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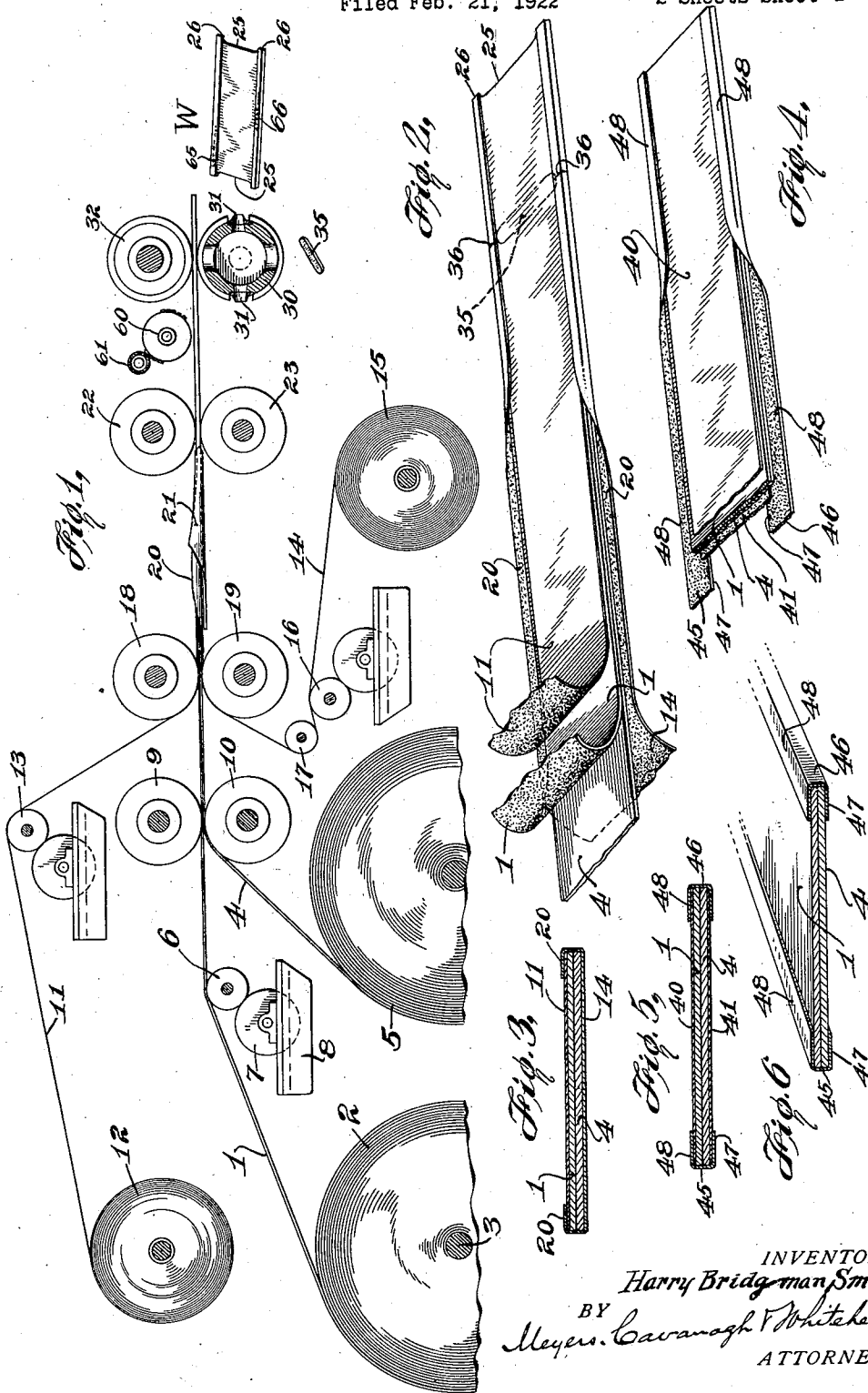
H. B. SMITH

