Sept. 22, 1931. C. ABSMEIER 1,824,420

FOLDING DEVICE FOR PLASTER BOARD MACHINERY

Filed May 1, 1929 2 Sheets-Sheet 1

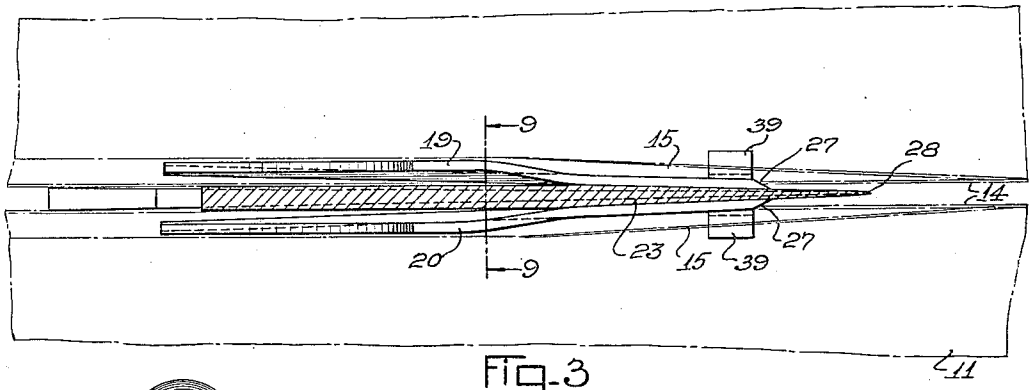


Fig-3

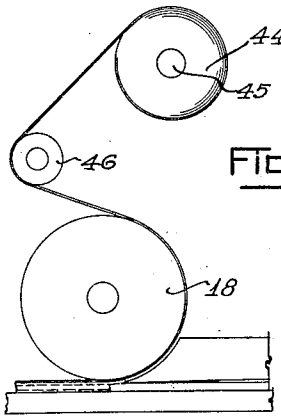


Fig-2

Fig-1

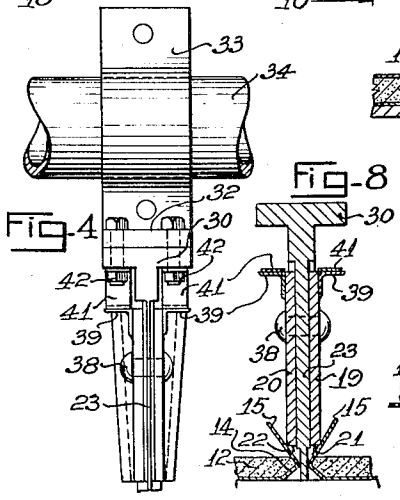


Fig-4

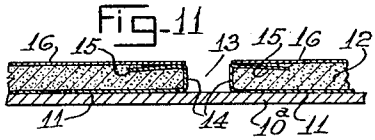


Fig-11

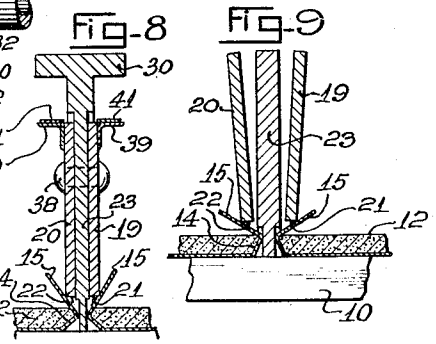


Fig-8

Fig-9

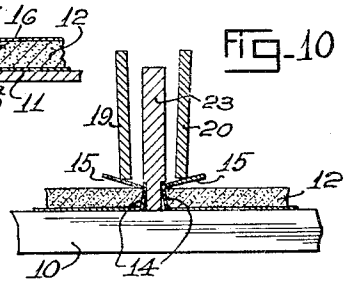


Fig-10

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FOLDING DEVICE FOR PLASTER BOARD MACHINERY

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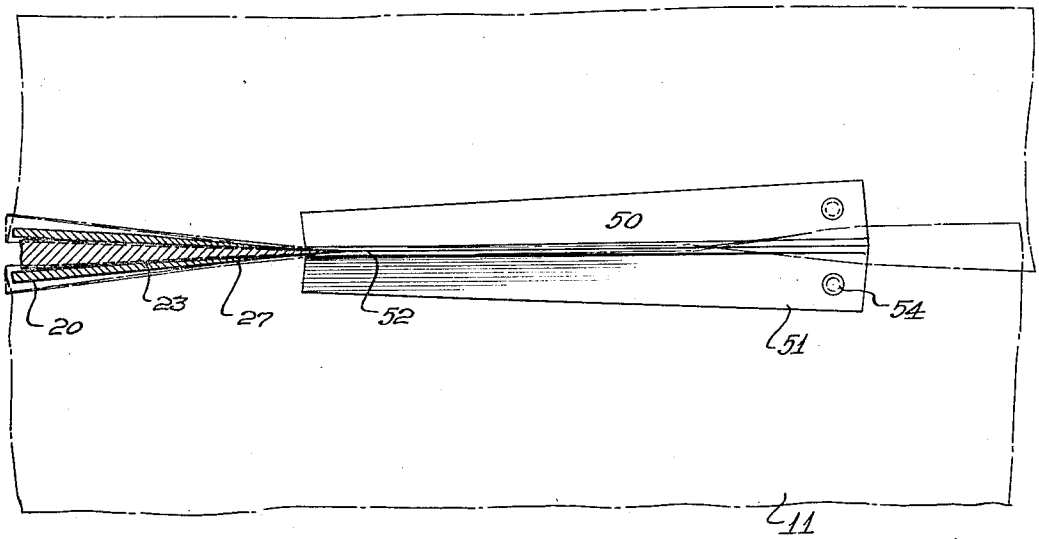


Fig. 13

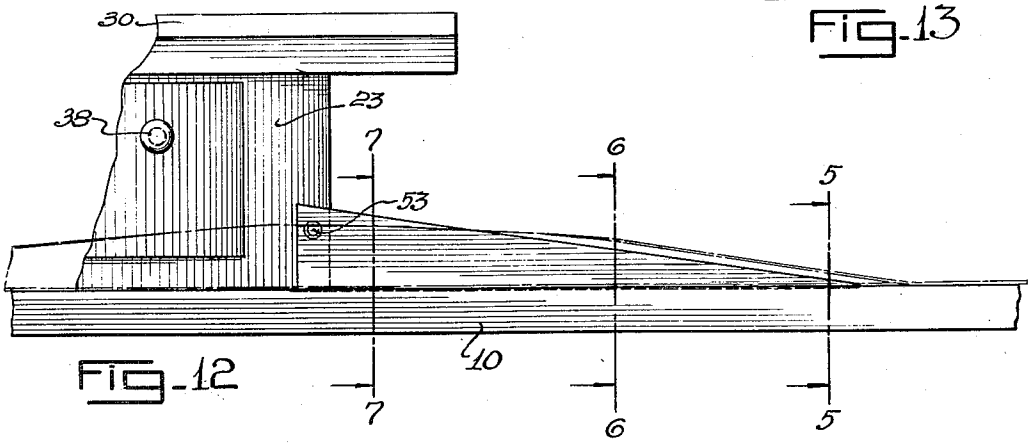


Fig. 12

Fig. 5

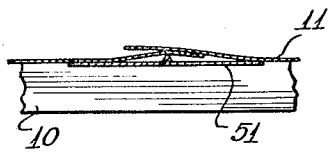


Fig. 6

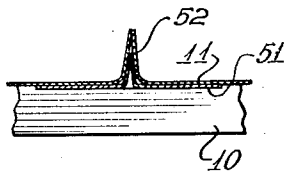
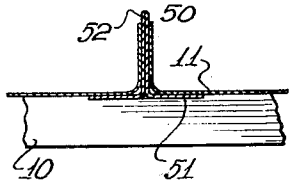


Fig. 7



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UNITED STATES PATENT OFFICE

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FOLDING DEVICE FOR PLASTER BOARD MACHINERY

Application filed May 1, 1929. Serial No. 359,461.

This invention relates to machinery for the manufacture of plaster board and has reference more particularly to an improvement in a plaster board machine in which a device is provided for simultaneously folding the paper cover sheet of two adjacent moving lines of plaster board.

