

Sept. 9, 1941.

R. T. McGEE ET AL

2,255,123

MANUFACTURE OF PAPERBACKED LATHING

Filed Oct. 23, 1937

3 Sheets-Sheet 1

Fig. 1.

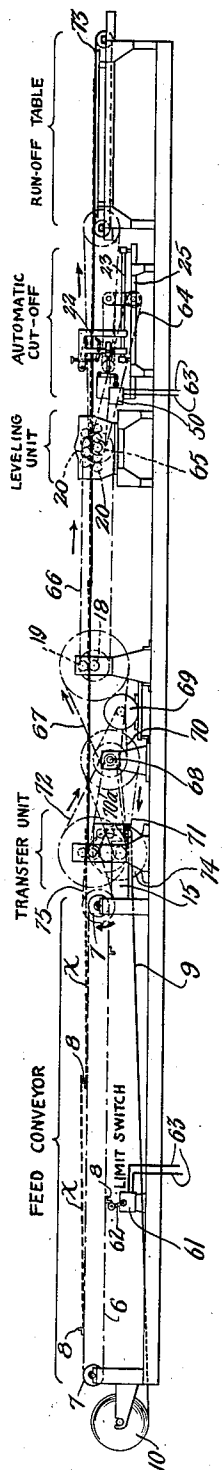


Fig. 2.

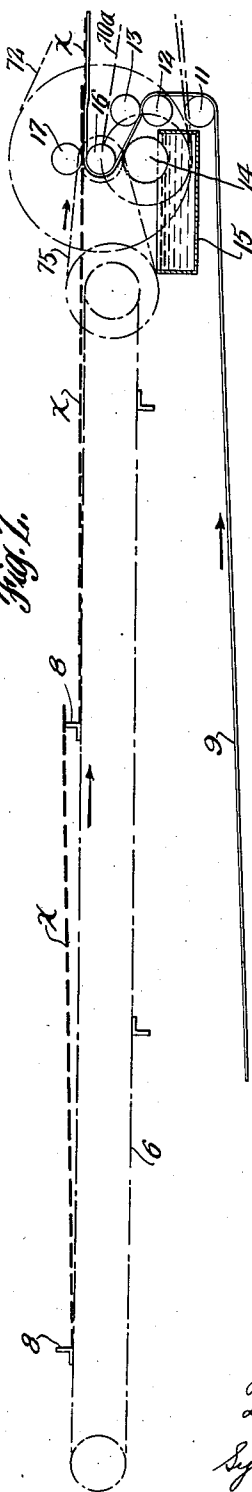
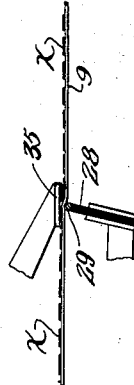


Fig. 5.



INVENTORS
Richard T. McGee +
Leonard W. Cross
BY
Symmes & Lechner
ATTORNEYS

Sept. 9, 1941.