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CORE OR WINDER FOR FABRIC STRIPS AND METHOD OF MAKING SAME

Filed Feb. 21, 1922

2 Sheets-Sheet 1



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BY
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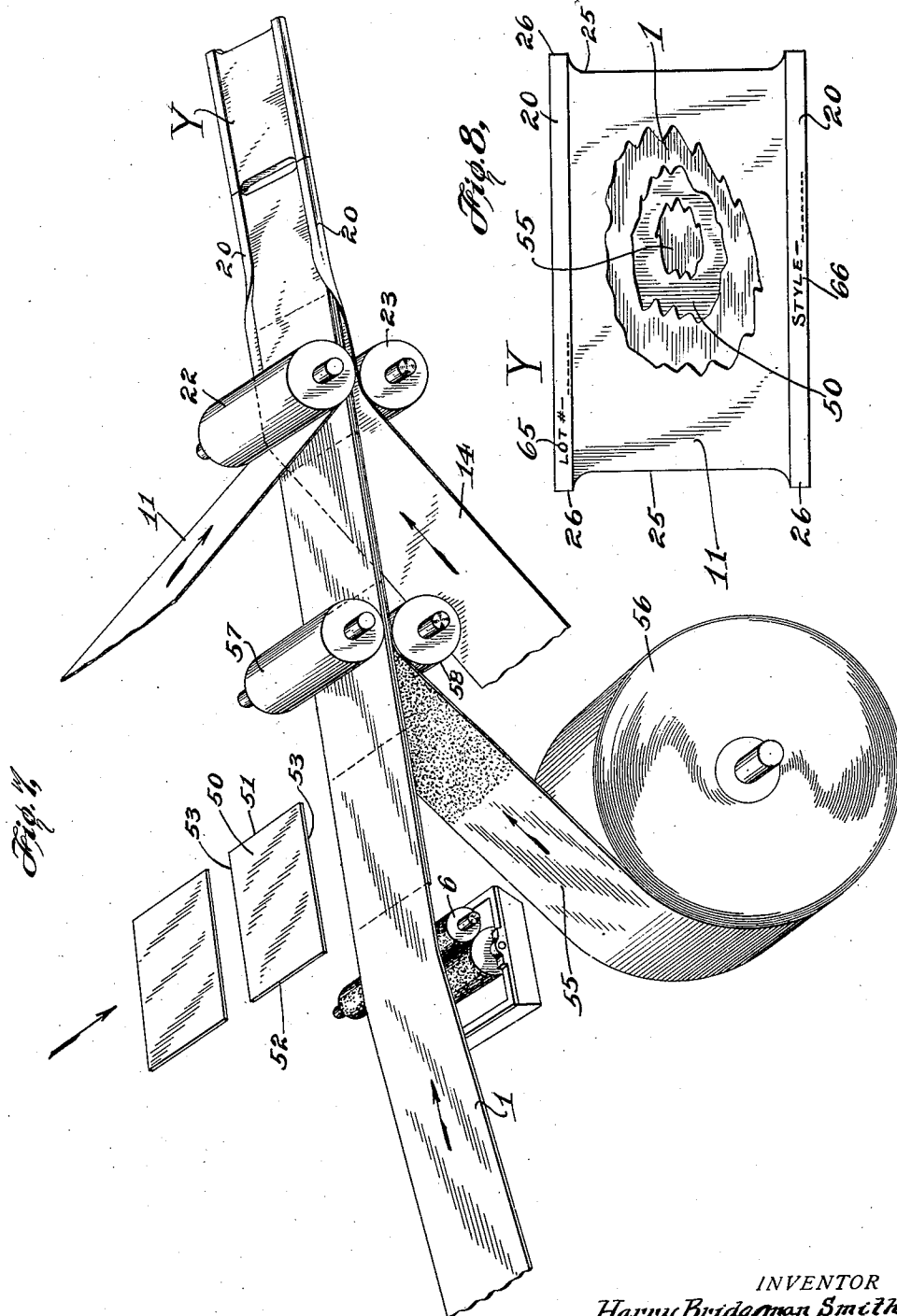
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UNITED STATES PATENT OFFICE.

HARRY BRIDGMAN SMITH, OF BROOKLYN, NEW YORK, ASSIGNOR TO LIGHTSHIP CLOTH BOARD CORPORATION, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

CORE OR WINDER FOR FABRIC STRIPS AND METHOD OF MAKING SAME.

Application filed February 21, 1922. Serial No. 538,289.

