April 28, 1931. C. D. TRUSSELL 1,802,794

COVER FOR TEMPORARY BINDERS

Filed Dec. 28, 1923

Fig. 1.

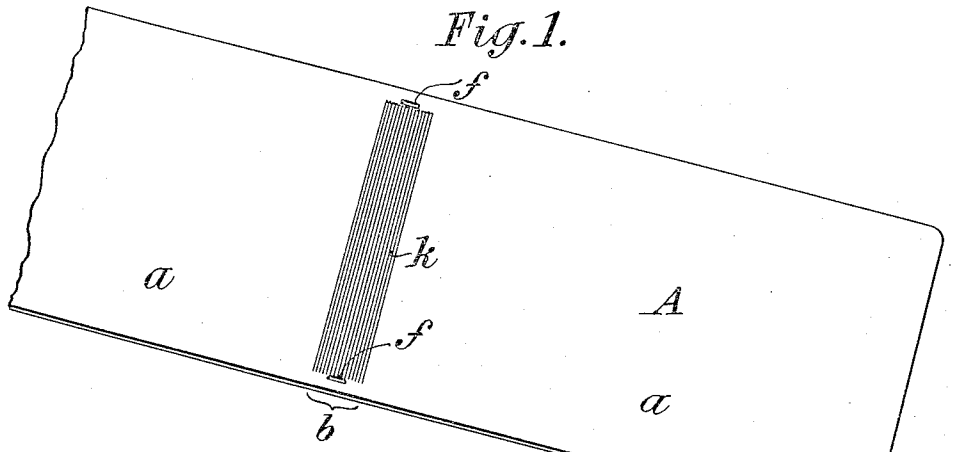


Fig. 3.

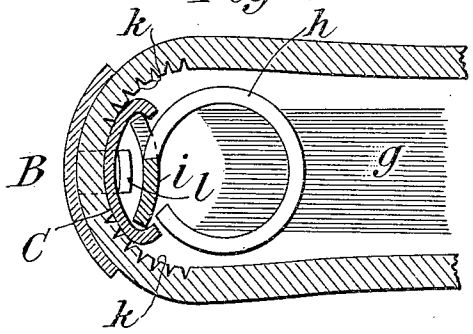


Fig. 2.

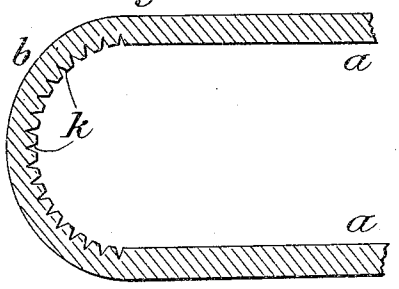


Fig. 4.

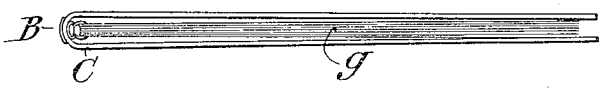


Fig. 6.

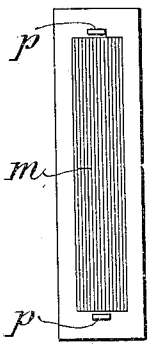
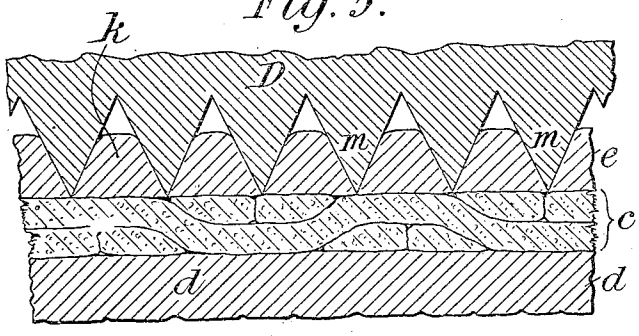


Fig. 5.



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Patented Apr. 28, 1931

1,802,794

UNITED STATES PATENT OFFICE

CLARENCE D. TRUSSELL, OF POUGHKEEPSIE, NEW YORK, ASSIGNOR TO TRUSSELL MANUFACTURING COMPANY, OF POUGHKEEPSIE, NEW YORK, A CORPORATION OF NEW YORK

COVER FOR TEMPORARY BINDERS

Application filed December 28, 1923. Serial No. 683,193.

This invention relates to covers for so-called ring books or other temporary binders, being applicable also for pocket or memorandum books having leaves permanently bound in. For such thin books or particularly for those with flexible covers, it is common to make the covers and the intervening back of one integral piece of leather; and to provide a flexible hinge portion where the sides join the back, it is customary to cut furrows or grooves in the leather partly through its thickness, as set forth for example, in my Patent No. 1,104,394, dated July 21, 1914.

Artificial or imitation leather consisting of a textile fabric coated on both faces with a material which on the outer or grain side is finished in imitation of leather, and on the opposite side is usually given a smooth finish, suitable for the inner face of a book cover, has come somewhat largely into use and is well adapted for the covers of such thin books; but difficulty is experienced in imparting to such material, the desirable flexibility at the junction of the back and sides. The present invention successfully solves this problem by forming the back portion on the inner coating with a succession of closely adjacent parallel grooves or creases indented by pressure whereby the coating material is displaced and the flexibility of the artificial leather to bending parallel with such grooves is greatly increased without, however, impairing its essential strength or durability. The invention is applicable to temporary binders of the ring book type and generally to thin books such as memorandum books which are designed to be carried in the pocket.

A suitable embodiment of the invention as applied to such book covers is shown in the accompanying drawings, wherein,—

Figure 1 is a perspective view of the book cover laid open flat;

Fig. 2 is a transverse section on a larger scale showing it bent into closed form;

Fig. 3 is a similar cross-section of the back portion of a book having a form of temporary or loose-leaf binder;

Fig. 4 is an edge view of such book on a smaller scale;

Fig. 5 is a magnified cross-section illustrating the method of forming the creases or grooves;

Fig. 6 is an elevation of the face of the die used for forming the creased grooves.

