Aug. 15, 1944. J. J. KREHBIEL 2,355,737

BINDING BOOK

Filed May 13, 1941 2 Sheets-Sheet 1

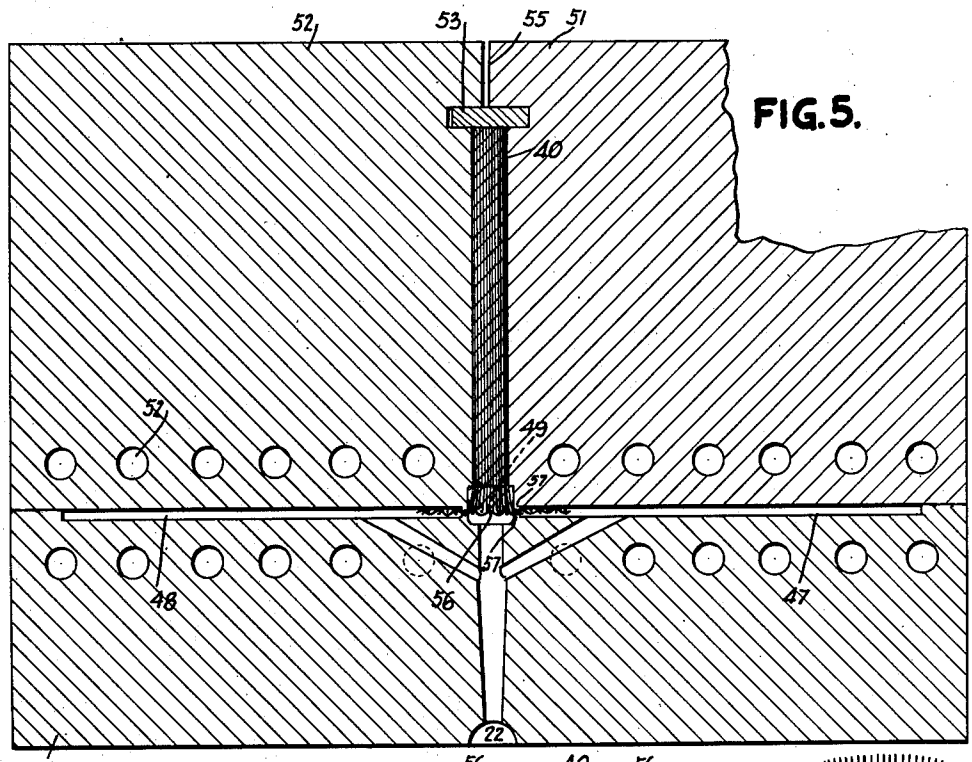

FIG. 5.

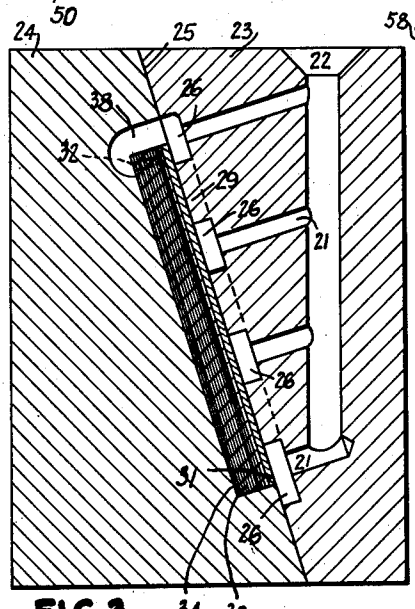

FIG. 3.

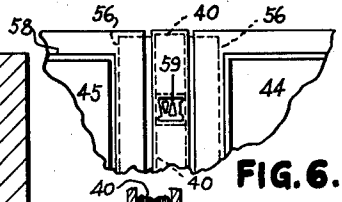

FIG. 6.

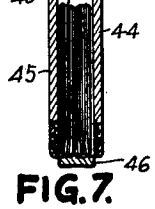

FIG. 7.

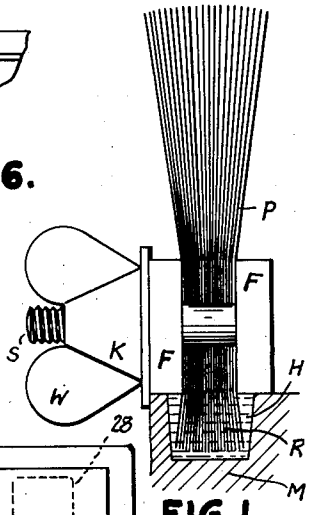

FIG. 1.