To all whom it may concern:

Be it known that I, HARRY BRIDGMAN SMITH, a citizen of the United States, and resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Cores or Winders for Fabric Strips and Methods of Making Same, of which the following is a specification.

My invention relates to cores or center pieces upon which strips of fabric such as braid, lace, fringe or other material may be wound for exhibition and sale, such devices being conveniently called winders, and to rapid and economical methods of producing such articles.

An important object of the invention is to provide an improved structure for winders of this sort which permits them to be made of cheap and easily worked material, such as cardboard and paper, and at the same time to have a desirable and attractive appearance and "finish."

Another important object is to provide methods of manufacture which are suitable for materials such as those just mentioned, and which can be performed rapidly and economically by machine operations, or partly by machine operations and partly by hand in some cases. As to the method, while it can in some cases be performed entirely by hand operations, it is especially desirable that the winders may be produced largely or wholly by mechanical operations; and an important advantage of one preferred method as disclosed herein is that it provides for the advancing and association of continuous strips of material to form a composite continuous assembly or blank from which individual cores or winders are formed by severing the composite assembly strip at regular intervals.

While cardboard is usually the most available and desirable material for the bases or bodies of the winders, and paper of different grades and finishes is usually the preferable covering or finishing material, and such materials will be referred to specifically in many instances, in a broader aspect of the invention the materials are not limited to

cardboard and paper, but other suitable sheet material, fabric or fibrous material may be used where conditions make it desirable, and where they are suitable for the particular purpose in view.

The characteristics and advantages of the invention are further sufficiently explained in connection with the detail description of the accompanying drawings, which show certain exemplifying embodiments of the invention, that is to say, certain representative forms of the cores or winders, and diagrams illustrative of certain performances of the method. After considering these exemplifications, persons skilled in the art will understand that many variations may be made within the principles of the invention, and I contemplate the employment of any structures and methods which are properly within the scope of the appended claims.

In the drawings:

Figure 1 is a side elevation showing in a diagrammatic way representative apparatus for performing the method in one way, and also showing the different materials advancing progressively through different stages to the formation of an individual winder shown at the right of this figure;

Figure 2 is a perspective view, enlarged, showing the materials and the continuous composite blank at intermediate positions;

Figure 3 is a transverse section of a continuous assembly of Figure 2;

Figure 4 is a perspective view illustrating a modified method and assembly structure;

Figure 5 is a transverse section of the same;

Figure 6 is a perspective and sectional view of a modified blank assembly structure;

Figure 7 is a perspective view illustrative of a modified method; and

Figure 8 is a plan view of an individual winder produced by the method of Figure 7.

According to the method exemplified in Figure 1, a continuous strip 1 of cardboard is advanced from a roll 2 carried by a rotatable shaft 3. The cardboard 1 is of suitable quality and has substantial thickness and stiffness, the thickness and stiffness of the cardboard body material usually being va-

ried in accordance with the size of the winder to be produced, the number of layers of body material to be used, and other conditions. The cardboard strip 1 in the present case represents any suitable body material, and in the broader aspect of the invention this material is not necessarily limited to cardboard, although usually some fibrous material will be used. Another strip 4 of cardboard is advanced from a roll 5, this material usually being of the same grade and thickness as strip 1. Prior to engagement of the two strips, they are adhesively conditioned, or adhesive is applied to at least one of them, means for this purpose being sufficiently indicated in the form of a glue roll 6 supplied by dipper roll 7 running in a glue trough 8, the glue roll 6 engaging the under surface of strip 1. After the glue application the strips are brought together between pressing rolls 9 and 10 and are firmly pressed together.

A continuous strip 11 of cover material, in the present instance paper, of suitable grade and finish, is advanced from a roll 12. This paper represents in the broader sense any suitable covering or surfacing material, and in some cases other material than paper can be used, such as a woven fabric, or other material capable of being manipulated in the ways described. Before being incorporated in the blank assembly, strip 11 is adhesively conditioned, in the present instance by carrying it over a glue roll 13.