Plaster board is usually manufactured by causing a continuous sheet of paper to be supported on a continuously moving endless belt and plastic material, such as a gypsum water mixture, is deposited upon the paper and smoothed out horizontally. The edges of the lower cover sheet are then folded about the plastic material and an upper cover sheet is continuously applied to the upper surface of the plaster board and pressed downwardly thereon. For making narrow widths of plaster board, such as 16 inches in width, it is desirable to manufacture two or more lines of plaster board simultaneously on the same endless belt so as to secure maximum efficiency in floor space as well as other operation efficiencies. In such a case it is desirable to provide a folding device between two adjacent lines of plaster board which will simultaneously fold the edges of the cover sheets about the plastic material on both lines of plaster board.

An object of this invention, therefore, is to provide a double folding device which will simultaneously fold the edges of the cover sheets on adjacent lines of plaster board, about the edge of the plastic material on the conveyor belt; also to improve plaster board machinery in other respects hereinafter specified and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which

Fig. 1 is a side sectional elevation showing my improved folding device,

Fig. 2 is a diagrammatic elevation of a portion of the plaster board machine showing my improved folding device applied thereto,

Fig. 3 is a sectional plan view through the folding device on the line 3—3 of Fig. 1,

Fig. 4 is an end elevation of the folding device,

Figs. 5 to 10 inclusive are sectional elevations through the bending and folding devices taken on the lines 5—5, 6—6 and 7—7 of Fig. 12, lines 8—8 and 10—10 of Fig. 1 and line 9—9 of Fig. 3, respectively,

Fig. 11 is a fragmentary sectional elevation through the conveyor belt and finished plaster board,

Fig. 12 is a side elevation of a paper bending attachment on a modified form of the device, and

Fig. 13 is a sectional plan view of the device shown in Fig. 12.

A table 10 is first used for supporting the lower cover sheets 11 of the plaster boards and core material 12 during the formation of the plaster board and subsequently to the formation, a conveyor belt 10*a* is used. Two or more lines of plaster boards, usually three in number, are supported upon the belt 10 in parallel relation with a rather small space 13 between the edges of said plaster board and with the edges of the lower cover sheets 11 in overlapping relation. The edges of the lower cover sheet 11 may be scored at the bend lines if desired and are then folded upwardly and inwardly to form flaps 14 and 15, the latter being preferably slightly embedded in the gypsum core material 12. The upper paper cover sheet 16 is then applied so that the outer edges of said cover sheet 16 are adhesively attached to the flap 15 so as to completely enclose the edge of the board with paper. The paper cover sheet 16 passes around a master roll 18 and is applied to the top of the core material 12 and to the flaps or folds 15 by said master roll.

My folding device consists essentially of a pair of folding members 19 and 20, said members having oppositely disposed folding surfaces 21 and 22 respectively. The folding members 19 and 20 are preferably in the form of plates which are preferably but not essentially supported by a central frame member 23 extending therebetween. The forward ends of plates 19 and 20 are provided with arcuate edges 25 which are adapted to conform with the shape of the master roll 18 and fit closely thereto. The rear edges of the plates 19 and 20 preferably have beveled surfaces 27 which are shaped

to part the two folds of paper on adjacent plaster boards without tearing said paper. The rear edge of frame plate 23 is also preferably tapered to a knife edge 28 for the purpose of better parting the folds of the paper. The lower folding surfaces 21 and 22 are preferably so shaped, as shown in Figs. 1, 8, 9, and 10, that the flaps 15 will be gradually spread apart as shown in Fig. 8, and then forced downwardly onto the plastic material 12 as shown in Figs. 10 and 11.

The upper edge of frame plate 23 is preferably provided with laterally extending flanges 30 which are secured by bolts 31 to a bracket 32. The bracket 32 may be rigidly supported in any suitable manner, such as by providing said bracket with an arcuate section 33 adapted to fit around a laterally extending tube 34, the latter being secured to rigid framework of the machine not shown. A cooperating arcuate clamp 35 is secured by bolts 36 to the bracket section 33 so as to secure the frame plate 23 rigidly to the tube 34. The folding plates 19 and 20 are pivotally secured to the frame plate 23 by means of a pivot pin 38 which passes through all plates 19, 23 and 20. Outstanding ears or angles 39 are secured on the rear upper corners of the folding plates 19 and 20, said angles slidingly engaging flat springs 41 which are secured at their rear ends to flanges 30 by means of bolts 42. Thus the springs 41 normally tend to urge the arcuate surfaces 25 into contact with the master roll 18.

