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REENFORCED BLANK MATERIAL FOR THE MANUFACTURE OF PAPER BOXES OR CONTAINERS.

APPLICATION FILED MAY 19, 1920.

1,425,914. Patented Aug. 15, 1922.

Fig. 1.

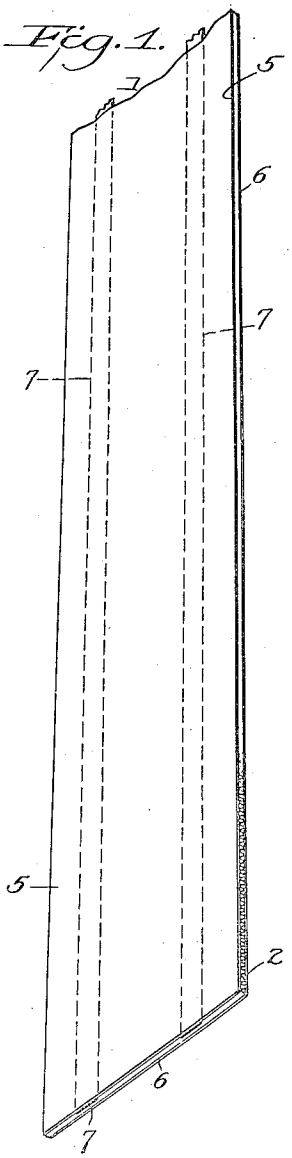


Fig. 2.

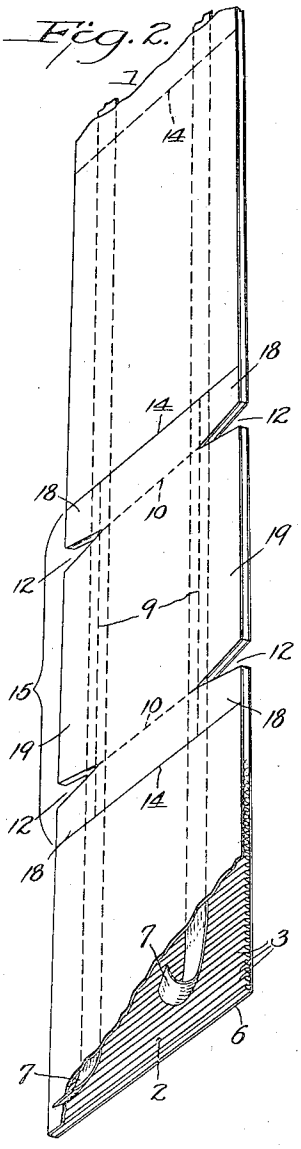


Fig. 3.

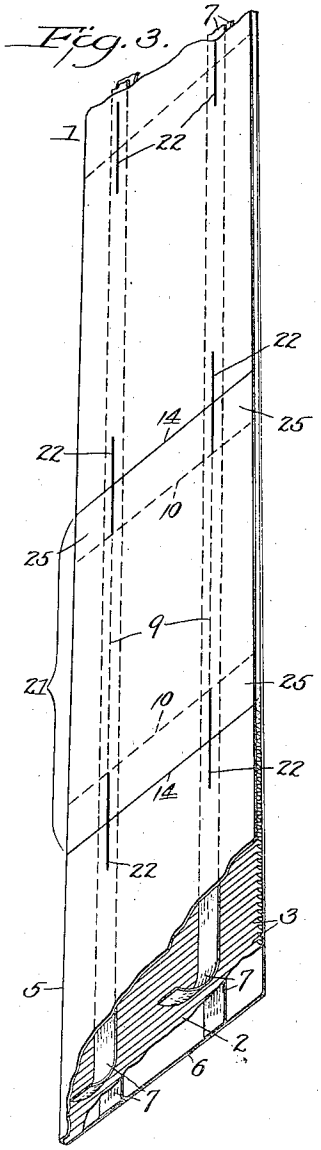


Fig. 4.

