

Aug. 17, 1937.

C. O. WALPER

2,090,084

MANUFACTURE OF WALLBOARD

Filed June 1, 1935

2 Sheets-Sheet 1

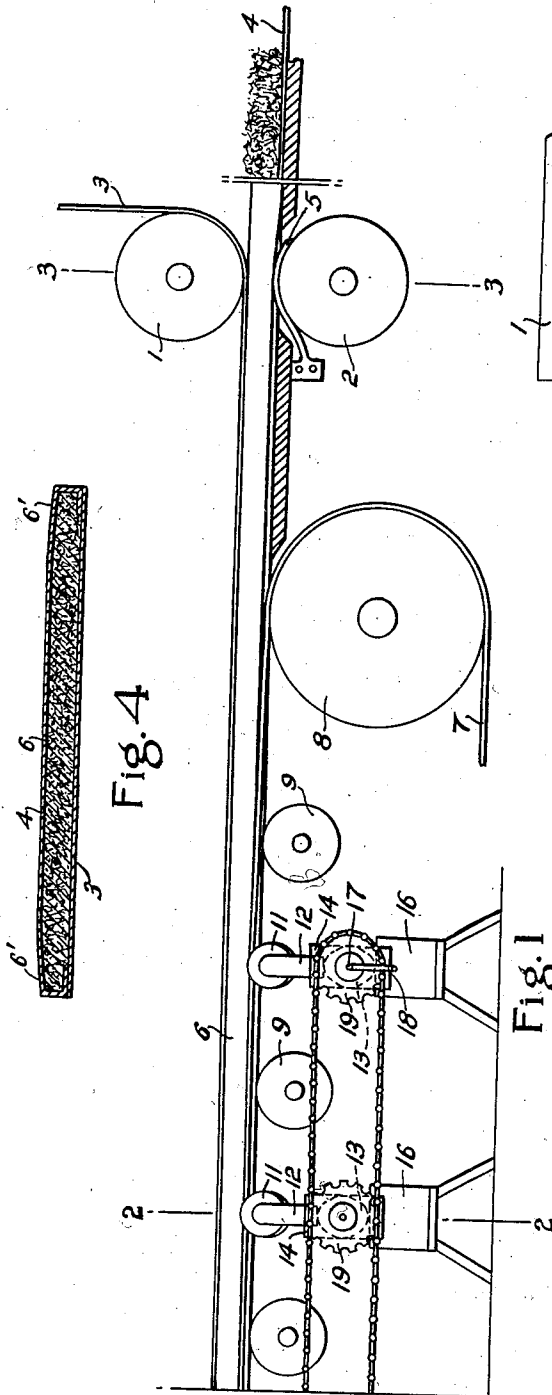


Fig. 1

Fig. 2

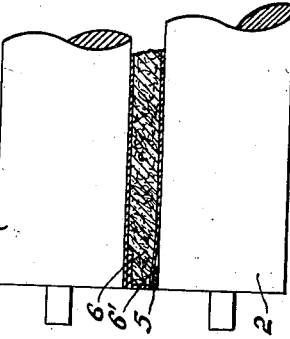


Fig. 3

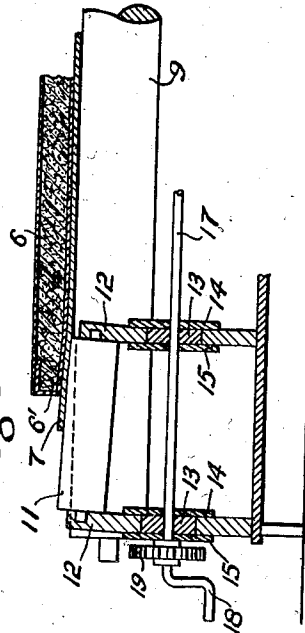


Fig. 4

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2 Sheets-Sheet 2

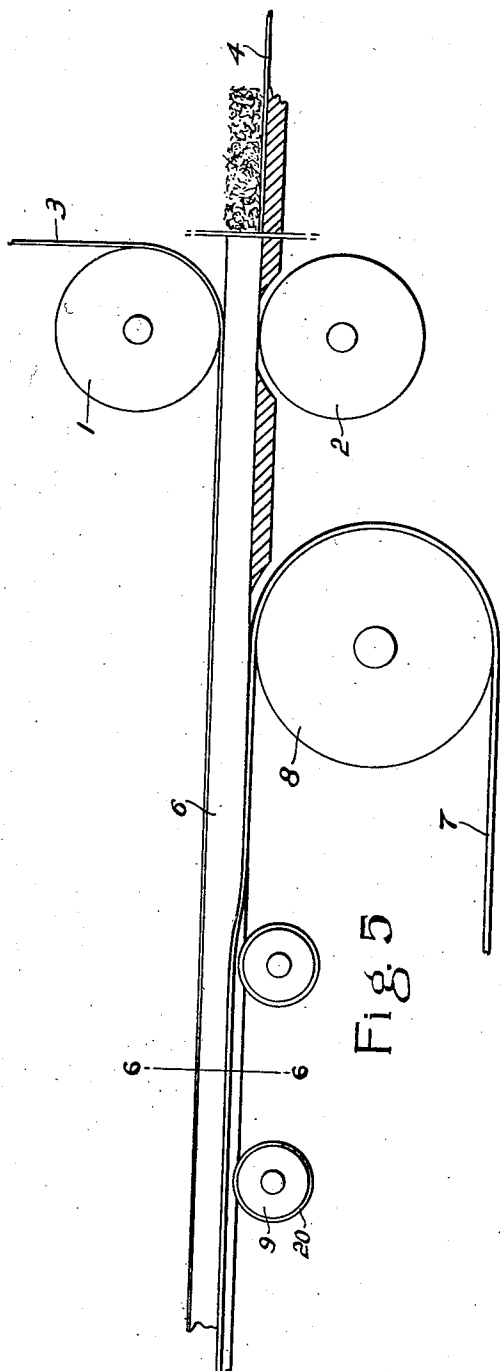


Fig. 5

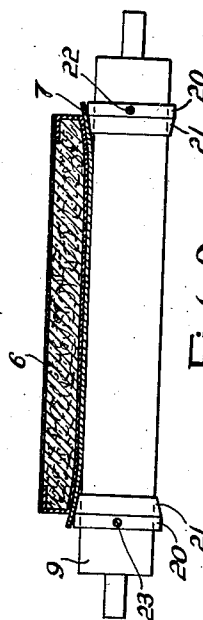


Fig. 6

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MANUFACTURE OF WALLBOARD

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Application June 1, 1935, Serial No. 24,461

1 Claim. (Cl. 154-2)

This invention relates to the manufacture of wallboard wherein a core of hydrated calcined gypsum is molded and allowed to harden within paper liners, one of which folds over and encloses the edges of the core, and is particularly directed to the formation of a slightly bevelled edge on the under surface of the board at the longitudinal marginal edges of the board.

A gypsum wallboard with such an edge makes it possible to form with relative ease a greatly improved joint between the boards when they are erected to form wall surfaces to which decoration may be applied. While it has heretofore been proposed to bevel the edges of such boards, no adequate method or means have been disclosed for forming such an edge in practice. It is to be noted that but a slight bevel is required but to serve the purpose the bevel must be uniform and regular throughout its length and width in order to receive the joint filler and avoid the formation of shadow-forming ridges or projections on the finished wall surface.

The invention will be described with reference to the accompanying drawings, in which

Fig. 1 is a side elevation of pertinent portions of one form of apparatus for making the board.

Figure 2 is a section, partially broken away, on line 2-2 of Figure 1.

Figure 3 is a section, partially broken away, on line 3-3 of Figure 1.

Figure 4 is a transverse section of the board.