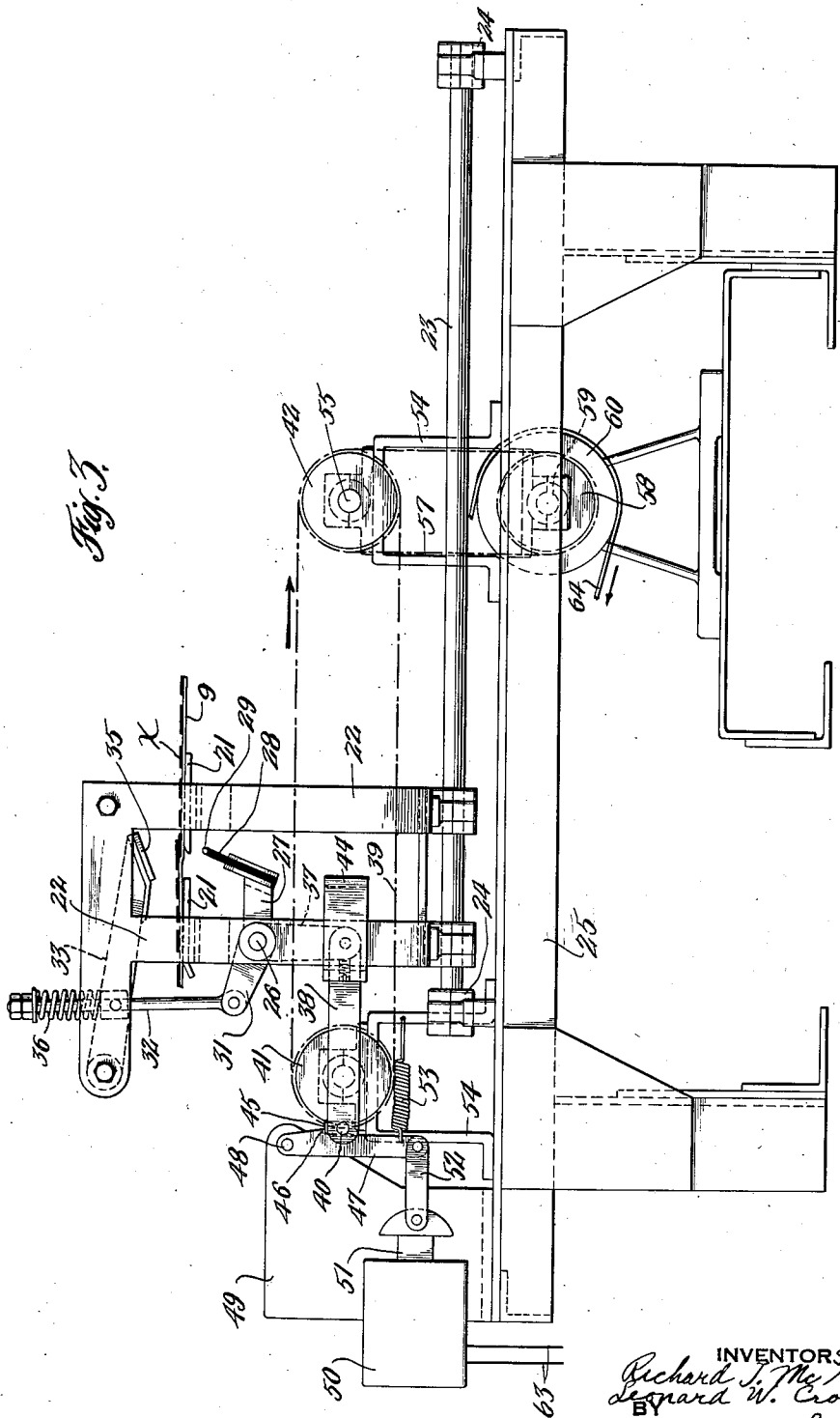
R. T. McGEE ET AL

2,255,123

MANUFACTURE OF PAPERBACKED LATHING

Filed Oct. 23, 1937

3 Sheets-Sheet 2



INVENTORS
*Richard J. McGee &
Leonard W. Cross*
BY
Symmes & Lechner
ATTORNEYS

Sept. 9, 1941.

