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METHOD OF AND MACHINE FOR WAXING BLANKS

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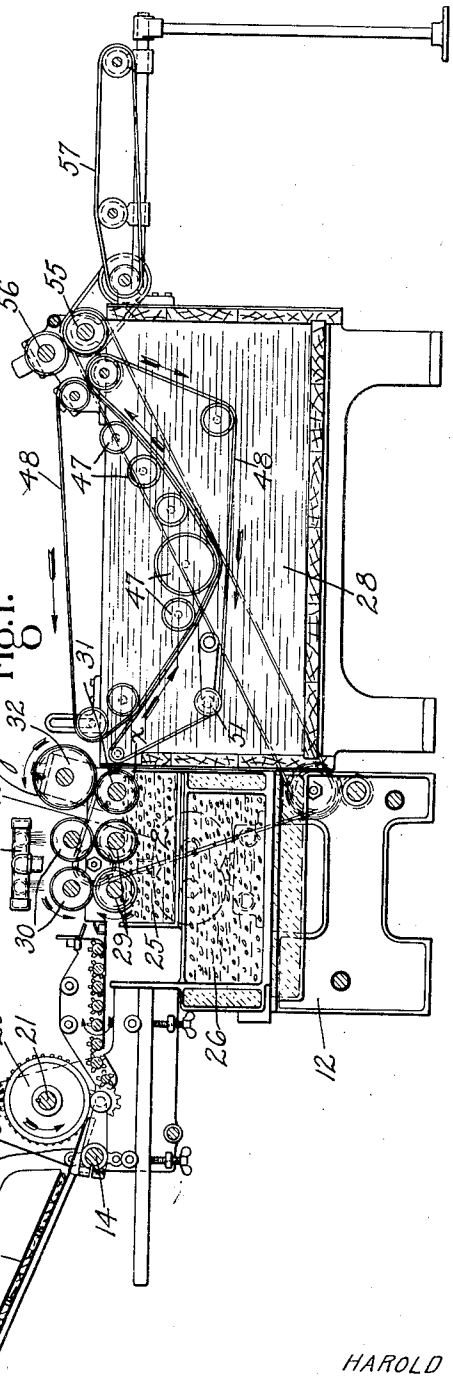


Fig. 1.

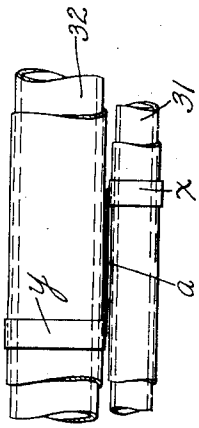


Fig. 2.

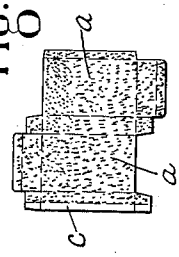


Fig. 4.

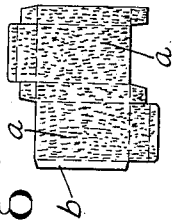


Fig. 3.

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UNITED STATES PATENT OFFICE.

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METHOD OF AND MACHINE FOR WAXING BLANKS.

Application filed February 15, 1926, Serial No. 88,218. Renewed June 12, 1928.

This invention relates to the production the moisture-proof paper box or carton blanks having high-glossed wax surfaces but with certain areas thereof in condition to be secured together by an adhesive hereinafter referred to by the generic term, glue.

A recently and commonly practiced method is to coat the blanks with wax by passing them rapidly between fabric-covered rolls which are kept supplied with melted paraffine, the blanks being then immediately subjected to the action of a chilling bath, all as fully described in Letters Patent No. 1,681,350 issued August 21, 1928, to E. W. Labombarde. This produces blanks having high-glossed surfaces, but such blanks could not be folded with overlapping portions glued together because the presence of such a heavy coating of wax interfered with the required action or function of the glue. Therefore, in order that glue could be employed successfully, the practice has been to remove a substantial portion of the wax from the surface areas which were to be glued together, viz: the glue laps of the blanks, doing this before the blanks are glued and folded. To effect such removal heat was employed in a separate machine which did nothing except to so treat the glue laps and then restore or preserve the high gloss; or a folding machine which included heat-treating means as a part of its equipment was employed.

The object of my invention is to produce high-gloss blanks having portions in condition to be glued together, without having to employ any wax removing mechanism or devices, either as a separate machine or as a part of a folding machine, and I attain this object by applying heavy coatings of hot wax to the blanks, subjecting those limited areas which are to be glued together to pressure to squeeze off the excess of hot wax, and then immediately chilling the coated blanks before the hot wax has time to soak into the material of the blanks.

With said object in view, my invention consists in the method and the machine substantially as hereinafter described and claimed.

Of the accompanying drawings:—

Figure 1 represents a longitudinal section of the machine.

Figure 2 is a detail view looking from the line 2—2 of Figure 1, on a larger scale.

Figures 3 and 4 are opposite plan views of a blank produced according to my invention.

Similar reference characters indicate similar parts in all of the views.

Reference numerals are employed for those parts of the machine which are the same as, or similar to, correspondingly designated parts of the machine of the application hereinbefore referred to, and reference letters are employed for the features to which my present invention relates.

