No. 857,003. PATENTED JUNE 11, 1907.

A. J. KROENCKE.

METHOD OF FORMING BOOK BACKS.

APPLICATION FILED JULY 6, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

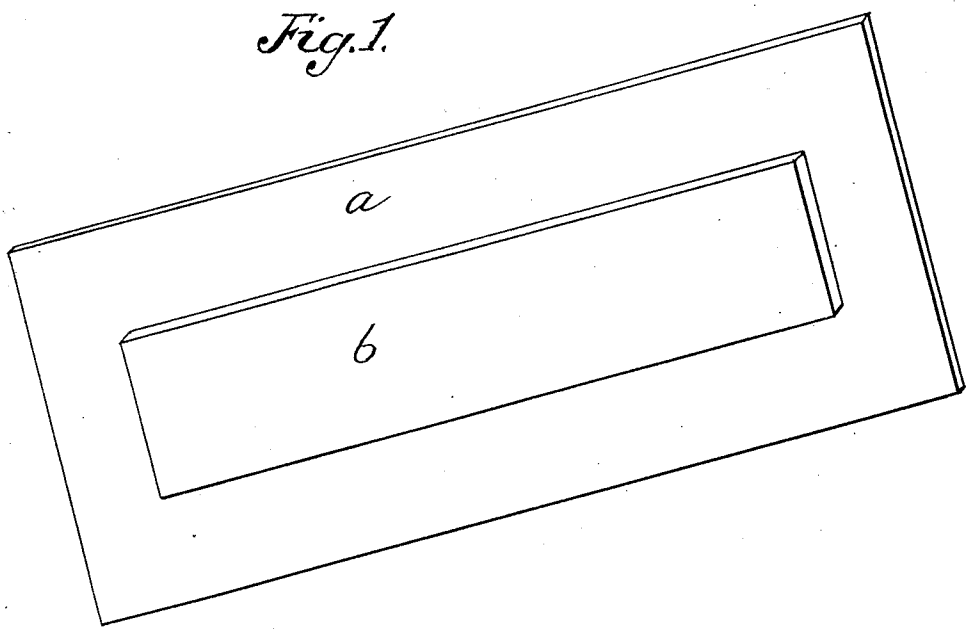
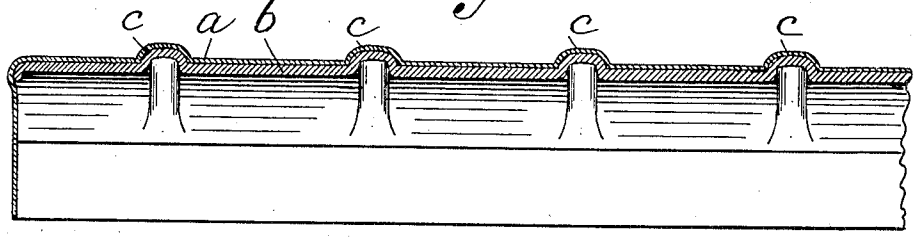


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 4.

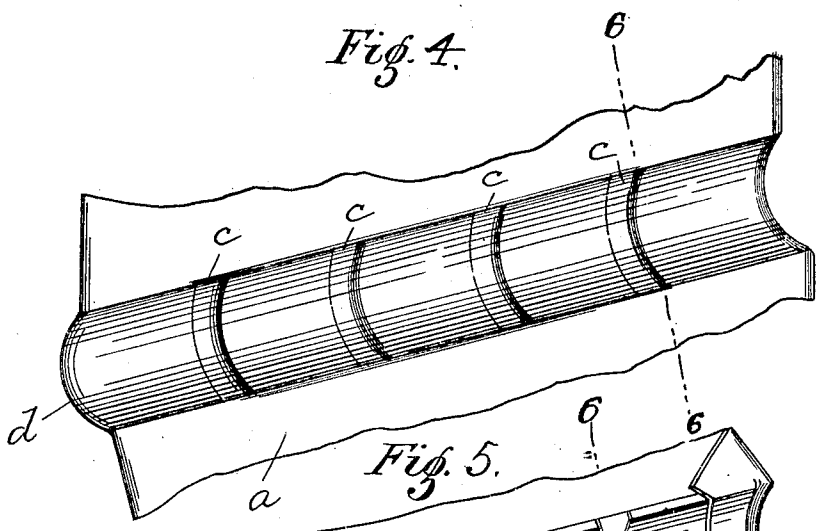


Fig. 5.