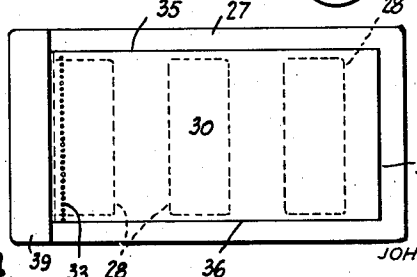

FIG. 4.

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BINDING BOOK

Filed May 13, 1941 2 Sheets-Sheet 2

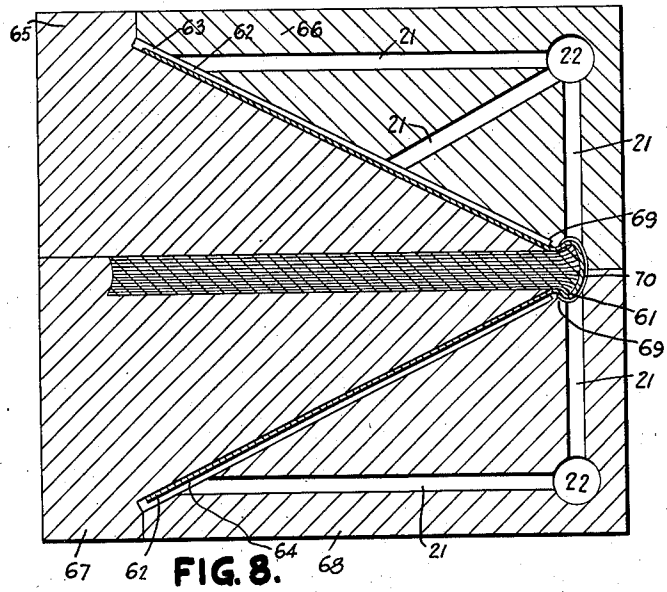

FIG. 8.

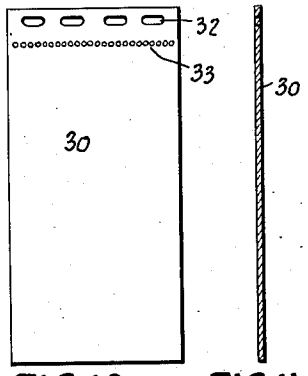

FIG. 10.

FIG. 11.

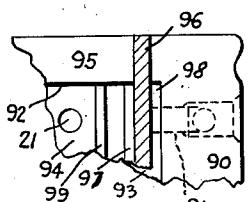

FIG. 12.

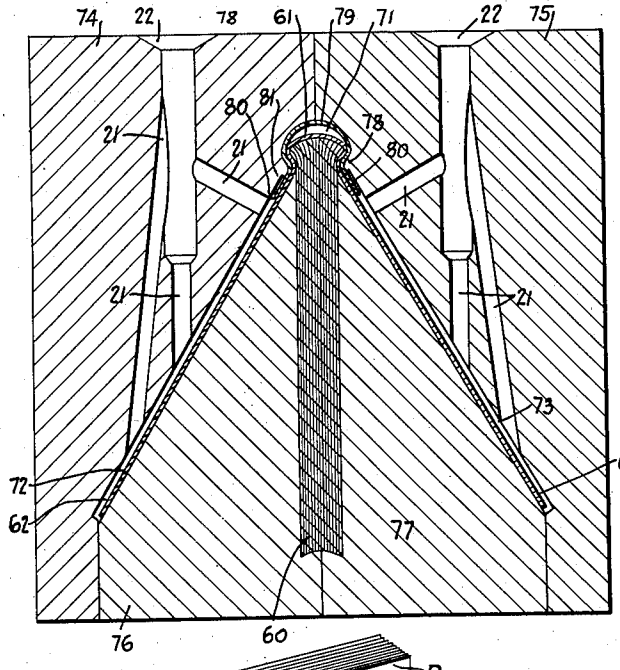

FIG. 9.

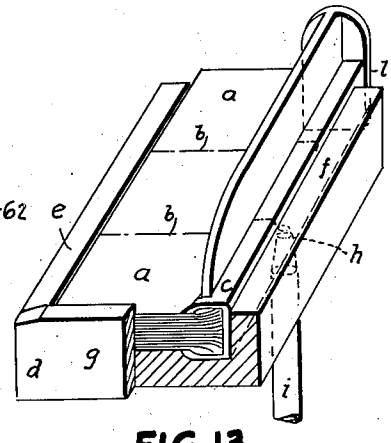

FIG. 13.

