July 18, 1944. J. E. McLAUGHLIN ET AL 2,353,842

MACHINE FOR ASSEMBLING PARTITIONS

Filed March 11, 1943 5 Sheets-Sheet 1

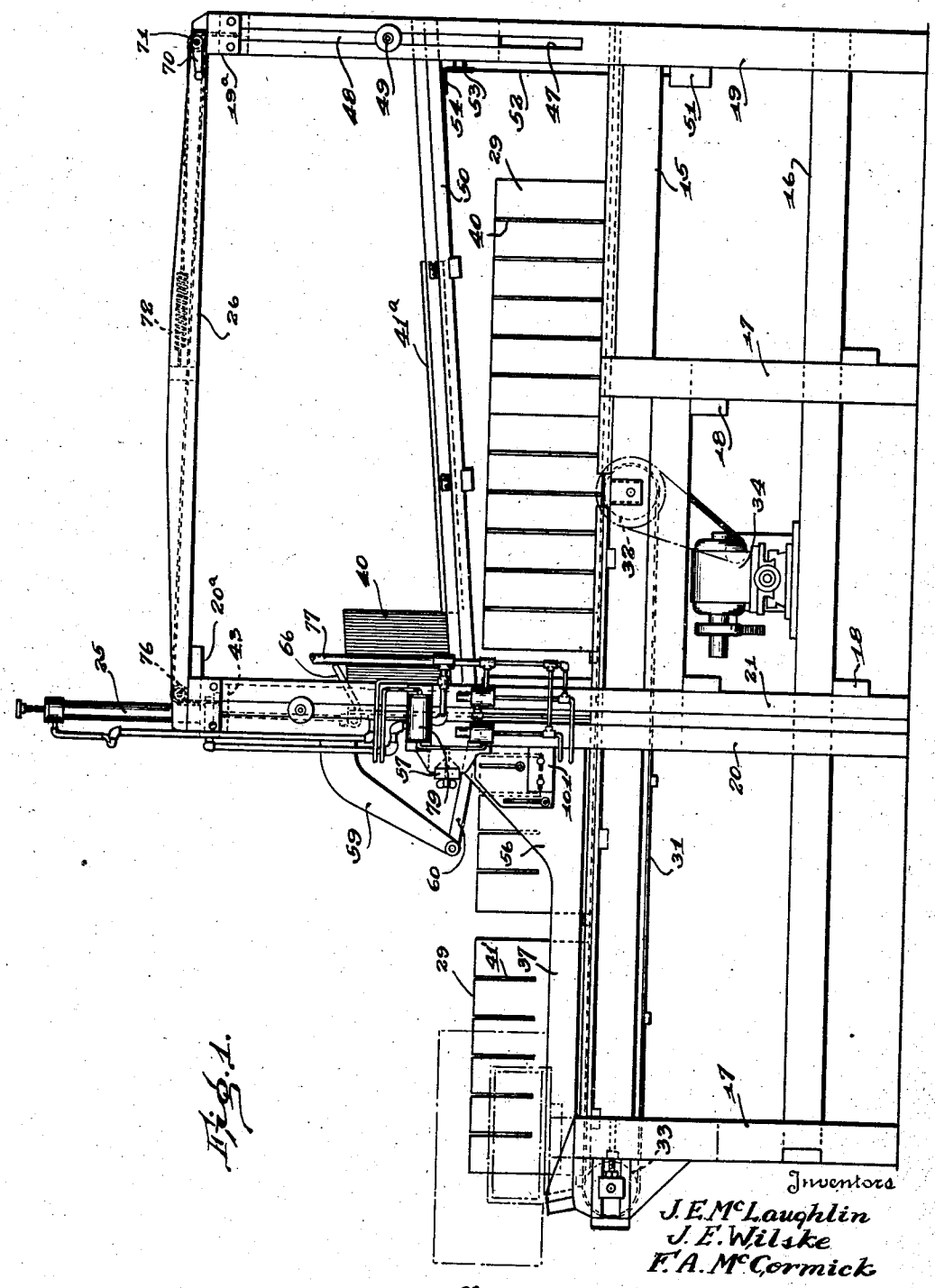


Fig. 1.