R. T. McGEE ET AL

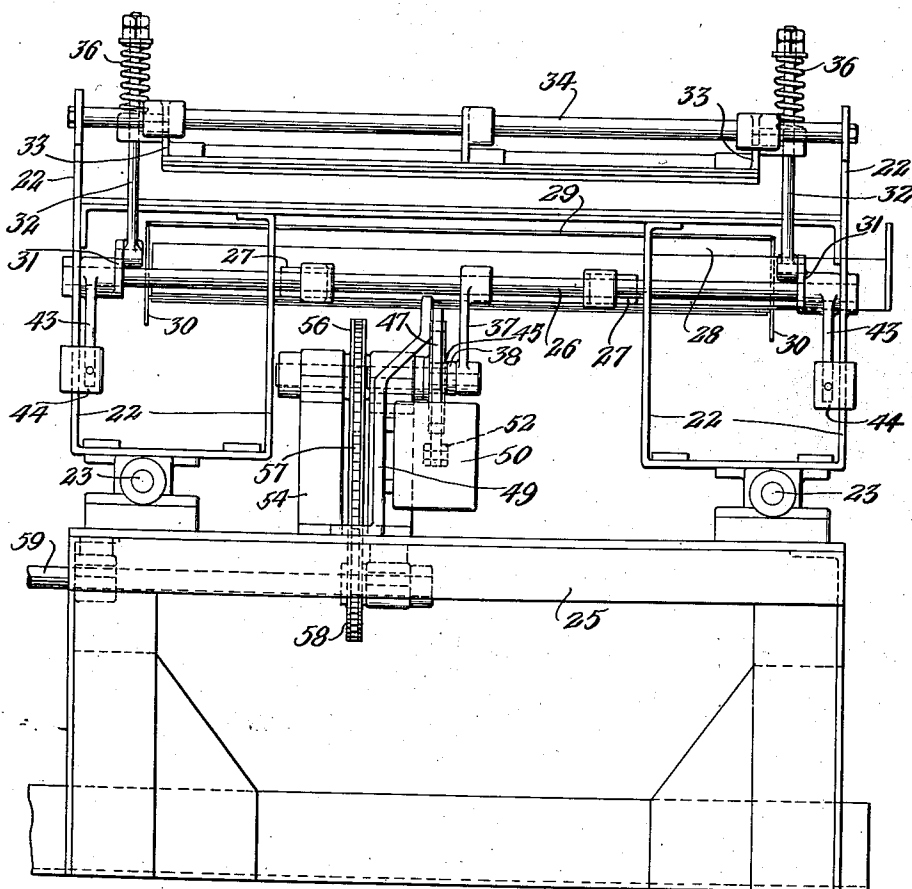
2,255,123

MANUFACTURE OF PAPERBACKED LATHING

Filed Oct. 23, 1937

3 Sheets-Sheet 3

Fig. 4.



INVENTORS
Richard T. McGee +
Leonard W. Cross
BY
Symmes & Lechner
ATTORNEYS

UNITED STATES PATENT OFFICE

2,255,123

MANUFACTURE OF PAPERBACKED LATHING

Richard T. McGee and Leonard W. Cross,
Wheeling, W. Va., assignors to The Con-
solidated Expanded Metal Companies, Wheel-
ing, W. Va., a corporation of West Virginia

Application October 23, 1937, Serial No. 170,715

7 Claims. (Cl. 154—1)

This invention relates to the manufacture of paper-backed lathing and is particularly concerned with a method and apparatus for applying paper backing to lathing sheets in a continuous manner, preferably employing a continuous roll of backing paper, and severing the paper between adjacent sheets of lathing to which it is applied.

One of the principal objects of the invention is to provide means and method accomplishing the foregoing in a continuous and substantially automatic manner.

According to the invention, the paper backing is preferably derived from a source consisting of a roll, and the individual lathing sheets are fed serially with the paper, the invention providing novel means for applying an adhesive to the paper and for thereafter bringing the paper and lathing into contact so as to secure the backing to the lath.

Preferably also the arrangement of this invention provides for feed of the lathing sheets with marginal portions in overlapped relation, whereby upon severing of the continuous strip of paper adjacent the under or inner edge of the overlapped joint, the margin of the upper or outer sheet at the joint remains unbacked, this being desirable from the standpoint of use of the paper-backed lathing.

Still another and highly important object of the invention is the provision of means automatically severing the paper in the manner just mentioned during continuous advancement of the sheets and attached paper.