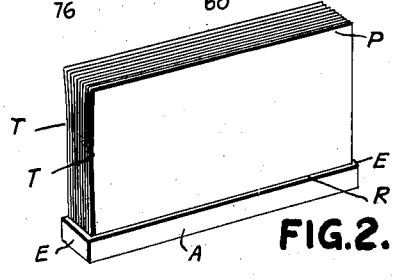

FIG. 2.

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Patented Aug. 15, 1944

2,355,737

UNITED STATES PATENT OFFICE

2,355,737

BINDING BOOKS

John J. Krehbiel, Bridgeport, Conn.

Application May 13, 1941, Serial No. 393,162

15 Claims. (Cl. 281—21)

This invention concerns bindings for books of sheets, like stacks of paper for instance, or of folded, gathered, collated and sewed or stitched material; or material assembled or placed together in any one of those ways, and the method of applying such bindings.

The application is a continuation in part of my United States Patent application Serial No. 181,034, filed on December 21, 1937, and originally entitled "Binding for books and the like."

In the present art of binding books there are separate steps of case making and covering, to which a finishing operation may be added.

It is an object of this invention to combine the case making, or at least the making of part of the case, with the covering into one, casing operation.

Another object of the invention provides books having a handy, smooth and durable casing.

It is a more particular object of this invention to effect such casing by shaping, molding, spraying, casting, pressing or binding a plastic onto a book of sheets or by dipping the book into the plastic.

Other objects will come to the fore during the following discussion of this invention.

I have observed that many of the present-day plastics, such as condensation products which can be cast under pressure at comparatively little heat, may be formed onto and around, and will readily engage upon paper and the various materials used in the lining of books. That has lead to the instant invention, in which a cover is virtually cast onto or around a book.

I have also discovered that plastics reduced to a highly liquid state will well bond the edges of the sheets of a book to which they are applied, and that such bond will remain effective when the plastic is then reduced to a solid or substantially solid state.

Of the class of plastics—the term plastics is to be given the broadest possible interpretation for the instant purposes—all those come into question which pass or may be reduced from one of said states to the other at temperatures and under other conditions not injurious to the paper or other material to be bonded and bound thereby. A plastic, which relies substantially wholly upon the evaporation of water for setting, is for instance not desirable in connection with a thin book of hygroscopic paper, because the paper may warp and the book may wrinkle. Plastics which shrink comparatively little in setting into thin tough sheet material are most desirable. When a plastic is of particular bonding quality, this must be considered in the choice of the material of the mould. All this selection lies within the knowledge and discretion of those versed in the plastic arts.

Fig. 1 shows, in cross section, the back of a book being bound by dipping in a plastic in a trough.

Fig. 2 is a perspective view of a book thus bound.

Fig. 3 is a cross-sectioned side view of a mould, in which a sheaf of sheets is about to be bound in a plastic.

Fig. 4 shows the top view of the said sheaf mounted on a plastic stand, as it results from the use of the mould of Fig. 3.

Fig. 5 is the cross-sectioned view of a mould, in which loose leaves are about to be bound into a book with covers.

Fig. 6 shows a sectional rear view of the bound, open book.

Fig. 7 shows a cross-section of the bound, closed book.

Fig. 8 is a cross-section similar to that of Fig. 5 of a mould in which a book is about to be cast into a cover.

Fig. 9 is a similar cross-section of a mould in which a stitched or sewed book is being provided with a casing having a hollow back.

Figs. 10 and 11 show, in a top view and in a cross-sectioned side view, a separate sheet, for instance of the type bound in Fig. 3.

Fig. 12 is a sectional elevation of part of a mould with a cross-sectioned insert for casing the hollow back of the binding.

Fig. 13 is the perspective view of a mould adapted and set for casing a book in a prefabricated binding.

Similar numerals refer to similar parts throughout the various views; in referring hereinafter to the binding or casing of the book, opposite sides thereof may be called the top and bottom cover; and the part extending over the edges of the sheets of a book on one side thereof, or interconnecting the two covers, will be called the back of the binding or casing.

Correspondingly the unbound book or stack of sheets shows a top and bottom side; it has a back where the back of the binding or casing is applied to the edges of the stacked sheets, the edges of sheets on the opposite side represent the front, and the two remaining sides of edges of sheets are the ends of the stack of sheets or book.