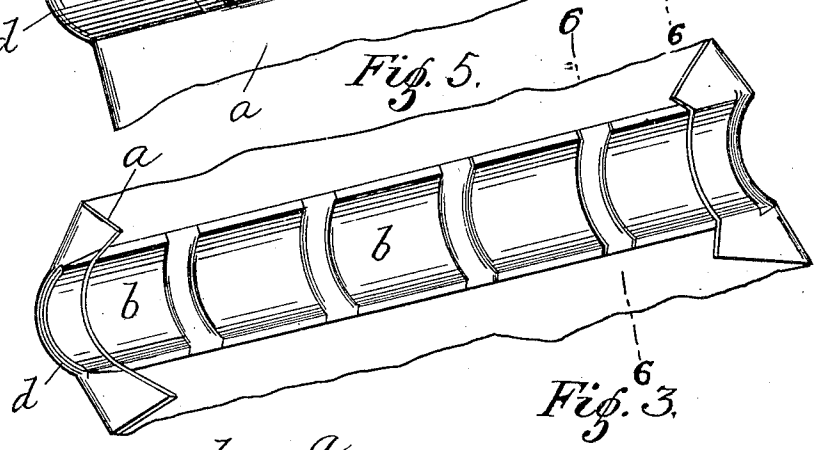


Fig. 3.

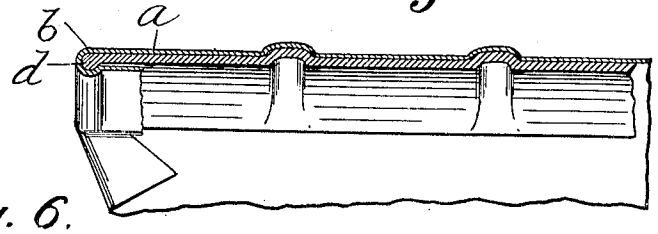
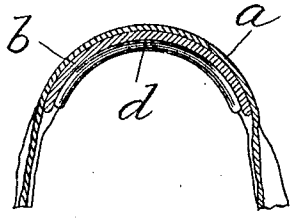


Fig. 6.



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UNITED STATES PATENT OFFICE.

ALFRED J. KROENCKE, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO TOM COBB KING, OF EAST ORANGE, NEW JERSEY.

METHOD OF FORMING BOOK-BACKS.

No. 857,003. Specification of Letters Patent. Patented June 11, 1907.

Application filed July 6, 1905. Serial No. 268,391.

To all whom it may concern:

Be it known that I, ALFRED J. KROENCKE, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have discovered or invented a new and useful Improvement in Methods of Forming Book-Backs, of which improvement the following is a specification.

My invention relates to methods of forming the backs of books.

Heretofore, so far as I am aware, numerous operations were required, extending over a considerable period of time, to prepare and finish book backs having what are technically termed "hubs" and "headers," on the spring back to give strength and add to the appearance thereof.

In the method heretofore universally employed it was usual to cut the tar or binders board which furnished the requisite rigidity to the back of the book into the required length and width, dependent upon the length and thickness of the book, which after being moistened or softened by steaming was placed upon a former or back molding machine and shaped thereon into semi-circular form, and then lined if the book was first class work. The book back was then secured upon or to the side boards. After these steps were performed, the projections, called hubs or bands, upon the back of the book were formed by building thin strips of straw-board or leather one upon another until the required thickness of hub or band was obtained. The edges of the hub were then squared. Upon the completion of these steps the back was ready to receive the covering material. If the covering material was formed of leather, the leather was dampened, coated with glue, and fastened to and worked on or over the back by hand. The book was then placed in a press and permitted to remain therein until it was in proper condition to be rubbed up. Upon the completion of the rubbing up operation, the book was ready for the finisher, who sized the same and with heated tools stamped the desired ornamental letters in the leather or other covering material by burning in the gold on the back thereof.