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MACHINE FOR ASSEMBLING PARTITIONS

Filed March 11, 1943 5 Sheets-Sheet 2

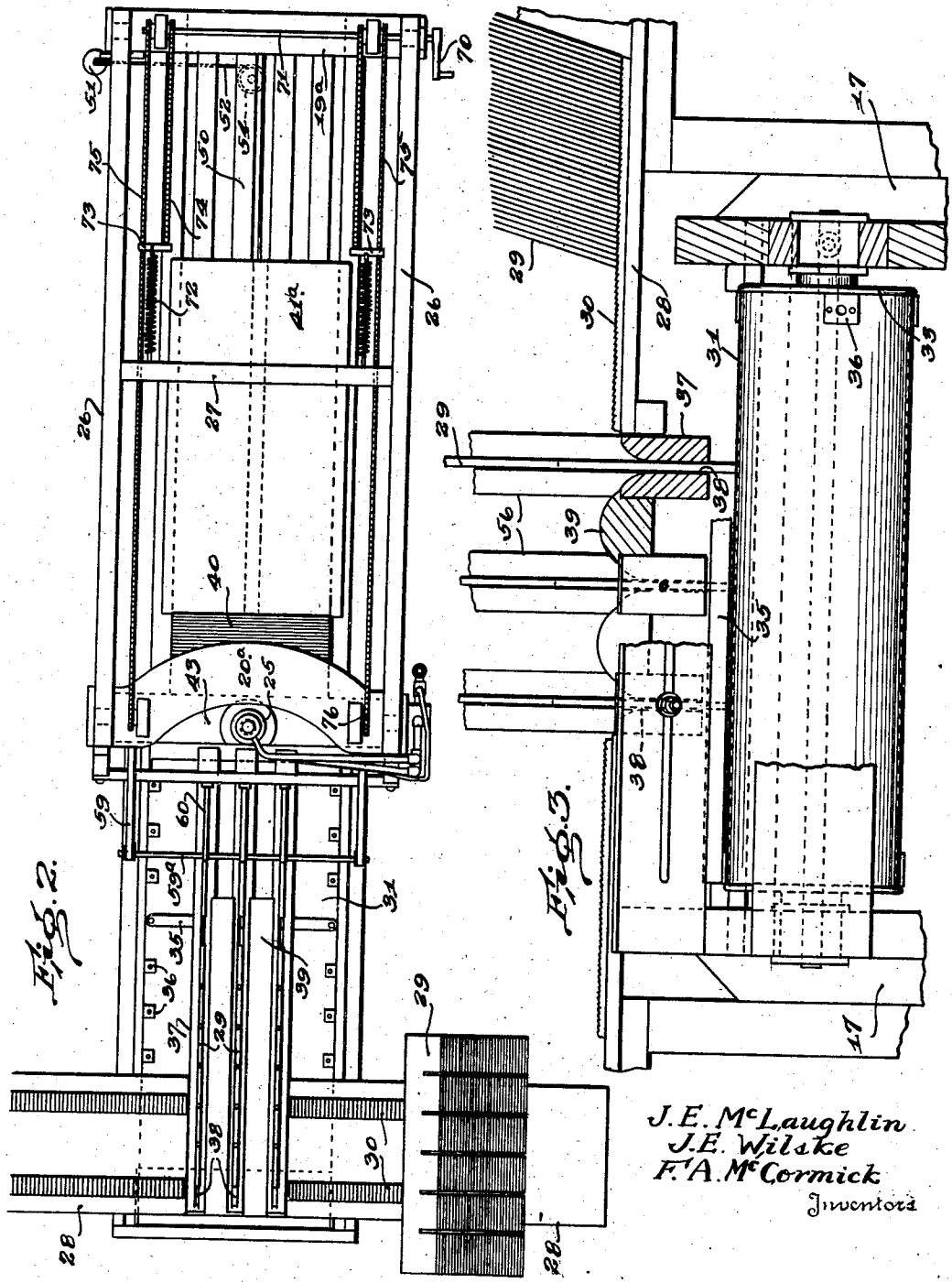


Fig. 2.

Fig. 3.

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MACHINE FOR ASSEMBLING PARTITIONS

Filed March 11, 1943 5 Sheets-Sheet 3

Fig. 4.