Strip 11, as best shown in Figures 2 and 3, is desirably of about the same width as the body strips 1 and 4, or in the present specific instance is slightly narrower than those strips. Another continuous strip 14 of paper covering or finishing material is advanced from a roll 15 over a glue roll 16 and about an idler roll 17, and this strip is desirably, as also best shown in Figures 2 and 3, considerably wider than the cardboard strips 1 and 4. The two surfacing or cover strips 11 and 14 are now brought with their adhesive faces in contact with upper and lower surfaces of the composite cardboard body strip and pressed between rollers 18 and 19, so that the proper adhesive contact of all of the strips up to this point is insured.

The projecting adhesively coated margins 20 of strip 14 are now turned over the longitudinal edges of the body strips and then brought over upper surface margins of body strip 11, this turning and locating of the margins 20 being accomplished in the present instance by stationary folders 21. The margins are then pressed down and secured by rollers 22 and 23.

The blank assembly from this point onward is complete, and consists in the present instance of two sheets of cardboard body material in adhesive contact with an upper and lower sheet of covering material adhesively

affixed and with margins of one of the sheets of covering material turned over and adhesively secured, so that the edges as well as all other surfaces of the cardboard body material are covered and concealed by the surfacing material.

At a suitable point in the advance of the continuous assembly it is cut transversely at regularly spaced intervals, these cutting actions severing successive sections W, each of which is a finished winder or core piece.

In order that the winders may have the proper end conformation, the severing operation is desirably performed in such a way that central portions of the ends of the winder are indented as at 25, these indented portions extending usually close up to the margins defined by the overturned cover margins 20, and leaving projecting marginal portions 26 which serve to confine material such as braid or other strip fabric to be wound upon the winder in the usual way.

The desired end conformation is produced, in the particular example represented in Figure 1, by a cutting device 30, which is in this particular instance a rotary cutting device provided with cutting dies or blades 31, but may otherwise be a reciprocating cutter. The rotary cutter 30 cooperates with an abutment roll 32. The cutting dies or blades 31 are formed so that pieces 35 are cut out from central portions of the blank, producing the incurred or indented end formations 25, and at the same time the marginal portions of the blank are cut straight across on lines 36, without excision of material.

It is evident from the foregoing description that the assembly and severing operations may be carried on continuously and rapidly, and a very large number of winders may be economically produced.

The winders W produced in the manner described each consists of two pieces of cardboard body material cemented together, a sheet of finishing or surfacing material overlying one side of the composite body, and another sheet of surfacing material overlying the other side of the body and having margins turned over and secured to margins of the body on the opposite surface, these overturned margins in the present example of course overlying marginal portions of the narrower surfacing sheet; and central portions of the ends of the body are incut or recessed, leaving marginal projections, this end conformation definitely defining a winding space for the fabric.

In some cases a single strip of body material, such as 1, may be used, and the process of production will then be the same as represented in Figure 1, with the omission of the second strip of body material 4. In such a case the method provides for completely covering a strip of raw or uncovered cardboard and putting it in presentable condi-

tion for the present purpose, as well as for cutting off and properly forming the individual winders.

Another variation of the method and product is sufficiently shown in Figures 4 and 5. In this case the two strips of body material 1 and 4 are adhesively secured together as before, and each is provided on its outer surface with an adhesively secured strip of cover material 40 and 41 respectively, and these cover strips may be applied after the fashion shown in Figure 1, with the exception that the lower cover strip 41 is in this instance only of substantially the same width as the body strip; or these cover strips may have been originally applied to the cardboard previous to the utilization of the cardboard in the present process, that is to say, cardboard body strips 1 and 4 may be secured, each provided with surfacing or finishing paper applied to one side, and may in this condition be fed from the rolls 2 or 5 and cemented together with the finished surfaces outward. Edge finishing strips 45 and 46 are then advanced and adhesively conditioned, for instance by applying glue to one surface of each strip as indicated in Figure 4, and a marginal portion of each edge finishing strip is secured to one side margin of the body assembly or to the cover strips 40 and 41. In the further advance of the strip assembly the projecting marginal portions 48 of strips 45 and 46 are folded over and secured to upper marginal surfaces of the assembly and pressed in position as shown at the right in Figure 4 and also in the sectional view, Figure 5.