The object of my present invention is to lessen the time and labor required to do this work, and to accomplish this I employ the method now to be described, reference being had to the accompanying drawings of which

Figure 1 is a perspective view of the parts composing the back when they are placed in position relative to each other to be operated upon. Fig. 2 represents in longitudinal section the condition of the parts after the main dies have acted. Fig. 3 is a view similar to Fig. 2, showing the condition of the parts after the steps of the method have been carried out and the article is complete. Fig. 4 is a perspective view of the article produced by my method as viewed from the outside. Fig. 5 is a perspective view of the article looking from the inner side of the same. Fig. 6 is a transverse sectional view on lines 6—6 of Figs. 4 and 5.

In carrying out my method I first cut the leather, *a*, or other covering material, and the tar or binders board *b* into the requisite sizes, the covering material being of greater length and width than the binders board. The tar or binders board is then softened in any suitable manner; the board is then coated with glue and the leather secured thereto, the ends of the leather projecting beyond the length of the board are turned in and glued. The board and leather or other covering material glued or otherwise secured thereon are then placed in a former or female die, corresponding in shape to that of the required back, the said die having a number of transverse recesses or depressions conforming in depth to the thickness of the hubs or bands *c c* to be formed upon the back. The said depressions are preferably deeper at the middle than at the ends; in other words, the bottoms of the recesses taper toward the ends so that the hubs or bands formed are comparatively deep at the middle, growing shallower toward the ends to such extent that the ends of the hubs or bands coincide with the portions of the back between the same.

Immediately the board with the covering material is properly adjusted in the former or female die, a compressing or male die or former, having projections or transverse ridges corresponding in shape and number with the recesses or grooves in the female former, is brought down upon the board and pressure exerted thereon until the board and the covering material thereon is compressed

into a trough or semi-circular form or shape, and the hubs or bands are simultaneously formed upon the back by the transverse ridges of the male die forcing the board and covering material into the correspondingly shaped recesses or grooves in the female former.

The condition of the partially completed article after the main dies have acted is represented in Fig. 2 in which it will be noticed that the end of the board is slightly turned up as is also the cover ready for the end dies to act thereon as will now be referred to.

A certain portion of the ends of the board project beyond the ends of the male die, and almost simultaneously with the operation described, laterally applied pressure is exerted upon these projecting ends of the board which, with the covering material previously glued and compressed thereon, are upset to form the headers *d d*, which give strength to the back at its ends.

The dies are heated while these operations are performed in order to insure stability of form in the book back compressed thereby. In order to stamp ornamental figures or lettering upon the back during the shaping thereof, a supplemental plate carrying gold leaf or other suitable material, is inserted in the female die under the leather, so that the gold leaf carried by the plate is compressed or forced into the leather when the dies are forced together. The heated dies serve to affix the gold leaf upon the back of the book as securely and permanently as was heretofore accomplished by the heated tools.

In carrying out my method, I preferably employ the machine illustrated in Letters Patent of the United States, No. 800,115, dated September 19, 1905.

I claim as my invention or discovery and desire to secure by Letters Patent:

1. The herein described method for forming book backs, which consists in, first, securing to a suitably prepared binder's board, of requisite width and length, a suitable covering of greater width and length than said board, then pressing the said board and covering material together and pressing the same into a trough shaped body and simultaneously forming transverse hubs or bands at intervals thereon, then, by pressure, upsetting the ends of the board, forming headers thereon.

2. As a new article of manufacture, a book back comprising a binder's board, having a suitable covering material thereon of greater length and width than said board, and having transverse hubs or bands pressed from said board and covering material outwardly at intervals, and having headers formed by upsetting the ends of the board and covering material, folded thereover.

In testimony whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

ALFRED J. KROENCKE.

In the presence of—
HERMAN F. W. KANOLD,
JAMES A. CURRIE.