Oct. 3, 1950 W. B. HILDMANN 2,524,259

METHOD OF MAKING SHEET ASSEMBLIES, ESPECIALLY FOR BOOKS

Filed Aug. 17, 1946

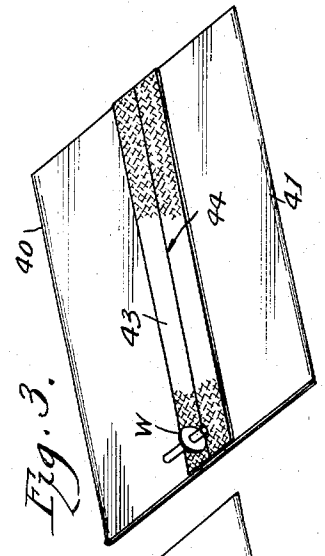


Fig. 3.

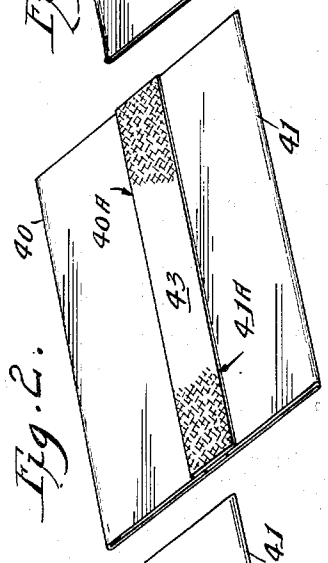


Fig. 2.

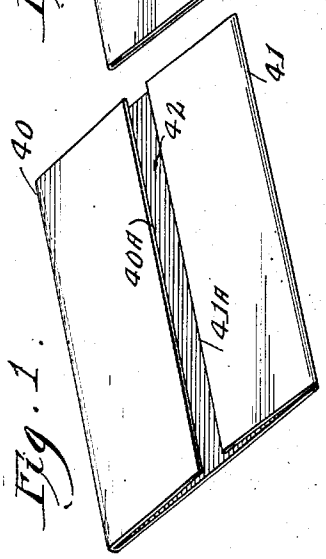


Fig. 1.

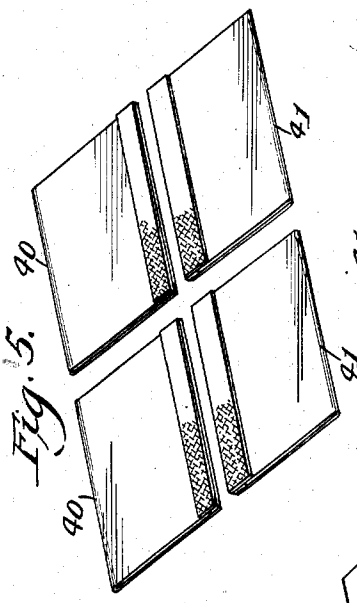


Fig. 5.

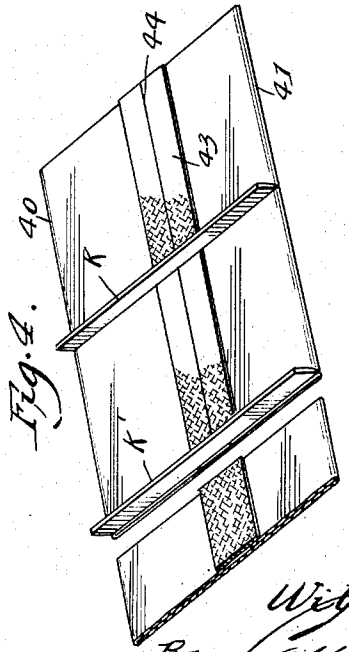


Fig. 4.

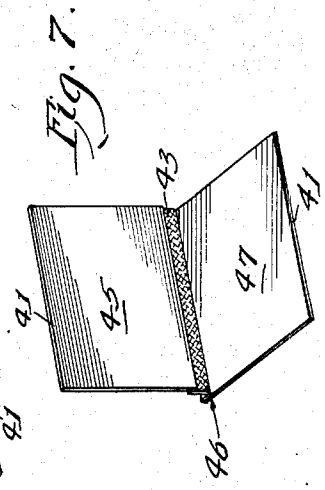


Fig. 7.

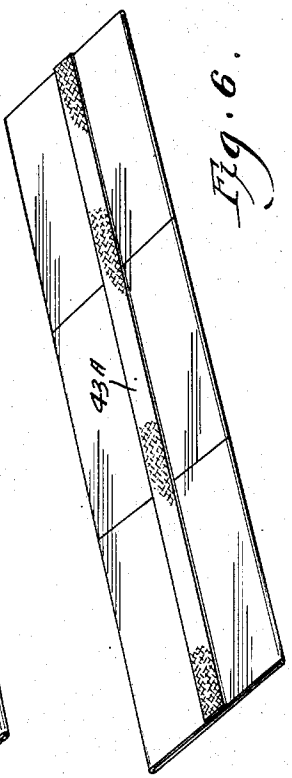


Fig. 6.