In this case the cover strips so fed and applied serve principally to provide an edge or marginal finish for the assembly, and particularly to cover the side edges of the cardboard body strips. This method of edge finishing may be employed in connection with a single body strip, which may or may not have strips of surfacing material applied to its surfaces; and in the case where the body strip is unfinished except for the edge finishing strips, the latter serve to properly conceal and decorate the marginal portions of the cardboard body which are exposed when the winder is filled by winding strip fabric upon it, the raw or unfinished portion of the cardboard body being concealed by the applied fabric material. Otherwise, where edge finishing strips are used with surfaced cardboard body strips, the edging strips may be of a different material or material contrasting in color with the other surfacing material for the purpose of producing novel or attractive decorative effects.

Figure 6 is a cross-sectional and perspective view of one form of continuous assembly in which cardboard body strips 1 and 4 are unfinished and are provided with edg-

ing strips 45 and 46 overlying the raw edges of the body material and adhesively secured to upper and lower marginal surfaces of the body.

In some cases when the cardboard body material is quite thin, or for other reasons, the finished winders have more or less tendency to warp, which is undesirable for the purpose in view; and to obviate this difficulty an assembly method and structure sufficiently illustrated in Figures 7 and 8 may be employed. According to this form of the invention a body strip 1 is advanced as usual and adhesively conditioned by glue roll 6, as in the first instance. The fibres composing the cardboard strip 1 run mainly in the longitudinal direction of the strip.

At a suitable point in the advance of this body strip, pieces 50 of cardboard body material, which may be the same kind of stock as the strip 1, are advanced and applied to the glued surface of strip 1 with their edges 51 and 52 located close together, so that the entire surface of strip 1 is covered by pieces 50, the side edges 53 of pieces 50 being of course so spaced that the width of the pieces 50 is the same as that of the strip 1. The pieces 50 may be handled as separate sheets, or they may be fed from a roll, as in the case of strip 1, and cut off at or adjacent to the point of application. However the pieces are handled, they are arranged so that their fibres run mainly in the direction transverse the fibre arrangement of strip 1, as sufficiently indicated by surface shading on the respective strip and pieces 50.

The pieces 50 are properly pressed in adhesive engagement with strip 1, and at a suitable point when necessary or desirable, another strip 55 of body cardboard material is advanced from a roll 56 and adhesively conditioned, as sufficiently indicated by stippling on the upper surface of this strip, and applied to the lower surfaces of the pieces 50, and the whole strip assembly is then pressed and secured by rollers 57 and 58. Surface strips 11 and 14 are then advanced and applied to the assembly, and the assembly is finished and individual winders Y are cut off, as in the first described example.

The completed winders made in this fashion as shown in Figure 8 consist of layers of surfacing material, the upper layer 11 being shown, also the overturned margins 20 of the lower surfacing strip. Beneath the surfacing sheet 11 is a cardboard body piece 1 with its fibres running mainly longitudinally of the winder, as indicated by surface shading. Below this is a body piece 50 with its fibres running mainly transversely, and below this again is a piece of the other body strip 55 with its fibres running longitudinally. All the body strips are firmly cemented together, and by the

described transverse fibre arrangement any curling tendency of one part of the body material is counteracted by the other, and warping is practically prevented.

5 It is desirable in many cases that the completed winders shall bear imprints to designate the nature or quality of goods wound upon them. At a suitable point in the continuous process, for instance between the
10 rolls 22 and 32, Figure 1, suitable printing mechanism may be provided consisting in the present instance of a printing roll 60 arranged to carry suitable type in line with one of the margins 20, and suitable means
15 are provided for inking the type, sufficiently exemplified by an inkwell 61. Of course the printing mechanism may be arranged to make an imprint upon both margins 20 if necessary or desirable. Figure
20 8 shows imprints made upon the margins at the points 65 and 66, consisting of the words "Lot #—" and "Style—" or any other suitable indicia.

Reference is made to copending application, Ser. No. 592,079, filed October 3, 1922,
25 and Ser. No. 653,506, filed July 24, 1923, which contain related subject matter and claims, especially with reference to building up composite core or filler structures by
30 applying separate pieces to a continuous core web. Claims for this feature in the present application are more limited than certain claims contained in said copending applications:

35 I claim:

1. A method of producing core boards or winders for fabrics, comprising advancing continuous webs of cardboard
40 body material, bringing the webs together in facial contact, advancing continuous strips of edge-binding paper adjacent to the longitudinal edges of the combined body webs, supplying adhesive for securing the binding strips, and applying the
45 binding strips to the combined body webs with a portion of each strip concealing and smoothly overlying one longitudinal edge of the combined body webs and with marginal portions of the binding strip overlying and
50 adhesively secured to adjacent margins of the webs.

