

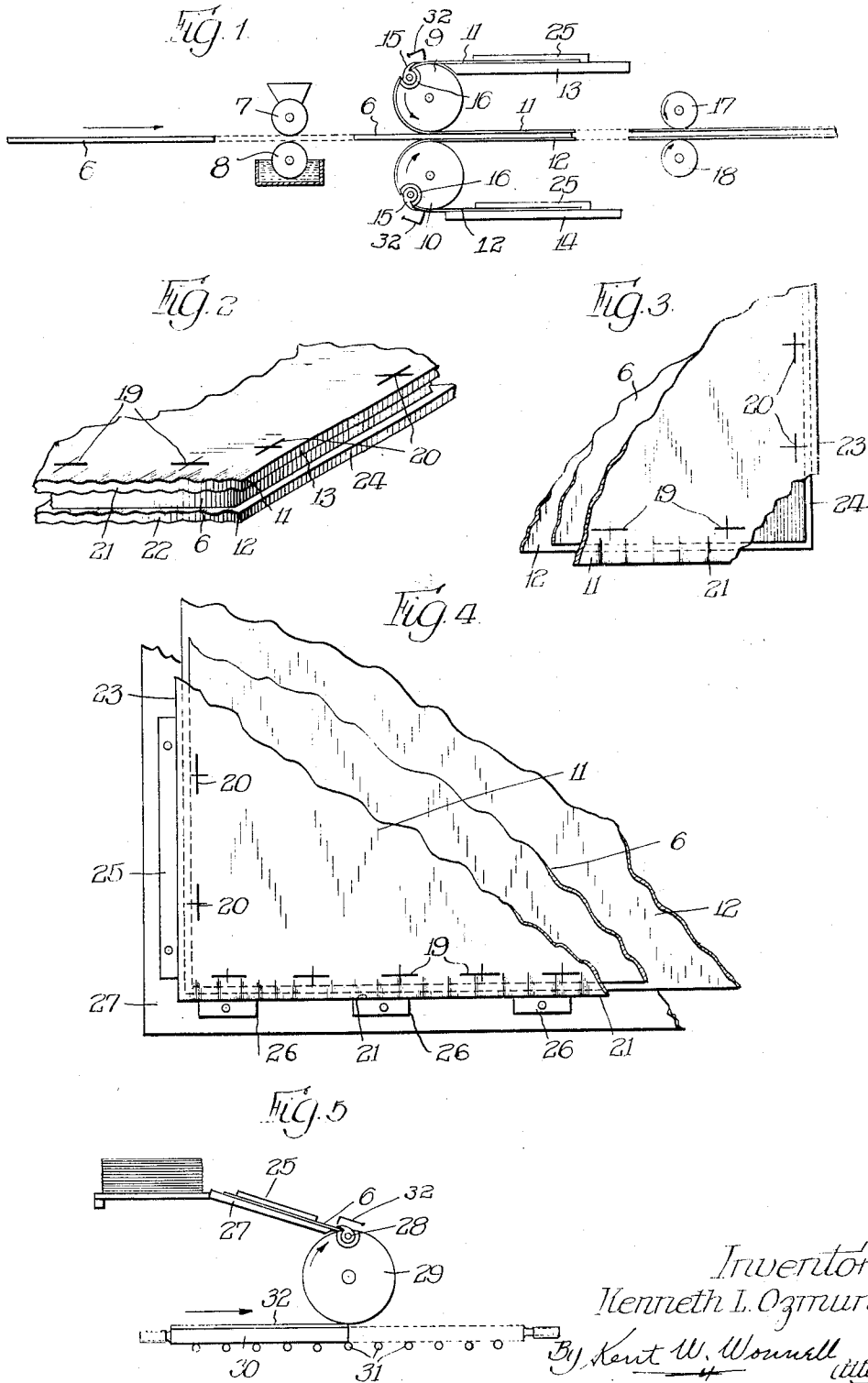
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MOUNTED BOARD AND METHOD OF MAKING THE SAME

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MOUNTED BOARD AND METHOD OF MAKING THE SAME

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This invention relates in general to the mounting of printed or lithographed sheets upon cardboard and has more particular reference to the method of mounting it to preserve the registering for again feeding it to the same or original guide and gripper edges for die cutting the mounted board.

One of the principal objects of the invention is in the provision of a paper board having cover sheets mounted on both sides and in having one of the mounting sheets which is printed or lithographed projecting a predetermined distance beyond the edge of the board for providing a registering guide and gripper edge by means of which the combined sheets may be accurately positioned and fed to guides for accurate registering in die cutting.

