end zone of each of the pockets. As heretofore pointed out, the base dimensions of this portion of the pocket are fixed by the sewing lines b , b , of the rear face. Due to the fact, however, that the generally similar angle of the front face is of materially less depth, with the sewing lines b' , b' , such as to produce a less acute angle, a peculiar development of the pointed end of the pocket is effected when the pocket is filled. This development is due to the fact that, owing to the difference in angularity of lines b , b , and b' , b' , any line extending from corresponding positions of the opposite sides of the angle would be of greater length in the front member angle as compared with the angle of the rear member, the difference in length of such lateral line serving to indicate the fullness or excess of the front member face over the rear member face, thereby indicating the cross sectional area of the pocket at such particular location, the result being that the front member within this particular zone will, when stuffed, present somewhat of a taper characteristic both as to width and the depth of the rib, apex c' presenting the extreme of the pocket.

In this connection, one of the peculiarities comes from the fact that the depth of the angle of the front member face is less than that of the

6

angle of the rear member face, the result being that while the points of juncture of lines a' and b' are similar to the point of juncture of lines a and b , when the two faces are sewed together, the less depth of the angle of the front face has the effect of carrying this taper-like pointed zone as extending into the space between lines a' , a' , and thus tends to blend the taper-like development into the body of the rib, so that no material positive demarcation from the normal cross section of the rib is made manifest in appearance as the front member face reaches into the zone of the pointed end. This is brought about by the fact that the difference in inclination between the angles formed by lines b' , b' , and b , b , provide for a fullness gradually developed so that tapering will provide the proper blending between the two zones.

The conditions are made especially important through the fact that while the stitching of the rear member practically provides the width of the rib or puff, the stuffing of the pocket tends to slightly vary this condition through the fact that the rear member face of the stuffed pocket does not present a completely planar appearance but it also curved outwardly in completing the stuffed pocket, the curvature, however, being materially less than that of the front face, due to the fact that a less amount of material of the rear member is present between the sewing lines a , a , than is present between the sewing lines a' , a' , of the front member. Hence, the stuffed pocket will have a cross section in which the radius of curvature of the front face will be materially less in length than the length of the radius which will provide the arc through which a cross section of the rear member face will extend.

In Figures 10 and 11 is shown a diagrammatic representation of the markings of the front and rear faces when the ensemble is of the modified form shown in Fig. 6. As indicated in the latter figure, the opposing ribs or puffs are arranged with aligned axes instead of being staggered as shown in Figure 1, which presents the structure produced when the diagram markings are as indicated in Figures 4 and 5. In the changed form, the pointed ends of the opposite puffs directly face each other and since adjacent puffs are similarly arranged, the assembly provides for an intervening diamond shaped puff of small dimensions. It is the production of this structure that results when the sewing lines are as shown in the diagram markings of Figures 10 and 11, and which are now being described in detail:

The lower zone of each of these views is similar to that of these zones shown in Figures 4 and 5, and the sewing lines, indicated as a and a' and b and b' are as before, as are the apices c and c' , the distance dimensions being similar in both of these sets of figures. In the upper zone of the sheets, however, the markings have been shifted, and, in effect, moved upwardly sufficiently to place the apex c or c' of an upper puff as positioned to practically coincide with the similar apices of the corresponding rib of puff of the lower zone, this positioning of the apices practically serving to shift the lines a and a' of the upper zone laterally a distance equal to half the width of the rib marking. Because of this shift, the diamond shaped formation, indicated at d and d' , is provided between the upper and lower zones with the vertical axis of the diamond aligned with sewing line a or a' , as the case may be.

As will be seen by comparison of these Figures 10 and 11, the resulting diamonds d and d' present certain differences. For instance, the diamonds d of sheet A are elongated vertically, while the diamonds d' of sheet B are elongated transversely. This is due to the fact that the distances between successive lines a , a , which represent the sewing lines at opposite sides of a puff, are less than the similar distances between corresponding lines a' and a' ; this difference, when coupled with the fact that the depth of the angle formed by lines b , b , is greater than the similar depth of the angle between lines b' , and b' , produces this difference as to the elongation condition of the two diamonds d and d' shown. Since the length of lines b and b' is equal, as before, this variation in the direction of elongation of the diamonds is made clear.

In effect, this change in diagram marking necessarily affects the specific sewing operation in securing the two sheets together. This is due to the fact that in the earlier form described, the sewing along one line b and b' served to produce the complementary sewing line for a rib of the opposite zone. Under the changed diagram conditions, however, the sewing lines b and b' are individual in both upper and lower zones of the assembly so that additional sewing must be provided to produce the embryo structure, such sewing, however, producing the sewing lines for the several diamonds d , d' .