Referring to Fig. 1, A is the book cover as a whole, being formed of a sheet of imitation leather including the two sides *a*, *a*, and the intervening back portion *b* of the book cover. The imitation leather is of the structure shown in Figure 5, comprising a middle layer *c* of suitable textile fabric, usually woven fabric, with an outer side coating *d* on one side, and an inner side coating *e* on the opposite side, these coatings being of any known or suitable material. In Figs. 3 and 4, B and C are metal plates between which the back portion of the cover is clamped, these plates being rounded in cross-section and being united as usual by prongs *l* turned up from the ends of the outer plate, passing through slots *f* in the cover material, and turned or clinched down upon the ends of the inner plate so as to clamp or pinch the back of the cover tightly between them. The leaves of a loose-leaf book, shown at *g* in Fig. 3, may be united by rings *h* connected in any known way to a plate *i* which may be fastened removably or otherwise to the inner back plate C. The construction shown is one commonly used in pocket memorandum books and forms no part of the present invention.

According to the present invention, after the book cover A is cut out to proper shape, its back portion *b* is formed on its inner face with a series of parallel grooves or creases *k* as best shown in Figs. 1 and 2. These are best formed by pressure from a die D having sharp-edged parallel ribs *m*, *m*, which may be of angular cross-section as shown in Fig. 5. A face-view of this die is shown in Fig. 6. For convenience the same die is provided with punches *p*, *p*, near its ends for punching or stabbing the slots *f*, *f*, (Fig. 1), so that these two operations are performed together. The sharp edges of the ribs *m*, *m*, may penetrate entirely through the inner layer *e* as shown in Fig. 5 or they may pass only partly through, provided their depth is sufficient to form creases or grooves *k*, *k*, which will have the desired effect. This operation separates

the inner coating *e* into a series of tapered parallel ribs whereby the flexibility of the back portion of the cover to bending into curved form as shown in Fig. 2 is greatly increased. When the plates B, C have been applied, the portion clamped between these plates is thereby held rigidly in curved form, which thereafter reduces the function of the grooves *k* to that of rendering the lateral portions of the book back where it approaches or adjoins the sides of the cover more flexible, so as to facilitate the opening and closing of the book. It follows that the formation of these creased grooves in the middle portion of the back is of minor importance, so that the grooves might be wholly omitted in such middle portion if desired; this is partly shown in Fig. 3 where some of the middle grooves are omitted.

It is desirable that the weakening of the back, by means of the grooves *k* to make it flexible, be limited in length, so that the grooves shall not reach quite to the opposite edges of the cover, so that the strength of the edge portions of the back of the cover (the ends of the book back) shall be unimpaired. This is shown in Fig. 1 where the grooves stop short of the edges of the fabric at approximately the location of the slots *f*, *f*. The die for accomplishing this result is formed as shown in Fig. 6.

According to the method described the coating material is merely displaced in forming the creases or grooves and no portion thereof is removed. My invention, however, does not exclude the formation of similar grooves by the actual cutting away of the inner coating material, but this is less desirable because more difficult to accomplish and involves more liability of cutting into the base fabric *c*.

My invention provides a very cheap and easy means for forming book covers of artificial or imitation leather in such manner as to ideally adapt this material to the intended use, its back portion having imparted to it the desirable flexibility so as to form flexible hinge portions at the junction of the book back with the sides. The invention is not limited to the precise details nor the precise method set forth, but includes such modifications thereof as are within the scope of the appended claims.

I claim as my invention:

1. A cover formed of a sheet of coated fabric, the sides and back of the cover being integral, and the back portion having the coating on the inner surface of the material penetrated by a series of close parallel longitudinal creased grooves of substantially V-shaped in cross-section, the substance between the grooves being laterally compressed, and the creased grooves being confined to the coating on the inner side of the fabric so as not to enter or impair the fabric, said grooved portion imparting increased flexibility to the back portion at its junction with the sides, and the compressed portions serving to distribute the flexure, whereby to form flexible hinges affording smoothly rounded bending between the back and sides.

2. A cover formed of a sheet of coated fabric, the sides and back of the cover being integral, and the back portion having the coating on the inner surface of the material penetrated by a series of close parallel longitudinal creased grooves of substantially V-shape in cross-section, the substance between the grooves being laterally compressed, the creased grooves being confined to the coating on the inner side of the fabric, said grooves serving to increase the flexibility of the back portion, combined with outer and inner clamping plates united together to embrace the back portion between them, the grooved portion of material extending beyond the margins of said plates and serving to afford flexible hinge portions between the rigidly-held back and the ungrooved sides.

3. The method of making a cover of an integral sheet of material consisting in forming by pressure a series of close parallel longitudinal creases or grooves of substantially V-shape in cross-section penetrating the inner surface of the material at the back portion of the cover, the grooves being so close that the substance between the grooves is compressed, the grooves being formed by pressing a die having closely parallel cutting ridges of V-shape in cross-section, into the back portion of the cover to impress parallel grooves in the inner surface thereof and laterally compress the substance between the grooves.

4. The method of making a cover of an integral sheet of coated fabric consisting in longitudinally increasing with closely parallel impressed grooves of substantially V-shape in cross-section the coating on the inner surface of the fabric at the back portion of the cover, the grooves being formed by pressing a die having adjacent closely parallel cutting ridges of V-shape in cross-section into the back portion of the cover, the projection of such ridges being no greater than the thickness of said coating.

In witness whereof, I have hereunto signed my name.

CLARENCE D. TRUSSELL.