Fig. 2 shows a simple embodiment of the invention, in which a stack of paper P is bound by a back A made of plastic, said back extending only partways from the back over the adjacent sides of the stack of papers, i. e. over the top

and bottom sides T of the stack and the ends E of the stack.

Fig. 1 shows an arrangement for making such a book, i. e. from a sheaf of records which are to be permanently bound together. The papers P are stacked so that they register; heavier, flexible sheets may be used as top and bottom covers, if so desired. This stack of paper P is then clamped together. In a simple embodiment the clamp K comprises two registering flats F to be drawn together by way of a pair of screws S and wing nuts W, which are spaced apart to clear endwise the stack of papers P inserted between the flats F. As shown in Fig. 1 the stack of papers P is held together by clamp K near the back of the stack, so that the papers protrude downwardly to the predetermined width of a margin R from the clamp. The extent to which these protruding marginal portions R of paper P gape apart will depend upon the pressure applied by the clamp, but also upon the stiffness of the sheets of paper P and that of the heavier top and bottom sheets, if heavier cover sheets are applied.

The rectangular depression of the mould M should be slightly deeper than the width of the marginal portions R of the paper P extending from clamp K. The depression of the mould should also be wider and longer than the cross-section of the stack of paper P, so that the margin R extends clear of the walls of the depression of the mould M, when clamp K containing the stacks of paper P is centrally deposited upon the mould, as shown in Fig. 1. When the margins R of the paper P are thus inserted in the depression of mould M, and such depression contains a plastic H in a highly liquid state, the plastic engages upon and enters between the gaping paper edges and rises substantially to the top of the depression. A suitable amount of the plastic may have been reduced in the depression of the mould M to a highly liquid state, before the paper was immersed, e. g. by the application of heat to the mould. But liquid plastic H may of course also be poured into the depression of the mould, after the margin R of the paper P has been deposited therein. When the plastic H has solidified, it may have contracted and drawn slightly away from the walls of the mould, so that the clamp and bound book may be withdrawn. But the side and end walls of the depression of the mould may also be slightly tapered in order to facilitate withdrawal.

After the removal of clamp K I have the article of Fig. 2, in which the plastic casing covers the back of the stack of sheets T and extends for a short distance onto the four adjacent sides, i. e. top, bottom and ends of the stack. The fact, that the casing also extends over the ends of the stack, causes complete encirclement of the stack and the grip of such casing around the stack is rendered particularly strong. But it is understood, that if so desired, the depression of mould M may only have a length corresponding to that of the stack of papers P, in which case the casing will not extend over the ends, but only onto the top and bottom of the stack of papers. Correspondingly the casing may be arranged to extend over only one of the ends of the stack of paper, and not over the other end thereof.

The mould defines the outline of the casing, and if the liquid plastic fills the depression up to the bottom side of the flats F or clamp K, the casing is predeterminedly defined in all directions. In a more complicated mould elements corresponding to the clamping portions, i. e. the flats F of clamp K, may form part of the mould, so that all plastic is predeterminedly shaped in the enclosure of a cavity, as it will be discussed hereinafter.

Such moulds, as shown in Figs. 3, 5, 8, 9 and 12, may be suitably provided with channels, such as indicated at **21**, such channels serving to distribute the flow of the plastic to the various parts of the mould in a manner known in the art of moulding plastics. A system of such channels may be suitably connected, e. g. at an intake **22**, to an injector apparatus, which presses the liquid plastic into the mould.

The part **23** of the mould **23**, **24** of Fig. 3 provides a cavity down from the parting plane **25**, of interconnected recesses **26**, which serve to shape a base plate **27** for the pad shown in Fig. 4, said base plate being the bottom cover, in terms of a book. Rectangular clearance holes **28** may for instance be provided in the base **27**, these holes being produced by the lugs **29** extending between the recesses **26** of part **23** up to the level of the parting plane **23**.

The book may consist of a sheaf of sheets **30**, and a soft cardboard backing **31**. It may have cutouts near one end, into which filters and upon which engages the liquid plastic. Normally such cutouts are, however, not necessary, their usefulness being limited to thick books. A row of fine perforations or a scoring **33** may facilitate the tearing off of sheets from the finished pad. Figs. 10 and 11 illustrate such a sheet **30**.