Figure 5 is a side elevation of another form of apparatus, and

Figure 6 is a section on line 6-6 of Figure 5.

In the drawings, 1 and 2 indicate what are usually known as the squeeze rolls which shape the core within the paper liners 3 and 4, the latter of which is usually folded over to enclose the edge of the core. At the upper edge of the ends of roll 2 in Figure 1 is arranged a plate 5 which forms a tapered depression or bevel 6' on the longitudinal margins of the board 6.

The usual supporting belt 7 on which the board is carried is mounted on driving rolls 8, one only of which is shown, and the intermediate rolls 9.

When the tapered depression or bevel 6' is formed by the plate 5 on the lower squeeze roll, the core is quite plastic and in order to maintain the bevel or tapered depression in its original shape until the core sets and the adhesive between the margins of the paper liners dries, the margins of the supporting belt must be made to conform with the bevels on the board, and an

adjustable supporting structure is provided for this purpose. This structure comprises a series of relatively short rolls 11, each mounted in bearings 12 movably supported on cams 13 within the guide members 14 and 15 of the frame 16, which is provided for each roll. This structure is located at each side of the belt 7 at spaced points along the belt for a sufficient distance to sustain the bevelled edge until the core and adhesive have adequately set and dried to cause the board to retain its shape. The two pair of cams 13 in the supporting structure on immediately opposite sides of the belt are mounted on a shaft 17 which may be reciprocated by a handle 18. A gear or sprocket wheel 19 is mounted on one end of each of these shafts and a belt or chain 20 passes over these wheels to reciprocate the shafts 17 and move all the cams 13 in unison. As mounted in the frame each roll is inclined, as shown, to conform with the bevel of the marginal edges of the board.

As illustrated in Figure 2, the rolls 11 are positioned for making a relatively narrow board, say 32 inch instead of 48 inch. When the cam shaft is reciprocated the cams revolve to lower the rolls, so that the inclined marginal portions of the belt are much narrower and just sufficient to engage the bevels on the wider board, the remaining portion of the belt lying horizontally in engagement with the flat body portion of the board.

This supporting structure provides flexibility and ease of adjustment for varying widths of board.

In operation the plates 5 are adjusted to deflect the margins of the belt upwardly to form the desired bevels on the edges of the board. The edge supporting structure is arranged to engage the portions of the belt immediately beneath the bevelled edges of the board and when so arranged the rolls 9 maintain the margins of the belt in contact with the inclined edges of the board until the board has become sufficiently hardened to retain its form. In other respects the operation follows the usual procedure and does not require detailed description here.

In the simplified form of the apparatus shown in Figures 5 and 6 there is adjustably mounted on the belt supporting rolls 9 collars 20 having the tapered portions 21 which upwardly incline the margins of the belt 7. The position of the collars on the rolls may be adjusted by a set screw 22 or other suitable means to provide for different widths of board.

In operation of this form of the apparatus

the board as formed in the squeeze rolls has square or untapered edges. When the board reaches the zone of the supporting rolls it is still plastic and the upwardly inclined edges of the belt form the slight taper on the under side of the longitudinal margins of the board. The belt is retained in this position for a sufficient length of time to permit the board to harden sufficiently to retain the slight bevels. This is accomplished by arranging the tapered collars on a sufficient number of the rolls and the number will depend to some extent at least upon the speed of travel of the belt and the setting character of the core of the board. As the board sets the tapered margins require less support and the collars may be arranged progressively nearer the ends of the roll affording progressively less support for the tapered margins.

It will be apparent that the usual scoring devices for the lower liner will be arranged closer together in order to accommodate the decreased thickness of core at the edge of the board according to the extent of the taper.

I claim:

In the manufacture of wallboard having a quick-setting core and enclosing paper liners adhering thereto the method which comprises forming a square edge board between squeeze rolls and thereafter while the core is in plastic condition forming a taper on the longitudinal margins of the board and maintaining the taper until the core hardens.

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