2. A method of producing core boards or winders for fabrics, comprising advancing continuous webs of cardboard body material, bringing the webs together in facial
55 contact, advancing continuous strips of edge-binding paper adjacent to the longitudinal edges of the combined body webs, supplying adhesive for securing the binding strips, and applying the binding strips to the combined
60 body webs with a portion of each strip concealing and smoothly overlying one longitudinal edge of the combined body webs and with marginal portions of the binding strip overlying and adhesively secured to adjacent
65

facial margins of the webs, and transversely severing the continuous assembly so produced at regular intervals to produce the individual boards or winders.

3. A method of producing core boards or winders for fabrics, comprising advancing continuous webs of cardboard body material, bringing the webs together in facial contact, supplying adhesive to an inner face
70 of one of the body webs prior to contact with the other web, advancing continuous strips of edge-binding paper adjacent to the longitudinal edges of the combined webs, supplying adhesive for securing the binding
75 strips, and applying the binding strips to the combined body webs with a portion of each strip concealing and smoothly overlying one longitudinal edge of the combined body webs and with marginal portions of the binding
80 strip overlying and adhesively secured to adjacent facial margins of the webs.

4. A method of producing core boards or winders for fabrics, comprising continuously advancing continuous webs of cardboard body material, bringing the webs together in facial contact, continuously advancing a continuous strip of edge-binding
90 paper adjacent to each edge of the continuous combined body webs, supplying adhesive for securing the binding strips, and applying the binding strips to the combined body webs with a portion of each strip concealing and smoothly overlying one longitudinal
95 edge of the combined body webs and with marginal portions of the binding strip overlying and adhesively secured to adjacent facial margins of the body webs.

5. A method of producing core boards or winders for fabrics, comprising continuously advancing continuous webs of cardboard body material, bringing the webs together in facial contact, continuously advancing a continuous strip of edge binding paper adjacent to each edge of the continuous combined
100 body webs, supplying adhesive for securing the binding strips, and applying the binding strips to the combined body webs with a portion of each strip concealing and smoothly overlying one longitudinal edge of the combined body webs and with marginal portions
105 of the binding strip overlying and adhesively secured to adjacent facial margins of the body webs, and transversely severing the continuous assembly so produced at regular intervals during its continuous advance to
110 produce the individual boards or winders.

6. A method of producing core boards or winders for fabrics, comprising continuously advancing continuous webs of cardboard body material, bringing the webs together in facial contact, supplying adhesive to an inward face of one of the body webs prior to contact with the other web, continuously advancing a continuous strip of edge binding
120 paper adjacent to each edge of the continu-
125
130

ous combined body webs, supplying adhesive for securing the binding strips, and applying the binding strips to the combined body webs with a portion of each strip concealing and smoothly overlying one longitudinal edge of the combined body webs and with marginal portions of the binding strip overlying and adhesively secured to adjacent facial margins of the body webs.

7. A method of producing cores or winder boards for fabrics, comprising advancing a plurality of continuous webs of cardboard body material, supplying adhesive for the facial connection of the webs, continuously advancing strips of edge binding paper adjacent to the longitudinal edges of the body material, supplying adhesive for securing the binding strips, bringing the webs and strips together in adhesive contact, with the edge binding strips concealing and smoothly covering the longitudinal edges of the binding material at opposite sides of the continuous assembly, and with portions of each strip overlying and adhesively secured to adjacent facial margins of the body webs, and transversely severing the continuous assembly so produced, to form individual winder boards or like articles.