The part **24** of the mould is recessed down to a bottom **34**, so that the book **30**, **31** is engaged between said bottom **34** and the lugs **29** of the part **23** of the mould, the bottom and lugs thus corresponding in function to clamp K of Fig. 1. Laterally and downwardly, the sides of the recess in part **24** are cut to fit the ends **35** and **36**, the fore edge or front **37** of the book respectively. The other end of the book, which has been characterized as the back of the book by the perforations **32**, extends into a space **38**, in which the head **39** of the pad is moulded. In book terms the head **39** would be bottom cover of the book, but the bound book of Figs. 3 and 4, has, for instance, no cast top cover.

The channels **21** may be arranged at the discretion of the designer experienced in the art of moulds. While they are, for instance, shown in the drawings in cross-sections of the mould, these distributing channels of the mould may of course also be harbored in the parting plane of the mould.

After a book has been arranged in the mould of Fig. 3, in the manner shown in said figure, the liquid plastic may be injected by way of the intake **22**, will fill the recesses **26** and **38** described above, as well as the cutouts **32** in the book, and may infiltrate upon the cardboard **31** at the bottom of the book, so that the moulded plastic engages upon the end of the book as well as the bottom thereof. If there are no cutouts **32**, the plastic will nevertheless infiltrate between and engage upon the portions of the book jutting into the cavity of head **39**, because those portions gape in the manner discussed concerning the marginal portion R of the books of Figs. 1 and 2.

The finished article is shown in Fig. 2 and serves as a memorandum or desk pad, or calendar, or similar articles known in the stationery art.

A book, e. g. sheaf **40**, as bound in the mould of Fig. 5, will have the front cover **44**, the bot-

tom cover 45 and the back 46. Aside from the distributing system 21, 22 for the liquid plastic, we notice channels 54 in the mould of Fig. 5, which serve to accommodate a cooling fluid.

Between the part 50 of the mould of Fig. 5 extending to the front, and the parts 51 and 52 to the back, are accommodated the moulding cavities 47, 48 and 49, which serve to form the top and bottom covers 44 and 45, and the back 46 of the book, respectively. A clearance is cut into opposite sides from the parting plane 55 between the parts 51 and 52, and serves to accommodate the book 40, so that the ends of the book fit closely upwardly and downwardly into said clearance, the fore-edge or front of said book extending to the back against the stop 53, which extends on opposite sides into suitable grooves in the parts 51 and 52. Since stop 53 permits parts 51 and 52 to be adjusted towards and away from each other, these parts may be pressed onto the book in analogy of flats F in Fig. 1.

The back of the book 40 extends into the central cavity 49, said cavity being slightly larger in height and in width, so that the liquid plastic may surround the said end of book 40 on all sides. A piece of hinge or binding material 56, e. g. perforate mull, is laid flatly onto the back of book 40. The parting line between the parts 51 and 52 on one hand and the part 50 of the mould on the other hand, extends substantially in level with said mull 56. Thus mull 56 is wedged between the ridges 57 extending from the various parts of the mould towards each other in order to separate the cavity 49 from the cavities 47 and 48.

The mull 56 lying on the perforated end of book 40 extends between said ridges 57 in opposite directions into the cavities 47 and 48. When the liquid plastic is inserted or injected by way of the inlet 22 into the three cavities 47, 48 and 49, the plastic firmly engages in the cavities 47 and 48 upon the ends of the mull 56 extending into said cavities, and the plastic entering upon the cavity 49 filters through and around the mull 56 around the sides and above and underneath the end of the book 40 onto and in between the gaping back edges of the book, more or less up to the front of cavity 49 but not therebeyond, so that the book as well as the mull are firmly cast into the back 46 of the book, and the mull into the covers 44 and 45.

The sides of the cavities 47, 48 and 49, and more particularly those facing the part 50 of the mould, may be suitably cut, engraved or etched in the outline of designs, e. g. 58, and legends, e. g. 59, as indicated in Fig. 6.

The mull or other flexible material 56 serves as a hinge for the parts of the casing upon each other, between the covers 44 and 45 on one hand, and the back 46 of the binding on the other hand. If the plastic is flexible and particularly so in thin layers, the ridges 57 do not have to abut tightly upon and wedge the mull or flexible material 56 between each other, but they may be spaced far enough apart, to allow the liquid plastic to enter therebetween and sheath the material 56.