A further object of the invention is in the assistance given by this process of mounting in which a projecting cover sheet becomes fluted or corrugated along the edge thereby adding strength to the guide edge or edges in positioning and feeding the mounted board for die cutting.

A further object of the invention is in the method of applying cover sheets in mounting a board and in providing that one of the cover sheets projects beyond the other to provide an accurate registering guide and gripper edge by means of which the mounted board may be accurately positioned and fed.

A further object of the invention is in the provision of an improved method for mounting sheet paper upon sheet cardboard and for feeding the combined sheets for registering die cutting by using the strength or stiffness of the long edges of the mounting sheets against long guides to obtain the same registration for die cutting as was used in printing or lithographing the sheets.

Other objects of the invention will appear hereinafter, a preferred form of board mounted with paper and the method of mounting and feeding it being illustrated in the accompanying drawing.

In the drawing, Figure 1 is a diagrammatic representation of the method of simultaneously applying cover sheets of paper to both sides of a paper board in mounting it;

Fig. 2 is a perspective of one corner of the combined sheets;

Figure 3 is a fragmentary detail of a portion of a mounted board;

Fig. 4 shows a portion of a mounted board as applied to positioning guides; and

Fig. 5 is a diagrammatic representation of one of the methods of feeding a mounted board for die cutting.

In mounting cardboard with cover sheets on both sides, paste is applied to both sides of the board and as it is passed between the mounting cylinders it is necessary that the mounting paper be slightly larger than the gummed board or the cylinders will become gummed, causing the paper to stick to them.

In mounting cardboard for display purposes it is customary to have one of the cover sheets printed or lithographed, the other cover sheet being applied to the cardboard simultaneously with the application of the printed sheet in order to prevent the board from warping and buckling when the combined sheets are dry. The printed cover sheet is accurately fed and printed by the printing mechanism and it is desirable to have this printed sheet mounted upon the cardboard in such a way that it can be accurately fed for cutting, trimming or die cutting the mounted board with the printed sheet thereon. It is customary for printers to feed their sheets for printing to one or more accurately set narrow guides which may be sufficient for thin sheets of paper but when these sheets are mounted upon a relatively thick and heavy board with the edges of the sheets extending beyond the edges of the board, it is apparent that if such a mounted board is fed to narrow guides, the overlapping paper will be crushed and crumpled by the guides which will result in an inaccurate feeding and registry of the combined sheets for any subsequent operations such as trimming, marking or die cutting.

It has been observed that commercial paper has its fibres extending lengthwise and that when such paper is moistened it tends to expand laterally of the grain or fibres to a considerable degree, but not to a perceptible degree in the direction of its fibres. If a

moistened paper is then dried it will contract but not generally to the same point or size as the original sheet. Different papers and cardboards vary in their expansion and contraction when moisture is applied so when two or more different papers or cardboards are pasted with water paste they expand and contract if different ratios causing buckling or warping.

This quality of expansion and contraction is utilized in mounting cardboard with the cover sheets overlapping the board itself with the result that the overlapping edge is wrinkled or corrugated when it becomes dry to such an extent that the corrugations strengthen or stiffen the projecting edge so that the mounted board can be accurately set and positioned with respect to the projecting edges of the cover sheet, particularly by providing a guide of considerable length or line of contact with the projecting cover sheet. This line of contact is sufficiently strong to hold the mounted board accurately placed even though there is no appreciable corrugation of the sheet but where the sheet is also corrugated additional strength is imparted to the edge which is of value in insuring an accurate registration edge for feeding the sheet.

Referring now more particularly to the drawing, a cardboard 6 or other sheet to be mounted is fed, as diagrammatically represented by Figure 1, between upper and lower pasting rollers and then passes between upper and lower mounting rollers 9 and 10 which receive upper and lower cover sheets 11 and 12 from corresponding feeding tables 13 and 14. These cover sheets 11 and 12 must extend beyond the edges of the board 6 to be covered or the mounting cylinders will receive paste from the pasted boards which would cause succeeding cover sheets to adhere thereto, thereby damaging the boards and cover sheets and soon stopping the mechanism.

The cover sheets 11 and 12 are picked up by grippers 15 mounted in suitable recesses 16 of the mounting cylinders 9 and 10 which are timed to deliver the cover sheets accurately to the opposite sides of the board 6 with the result that when the mounting operation is completed by passing the mounted board through mounting rollers 18 and 17, and then drying the mounted board or allowing the paste to set or harden, the cover sheets will be in the condition and relation as shown in Figs. 2 and 3, one of the cover sheets as 11, preferably extending a distance beyond the edge of the board in both directions greater than that of the other cover sheet 12. The cover sheet 11 extends not more than three-fourths of an inch nor less than one-eighth of an inch beyond the edge of the board and preferably about one-fourth of an inch beyond the opposite cover sheet or lining paper.