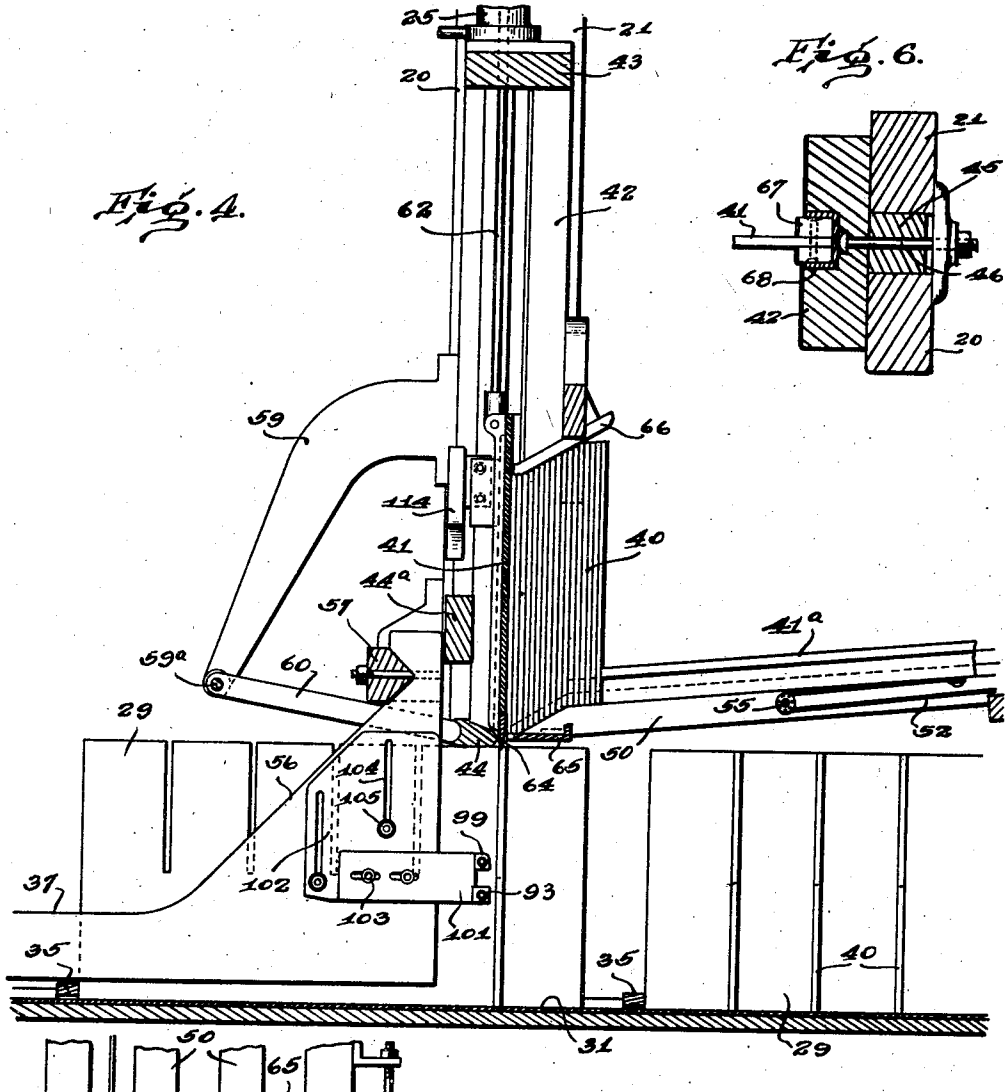
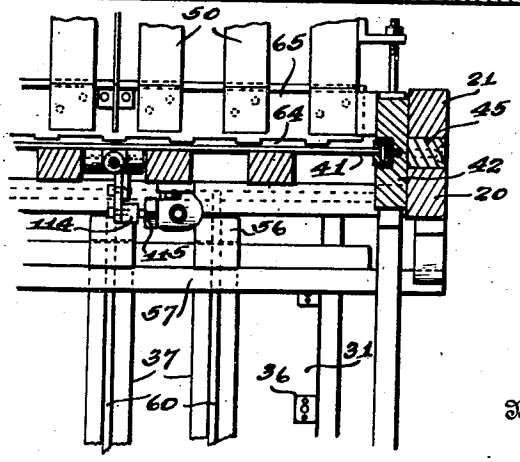


Fig. 6.

Fig. 5.