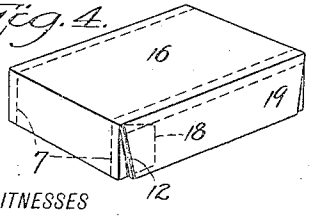
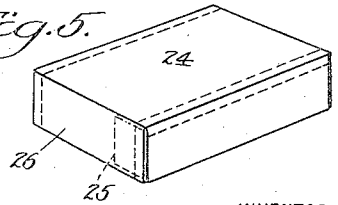


Fig. 5.



WITNESSES

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REENFORCED BLANK MATERIAL FOR THE MANUFACTURE OF PAPER BOXES OR CONTAINERS.

1,425,914. Specification of Letters Patent. Patented Aug. 15, 1922.

Application filed May 19, 1920. Serial No. 382,560.

To all whom it may concern:

Be it known that I, GEORGE W. SWIFT, Jr., a citizen of the United States, residing at Bordentown, county of Burlington, and State of New Jersey, have invented certain new and useful Improvements in Reenforced Blank Material for the Manufacture of Paper Boxes or Containers, of which the following is a specification.

This invention relates to the manufacture of reenforced multi-ply paper material especially designed for forming blanks that are to be scored and folded into paper boxes or containers. In the manufacture of reenforced paper boxes it has been the practice heretofore to apply reenforcing strips to the outer face of the box blanks along the lines of prospective folds, either before or after creasing or scoring, or to completely form the box and apply the reenforcing strips to the folded corners of the boxes.

In carrying out the present invention the narrow reenforcing strips of cloth or paper are applied to the web of material during the process of manufacture, said reenforcing strips being arranged between paper layers or plies so as to be entirely concealed in the finished product. These reenforcing strips may be variously arranged in the web of blank material either beneath the facing sheet on one side only, or beneath the facing sheets of both surfaces of the composite web. It is preferred that the reenforcing strips be placed in the zones embracing prospective creases or folds for the formation of the particular size of box or container. The finished reenforced composite web is superior in strength because of the intimate embodiment of the reinforcing strips within the structure of the web and the finished product presents a much finer appearance than reenforced blank materials constructed as heretofore. The reenforced blank material may be made with a corrugated filling web enclosed by the usual gummed surfacing sheets, or it may be made of a plurality of plain webs or sheets properly glued together with the reenforcing strips confined between adjacent sheet layers. In any form it will be understood that the reenforcing strips are applied during the manufacture of the paper web and one method of so applying such strips, which I have found productive of satisfactory results, is by gluing the reenforcing strips in the desired position to the inner surface of a facing sheet or web, and then gluing this reenforced facing web to the filling web with the reenforcing strips on the inside.

In order that the invention may be more fully understood it will first be described with reference to the accompanying drawings and afterward pointed out more particularly in the annexed claims.

In said drawings:

Fig. 1 is a perspective view of a multi-ply paper fabric embodying the present invention.

Fig. 2 is a similar view representing the same fabric with a blank form cut and creased therein to indicate the shape of one form of box blanks that can be produced from the composite web material.

Fig. 3 is a similar view indicating a different method of scoring and cutting for producing slightly modified forms of box blanks, showing the reenforcing strips arranged beneath both outside lining sheets or webs.

Figs. 4 and 5 are perspective views of boxes that are formed respectively from the blanks indicated in figures 2 and 3.

It is well known that in the production of multi-ply paper board, whether the filling web is plain or corrugated, the several plies or webs of paper are fed from rolls through suitable mechanisms for gluing the several webs together by means of heat and pressure.

In the drawings the improved reenforced web material is illustrative of the form having a corrugated filling of well known character, but I would have it understood at the outset, that the present invention is applicable to the manufacture of multi-ply web material with solid filling sheets as well.

In the drawings the cellular multi-ply paper fabric 1 includes the inner corrugated filling web 2, having corrugations extending transversely of the length of the web, and the outer plain webs 5 and 6 glued respectively to the opposite crowns of the enclosed corrugated web 2.