It is readily understood that a wire-stitched or sewed book may be substituted for a book 40 of loose leaves. But in this latter instance, it may not be necessary to use the additional mull 56, because the end papers, particularly when they are perforated, and a lining e. g. of mull, which is ordinarily perforated, may simply be extended between the ridges 57 of the mould from the book into the cavities 47 and 48, and are then engaged upon by the plastic cast in said latter cavities.

The modification of Fig. 8 shows a mould for binding such a book 60 into a cast casing, after the book has been rounded and backed for instance. The lining 61 is shown to extend around the back of the book, at 62, over the top and bottom sides of the book, and it may be assembled with the end papers of the book. These top and bottom flaps 62 of the lining, which may include the end papers, are laid into the cavities 63 and 64, in which the top cover and the bottom cover of the book are to be cast between the parts 65 and 66, and 67 and 68 of the mould respectively. The clearance in the parts 65 and 67 may be convex where it faces the fore-edge of the book 60; this is however not necessary. Ridges 69 on the parts 66 and 68, will again close in on the lining, where the lining passes from the back to the covers, these ridges 69 clearing the acute ends of the parts 65 and 67 sufficiently to allow the lining to extend therebetween from 61 to 62. Between the parts 66 and 68 of the mould and the back of the book cavity 70 is provided and is of a size sufficient to allow the injected moulding material or plastics to spread evenly over the back of the lining 61. The material cast in the cavities 70 may, when it is cast thin enough, be so flexible that in connection with a sewed book, the casting substantially is a "limp binding."

Fig. 9 illustrates, exemplarily, a mould for a composite casing, which has a hollow back. The top and bottom flaps 62 of the lining, and the back 61 thereof, are again accommodated in cavities 72, 73 and 71 respectively, the four parts 74, 75, 76 and 77 of the mould being correspondingly assembled and recessed. But the back cavity 71 is not connected with the system 21, 22 distributing the liquid plastic. Here the back cavity 71 is therefore not used for moulding a plastic, but accommodates a finished back 79 of the casing, e. g., a leather back, or a back made of other suitable material. Flaps 80 extend from such a back 79 into the other cavities 72 and 73, in order to be engaged by and cast into the plastic eventually filling the said cavities 72 and 73. The ridges 78 of the parts 74 and 75 of the mould may be correspondingly shortened so that the flaps 80 of the finished back extend from the cavity 71 into the cavities 72 and 73 just as the flap 62 of the lining passes from the one to the others of cavities at these ridges in Fig. 8. If the finished back 79 is not made of a pervious material, its flaps 80 may be perforated, as indicated at 81, in order to make sure that the fluid plastic reaches and engages upon the whole flap 62 of the lining, to the extent to which said flaps are accommodated in the cavities 72 and 73. A bound and finished book 60 of this kind is comparable to a "half-bound" book, although it would not have the corners, which in a half-bound book are usually made of the same material as the material 79 of the hollow back.

That does however not mean that a cast hollow back could not also be provided upon a book by way of the invention herein described. Let distributing channels also extend to the periphery of the hollow cavity 71 from an inlet 22, through which the liquid plastic is introduced or injected. Then we may provide a retractile core in the hollow space shown in cavity 71 in Fig. 9, which core leans onto the backside of the book 60 or the lining 61 covering the same, and make the material 79 sufficiently thin and pervious, so

that it may be permeated by liquid plastic entering upon the periphery of the cavity 71.

The part 90 of a mould, which is thus adapted, but which may otherwise be similar to part 74 of the mould of Fig. 9, is shown in Fig. 12. An extra distributing channel 91 connects the inlet for liquid plastic of the distributing system with the back cavity 93 of the part 90 of the mould. The cavity 93 for said back and the cavity 94 for the front cover of the book both extend up to a line 92, up to which line will therefore extend the cover and back of the casing of the book. But in the margin 95 above line 92 is removably lodged the upper end 96 of a scythe-shaped insert 97, said insert corresponding in cross-section substantially to the clear space in the cavity 71 shown in Fig. 9.

Through the space 98 behind the insert 97, i. e. around said insert, a piece of thin material, say of mull, may be extended in cavity 93 and flaps extend therefrom into cavity 94, and the corresponding opposite cavity for the bottom of the book, after they have passed ridges 99. After each cast the insert 97 is of course withdrawn from the back of the bound book.

