May 9, 1933. P. W. DIETMANN 1,907,519

PROCESS OF MAKING MATCH BOX COVERS

Filed May 14, 1930

Fig. 1.

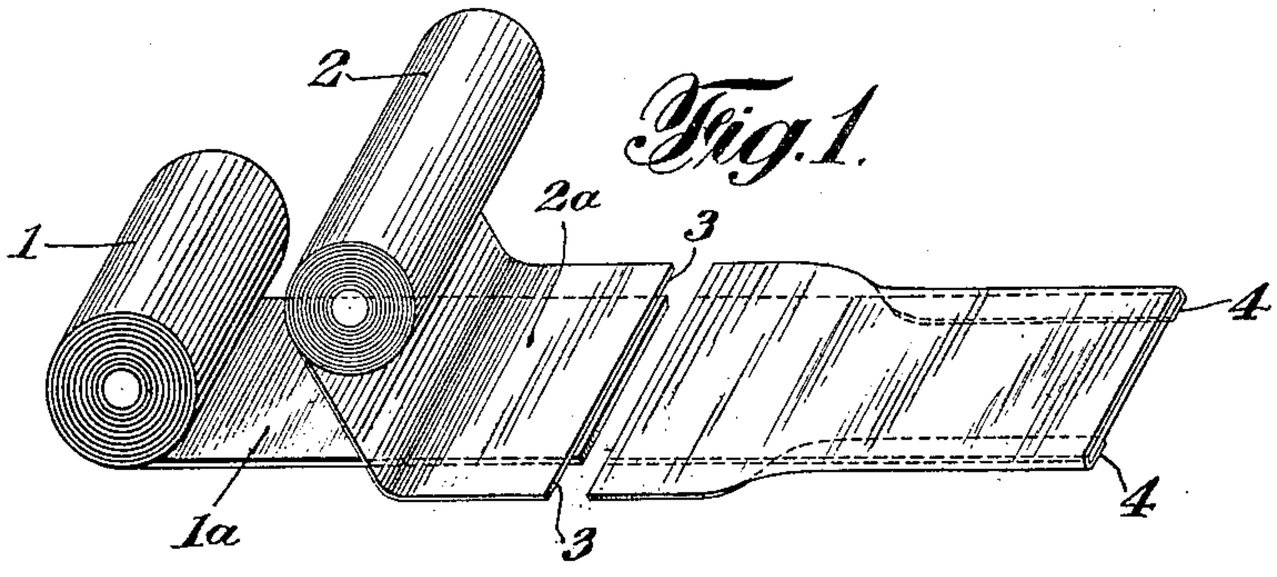


Fig. 2.

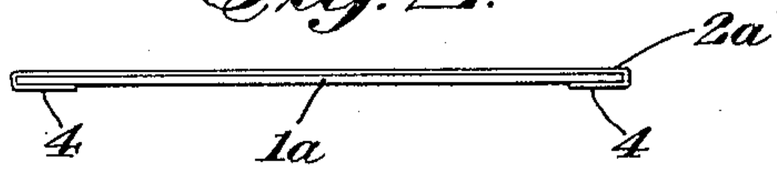


Fig. 3.

