No. 672,726. Patented Apr. 23, 1901.

F. T. AUSTIN.

CARDBOARD OR PASTEBOARD BOX.

(Application filed Aug. 28, 1900.)

(No Model.)

FIG. 4.

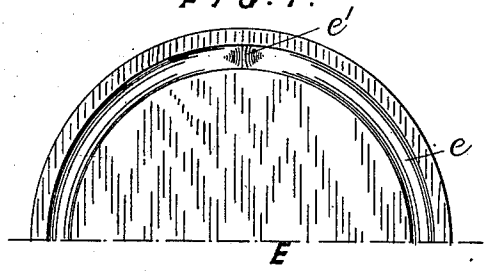


FIG. 5.

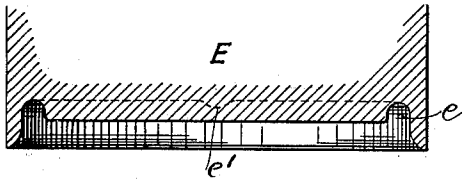


FIG. 3.

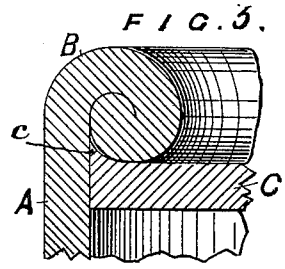


FIG. 1.

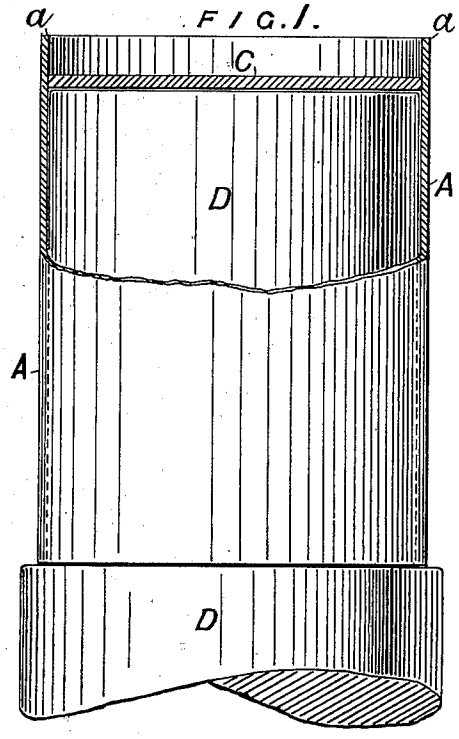
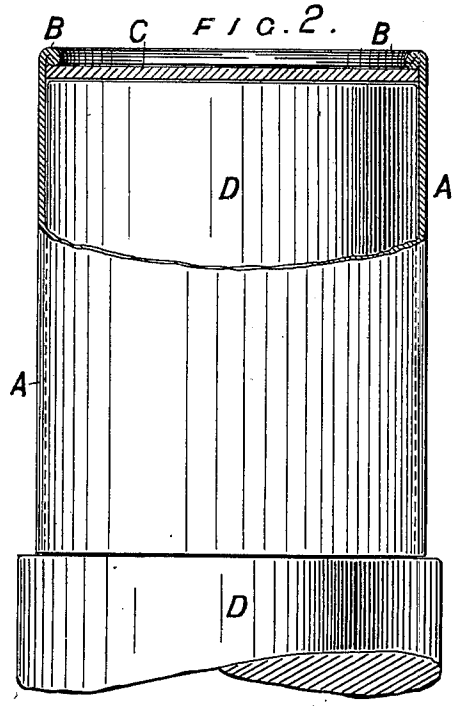


FIG. 2.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FLEMING THOMPSON AUSTIN, OF LONDON, ENGLAND.

CARDBOARD OR PASTEBOARD BOX.

SPECIFICATION forming part of Letters Patent No. 672,726, dated April 23, 1901.

Application filed August 28, 1900. Serial No. 28,271. (No model.)

To all whom it may concern:

Be it known that I, FLEMING THOMPSON AUSTIN, manufacturer of fancy card and other boxes, a resident of 8 Greville street, Hatton Garden, in the city of London, England, have invented new and useful Improvements in Cardboard or Pasteboard Boxes, of which the following is a full, clear, and exact description.