How the foregoing, together with other objects and advantages are attained, will appear to better advantage from the following description of the preferred embodiment of the invention shown in the accompanying drawings, in which—

Figure 1 is a somewhat diagrammatic side elevational view of the entire equipment;

Figure 2 is a substantially enlarged somewhat diagrammatic side elevational view of the feed conveyor adjacent the entrance end of the machine, this view also showing the mechanism for applying adhesive to the paper;

Figure 3 is a side elevational view of the automatic paper cut-off unit of the mechanism;

Figure 4 is an end view of the mechanism shown in Figure 3, taken from the left of Figure 3; and

Figure 5 is a fragmentary view of certain parts shown in Figures 3 and 4, illustrating a different position, as will appear more fully hereinafter.

By reference to Figure 1 it will be seen that in

general the equipment consists of a feed conveyor at the entrance end of the machine, adapted to receive sheets of lathing, such as expanded metal lathing *x*, and advance the same through the transfer unit in which adhesive is applied to the paper, and the paper and lathing are brought together. Beyond the transfer unit the combined paper and lathing traverse the leveling rolls and then pass through the automatic cut-off mechanism (shown in Figures 3 and 4), the severed sheets of paper-backed lathing being finally discharged from the run-off table.

The feed conveyor 6 is carried by sprockets 7 and is provided with a series of angle members 8 spaced apart a distance a little less (for example, about an inch) than the length of lathing sheets *x*. Because of this it will be seen that the placing of a sheet on the conveyor just ahead of each angle 8 results in a serial overlap of the end margins of the sheets. The sheets are fed into the transfer unit in this relationship.

As seen in Figures 1 and 2, the paper backing 9 is derived from a roll 10 and delivered over roll 11 and between rolls 12 and 13 into contact with rollers 14 which are mounted to dip into the vessel 15 containing adhesive (for example, some tarry or asphalt compound). Rolls 12 and 13 may be knurled so as to provide increased "keying" of the adhesive to the paper. The paper then travels over an additional roll 16 between which and a companion roll 17 the lathing and paper are brought together and pressed so as to secure the paper to the lathing. Beyond the transfer unit the combined paper and lathing sheets are further advanced by means of feed rolls 18 and 19 and then delivered to the multiplicity of rolls 20 in the leveling unit.

Next in line is the automatic cut-off unit which is shown to best advantage in Figures 3 and 4. Supports 21 for the lathing appear in the upper part of Figure 3, these supports being mounted on the carriage or framing 22 which is mounted for sliding movement along the horizontal guide rods 23. The guide rods are supported by means of brackets 24 carried on a rigid base 25.

A shaft 26 is carried by and journaled in the two opposite side portions of the carriage or framing 22. This shaft has a pair of levers 27 keyed thereon, the levers supporting a transverse strip of asbestos or other insulating material indicated at 28. At the upper edge of this strip there is arranged a heater element or wire 29 having terminals 30 which may be connected with any suitable source of current.

Shaft 26 further carries a pair of additional levers 31 also keyed thereon, and the free ends of these levers 31 are connected by means of links 32 with the arms 33 mounted on a shaft 34 which is carried at its ends in the side members of the framing 22. At the free ends of the arms 33 a shoe 35 is mounted in position to overlap the slot provided between the adjacent edges of the two lathing supporting plates 21—21. The levers 27 and the parts carried thereby are positioned so that the heater element 29 underlies the slot between the supports 21—21.

From inspection of Figure 3 it will at once be seen that the heater element 29 and shoe 35 are adapted to come together upon movement of shaft 26 in a counterclockwise direction. The heater element is, of course, then brought into contact with the paper on the under side of the lathing, and the shoe 35 exerts pressure on top during the burning operation. Resilience in the pressure of the shoe 35 is provided by means of springs 36 interposed between the arms 33 and the upper or free ends of links 32. Thus the links 32 resiliently interconnect arms 33 and levers 31.