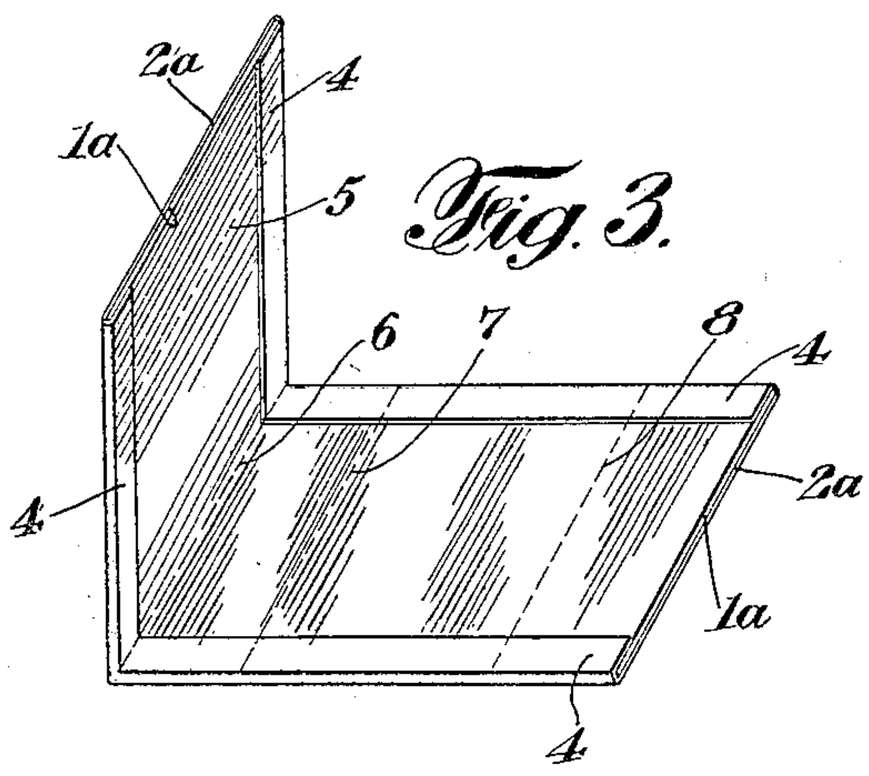


Fig. 4.

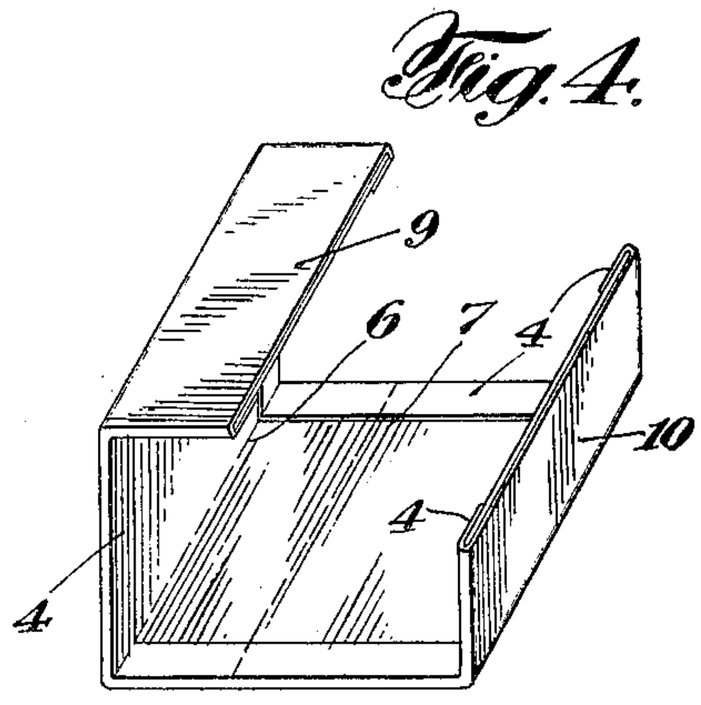


Fig. 5.

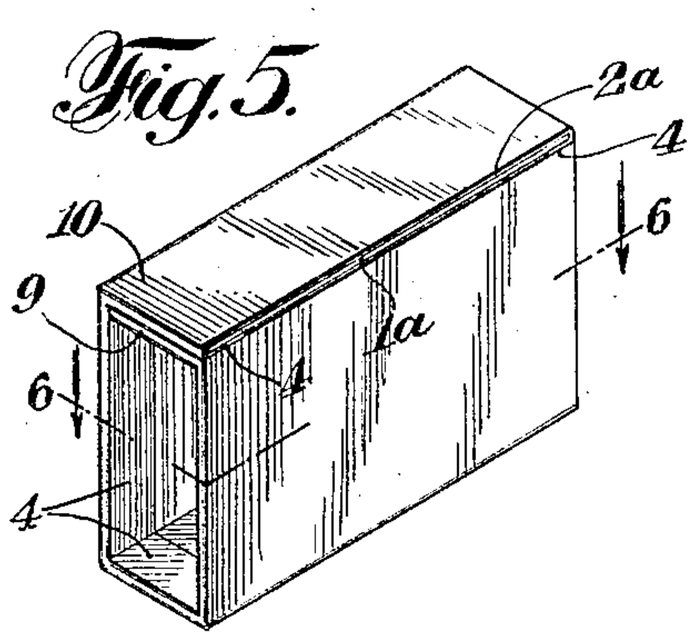
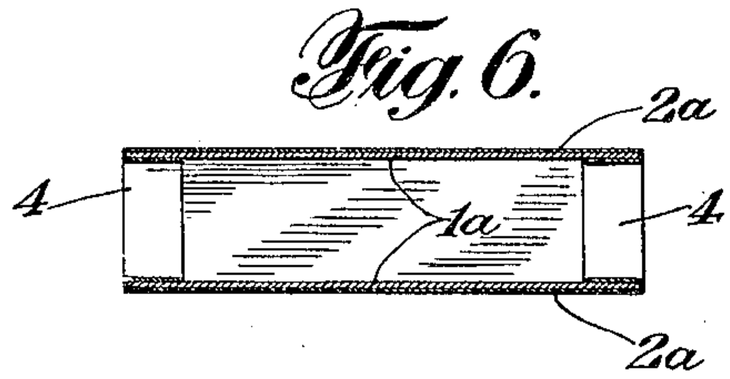


Fig. 6.