On the inside of the plastic casing we rely upon the bonding action of a plastic upon the sheets of the book, and more particularly upon the bonding action on the edges of the sheets and between the sheets where they are fanned or gaped apart on account of compression at a point removed from the edge of stack of sheets. The outside of such a plastic casing, more particularly when it is cast in a clean mould, offers a smooth, finished surface which is in particular useful in connection with bound books, because it is rugged, keeps clean and is readily cleaned, is of good, appealing appearance, and offers a convenient grip for handling.

But excellent binding action of the plastic is also useful, where other parts of the books such as the mull or lining referred to above, are engaged thereby, or where it is interengaged with parts of the binding or casing made of different material, such as the back and corners of a half-bound book, as discussed in connection with Fig. 9, or as the back or corners of a half-bound book with the interposed parts of the respective casing. Ornamentation and identifying means such as legends, as they were discussed in connection with the book of Figs. 5–7, when executed in a material different from a plastic, e. g. metal, were also readily bonded by the plastic casing. They are, for instance positioned in the mould, so that they are cast right into the plastic. That opens many possibilities for highly artistic effects.

These arrangements have led to the further object of binding part of the mould permanently upon a book.

For such purpose the plastic moulding may be effected in the cavity of a part, which is made of plastic or a different material like metal, and which remains engaged upon a book. The said part is thus incorporated in the binding or casing thereof. This is embodied in Fig. 13:

Fig. 13 shows an arrangement for binding a stack of sheets *a* by a plastic in a U-shaped trough or piece *c*, which is prefabricated in a substantially rigid though preferably slightly resilient material. The dot-dash lines *b* indicate where such a bound book, like the book of the other illustrations, may subsequently be sliced in a transverse direction, whereupon we obtain a plurality of bound books, e. g. three books according to the illustration. Analogously it is within the knowledge of those acquainted with this art to provide a back upon each of the opposite sides of a stack of sheets, and thus a doubly bound stack may be subsequently sliced longitudinally, so that two bound books are obtained.

The table *d* has a clearance groove in which the stack of sheets may be positioned against the lateral ledge *e* and the prefabricated U-shaped piece *c* is positioned against the other lateral ledge *f*. In the clearance groove of the table *d* the said stack *a* and U-shaped piece *c* may be pushed against the front ledge *g* which is, for the purposes of the drawings, partly sectioned away.

In the bottom side of the U-shaped piece *c* an opening *h* is provided substantially at the center thereof, said opening issuing upon the inside of the U-shaped piece *c* at a point, whence a plastic injected through said opening may distribute between the stack of papers and the inside of said U-shaped piece until subsequently all voids are filled in said space. The said opening *h* registers with the outlet of a pipe or conduit *i* mounted in table *d*. Said pipe thus issues upon the piece *c* from the bottom, and serving as a connection with a supply of highly liquid plastic.

This arrangement would still leave the U-shaped piece *c* open in the back, where it protrudes to the back from the clearance groove of table *d*. Thus a plastic introduced by way of pipe *i* might escape there and also to the left beyond the shanks of the U-shaped piece *c*.

The arrangement shown in the drawings provides an implement *j* for the purpose of closing these two avenues of escape for a plastic, it being understood that more elaborate mechanical means may assume the function of this implement in accordance with the knowledge of those acquainted with this art, when this type of book binding is to be produced by quantity manufacturing. This implement *j* comprises a frontwardly flat, vertical back flange *l* from which extends in a normal direction to the front the blade which bears the marking of the letter *j*, the bottom edge of said blade being more particularly at right angles with that front portion of flange *l*, which extends therebelow.

When the implement *j* is deposited in the position shown on the drawings upon the parts accommodated in the clearance groove on table *d* and it is pressed, for instance by the hand of the operator, substantially in the direction indicated by the arrow *k*, the U-shaped piece *c* and the stack of sheets *a* abut in the front against the front ledge *g*. At the same time the flange *l* closes the back of the U-shaped piece *c* and the blade of implement *j* presses the shanks of the U-shaped piece *c* together, so that the edges of those shanks of the U-shaped piece *c* close upon the sheets *a*.

The marginal portions of said sheets will gape or fan apart, however, where they extend into the U-shaped piece *c*.

Now the voids in the closure thus provided in the U-shaped piece *c* may be filled by a liquid plastic admitted through pipe *i* and opening *a* and will bond the margin of stack of sheets *a* and in the U-shaped piece *c* when solidified, whereupon pressure in the direction *k* upon implement *j* may be released. The cased stack of sheets may then be removed from the table, U-shaped piece *c* will be engaged thereon as a back, and these parts may then be sliced along lines *b*, thus providing a plurality of books.