At one end of a suitable frame 12 is a table 13 for the blanks to be treated. Said table is, preferably, wide enough so that it may support a plurality of piles of blanks side by side, or a single pile of wide large blanks. The table is supported on a rod 14 to enable it to be adjusted to the desired degree of inclination by any suitable means. The blanks from the table pass successively over leaders 19 as they are drawn from the pile or piles by feed wheels 20 carried by shaft 21. Below each feed wheel is a small roll over which and a series of horizontally arranged rolls the blanks pass toward the waxing means, said means including a pan 25 in which wax is kept in hot condition by steam or by hot water in a chamber 26. The cold water tank where the wax on the blanks is congealed is indicated at 28.

Above the wax basin 25 and mounted in suitable bearings supported by the frame are long rolls which are driven in the direction of the indicating arrows by suitable gearing not necessary to describe in detail. Three pairs of the rolls are illustrated, but there may be a different number. The lower rolls 29 of the first two pairs between which the blanks pass, dip into the hot wax in the basin 25 and elevate wax therefrom while the upper rolls 30 of said two pairs receive hot wax from overhead pipes presently described. The lower roll 31 of the third pair also dips in the wax basin and the upper cooperating roll 32 of that pair also receives hot wax delivered from above.

Above the several pairs of rolls is a system of perforated piping 35 from which a flood of hot wax is delivered onto the rolls, the supply being kept up by any suitable means such as explained in the application hereinbefore referred to, or by any other suitable means.

From the rolls 31, 32, the blanks pass between upper and lower tapes 48 which are mounted on rolls 47 so positioned that the blanks are carried into, through, and from

cold water in the tank 28. A tightener roll is indicated at 51 for the lower tapes. And from the tapes the blanks pass between rolls 55, 56, which deliver them onto a suitable receiving belt 57.

The rolls above the wax basin are covered with absorbent material such as felt so that they will carry more wax on their peripheries than could be carried by uncovered metal. While it is preferable that all of said rolls shall be so covered, it is only important for the purposes of my invention that one or both of the third pair, the rolls 31, 32, have absorbent peripheries, as will now be explained.

The important feature of the present invention resides in the provision of means for preventing those areas of the blanks which are to be glued together from reaching the chilling bath with such heavy coatings of wax that glue would not adhere thereto. To attain this result I apply non-absorbent bands *x* or *y*, or both, to one or both of the absorbent-covered rolls 31, 32, said bands being of suitable metal, or rubber, or other suitable material. If the blanks are to have both surfaces show, when finished, high-glossed coatings, I apply non-absorbent bands *x* and *y* to the rolls 31, 32, as indicated in Figure 2, both of said rolls having felt coverings, said two bands being adjusted to, and fixed at, such portions of the said rolls lengthwise thereof that the under surface of one side margin of each blank *a* will pass over the band *x* and the upper surface of the opposite margin of the blank will pass under the band *y*. The two bands then act to squeeze off the surplus wax from the marginal areas mentioned, so that the blanks, after complete treatment, are in the condition illustrated by Figures 3 and 4 in which the un-shaded areas *b* and *c* represent those portions of a blank which having been acted upon by the bands *x* and *y*, said portions having so little wax that glue will adhere thereto. Consequently such blanks can be converted to flat folded boxes by the ordinary type of gluing and folding machine which applies a stripe of glue to the area *b* or *c* and then folds the blank to overlap and press the portions *b* and *c* together. In this connection, it is to be understood that Figures 3 and 4 both illustrate one blank, but opposite surfaces thereof. The blanks may, of course, be of any other shape.

If the boxes for which the blanks are treated only require heavy and glossy coatings on their outer surfaces, then the inner surfaces of such boxes need have but thin coatings. In such case, only one of the rolls 31 or 32 needs to be cloth covered and to be provided with a squeezing band *x* or *y*. This is because if one of the rolls is left uncovered the metal surface thereof will squeeze off all but a very thin layer of wax from the entire area of one surface of the blank while the other roll, having an absorbent covering and provided with a non-absorbent band in the proper location, will permit the other surface of each blank to carry to the chilling bath a thick layer of wax on all but that marginal area which was acted upon by the said non-absorbent and squeezing band.

Having now described my invention, I claim:

1. The method of waxing blanks with portions thereof in condition to be adhesively secured, said method consisting in coating the entire surfaces of the blanks with melted wax and immediately, while the wax is still melted, removing some of the coating from those portions which are to be adhesively connected, to limit the wax an said portions to an amount less than on the rest of the blanks.

2. The method of waxing blanks with portions thereof in condition to be adhesively secured, said method consisting in applying a surplus amount of melted wax to the blanks, then while the wax is still melted squeezing the surplus off from limited portions of the blanks, and then chilling the waxed blanks to congeal all the wax which remains on the blanks.

3. A machine for waxing blanks, said machine having a pair of rolls a portion of each of which is non-absorbent while the rest is absorbent, means for supplying the rolls with melted wax, and means for feeding blanks between the rolls.

4. A machine for waxing blanks, said machine having means for applying hot wax to the blanks while travelling, a wax remover in position to act on a predetermined portion of the hot wax on each blank, and means for chilling the blanks.

5. In a machine of the character described, means for applying hot wax to blanks, and means for squeezing some of the hot wax off from limited predetermined areas of the blanks.

6. In a machine of the character described, a pair of rolls having absorbent coverings, means for causing blanks to travel toward and between said rolls, means for coating the blanks with hot wax on their way to said rolls, non-absorbent rings on said rolls, and a chilling bath in position to receive the blanks issuing from between said rolls.

In testimony whereof I have affixed my signature.

HAROLD S. LABOMBARDE.