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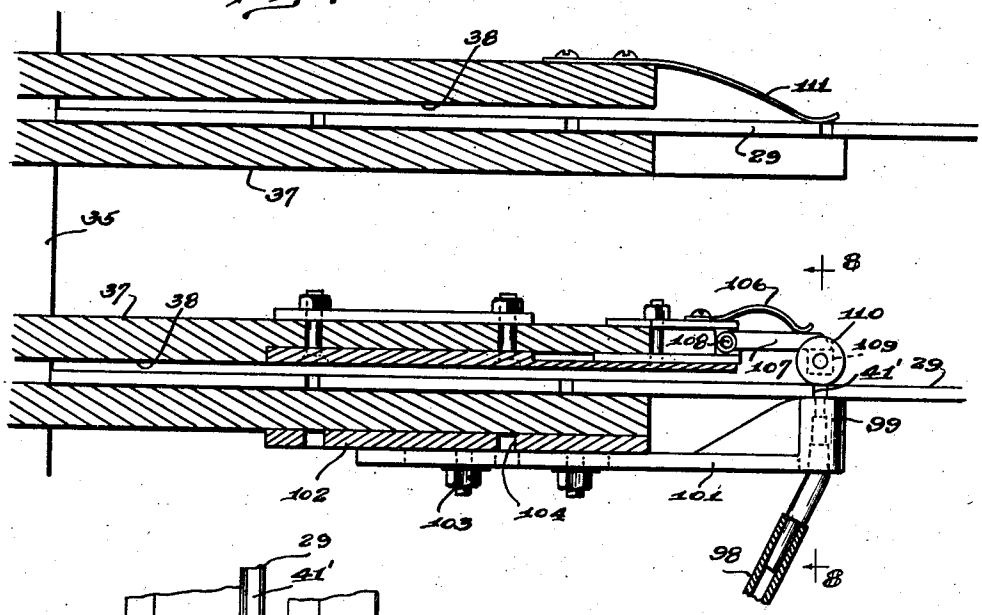
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MACHINE FOR ASSEMBLING PARTITIONS

Filed March 11, 1943 5 Sheets-Sheet 4

Fig. 7.



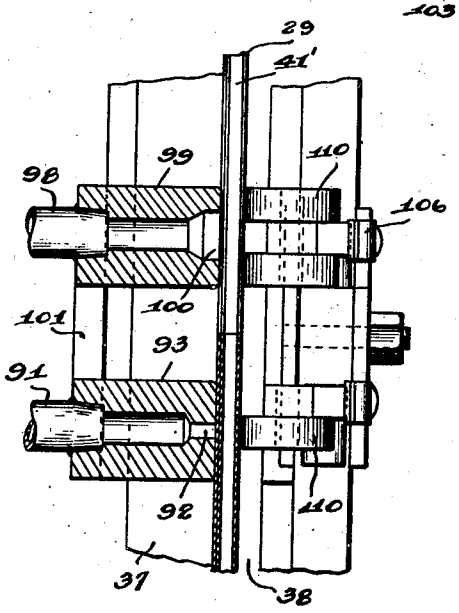
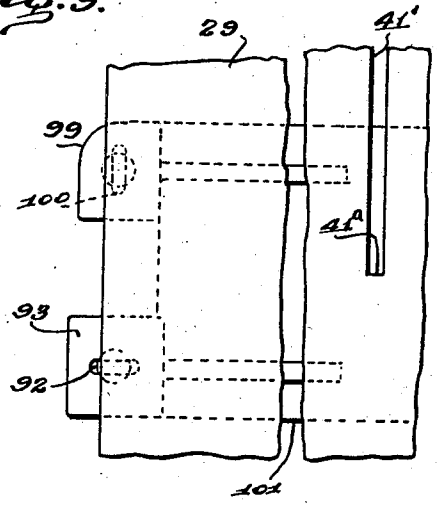


Fig. 8.

Fig. 9.



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MACHINE FOR ASSEMBLING PARTITIONS

