

No. 858,173.

PATENTED JUNE 25, 1907.

J. GODFREY.

PROCESS OF MAKING BOXES FROM PASTEBOARD.

APPLICATION FILED AUG. 6, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

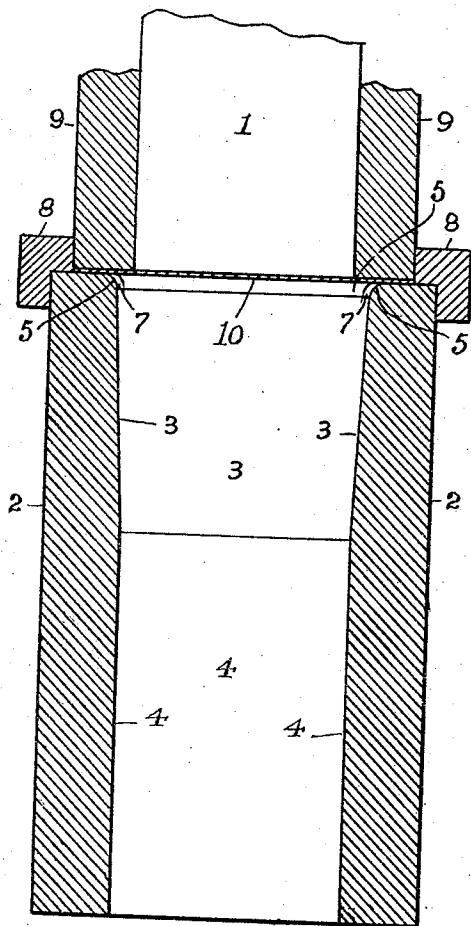


Fig. 2.

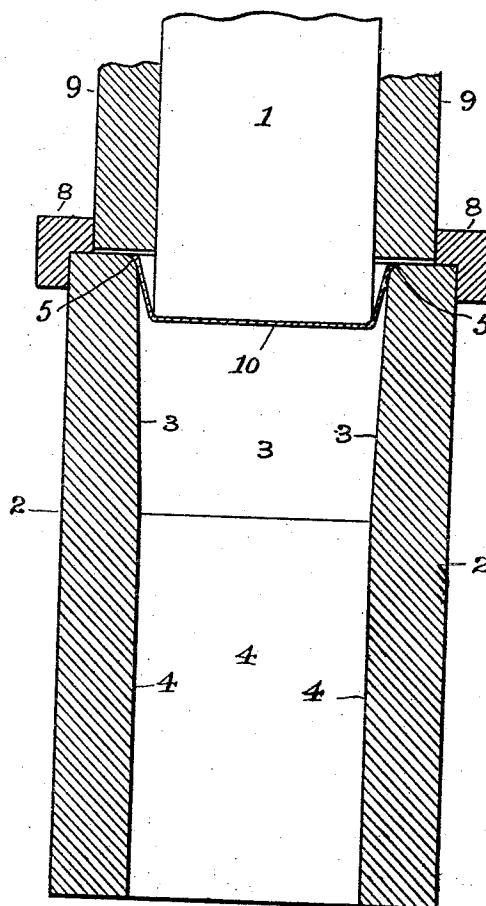
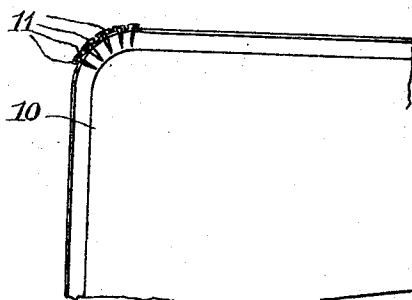


Fig. 3.



WITNESSES

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Fig. 4.