The restriction of the flow of the liquid plastic is in this instance effected by bending the

mold, the U-shaped piece *c* being here the respective part of the mould. This mode of restriction may be generally applied as alternative to an adjustable arrangement of the mould, as it was exemplarily illustrated in Fig. 5 by articulating the mould, and by making the articulated parts of the mould slidable upon each other. In the arrangement of Fig. 5 the blade **53** is slidable in the parts **51** and **52** of the mould, so that said parts may be pushed towards each other to the extent desired for preventing the liquid plastic from entering too far between the stack of sheets which are wedged between said parts **51** and **52** of the mould, and for causing, on the other hand, a gaping, spreading or fanning of the back margin of the sheet extending into the cavity **57**, so that the liquid plastic is received therebetween and eventually, when hardened, effectively wedges, aside from binding, the sheets in the bound book, thus preventing, that the sheets may be individually pulled out.

Lastics are a sub-division of the plastics and are particularly so considered for the purposes of the instant invention, because they are especially useful for preparing flexible bindings for books in accordance with the instant invention.

In the art of plastics the terms injecting, spraying, transferring, moulding, shaping, casting, setting, extruding, forming and others are sometimes used for distinguishing between different procedures to be used for reducing a plastic to the desired shape. Where such expressions are used herein, such a particular distinctiou is not intended, but such procedures may interchangeably be applied for the instant purposes, as it is within the knowledge of those versed in this art.

As to the materials of the sheets of the book and concerning the shape of the binding of the book or of the bound book the broadest possible interpretation is to be applied herein, since the instant invention opens up, for instance, a field for many novel shapes of bound books, which depart from the conventional.

Having thus described my invention by way of a few selected exemplary modifications, I do not wish to be limited thereby, except as the state of the art and the appended claims may require, for it is obvious that various modifications and changes may be made in the form of embodiment of my invention, without departing from the spirit and scope thereof.

What I claim is:

1. A bound book comprising stacked, solid sheets having substantially registering, uninterrupted edges on one of their sides, and a plastic back directly engaging upon and interconnecting said edges and extending as a casing onto adjacent sides of said stack.

2. A bound book comprising a stack of sheets gaping apart along a registering edge, and a plastic extending from the outside in between said sheets where they gape apart and holding said sheets together and forming a complete back closing upon the adjacent top and bottom sides of said stack of sheets.

3. A bound book comprising a stack of sheets substantially registering upon at least two convening sides along their edges, and a plastic back directly engaged upon said sides of said sheets and extending on said stack from one of said sides onto the other.

4. A bound book comprising a stack of sheets aligned upon one side along their edges, and a plastic casing directly engaged upon said edges and extending from said one side onto the four adjacent sides of said stack.

5. A bound book comprising a stack of sheets, and a plastic back directly engaged upon and endlessly extending around a marginal portion of said stack.

6. A binding in combination with a book, comprising a cast plastic covering the back and the bottom of and forming the casing of said book.

7. A binding in combination with a book, comprising a cast plastic extending upon and beyond the back and the bottom and forming the casing of said book,

8. A bound book, comprising sheets having cutouts near one of their edges, and a cast, substantially rigid plastic directly engaged upon said edges of said sheets and in said cutouts and forming the back of a casing for said book.

9. A bound book of sheets comprising a substantially rigid U-shaped back, and a plastic filling the spaces between and interengaging said back and the edges on one side of the sheets.

10. A bound book of sheets comprising a plastic U-shaped back and a plastic filling the spaces between and interengaging said back and the edges on one side of the sheets.

11. A binding in combination with a book and a lining on said book, comprising plastic covers cast upon said lining and hinged upon said book.

12. A binding in combination with a book, comprising a back, flaps extending from said back, and plastic covers cast upon said flaps and hinged upon said book.

13. A binding in combination with a book and a lining on said book, comprising a hollow back, flaps extending from said back, and plastic covers cast upon said lining and said flaps and hinged upon said book.

14. A binding in combination with a book and a lining on said book, comprising a plastic cover and a plastic back, said lining being cast into said cover and said back.

15. The method of binding a book, comprising preparing a U-shaped back to fit onto a book, inserting said book along one edge into said back, depressing the free longitudinal edges of said back onto said book, closing the opposite ends of said back and injecting a plastic bond into the closed back around the portion of the book inserted therein.

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