Movement of shaft 26 in a counterclockwise direction may be effected by means of the actuating arm 37 which is extended downwardly from the shaft and at its lower end is connected with a link 38 extended generally horizontally for connection with the chain 39 as by means of the pin 40. This chain rides on a pair of sprockets 41 and 42. Pin 40 travels with the chain 39, in view of which, upon advancement of the pin upwardly and forwardly from the position shown in Figure 3, link 38 moves arm 37 in a counterclockwise direction, and this in turn imparts the same motion to shaft 26. As the pin 40 progresses along the upper run of the chain 39, the movement of arm 37 is arrested by means of additional arms 43 (see Figure 4) which cooperate with stops 44 rigid with the carriage 22. As the pin advances further, the link 38 (through the medium of levers 43 and stops 44) causes the entire carriage to travel along the guide rods 23. As the pin 40 travels with the chain around the sprocket 42, the forward motion of the carriage ceases and the link 38 (around the under side of sprocket 42) again retreats, first causing arm 37 to move in a clockwise direction in order to separate the heater element 29 and the shoe 35. Additional rearward movement of the link 38 through the medium of pin 40 traveling on the return run of chain 39, draws the entire carriage back again to the position shown in Figure 3.

This motion is controlled and timed in synchronism with the rate of advancement of the lathing sheets over the supports 21—21. For this purpose pin 40 also carries an abutment block 45 adapted to cooperate with a shoulder 46 formed on lever 47 which is pivotally mounted as at 48 at its upper end on the fixed bracket or support 49. This support 49 may also be employed to carry a solenoid 50, the armature 51 of which is connected with the lower end of lever 47 by means of link 52. Tension spring 53 always ensures return of lever 47 to the position shown in Figure 3, i. e. the position in which shoulder 46 engages the block 45 in order to arrest movement of pin 40 and the chain 39.

Solenoid 50 is controlled in a manner described shortly below, but at this point it is noted that the sprockets 41 and 42 for chain 39 are carried by means of brackets 54 and suitable shafts and bearings mounted thereon. The shaft 55 for sprocket 42 also carries an additional sprocket 56

engaged with a chain 57 which is driven by sprocket 58 mounted on shaft 59. Shaft 59 in turn is driven in timed relation with the feed conveyor at the entrance end of the machine, a slipping clutch 60 being interposed in this shaft so that upon engagement of the shoulder 46 with the stop 45, the chain 39 will remain stationary until the stop 45 is released by actuation of the solenoid 50.

The solenoid is controlled by means of a switch 61 (see Figure 1) provided with an actuating arm 62 disposed in the path of movement of the angles 8 carried by the feed conveyor 6. The circuit 63 (connected not only with the switch 61 but also with the solenoid) will, of course, include a suitable source of current.

In practice, the switch 61 is so located with respect to the conveyor 6 and the angles 8 moving therewith that the solenoid is tripped at the moment when an overlapped joint between adjacent sheets passes the gap between the supporting plates 21—21 in the cut-off mechanism. More specifically (see Figure 5), the solenoid is tripped and the latch 46 withdrawn at a time such that the heater wire 29 engages the paper 9 just behind the rear edge of the sheet on the under side of each overlapped joint. Inspection of Figure 5 will illustrate the manner in which severing of the paper along this line will leave an unbacked margin on the upper sheet of the joint. The travel of the carriage 22 with the lath during forward movement of the carriage affords sufficient opportunity for the heater wire to completely sever the paper.

Referring again to Figure 1, the driving side of the clutch unit 60 is actuated by means of a suitable belt 64. This belt extends rearwardly and upwardly to a pulley 65 which, as will be seen in this view, is driven by additional belts 66 and 67. The belt 67 derives its power from shaft 68 which is driven by means of motor 74 through suitable belt drive indicated at 71. The feed and transfer units are also both driven from this same motor, the transfer unit by means of belt 72, and the feed unit by means of chain 75, all appropriately coupled with the feed and transfer rolls and rollers.

A motor 69 is provided for the purpose of actuating the rollers 14 in the transfer unit. The drive from this motor to the rollers includes belts 70 and 70a.