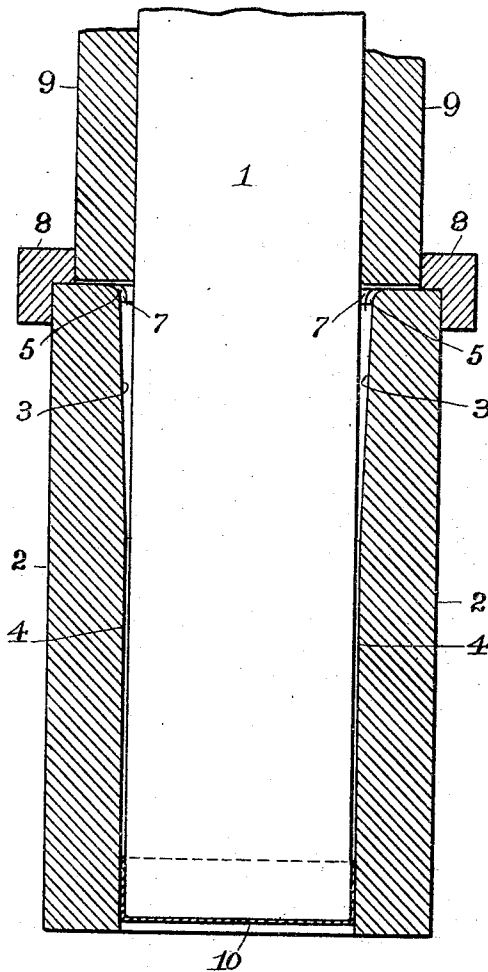


Fig. 5.

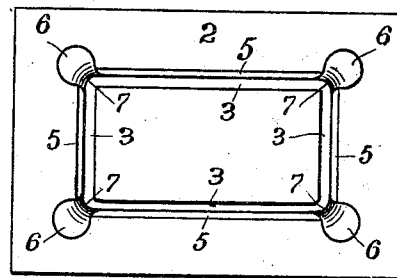
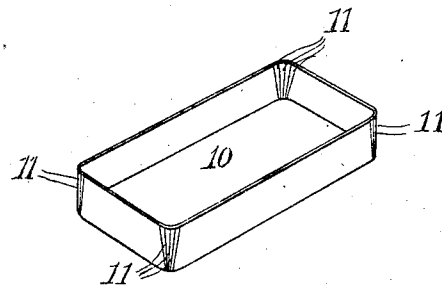


Fig. 6.



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JONATHAN GODFREY, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE COMPRESSED PAPER BOX COMPANY, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT.

PROCESS OF MAKING BOXES FROM PASTEBOARD.

No. 858,173.

Specification of Letters Patent.

Patented June 25, 1907.

Application filed August 6, 1906. Serial No. 329,436.

To all whom it may concern:

Be it known that I, JONATHAN GODFREY, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Processes of Making Boxes from Pasteboard; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the manufacture of boxes from pasteboard, and it consists of certain novel methods or processes particularly pointed out in the claims concluding this specification.

The following is a description of my improved process in the form in which I now prefer to practice it, and of the apparatus which I now prefer to employ in connection therewith, but it will be understood that my claims are not limited to the employment of any particular apparatus, and that the process herein described may be modified in various ways without departing from the spirit of my invention and without exceeding the scope of my claims.

Certain features of the process hereinafter described are not essential to the several features of my invention separately and broadly considered, and this will be indicated where in any given claim the omission of reference to steps or features of the process described will be understood to be a specific declaration that the omitted steps or features are not essential to the invention therein covered.

In the accompanying drawing Figures 1 and 2 are sectional elevations of a preferred form of apparatus for carrying out my process, showing respectively the position of the parts preparatory to the bending of the pasteboard blank and immediately after the blank has been initially acted upon to partially form the box prior to the ironing operation—Fig. 3 a broken plan showing one corner of the box after the stage of manufacture has proceeded as far as is shown at Fig. 2—Fig. 4 a view similar to Figs. 1 and 2, but showing the position of the parts of the apparatus after the box has been completely

formed and ironed.—Fig. 5 a plan view of the female die which is employed in said apparatus, and Fig. 6 a perspective view of a box made by my process.