Filed March 11, 1943 5 Sheets-Sheet 5

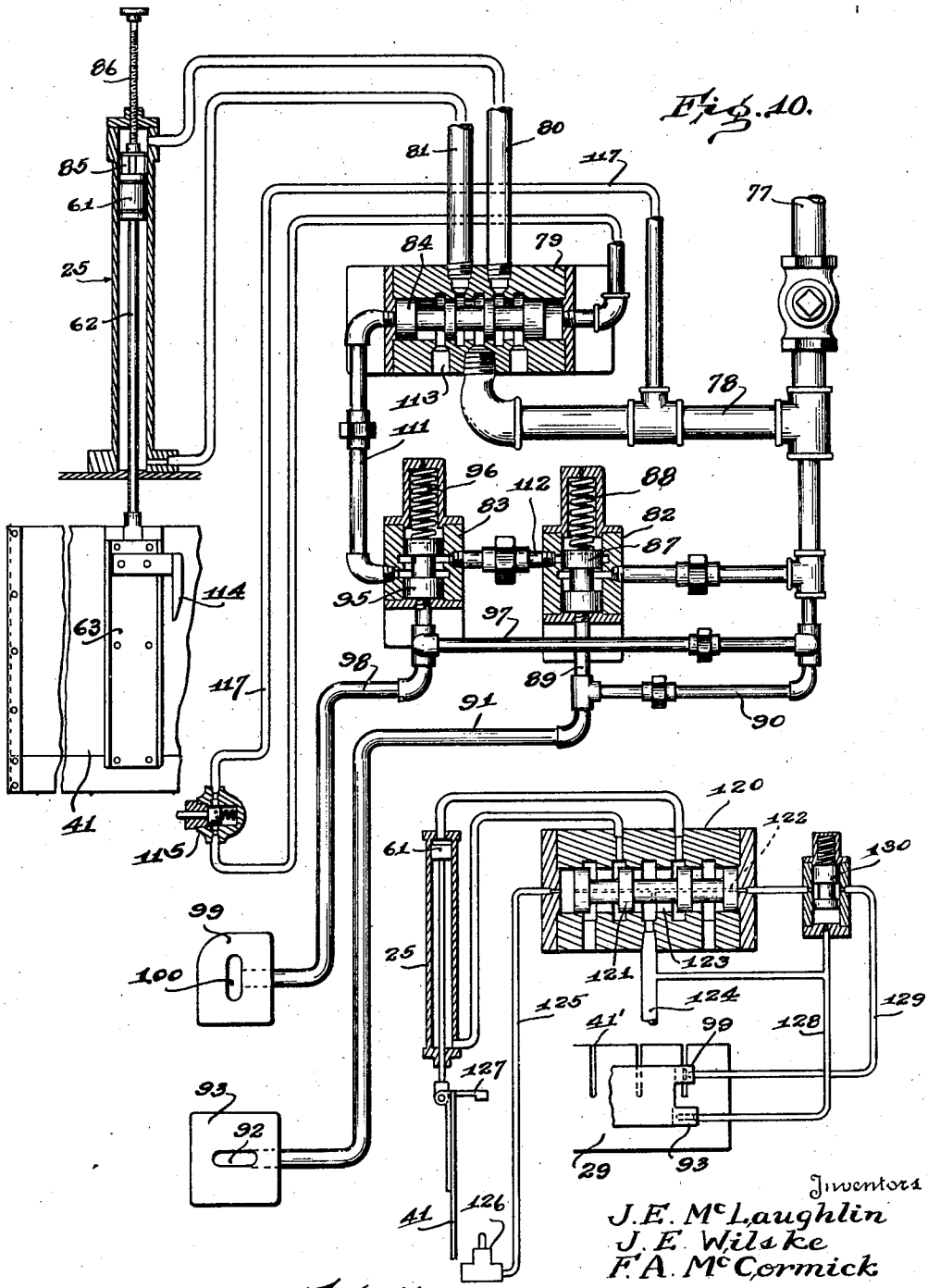


Fig. 10.

Fig. 11.

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UNITED STATES PATENT OFFICE

2,353,842

MACHINE FOR ASSEMBLING PARTITIONS

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Application March 11, 1943, Serial No. 478,842

17 Claims. (Cl. 93—37)

Our invention relates to apparatus for assembling strips of paper, cardboard, or the like, to form partitions such as are commonly used for dividing cartons and other containers into individual cells or compartments.

An object of the invention is to provide a machine by which the strips are automatically assembled and which is comparatively simple in construction and both rapid and reliable in operation.

Other objects of the invention will appear hereinafter.

Referring to the accompanying drawings:

Fig. 1 is a side elevation of a machine embodying our invention.

Fig. 2 is a plan view of the machine.

Fig. 3 is a fragmentary cross sectional elevation on a larger scale, the view being taken adjacent the intake end of the machine.

Fig. 4 is a fragmentary longitudinal sectional elevation showing the pusher plate or bar, by which the cross strips are pushed down to assembled position, and adjacent parts.

Fig. 5 is a fragmentary sectional plan showing the pusher bar and associated parts.

Fig. 6 is a cross sectional view showing an adjustable frame in which the pusher bar is slidably mounted.

Fig. 7 is a sectional plan view of a forward portion of two of the longitudinal strip guides.

Fig. 8 is a vertical section at the line 8—8 on Fig. 7.

Fig. 9 is a fragmentary elevation of a partition strip and the valves controlled thereby.

Fig. 10 is a partly diagrammatic view of the air system, the air motor and valves being shown in section.