INVENTOR
Paul W. Dietmann
BY
Kenyon & Kenyon
ATTORNEYS.

Patented May 9, 1933 1,907,519

UNITED STATES PATENT OFFICE

PAUL W. DIETMANN, OF JONKOPING, SWEDEN

PROCESS OF MAKING MATCH BOX COVERS

Application filed May 14, 1930. Serial No. 452,207.

This invention relates to a process for the manufacture of match boxes, and in particular for the manufacture of the outer shell or casing thereof which is adapted to enclose a sliding drawer.

Heretofore match box covers have ordinarily been made of folded cardboard or thin wood strips, to the sides of which have been applied the usual labels and ignition surfaces. The exposed ends and folded corners of such covers are subject to the greatest wear, and yet it is these very parts which lack the supporting strength of the applied label or other material. Experience has indicated that protection is very desirable for these exposed portions and accordingly expensive machinery has been developed for folding paper reinforcement about the completed cover. Efforts to fold in a flap or margin of the paper thus applied to the completed match box, in order to protect corners and edges of the latter, have been unsatisfactory because (*a*) it is commercially impracticable under these circumstances to apply adhesive effectively to the underside of such flap, or to secure adequate pressure for a sufficient length of time to cause adhesion at the rapid speed required in the manufacture of these covers, and (*b*) the infolding of extending flaps has required the use of exceedingly complicated and expensive machinery in addition to that required for the initial formation of the match box covers.

The object of the invention is to provide an improved process for the manufacture of match boxes; to provide a method whereby a cheap fibrous or other material (such as rough cardboard), if necessary of undesirable appearance in itself, may be used to form the body of the box, and a separate sheet of covering or protective material (such as finished paper) may be employed to encase, strengthen and improve the appearance of the box and to bear the imprint of suitable label, advertising or other matter; to provide a method whereby the boxes may be made stronger and more lasting than any heretofore made; and in particular to provide a process for the production of match boxes at much higher speeds than any speeds heretofore attainable, and to do so by the use of fewer steps and relatively simpler manipulations.

In the drawing which forms a part of this specification:—

Fig. 1 shows diagrammatically and in perspective the first steps in the carrying out of my improved process.

Fig. 2 shows in cross-section the way in which the paper is folded upon the cardboard before the steps of folding the latter into a box have commenced.

Fig. 3 shows in perspective a cardboard blank, with attached paper cover, cut to the desired length and with the first fold completed.

Fig. 4 shows in perspective this blank with three folds completed.

Fig. 5 shows in perspective the completed match box cover after all folding operations have been completed.

Fig. 6 is a section in the plane 6, 6 of Fig. 5, looking in direction indicated by the arrows in Fig. 5.

Like reference numerals indicate like parts in the several figures.

Referring to the drawing, the strip 1*a* of cardboard or the like which is to constitute the box-forming material is fed from any suitable source, here disclosed as the roll 1. The paper or other protective covering 2*a* in which it is desired to sheath the cardboard is fed from any suitable source, here disclosed as the roll 2, to and upon the cardboard as shown in Fig. 1. The paper strip 2*a* fed from the roller 2 is of somewhat greater width than the cardboard strip 1*a* so that the marginal edge of the paper extends beyond the edge of the cardboard on each side thereof, as best shown at 3 where a section has been cut through the diagrammatic drawing in perspective to show the relation of these members. Suitable adhesive material is provided from a source not shown to cause the two layers of material firmly to adhere together. While thus adhering and in the relationship shown the adhering strips are next subjected to a folding operation so that the overlapping edges of the paper 2*a* are folded around the edges of the cardboard 1*a* and

secured in this folded position by means of suitable adhesive. The paper 2*a* thus partially envelops and surrounds the cardboard 1*a* in the manner shown at 4 in Fig. 2 wherein 1*a* is the cardboard or other material fed from the roller 1 and 2*a* is the paper or similar material fed from the roller 2.