Similar numbers of reference denote like parts in the several figures of the drawing.

In my pending application Serial No. 310,978, filed April 10, 1906, I showed, described and claimed a preferred apparatus for carrying out this process, which apparatus is the same as that illustrated herein and which will be hereinafter described with certain amplifications, but I do not wish to be understood as claiming in the present application any structure whatever since my process is not limited to any particular mechanism for performing the several steps and producing the result aimed at.

In carrying out my improvement I prefer to employ a male die 1 and a female die 2 the latter being stationary while the former is actuated in any suitable and ordinary manner.

The upper inside portion of the female die is provided with a long flared portion as seen at 3 from the mouth down to the long lower or straight portion 4, and the edges of said mouth are perfectly rounded as shown at 5. The corner portions of said mouth are cut away and enlarged so as to form concave recesses 6 which are preferably of a circular shape and are chamfered or beveled as shown at 7.

Around the upper end of the die 2 is the usual keeper ring 8 which forms the chamber for the pasteboard blanks so that the latter may be rapidly deposited upon said die without danger of displacement. Around the male die 1 is a presser ring 9 through which said die moves freely which ring fits snugly the chamber formed by the ring 8.

The die 1 and ring 9 are operated by means of the usual power press, but it is not deemed necessary to show or describe any of the elements of such press since they are very ordinary.

The operation whereby pasteboard boxes are made by practicing my invention is as follows:—A pasteboard blank 10 is placed upon the die 2 within the chamber formed by the ring 8; the presser ring 9 now descends and pinches the blank around the edges, and

finally the die 1 is operated to draw up the blank into box form. As the die 1, commences to form the box the stock will be drawn from beneath the ring 9, which latter
 5 only exerts a limited pressure and the surplus stock at the corners will be drawn into the recesses 6, and at the same time will be forced by the gradually approximating dies into a series of plaits which latter are folded
 10 upon each other and the stock. As the die 1 continues to descend the flaring portion 3 will cause the edges of the blank to be bent up into a substantially vertical position whereby the box will be gradually conformed
 15 to said die so that there can be no breaking or irregular mashing of the stock such as would occur should it be essayed to strike up the box by a quick short stroke operation after the manner exemplified in the cupping up of
 20 sheet metal. After the partially formed box has been forced into the straight portion 4 said box will thereby be completed and the continued movement of the die 1 will cause said box to be firmly compressed and ironed
 25 against said die so that the shape of the box will be permanent, and when said die has carried the box out of the female die 2 the box will be stripped and the die 1 elevated to normal position.
 30 The disposition of the stock at the corners of the box in the form of folds or plaits which overlap one another is shown at Fig. 3 in the instance of one of the corners, said plaits or folds being designated by the numeral 11.
 35 I prefer to form cutting edges at the inside of the ring 8 and the outside of the ring 9 so that the pasteboard may be fed between these

rings in the form of a strip and the blanks cut therefrom and deposited on the female die.

The exact shape of the recesses 6 is not material although I get the best results from the circular form and prefer to use this construction. 40

The object of the presser ring 9 is to exert a limited pressure upon the blank so that it will 45 always be forced evenly into the female die, but this ring is not absolutely essential in carrying out my process, especially when thin and pliable stock is used.

By my process the surplus stock at the corners of the box is not only evenly disposed of 50 but is firmly compressed and ironed into permanent form, and a box is thereby produced with rounded corners which is an exceedingly strong and preferable construction. 55

I claim

The process of making boxes from a pasteboard blank, which consists in bending the edges of the blank into substantially vertical position, and simultaneously forcing the surplus 60 stock at the corners into a series of plaits, drawing the same between gradually approximating dies thereby folding the plaits upon each other and the stock at such corners and then ironing the same to com- 65 press the plaits into a condensed and permanent form.

In testimony whereof I affix my signature in presence of two witnesses.

JONATHAN GODFREY.

Witnesses:

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 M. T. LONGDEN.