My invention relates to cardboard or pasteboard boxes, particularly those of cylindrical form, and has for its object to provide improved means for fastening the ends or heads of the box within the circumferential portion of the body and cover of the box, so that while a neat and effective finish is imparted the heads or ends will be more strongly and more cheaply secured than heretofore and the means by which they are held in place will be less liable to injury by moisture should the boxes be stored in a damp atmosphere.

Reference is to be had to the accompanying drawings, wherein—

Figure 1 is a part sectional elevation of the body or cover portion of the box with the head inserted and as first presented upon the mandrel to the action of the inturning-tool. Fig. 2 is a similar view showing the curled or rolled form of the rim or bead. Fig. 3 is a cross-section of the rim or bead on a magnified scale. Fig. 4 is a half face view, and Fig. 5 a central section, of the rotary die or inturning-tool.

The same letters of reference indicate the same parts in all the figures.

Heretofore the edge of the side A of the box was inturned, so that it was merely folded or doubled on itself to form a rim, and the head of the box was formed of two disks—an inner disk of the full internal diameter of the box, which abutted against the inturned edge of the side, and an outer disk of lesser diameter fitting tightly within the inturned rim—the two disks being united so as to form a head of double thickness. According to my present invention I am enabled to dispense with the outer disk and to that extent to lessen the cost of manufacture and yet to produce a box which is both as strong and as durable as a box made as above referred to.

Instead of merely turning in the end portion of the cylindrical side A of the box in such a manner and to such an extent that it is merely folded inward against the side A of the box and presents its raw edge (which has been more or less injured by the frictional contact of the turning-in tool) as an abutment to hold the head in position the inturning is continued until the raw edge *a*, which was first presented to the tool, is curled within the inturned portion of the side A of the box, so that a solid rim or bead B of circular form in cross-section is formed, as clearly shown in Fig. 3. When the end is merely folded inward against the side, as heretofore, the inturned portion was not pressed sufficiently against the side A of the box to enable it to be there held by paste or glue without the pressure and support of an outer disk, which fits tightly within such inturned portion; but by continuing the turning in of the said end portion until it is spun or curled spirally within itself, so as to form by the union of the spiral layers a solid rim of circular section, the layers become firmly united by the paste, and the rim thus formed becomes self-supporting and the raw edge *a* is completely concealed without the use of an outer disk. Moreover, sufficient paste is caused to exude to make a joint between the outer face of the disk or head C and the portion of the rim B against which it abuts. Furthermore, the spinning or curling of the rim, together with the pressure exerted against the inner surface of the head C, forces the edge of the head on the outer surface thereof into the corner or groove between the cylindrical side A of the box and the rim or bead B, as indicated at *c*, thus securing a good surface contact and firm adhesion of the head C.

In practice the tube or circumferential portion A of the box is pasted on its interior surface for a distance of about one-half an inch from the end to be inturned or curled. The disk or head C is then inserted in its intended position within the tube A, and the latter is placed upon a shouldered mandrel, such as D, and the end of the part A to be inturned or curled (which projects beyond the disk C, as shown in Fig. 1) is brought up with the requisite pressure against a revolving tool E of the kind shown in half face view in Fig. 4 and in section in Fig. 5.

The mandrel D is carried by a non-rotary sliding spindle provided with means of pressing it toward the tool. The tool E is mounted on a rapidly-revolving spindle and has an annular groove *e* in its face, the groove being of half-round section and of a breadth proportionate to the thickness of the cardboard operated on and the size of the rim to be formed, the inturning being effected by a gentle curling movement produced by two or more rounded projections *e'* in the bottom of the groove *e*, the operation being continued until by the coiling of the inturned portion within itself a solid rim or bead of complete circular section is produced. In this operation the rim or bead presses against the outer face of the head C and against the pasted inner surface of the side A as the curl is completed, so as to insure the adhesion of the spirally-coiled layers forming the rim and cause some of the paste to exude and so unite the abutting surfaces of the rim B and the head C.

I claim—

A cardboard or pasteboard box having the edge of its side portion curled or spun inward to form a rim or bead, the contacting surfaces of said bead and side being connected by an adhesive, and a head fitting within the side portion and abutting against said bead, the edge of the head on the outer surface thereof, projecting outwardly into the corner or groove between the side and the bead.

FLEMING THOMPSON AUSTIN.

Witnesses:

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