The composite fabric 1 is also provided with two parallel reenforcing strips of cloth fabric 7, extending longitudinally thereof in parallel spaced relation to each other and to the longitudinal edges of the web 1. These reenforcing strips 7 are applied between the outer facing web or sheet 5 and

the corrugated filling web 2 with the result that they are entirely concealed within the facing sheet 5 in the completed product. It is preferred to locate the reenforcing strips 7 in the zones embracing the prospective folds of the box blanks, which it is intended to cut from the continuous reenforced blank material, the material being by preference of the width of the desired blank, but of unlimited length to include a large number of blanks.

In Fig. 2 of the drawings I have shown the composite blank material formed with reenforcing strips beneath a single surfacing sheet 5, while in Fig. 3 I have represented the web of blank material having the reenforcing strips beneath both surfacing sheets or webs 5 and 6. In the application of the reenforcing strips, whether beneath one or both of the surfacing webs, I have found it convenient to continuously glue the reenforcing strips to the inner surface of the surfacing webs and then apply said reenforced webs to the corrugated filling web in the process of manufacturing the composite blank material.

Referring particularly to Fig. 2, it will be observed that the composite reenforced blank material may be formed into blanks for boxes or cartons by applying longitudinal creases or scores upon the lines indicated at 9 and transverse creases or scores upon the lines indicated at 10, upon which creased lines the blank is intended to be folded. Angular cuts 12 are made in the longitudinal edges of the web in line with the transverse creases 10, said cuts terminating upon the creased lines 9 within the reenforcing strips 7. The fabric being thus creased and cut, it is severed on lines indicated at 14 to form a series of blanks, each of which will have four V-shaped cuts 12. Said blanks are designed to be folded into a rectangular box 16 as shown in Fig. 4, the cuts 12 being located at the corners and the strips 7 reenforcing said corners. The reenforcing strips 7 being entirely concealed by the outer surfacing sheet of the composite web, the finished box will have the same neat appearance as it would have without the reenforcement, whereas it will have the strength of the reenforcing strips.

In shaping the box 16 shown in Fig. 4 from the blank just described, the small corner flaps 18 are folded within and retained by the longitudinal flaps 19 as indicated by dotted lines.

In Fig. 3 is shown a different form of box blank provided with the longitudinal creases 9, and transverse creases 10 and lines of severance 14, the same as in the form shown in Fig. 2, but in place of the V-shaped cuts 12 of that form, the blank of Fig. 3 has longitudinal cuts 22 co-incident with the longitudinal creases 9 and extending across the lines of severance 14 between the transverse crease lines 10 of adjacent blanks. This form of blank is conveniently folded into a rectangular box 24 such as shown in Fig. 5, the small corner flaps 25 formed between the cuts 22 and lines 14, being folded within and held by the transverse end flaps 26 of the box.

It will be understood that this invention is not limited to any particular form of box blank, but is intended to cover the composite blank material having concealed reenforcing strips arranged within the zones of prospective folding of the blank.

I claim:—

1. A composite multi-ply paper fabric for the manufacture of box blanks, comprising outer surfacing sheets and an inner filler web permanently fastened together and concealed relatively narrow reenforcing strips embodied within the composite fabric beneath an outer surfacing sheet in separated parallel zones embracing prospective lines of fold, creases formed in said composite fabric upon said prospective fold lines, and flap-defining cuts in the reenforced portions of said fabric.

2. A composite multi-ply paper fabric for the manufacture of box blanks, comprising outer surfacing webs and an inner filling web permanently fastened together and reenforcing strips arranged between both surfacing webs and said filling web in zones embracing prospective lines of fold, said reenforcing strips being concealed within said surfacing webs, and crease lines formed in said composite web in the zones of said reenforcing strips.

3. A composite multi-ply paper fabric for the manufacture of box blanks comprising outer surfacing webs and an inner filling web permanently fastened together and reenforcing strips arranged between the surfacing web and said filling web upon prospective lines of fold, said reenforcing strips being concealed within said surfacing webs and crease lines formed in said composite web in the zones of said reenforcing strips.

GEORGE W. SWIFT, JR.