Fig. 11 is a similar view of a modification.

Referring particularly to Figs. 1 and 2, the operating parts are mounted on the framework comprising longitudinal frame members 15 and 16, uprights 17, cross bars 18, uprights 19 at the discharge end of the machine, and uprights each including a pair of spaced upright members 20, 21 at the assembly line intermediate the ends of the framework. The uprights 19, 20, and 21 are extended upward above the frame members 15 to provide a support for a vertically adjustable framework which carries the cross partition strips, an air motor 25 and mechanism actuated thereby for assembling the cross strips with the longitudinal strips. The main framework also includes a cross bar 19^a at the upper ends of the uprights 19, a cross bar 20^a at the upper ends of the bars 20, 21, longitudinal bars 26 connecting the cross bars 19^a, and 20^a, and a tie bar 27 intermediate the ends of the bars 26.

At the intake end of the machine, platforms 28 are mounted on the framework to provide supports for the longitudinal partition strips 29 which may be placed in stacks or groups on serrated rails 30 on the platforms. A horizontally travelling endless belt conveyor 31 runs on a drive roll 32 and an idler roll 33 journalled in the main frame. The conveyor is driven continuously by an electric motor 34 having operating connection through speed reduction gearing with the roll 32. Cross bars 35 are attached to the face of the belt at intervals lengthwise thereof, for aligning each group of strips 29 when they are placed on the belt and driving them forward with the belt. The bars 35 may be adjusted lengthwise of the belt for varying the spacing therebetween. Metal plates or tabs 36 (Figs. 2 and 5) arranged at short intervals along the conveyor, provide means for attaching the bars 35 to the conveyor.

A series of stationary guide bars 37 are mounted directly over the conveyor and extend lengthwise thereof, said bars being parallel and spaced to correspond to the spacing of the slots in the cross partition strips with which the longitudinal strips are assembled. Each guide bar 37 is formed with a longitudinal slot 38 extending therethrough, to receive the partition strips 29 which, when placed on the conveyor, extend through the slots. The number and positions of the guide rails 37 are adjustable to the work in hand, the number being made equal to the number of longitudinal partition strips required for each assembly. Three such strips are herein shown.

Longitudinal guide strips 39 (Figs. 2 and 3) having convex upper surfaces, are placed between the guide bars 37 to facilitate the placing of the partition strips on the conveyor. The operator places a group of strips 29 on the conveyor; in this instance three strips, one for each supporting bar 37, so that they are aligned and carried forward by a cross bar 35 to the assembly zone where they are assembled with cross partition strips 40 which are fed or pushed downward one by one to assembled position. The cross strips are also formed with slots to receive the lower portions of the longitudinal strips.

Supporting means for the cross strips 40 and the assembly mechanism including the piston motor 25 and parts actuated thereby, are mounted on a framework which is adjustable up and down on the main frame to adapt the machine for assembling partition strips of different heights. The adjustable framework includes an end frame mounted between the pairs of uprights 20, 21, said end frame comprising vertical frame bars 42, an upper cross bar 43, lower cross bars 44 and 44^a,

and vertical guide strips 45 (Figs. 5 and 6) which are positioned between the uprights 20, 21. The strips 45 are secured to the frame members 42 which also serve to clamp the adjustable frame in its adjusted position.

The adjustable framework also includes an end frame adjustably supported between the end uprights 19 and adjustable upward therein. The uprights 19 are formed with vertical slots 47 to receive guide strips 48 corresponding to the strips 45 and secured in like manner by clamping bolts 49 (Fig. 1). The adjustable framework further includes longitudinal bars 50 which are preferably inclined as shown and connected to the end frames. The bars 50 provide a support for the pack of cross strips 40. The pack of strips 40 is held against a vertical pusher plate 41 which operates as hereinafter described to push or knock the strips downward in succession to assembled position. The strips are moved forward by a plate 41a to a position beneath the pusher plate 41. The plate 41a is slidable along the rails 50 and is held against the pack of strips by means of a weight 51 (Figs. 1 and 2). The weight is connected to the plate 41a by a cable 52 trained over pulleys 53, 54, and 55 (Fig. 4).

The guide bars 37 have their forward end portions 56 (Figs. 1 and 4) extended upwardly above the path of the partition strips 29 and thus provide supporting walls between which the strips are guided. A cross bar 57 clamps the ends of the guide bars 37 against the bar 44a. Brackets 59 (Figs. 2 and 4) attached to the adjustable frame, support a rod 59a. Inclined arms 60 are connected between the rod 59a and the cross bar 44. The arms 60 are positioned to engage the upper edges of any strips 29 which may be tilted or not properly positioned on the belt, and push them downward into position preparatory to the assembling operation.