8. A method of producing cores or winder boards for fabrics, comprising continuously advancing a plurality of continuous webs of cardboard body material, supplying adhesive for the facial connection of the webs, continuously advancing strips of edge binding paper adjacent to the longitudinal edges of the body material, supplying adhesive for securing the binding strips, bringing the webs and strips together in adhesive contact during continuous advance of the materials, with the edge binding strips concealing and smoothly covering the longitudinal edges of the binding materials at opposite sides of the continuous assembly and with portions of each strip overlying and adhesively secured to adjacent facial margins of the body webs, and transversely severing the continuous assembly so produced at regular intervals during its continuous advance, to produce the individual winder boards or like articles.

9. The method of making winders or similar articles comprising advancing a continuous strip of cardboard, advancing a continuous strip of cover material and adhesively securing it to one surface of the cardboard, advancing another continuous strip of cover material and adhesively securing it to the other surface of the cardboard with marginal portions of said cover strip extending beyond the side edges of the cardboard, turning over and adhesively securing said cover margins to margins of the composite strip with accompanying concealment of side edges of the cardboard by the overturned cover material, and severing the combined

strip transversely at regular intervals to produce individual winders of the class described.

10. The method of making winders or similar articles comprising advancing a continuous strip of cardboard, advancing a continuous strip of cover material and adhesively securing it to one surface of the cardboard, advancing another continuous strip of cover material and adhesively securing it to the other surface of the cardboard with marginal portions of said cover strip extending beyond the side edges of the cardboard, turning over and adhesively securing said cover margins to margins of the composite strip with accompanying concealment of side edges of the cardboard by the overturned cover material, severing the combined strip transversely at regular intervals, and cutting out end portions to produce individual winders of the class described.

11. The method of making winders or similar articles comprising advancing a plurality of strips of cardboard body material with adhesive supplied between them to effect adhesive connection, advancing a continuous strip of cover material and adhesively securing it to one surface of the composite body strip, advancing another continuous strip of cover material and adhesively securing it to the other surface of said composite body strip with side margins of the cover strip extending beyond the side edges of the body, turning over and adhesively securing the cover to marginal surfaces of the composite strip, and severing the composite strip so formed transversely at regular intervals to produce individual composite winders of the class described.

12. The method of making winders or similar articles comprising advancing a plurality of strips of cardboard body material with adhesive supplied between them to effect adhesive connection, advancing a continuous strip of cover material and adhesively securing it to one surface of the composite body strip, advancing another continuous strip of cover material and adhesively securing it to the other surface of said composite body strip with side margins of the cover strip extending beyond the side edges of the body, turning over and adhesively securing the cover to marginal surfaces of the composite strip, and severing the composite strip so formed transversely at regular intervals with excision of inner end portions to produce individual composite winders of the class described.

13. The method of making winders or similar articles comprising advancing a strip of fibrous body material having its fibres running principally in one direction, advancing successive pieces of body material and adhesively securing them in close succession on one surface of the strip of body material, the

fibres of said pieces being arranged principally in a direction transverse that of the fibres of the body strip, advancing a continuous strip of cover material and adhesively
5 securing it to two opposite facial margins of the composite body with accompanying concealment of the adjacent edge of the body material, and severing the composite strip thus formed on transverse lines to produce
10 individual non-warping winders of the class described.

14. The method of making winders or similar articles comprising advancing a strip of fibrous body material having its fibres running principally in one direction, advancing
15 successive pieces of body material and adhesively securing them in close succession on one surface of the strip of body material, the fibres of said pieces being arranged principally in a direction transverse that of the
20 fibres of the body strip, advancing continuous strips of cover material and adhesively securing them to two opposite faces of the composite body, turning over and securing
25 projecting side margins of one of the cover strips with accompanying concealment of the

adjacent edge of the body material, and severing the composite strip thus formed on irregular transverse lines to produce individual non-warping winders of the class described. 30

15. The method of making winders or similar articles comprising advancing a strip of fibrous body material having its fibres running principally in one direction, advancing
35 successive pieces of body material and adhesively securing them in close succession on one surface of the strip of body material, the fibres of said pieces being arranged principally in a direction transverse that of the
40 fibres of the body strip, advancing continuous sheet cover material and adhesively securing it to the composite body with portions of the cover material overlying and concealing edges of the body material, and severing
45 the composite strip thus formed on transverse lines to produce individual winders.

Signed at New York in the county of New York and State of New York, this 18th day of February A. D. 1921.

HARRY BRIDGMAN SMITH.