The result of this is that the projecting cover sheet forms a guide by means of which the mounted board may be accurately fed for trimming, marking and die cutting. In printing large sheets of this kind which are to be applied to cardboards, it is customary to mark the cover sheet with one or more cross lines or other designations 19 at one side and similar lines 20 at the other side for registering the sheet for subsequent operations.

In applying cover sheets to a cardboard the application of paste to both sides of it wets the surface and also wets the cover sheet applied thereto. This causes an unequal expansion and contraction of the cover sheet, resulting in the formation of wavy or corrugated longitudinal transverse edges 21 and 22 of the upper and lower sheets in that part which projects beyond the point of attachment to the cardboard 6. The longitudinal edges 23 and 24 may also be slightly wrinkled or corrugated but because of the grain of the paper having its fibres running lengthwise thereof the edges are much more straight and unwrinkled than the transverse edges of the cover sheets. These corrugations 21 add considerable rigidity for feeding and registering the mounted sheet as they are short and stiff and are firmly supported by the adherence of the paper to the cardboard 6.

In applying a combined sheet of this kind to long guides 25 or to a number of short guides 26 together forming a straight feeding edge of a feeding table 27, the edges 21 and 23 of the top or printed cover sheet can be moved tightly and without kinking against the guide which positively and accurately positions the combined sheets or mounted board so that it can be accurately fed against pivot stop guides 33 (see also Fig. 1) for engagement by grippers 28 of a feeding cylinder 29, as shown diagrammatically in Fig. 5, for feeding the mounted boards accurately to a press or die cutting head 30 represented as movable upon rollers 31 below the cylinder 29 and having a cutting die 32 on its upper surface which is moved into engagement with the mounted board as the cylinder 29 is rotated.

It will be apparent that if narrow printers guides are used instead of the long guides 25 and a number of guides 26 with combined sheets of this type, the contact of the extending edge of the cover sheet is not sufficient and unless the mounted board is placed very carefully against such guides, the extending edges of the cover sheet will be crumpled or distorted, resulting in a misalignment of the combined sheets which will throw the printed sheet out of register with the cutting die.

By providing a paper or cardboard with an overlapping cover sheet of this kind it is possible not only to mount the paper more quickly and accurately but also to prevent delays due to paper sticking or the mounting

cylinders and to avoid losses caused by improper alignment of the mounted board in feeding it to a die cutter. The feeding of boards mounted in this way to long guides is more accurate and reliable as the corrugations of the paper stiffen the edges and make them more rigid, than the cover sheet alone. Cardboard mounted in this way is more easily fed to long guides and registered for guiding and feeding for all operations such as printing, trimming, and die cutting where accuracy of registration is desirable.

I claim:

1. The method of mounting two sheets of paper on opposite sides of a cardboard sheet to which paste has been applied, one sheet having an outer printed surface, and in overlapping the side and end edges of the printed sheet beyond the edges of the other sheets so that the extending edges which constitute the guide and gripper edges used in printing may also be used for feeding the combined sheets to the same guide edges to obtain accurate registration with the printing for die cutting.

2. A method of mounting printed paper sheets upon cardboard sheets, which consists in pasting the sheets upon opposite sides of the cardboard with a printed sheet overlapping the edges of the board a predetermined amount to form long straight edges for obtaining registration against guides of sufficient length to support the combined sheets without buckling the edges in the feeding operation.

3. The method of attaching printed cover sheets to cardboard sheets by pasting the cover sheet to overlap the edges of the cardboard a predetermined amount such that it will provide a long contact edge corrugated at right angles to the edge of the sheet for feeding it to a long guide to obtain accurate registration of the printing for a subsequent die cutting operation.

4. The method of mounting cardboard and the like, which consists in applying paste to the opposite sides of the board, in advancing the board between mounting cylinders and applying cover sheets larger in size to the board, and one of the cover sheets having an outer printed side and overlapping the edge of the board more than the other cover sheet along two adjacent edges to provide guiding edges to feed the mounted board for die cutting to the same guide edges as used for printing the sheet.

5. The method of mounting and feeding cardboard which comprises pasting cover sheets upon opposite sides of the cardboard to overlap the edges thereof and form guiding edges along two adjacent edges of the board, in positioning the combined sheets against the guiding edges for registering engagement with a feeding cylinder, and in ap-

plying the guiding edges of the combined sheet to register with a cutting die.