The piston motor 25 (Fig. 10) includes a vertically reciprocating piston 61 and piston rod 62. The lower end of the piston rod is connected to the pusher bar or plate 41 by means of a connecting strip or plate 63 which forms a backing for the plate 41. When the pusher bar is lifted, the pack of strips 40 is advanced to position the foremost strip directly over a feed slot 64 (Figs. 4 and 5) formed between the frame bar 44 and a guide plate 65. The upper edges of the strips 40 pass beneath an inclined guiding plate 66 which guides the strips downward, holding them against the correspondingly inclined ends of the supporting bars 50. The pusher plate 41 is guided in its movements by means of guide blocks 67 (Fig. 6) which are slidable in channels 68 in the frame members 42.

Means for vertically adjusting the framework carrying the assembling mechanism, includes a hand crank 70 (Figs. 1 and 2) on a shaft 71 journalled in bearings on the main frame. Coil springs 72 which counterbalance part of the weight of the adjustable framework and the parts supported thereon, are connected at one end to the cross bar 27. Each spring is attached at its opposite end to a connector bar 73. To each connector bar is attached one end of a sprocket chain 74 which is trained over a sprocket wheel on the shaft 71; the other ends of the chains 74 being attached to the adjustable frame directly beneath the shaft 71. Chains 75 are also connected at one end to the bars 73 and are trained over sprocket wheels on the shaft 71 and extend horizontally therefrom to sprocket wheels 76 on the cross bar 20a and are attached to the upper cross bar 43 of the adjustable frame.

The means for automatically controlling the operation of the piston motor will now be described.

The operation of the motor control valve is controlled by the slotted partition strips 29 which function as valves in an air pressure control system for the motor control valve. Referring to Fig. 10, the motor 25 is actuated by air (or other fluid) under pressure supplied through a pressure pipe 77 and pipe 78 leading to the motor control valve 79. Pipe lines 80 and 81 extend from the valve 79 to the upper and lower ends respectively of the motor cylinder. The motor valve 79 is actuated by air pressure under the control of auxiliary control valves 82 and 83. As shown, the valve piston 84 of the motor valve 79 has been moved to the left so that air under pressure has been supplied through the valve and line 81 to the lower end of the motor cylinder and moved the piston 61 upward. A stop 85 which determines the upper position of the piston, is adjustable up and down by means of a screw rod 86 so that the length of the piston stroke may be adjusted to correspond to the height of the partition strips.

The auxiliary valve 82 comprises a piston 87 which is moved to its lowered position as shown by a coil compression spring 88 and is moved upward against the compression of the spring by air pressure admitted through a pipe 89 which is in communication with the pressure pipe 77 through a pipe 90. The pressure within the pipe 89 is periodically reduced by opening it through a pipe 91, forming an extension of the pipe 89, to the atmosphere. The pipe 91 is open to atmosphere through a port opening 92 in a valve head or block 93 attached to the pipe.

The block 93 is positioned to be engaged by a partition strip 29 as it advances to the assembling position. The strip closes the port 92 as it slides along said block, thereby allowing the full air pressure to be built up in the pipe 89. This pressure is sufficient to lift the valve piston 87 against the pressure of the spring 88. The pipe 90 being of restricted diameter, the pressure in the pipe 89 is reduced when the port 92 is opened, thereby allowing the valve piston to be lowered.

The valve 83 comprises a valve piston 95 which is lowered by a compression spring 96 and lifted by air pressure supplied through a branch pipe 97. A pipe 98 leads from the pipe 97 to a head 99 attached to the pipe 98 and having a vertically disposed slot 100 therein, forming a port opening to the pipe 98 and operating in the manner just described in connection with the head 93.

The heads 93 and 99 are carried on or formed integral with a plate 101 (see Figs. 4, 7 and 8) which is mounted on a plate 102 which in turn is mounted on the end of portion 56 of one of the guide bars 37. Plate 101 is adjustable lengthwise on the plate 102 and clamped in adjusted position by stud bolts 103. Plate 102 with the plate 101 thereon, is adjustable vertically, being provided with vertical slots 104 and clamping bolts 105 for this purpose. Referring to Figs. 7 and 8, a strip 29 is held against the valve heads 99 and 93 by means of leaf springs 106 attached to the forward end of the guide strip 37. The springs bear against rock arms 107 which are pivoted at 108, and at their free ends are pressed by the springs against the bearings 109 of pressure rolls 110 which bear against the strip 29 at points directly opposite the heads 99 and 93. In

this manner the strip 29 is held against the valve heads and seals the port openings 92 and 100. Leaf springs 111 (Fig. 7) are mounted on the other guide bars 37 and serve to hold strips therein in proper position with all the strips accurately spaced.