Various of the driving connections per se are not of importance herein, particularly since any desired series of synchronized driving connections may be employed. It is only of importance that the several units all be actuated in synchronism, so that the proper timing in movement of the cut-off carriage results, and further so that the solenoid 50 is tripped at the desired point with relation to the end of each sheet as it passes through the machine.

While the equipment and method of this invention may advantageously be employed in the production of paper-backed lathing of a variety of styles or types, we prefer to produce a product of the general type disclosed in the copending application Serial No. 753,150, issued December 13, 1938, as Patent No. 2,139,749 of Thomas R. Herbest, Jr. In the production of material of this type, the adhesive is applied only in stripes, for which purpose the rollers 14 dipping into the reservoir 15 are narrow and a plurality of them are employed in order to apply a plurality of parallel stripes.

From the foregoing it will be seen that the

present invention provides a completely automatic cut-off for the paper between adjacent lath sheets, and this while maintaining continuous uninterrupted feed of the sheets through the machine, even to the run-off table shown in Figure 1, from which the separated sheets may be automatically discharged as by a conveyor 73.

It will also be noted that the invention provides means automatically determining the overlap of the sheets on the feed conveyor and thus of the margin which is left unbacked at one end of each sheet.

We claim:

1. Apparatus of the character described including a conveyor for serially advancing lath sheets, abutment members projecting from and associated with said conveyor and adapted to position the sheets with adjacent marginal portions thereof in serially overlapped position, means for continuously feeding paper backing adjacent the path of movement of the sheets, means for securing the paper to the sheets, and means for severing the paper along a line adjacent an edge of one of the overlapped margins of the sheets.

2. Apparatus of the character described including a conveyor for serially advancing lath sheets, abutment members projecting from and associated with said conveyor and adapted to position the sheets with adjacent marginal portions thereof in serially overlapped position, means for continuously feeding paper backing adjacent the path of movement of the sheets, means for securing the paper to the sheets, and means automatically operative in timed relation to the rate of advancement of said sheets for severing the paper along a line adjacent an edge of one of the overlapped margins of the sheets.

3. Apparatus of the character described including a conveyor for serially advancing lath sheets, abutment members projecting from and associated with said conveyor and adapted to position the sheets with adjacent marginal portions thereof in serially overlapped position, means for continuously feeding paper backing adjacent the path of movement of the sheets, and means automatically operative in timed relation to the rate of advancement of said sheets for severing the paper along a line adjacent an edge of one

of the overlapped margins of the sheets, the severing means being mounted for movement with the sheets during the severing operation.

4. In the manufacture of paper-backed lathing sheets, the method which includes continuous serial advancement of lathing sheets in end-to-end relation with their adjacent margins serially overlapped, continuously feeding paper backing with said sheets, securing the paper backing to the sheets, and severing the paper backing along a line adjacent each overlapped joint in the sheets during continuous advancement thereof.

5. In the manufacture of paper-backed lathing sheets, the method which includes continuous serial advancement of lathing sheets in end-to-end relation with their adjacent margins serially overlapped, continuously feeding paper backing with said sheets, securing the paper backing to the sheets, and burning the paper backing along a line adjacent each overlapped joint in the sheets during continuous advancement thereof.

6. In the manufacture of paper-backed lathing sheets, the method which includes continuous serial advancement of lathing sheets in end-to-end relation with their end margins serially overlapped, continuously feeding paper backing with the sheets, securing the paper backing to the sheets, and severing the paper along a line adjacent the end of each sheet which is on the under or inner side of the overlapped joint.

7. Apparatus for applying paper backing to lathing sheets including a conveyor for serially advancing the sheets, abutment members projecting from and associated with said conveyor and adapted to position the sheets with margins thereof in overlapped relation, means for continuously feeding paper backing with the sheets, means for applying adhesive material to the paper, means for bringing the series of sheets and the paper into contact with each other to effect attachment of the paper to the sheets by virtue of said adhesive material, and cut-off mechanism for severing the paper along a line adjacent each overlapped joint in the series of sheets.

RICHARD T. MCGEE.
LEONARD W. CROSS.