The elongation of the diamonds in the directions indicated may appear to affect the actual formation of the pointed ends of the diamond; the arrangement, however, does not produce this result, but actually serves to provide for a pointed configuration at both of the vertical and the lateral ends of the diamond. In other words, the same effect described above—and referred to in connection with the production of the pointed end of a rib—also takes place with the opposite end zones of the diamond; the excess width dimensions presented by the diagram of sheet B provides the excess material needed to produce the bulge of the diamond that is found on the lateral axis of the diamond dimension, while the greater vertical length of the diamond of sheet A provides for the taper-like showing that is referred to with respect to the pointed ends of the ribs as heretofore described. In other words, the diamond produced after being stuffed, provides a puff effect which practically changes in cross sectional area throughout the vertical length of the diamond, the overall dimensions of the latter being set by the diagram of sheet A as previously described.

As will be understood, the ribs or puffs of the upper and lower zones of this particular form are duplicates of those shown in the simpler form, so that the embryo formation can be stuffed to this extent, similarly to that of the simpler form. However, due to the fact that the boundary of each of the diamonds d is completely closed by sewing on the lines b , b , and b' , b' , stuffing of the diamond portion must be provided in a different manner. To permit such operation, the rear sheet is cut, within the diamond zone, on a line extending transversely from one apex c to the adjacent apex c , the slit thus provided, however, not reaching to or disturbing the sewing line so that the sewing lines for the diamond remain intact. The slit thus formed and indicated at e , forms an opening through which the stuffing material for the upper and lower portions of the diamond can be introduced, the interior of the

diamond pocket being completely filled by the stuffing material. And since each of such portions of the diamond is equivalent to the tapered zone of the ribs or puffs, the exposed face of the diamond will have the characteristics of such pointed ends, as pointed out above, due to the effects set up by the use of the diagrams shown in Figures 10 and 11. If desired, the slit e can have its lips stitched or tacked together after the diamond has been stuffed, but inasmuch as the slit is carried by the under face of the assembly and therefore unexposed, such stitching is not absolutely essential, the stuffing generally remaining in proper position.

As will be apparent, the latter practice may also be employed in connection with the normal ribs or puffs where the assembly has its ribs pointed and closed at its opposite ends, it being readily understood that the diamond d , in effect, simply omits the portion of uniform cross section of the rib or puff beyond the pointed end of the latter. For the purpose of illustration, the outer ends of the ribs are shown as open-ended, but it will be understood that should the design of the back so require, the normal ribs or puffs may have the pointed zone at both ends of the ribs or puffs, in which case the stuffing of the pocket would be had by providing a slit e at a midway point in the length of the rib, such slit being provided in rear member A and extending transversely between lines a and a .

As will be understood, the diagrammatic markings of the front and rear members may be provided in any suitable manner, as, for instance, by the use of stencils, stamps, or any other desired way of providing marking lines which can be used by the workmen in connection with the sewing operation, it being understood, of course, that the dimensional characteristic differences as between the two members of the ensemble will be provided in the marking source, so that uniformity of the product will result.

As will be readily apparent, the succession of operations which include the marking of the members when in sheet form, the uniting of the front and rear members by sewing based upon the marked lines, and the succeeding stuffing of the pocket produced in following the practice, provides a succession of activities in which it is unnecessary to utilize the services of highly expert upholstery workers, since the operations require no highly trained workmen other than that care need be taken in providing the sewing operation to assure that proper registration of markings of the front and rear members is had in producing the embryo formation; the pockets produced will require only routine stuffing activities so that the cost of producing ensembles of this type is greatly reduced and yet provides for a serviceable product comparable to those produced by highly trained workmen.

While I have herein shown and described several forms of ensembles and have pointed out and disclosed the preferred details of producing the same, it will be understood that changes, modifications and/or variations therein may be found desirable or essential in meeting the exigencies of use, and I desire to reserve the right to make any and all such changes, modifications and/or variations therein as may be found so desirable or essential, insofar as the same may fall within the spirit and scope of the invention as expressed in the accompanying claims, when broadly construed.

I claim:

1. In a method of producing an upholstery ensemble wherein the ensemble is of the rib type in facial appearance and includes a pointed end zone of the rib, the steps of sewing a front member to a rear member along predetermined parallel longitudinally extending lines of similar type but with the dimension characteristics varying in the front and rear members to form opposite sides of the rib, sewing along lines angular to the parallel lines in converging relation to an apex to provide the pointed end of the rib, thus forming a pocket between the front and rear members to receive stuffing material to complete the rib.

2. A method as in claim 1 characterized in that the front and rear members each carries guide lines for sewing with the guide lines of a member individual to the dimensional characteristics of that member in the production of the rib formation.

3. A method as in claim 2 characterized in that the front member is disposed on the rear member and a line of the general type present on the upper member is positioned in registration with

the corresponding line of the rear member and sewing the members along the registering lines, repeating the registering conditions for each of the guide lines of the upper member.

4. A method as in claim 3 wherein the parallel lines of the upper member are spaced apart a greater distance than the parallel lines of the lower member, with the angular lines similar in length in both members to thereby provide a variation in angle values between the pointed end zones of the two members with the upper member carrying the greater angle value and lesser depth value of the angle.

HERBERT M. STRICKLER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,321,458	Ledwinka	Nov. 11, 1919
1,353,340	Heitzenreder	Sept. 21, 1920
1,426,720	Dwight	Aug. 22, 1922
1,752,914	Leibe	Apr. 1, 1930