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METHOD OF MAKING SHEET ASSEMBLIES, ESPECIALLY FOR BOOKS

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8 Claims. (Cl. 11—1)

1

The principal object of this invention is the provision of a method for making end sheets for use in book binding.

In certain types of binding for books, end sheets are placed in the front, and at the rear, of the book between the cover and the adjoining leaf or sheet. Actually, the so-called end sheet consists of two sheets or pages joined by a cloth hinge or analogous tape, and one of these sheets is glued to the inside of the book cover, while the remaining sheet of the pair becomes a fly-sheet or the first page of the book (or the last sheet or page in the case of the end sheet at the rear of the book; the purpose of these end sheets being to provide a finished appearance to these parts of the book, and to afford a connection between the cover members and the signatures of the book, it being understood that the fly leaf or sheet of each end sheet structure is glued or otherwise connected to the binding edge of the book signatures, by reason of which this sheet becomes in appearance and in effect one of the leaves of the book.

In accordance with prior methods for making end sheets, two long sheets of paper stock were hingedly joined by a glued tape, and these joined sheets were cut across the middle so as to form two pairs of sheets joined by a tape, each pair of hingedly joined sheets thus becoming an end sheet assembly, one for the front, and the other for the rear of a book. Thus, in bookbinding, an end sheet is in reality two sheets joined by some form of flexible hinge material, usually bookbinders' cloth.

Machines are known in the bookbinding industry for attaching a tape to a pair of sheets which are to become end sheets, the joined sheets issuing from the machine in a connected series or chain which has to be severed manually between each set of sheets; and this arrangement is slow, subject to mistakes in making the cut, and requires too close attendance and supervision; and since certain types of binding require two sets of end sheets, it is apparent that vast numbers of them must be used in the industry, and that any economy effected in time required for their manufacture, savings on costs by cutting down the number of rejects, or in supervisory or manufacturing attendance, can be of considerable significance in the cost of a run or an edition.

In accordance with the present invention, there is provided a method for folding the paper stock in a form, and attaching a tape to the form, and

2

then cutting the arrangement so as to produce not two, but four sets of end sheets.

Additional objects and aspects of novelty and utility relate to specific details of the method with respect to the folding of opposite edges of a sheet inwardly toward each other in juxtaposition to leave a median space therebetween exposing a median strip of the main sheet, and simultaneously applying glue to the juxtaposed edge parts as well as the median exposed strip, and thereafter laying down a long strip of hinge material which becomes attached to all glued surfaces, following which a medial slit is made in the strip to effect a first subdivision of the form and then additional and preferably simultaneous lateral cuts are made to effect further subdivisions to produce a plurality of end sheet assemblies, all of which will become more apparent as the following description proceeds, in view of the annexed drawing, in which:

Figs. 1, 2, 3, 4, 5, and 6 illustrate in perspective the steps of the method for preparing end sheet forms and applying the hinge tapes thereto; while Fig. 7 shows in perspective a finished end sheet assembly.

In accordance with the method of the invention as illustrated in Figs 1 through 7, an end sheet form is prepared by manually or otherwise making folds 40 and 41 in a piece of end sheet stock, so that confronting edge portions 40A and 41A lie in a median portion of the sheet, leaving an exposed portion 42 extending longitudinally of the form for the further steps of the method.

The prepared form of Fig. 1, in the next step of the method, has applied to the said median edge and exposed portions a hinge cloth or tape 43, the underside of which is glued or otherwise adhered to a substantial area of the paper adjoining edges 40A and 41A, and also to the entirety of the exposed portion 42, resulting in the form with hinge applied, shown in Fig. 2.

Next, the hinged form is subjected to a slitting process by means of which the form is divided into two halves along the longitudinal slit 44 down the center of the hinge member, this slit being made preferably by a cutting wheel W. Where the method is carried out with the aid of forming apparatus, a series of the forms are connected by a continuous tape 43A, as in Fig. 6, so that in the next step of the method, the cutting of the divided form, Fig. 4, as by knife means K, there is an added cutting operation by knife means K' to sever the series to the extent of one form at the same time as that form is itself cut, usually into two equal subsections or subcuts,

resulting in the final production of four end sheet assemblies as shown in Fig. 5.

In the usual bookbinding practice, one of these end sheet assemblies would be placed on top of a gathering of book signatures, while another such assembly would be placed at the bottom of said gathering, making up a book form, the edge portions of which would then be trimmed by power cutters, with the result, among others, that the fold portions 40 and 41 of the several end sheet assemblies would be cut, destroying the fold connection, by reason of which the two sheets comprising each end sheet assembly can be opened, like the other pages of the book, in the manner illustrated in Fig. 7.