The paper for forming the upper cover sheet 16 is usually supplied in the form of a roll 44 which is rotatably mounted on a shaft 45. The paper leaving the roll 44 passes around idler roll 46 and then around the master roll 18 onto the upper surface of the plastic core material 12 and the flaps 15.

With certain grade of paper, the edges thereof are apt to be rough or torn in which case the torn edges will catch upon the folded edge of knife edge 28 and cause additional tears in the paper with a consequence of shutting down of the board machine until the paper can be repaired. It will be observed that as the adjoining and parallel strips of paper 11 first enter the machine, they pass along on top of table 10 with their edges overlapping as shown in Figure 5. In order to avoid the above mentioned difficulty, I provide a bending device 50, which is preferably in the form of a flat sheet of metal having base flanges 51 which are sunk into the table 10 level with the top surface thereof, said metal being provided with a bending crease 52 formed longitudinally in the center of the bending device. This bending crease 52 starts with a height of 0 at the forward end of the bending device and gradually increases its height to that shown in Figure 7 at the rearward end of the bending device. This bending device may be attached directly to the rearward end of knife edge 28 by means of rivets 53. It may also be spaced forwardly in the machine when the mixing device for the stucco is at some distance from the head roll, and when it is desired to make the paper trough shape to receive the stucco without spilling over the edges. In either case, regardless of the location of the bending device, it is preferably attached to the table 10 by means of rivets, bolts, etc., 54 so as to rigidly connect the table and the bending device.

While the foregoing description represents a practical embodiment of my invention, I do not wish to limit myself precisely to these details, since manifestly, the same may be considerably varied without departing from the spirit of the invention as defined in the appended claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a plaster board machine, the combination with an endless belt conveyor having a plurality of lines of plaster board supported by and moving with said conveyor, said plaster board having lower flexible overlapping cover sheets and upper cover sheets separated by plastic material, and means between a pair of adjacent lines of plaster board for folding cover sheets of said plaster board about the edges thereof during the movement of said lines of plaster board.

2. In a plaster board machine, the combination with an endless conveyor adapted to convey closely adjacent parallel lines of plaster board, said plaster board having paper cover sheets, of folding means associated with said conveyor for simultaneously folding cover sheets of adjacent plaster board lines about the edges of the plastic core material.

3. In a plaster board machine, the combination with a conveyor adapted to convey a plurality of closely adjacent substantially parallel lines of plaster board having paper cover sheets, of oppositely disposed folding members adapted to operate between adjacent lines of plaster board and fold the edges of the paper cover sheets about the edges of said plaster board.

4. In a plaster board machine, the combination with a conveyor adapted to convey substantially parallel lines of plaster board having paper cover sheets, of a rigidly secured frame member, and a pair of folding members movably associated with said frame member and adapted to fold edges of the cover sheets of adjacent lines of plaster board during the movement thereof.

5. In a plaster board machine, the combination with a moving conveyor adapted to convey substantially parallel lines of plaster

board in spaced relation, of a rigidly held frame member between adjacent lines of plaster board, and folding members pivotally secured on said frame member and adapted to fold the edges of cover sheets on adjacent lines of plaster board about the edges thereof.

6. In a plaster board machine, the combination with a moving conveyor adapted to convey substantially parallel lines of plaster board, and a master roll for applying an upper cover sheet to said plaster board, said plaster boards having lower cover sheets in addition to the upper cover sheets, of a frame member extending between adjacent lines of plaster board, folding members pivotally secured to said frame members and spring means for resiliently pressing said folding members against said master roll, said folding members being adapted to simultaneously fold the edges of the lower paper cover sheet about the edges of said plaster board.

7. In a plaster board machine, means for advancing a plurality of strips of paper in parallel relation with the edges thereof in overlapping relation, means for bending said edges upwardly out of overlapping relation, and means for folding the edges about plastic material on said strips.

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