The cardboard strip with its marginal edges thus sheathed in paper, is now cut into blanks of suitable length by any convenient means (not shown) and these blanks are subjected to a succession of folding operations as indicated diagrammatically and in perspective in Figs. 3 and 4. The blank may be folded at four or more points as indicated by the dotted lines 5, 6, 7 and 8. The formation of these folds may be accomplished in any desired order, but for convenience I have disclosed in Fig. 3 the making, first, of a fold along the dotted lines 6 followed (Fig. 4) by the making of folds along the dotted lines 5 and 8. The match box cover is completed by a folding operation along the dotted line 7 as a result of which the projecting flaps 9 and 10 are brought into superposed position as shown in Fig. 5. They are secured in this position by use of adhesive material supplied from a suitable source (not shown) to form the completed match box cover shown in perspective in Fig. 5. The cover is so folded that the in-folded flap or margin 4 is disposed inside the open end of the completed cover as shown in perspective in Fig. 5 and in section in Fig. 6.

It will be noted in my improved process of making match box covers that I have formed the cover in such a way that the edges of the cardboard material which would otherwise form the external edges and corners of the completed cover are entirely encased and protected by reason of the overlapping margin 4 composed of the adhering covering material 2*a*. It will also be noted that I have provided a method whereby only so much of this more durable (and more costly) material is employed as is necessary to sheathe the outside, the corners and the exposed edges of the completed box and to project inwardly from the ends thereof only to such an extent as is necessary to protect the ends and corners of the completed match box cover and give it a neat appearance and durability. The extent to which these flaps may be extended inwardly within the cover is shown in the section of Fig. 6.

In practical operation this method of manufacturing match box covers has proven highly successful. It has been found practicable and feasible, employing the method of my invention, to increase the speed of manufacture of such boxes from 70 to 100 boxes per minute, employing methods heretofore known for the manufacture thereof, to upwards of 600 boxes per minute by the use of the process of my invention. It has also been found feasible to employ lighter and cheaper cardboard material to produce match box covers of equal durability and equally satisfactory appearance, because prior to the folding operations the cardboard material is strengthened and re-enforced by the adhering paper which serves to stiffen it and give it strength to withstand the strain of the subsequent folding operations in which the cover is formed. It has also been found that the provision of the inwardly extending flaps 4 provides a smoother and better surface on which the match drawer slides and thus a more satisfactory product is produced.

It will be understood that the flaps 4 may be extended inwardly for any desired distance from the end of the completed cover toward its center. The length of these flaps will, of course, depend upon the nature, the appearance, and the tensile strength of the particular materials out of which the match box cover is made. With heavier materials a very small inward extension of this flap will be required; with lighter and more fragile materials a greater extension may be necessary.

It will also be understood that my invention comprehends no particular order of placing the various folds in the blank, but the blank may be subjected to folding operations in whatever way proves most convenient.

I claim:

1. The process of making a match box cover having an outer covering material protecting its edges and extending inwardly therefrom over its inner surface, which process comprises feeding a continuous strip of cover-forming material corresponding in width to the length of the cover into contact with a second strip of outer covering material having a greater width than the first-mentioned strip, attaching the strips to one another while feeding them in their longitudinal direction, folding the overhanging marginal edges of the second strip over the edges of the first strip and causing them to adhere in the folded position, cutting the composite strip transversely into match box cover blanks, folding the blank along lines transverse to its covered edges and with its ends overlapping to form a box cover having a double wall, and joining together the overlapping ends which form the double wall.

2. The process of making a match box cover having an outer covering material protecting its edges and extending inwardly therefrom over its inner surface, which process comprises feeding a continuous strip of cover-forming material corresponding in width to the length of the cover into contact with a second strip of outer covering material having a greater width than the first-mentioned strip, attaching the strips to one another while feeding them in their lon-

gitudinal direction, folding the overhanging marginal edges of the second strip over the edges of the first strip and causing them to adhere in the folded position, applying imprint of label and advertisement to the paper strip, cutting the composite strip transversely into match box cover blanks, folding the blank along lines transverse to its covered edges and with its ends overlapping to form a box cover having a double wall, and joining together the overlapping ends which form the double wall.

3. The process of making a match box cover having an outer covering material protecting its edges and extending inwardly therefrom over its inner surface, which process comprises feeding a continuous strip of cover-forming material corresponding in width to the length of the cover into contact with a second strip of outer covering material having a greater width than the first-mentioned strip, attaching the strips to one another while feeding them in their longitudinal direction, folding the overhanging marginal edges of the second strip over the edges of the first strip and causing them to adhere in the folded position, applying imprint of label and advertisement to the outer covering strip after it is attached to the first-mentioned strip, cutting the composite strip transversely into match box cover blanks, folding the blank along lines transverse to its covered edges and with its ends overlapping to form a box cover having a double wall, and joining together the overlapping ends which form the double wall.

In testimony whereof, I have signed my name to this specification.

PAUL W. DIETMANN.