At this stage of the binding operation. the book covers (not shown) can be applied, and if the end sheet shown in Fig. 7 is the one at the front of a book, then the upper wing 45 would be glued to the inside of the front cover board, while the hinge portion along the binding edge indicated at 46 would be glued or secured to the binding of the leaves of the book signatures, so that the second or inner wing 47 of this same assembly would turn as though it were one of the leaves of the book; and the same would be true of the assembly at the rear of the book but in reverse, that is, wing 47 would be glued to the inside of the rear cover, while wing 45 would be a fly sheet.

I claim:

1. The method of making end sheets for bookbinding which comprises folding opposite edges of a sheet back upon the sheet in spaced relation to leave a median exposed portion, securing a hinge strip to a middle portion only of said median exposed portion and also to said spaced opposite edge portions, slitting through said hinge strip medially of said middle portion to divide said folded sheet into two identical sections, and cutting said sections laterally of the slit by which they are formed to provide a plurality of end sheet assemblies each including two sheet portions joined by a hinge strip, and cutting through fold portions in each said assembly to render the said two sheet portions thereof hingedly separable at the hinge strip joining the same.

2. The method of making end sheets for bookbinding which comprises folding two opposite edges of a sheet back upon itself into near meeting relation to leave an exposed portion flanked by said edges, adhesively securing a hinge tape to a median part of said exposed portion and to said flanking edges, cutting through said tape and sheet along a medial line through said median part to provide half sections, and subdividing said half sections by cuts lateral to said first cutting to provide a plurality of end sheet assemblies, and cutting through fold portions in said assemblies to produce end sheets each consisting of a pair of sheets joined hingedly by a portion of said hinge tape.

3. The method of making end sheets for books which includes folding opposite edges of a sheet toward each other back upon said sheet but in parallel spaced relation to leave an exposed portion of said sheet flanked by said edges, gluing a hinge tape to a central portion only of said exposed portion and along a line in parallelism with said edges, and also gluing said tape to fold portions adjoining said edges, slitting the centrally glued portion of the tape and sheet, and cutting the folded sheet crosswise of the slit and at the fold portions to produce at least four complete end sheet assemblies each including a pair of sheet members hingedly joined by a portion of said tape.

4. The method of making end sheet assemblies for bookbinding which comprises folding two opposite edges of a sheet form toward each other back upon said sheet and into longitudinally spaced apart relation so as to leave an elongated median exposed portion of said sheet flanked by said edges, applying adhesive to three parallel but spaced apart tracks on a hinge web, adhering the central track portion of the web to the middle portion of said median exposed portion, and one of each of the remaining tracks to one of said flanking edge portions, cutting the folds of said sheet, cutting said sheet laterally of said median portion, and cutting through said web and sheet centrally along said middle portion.

5. The method of making end sheets which comprises preparing sheet forms by folding two opposite edges of a sheet toward each other back upon said sheet with said edges spaced apart in parallelism and flanking a median exposed part of the sheet, feeding said forms serially with said median part in parallelism with a hinge tape having three adhesive tracks spaced apart thereon and paralleling the length thereof and said flanking edges, joining the tape and form with said central track adhered to a central portion of said median exposed part, and the remaining tracks adhered each to one of said flanking edges, severing the tape between forms, slitting the tape centrally along the length of said centrally adhered portion and through the underlying sheet portion, and cutting each form crosswise of said slit and through folded edges of the sheet form, to produce end sheets each consisting of a pair of sheet portions hingedly joined by a portion of said tape.

6. The method of making hinged sheet assemblies which comprises preparing a form by folding two opposite edges of a sheet back upon the main body of the sheet toward each other as wings with said edges separated to expose an elongated strip of said sheet body therebetween, securing a hinge tape to said strip and portions of said wings bordering upon said edges, cutting through the fold portions of said wings, and dividing said tape and sheet lengthwise along the length of said form between said edges to subdivide the form into sheet assemblies each consisting of a part of said main sheet body and one of said wing portions hingedly joined by a portion of said tape.

7. The method of making paper sheet assemblies which comprises attaching an elongated flexible strip to opposite and spaced-apart edge portions of opposite, convergingly-folded wings in a main sheet and also to a portion of said sheet exposed between said edge portions, separating said strip and attached portion of said sheet along a line between said edge portions to subdivide said sheet into sheet assemblies each comprising a portion of one of said folded wings and a portion of the main sheet joined by a lengthwise portion of said strip, and severing the folded edge parts of said wings.

8. The method of making sheet assemblies of paper, and like materials, which comprises superposing a pair of upper sheet sections upon a lower sheet section with opposite edges spaced apart to expose therebetween a relatively narrow length of the lower sheet section, joining the upper sheet sections to each other and to said lower

sheet section by affixing a length of pliable strip material to said spaced-apart opposite edge parts of the upper sheet sections and also to exposed portions of the lower sheet sections as aforesaid, and subdividing said joined sections to provide a number of sheet assemblies each including a portion of an upper section joined to a portion of the lower section by a portion of said strip material.

WILLIAM B. HILDMANN.

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