6. The method of mounting and die cutting cardboard which comprises pasting cover sheets upon opposite sides of the cardboard, with one of the cover sheets extending beyond adjacent edges of the board and the other sheet to form registering guides, in positioning the combined sheets according to the registering guides for feeding engagement with a board feeder, and in die cutting the mounted board in accordance with the movement of the board feeder.

7. A mounted cardboard comprising a cardboard sheet and cover sheets pasted on opposite sides thereof, and the adjacent edges of one cover sheet extending beyond the corresponding edges of the other cover sheet and forming a registering guideway along the said adjacent edges.

8. A mounted cardboard comprising a cardboard sheet to be mounted, a pair of opposite cover sheets pasted upon the board and overlapping the edges thereof, a portion of the cover sheets extending beyond the board being corrugated by the unequal shrinkage of the paper to form a strengthening registering guide of this extending portion of the cover sheet.

9. The combination with a cardboard sheet, of front and back paper cover sheets pasted thereto and overlapping the edges of the cardboard, one of the cover sheets projecting at two adjacent edges beyond the other cover sheet to form registering edges for feeding the mounted board, the projecting guide edges being corrugated by the unequal drying of the paper in pasting it to the board to provide reinforced feeding edges.

10. The method of mounting cardboard and the like, which consists in pasting cover sheets upon opposite sides of the board in overlapping relation thereto and in allowing the paste to set, the overlapping edges of the cover sheets expanding and contracting to form corrugated strengthening ribs extending at right angles to the adjacent edge of the board.

11. The method of mounting cardboard which comprises pasting cover sheets on opposite sides of the board with the edges of the sheets overlapping the edges of the board, and the overlapping edges of the cover sheets drying in wavy corrugated form to strengthen the edge for feeding the mounted board in a direction at right angles thereto to accurately position the board for guiding and feeding it.

12. The method of mounting cardboard and the like for feeding to a tool given register therewith which consists in pasting paper cover sheets upon opposite sides of a cardboard sheet in overlapping relation to the edges thereof, with one of the cover sheets extending beyond the other at two adjacent

- edges of the board, in drying the cover sheets upon the board and producing thereby a wavy corrugated edge in that portion of the paper which projects beyond the edge of the board thereby forming a strengthening guide edge, for positioning the combined sheets relative a guide of a tool.
13. The method of mounting printed sheets for accurate registration which consists in pasting a printed registry sheet upon a cardboard sheet with the edges overlapping a predetermined amount to utilize the original guide and gripper edges of the printed sheet for the mounted sheet.
14. The method of mounting which consists in pasting cover sheets on opposite sides of a cardboard sheet and one of the cover sheets overlapping the edges of the other sheets a predetermined amount to utilize the original guide and gripper edges of the printed sheet for the mounted sheet.
15. The method of mounting which comprises pasting cover sheets on opposite sides of a cardboard sheet with one of the cover sheets extending beyond the corresponding edges of the other sheets to provide long guiding edges for positioning and feeding the combined sheets to the same guide and gripper edges of the sheet itself.
16. The method of mounting two paper sheets, one printed on the outer side, on opposite sides of a cardboard sheet to which paste has been applied, in extending adjacent edges of the printed sheet beyond the corresponding edges of the other sheets so that the extending edges which constitute the guide and gripper edges used in printing may be used for feeding the combined sheets to a guide of a tool for positioning the combined sheets to register therewith.
17. A mounted cardboard comprising a cardboard sheet and cover sheets pasted on opposite sides thereof, the edges of the cover sheets overlapping the edges of the board, and the adjacent edges of one cover sheet extending beyond the corresponding edges of the other cover sheet and forming a registering guideway along the said adjacent edges.
18. The method of mounting cardboard and the like for feeding to a tool given register therewith which consists in pasting paper cover sheets upon opposite sides of a cardboard sheet in overlapping relation to the edges thereof, with one of the cover sheets extending beyond the other at two adjacent edges of the board, in drying the cover sheets upon the board and producing thereby a wavy corrugated edge in that portion of the paper which projects beyond the edge of the board thereby forming a strengthening guide edge, for positioning the combined sheets relative a guide of a tool.
19. The method of mounting two sheets of paper on opposite sides of a cardboard sheet,
- one sheet having an outer printed surface, which comprises overlapping the edge of the printed sheet beyond the edges of the other sheets so that the extending edge which constitutes the guide and gripper edge used in printing the sheet may also be used for subsequently guiding and positioning the combined sheets.
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