The manner in which the partition strips control the assembling operations is as follows:

When there are no partition strips 29 in the assembly zone, the piston motor and the valves will be in the positions shown in Fig. 10 in which the pusher plate 41 is lifted. As a set of strips 29 advances, the forward end of a strip is moved into sliding contact with the heads 93 and 99 and thereby closes the ports 92 and 100. It will be noted that the lower port 92 is below the bottom ends 41a (Fig. 9) of the slots 41' so that it remains closed until the entire strip has passed said port. The upper port 100 is in a position to be opened momentarily by each slot 41' as it passes.

As the forward edge of the strip 29 moves over the port 100, it allows air pressure to be built up beneath the valve piston 95, so that the piston is lifted as before described. This closes a pipe line 111 leading to the left end of the motor control valve 79. This takes place before the lower port 92 has been completely closed owing to the horizontal elongation of said port (see Fig. 9). The port 92 is fully closed immediately after the valve piston 95 has been lifted, thereby allowing pressure to be built up in the pipe 91, so that the piston 87 is lifted. This opens the valve 82 to a pipe 112 and holds it open throughout the passage of the partition strip through the assembly zone.

As the strip 29 continues its forward movement, the first slot 41' therein is brought opposite the port 100 and opens the latter momentarily, permitting the valve piston 95 to be lowered by its spring. This establishes an air pressure line through the two open valves 82, 83 and pipe 111 to the motor control valve 79 so that the piston 84 therein is shifted to the right. This opens the pipe line 80 to the pressure pipe 78 and vents the pipe line 81 to atmosphere through a port 113 so that the motor piston 61 is moved downward. The knocker bar 41 is thus carried rapidly downward and pushes the cross strip 40 therebeneath downward, assembling it with the group of strips 29. As the knocker bar is completing its down stroke, a cam finger 114 attached thereto, opens a poppet valve 115 connected in an air pressure line 117 leading from the pressure pipe 78 to the right-hand end of the valve 79. The opening of the valve 115 causes the valve piston 84 to be shifted to the left, and thus reverses the connections for the piston motor so that the piston is moved upward and lifts the plate 41. It should be noted that at this time the piston 95 of the valve 83 is in its lifted position, so that pressure through the pipe 111 is cut off.

As each succeeding slot 41' of the partition strip reaches the port 100, the latter is opened so that the cycle of operations of the motor 25 is repeated. In this manner the cross strips are assembled in rapid succession. The strips 29 move forward without interruption during the assembling operations. In this connection it should be noted that the assembling strokes of the knocker bar 41 are very rapid, whereas the forward movement of the strips 29 is comparatively slow. Also the cross strips are preferably moved downward about half way or until their lower edges are nearly at a level with the bottoms 41a of the slots 41' before the latter are brought directly into alignment with the cross strips. The plate 101 (Fig. 4) carrying the valve heads 93, 99 may be adjusted horizontally to obtain the desired timing of such operation. During the final downward movement of the cross strip, it may be slightly bent or sprung out of vertical line by the forward movement of the longitudinal strips, but immediately springs into position again as it clears the guide plate 65 and reaches its fully assembled position.

Fig. 11 illustrates a modified form of valve control mechanism for the piston motor 25. As shown, the motor control valve 120 comprises a valve piston 121 formed with a bore 122 extending lengthwise therethrough, and also communicating at an intermedaite point with the valve chamber 123 which is open to a pressure pipe 124. One end of the valve chamber is open to a pipe 125 leading to a tappet valve 126 which is self-closing and which is opened to vent the pipe 125, by a tappet 127 carried on the knocker plate 41. Pipe lines 128 and 129 lead respectively from the heads 93 and 99 to the valve chamber of a spool valve 130.

The operation of the modified construction shown in Fig. 11 is as follows:

With the parts in the position shown, air pressure is admitted through the motor valve 120 to the upper end of the motor cylinder so that the piston moves downward and operates the knocker plate 41 for assembling a cross strip. During the final portion of this movement, the tappet 127 opens the relief valve 126, thereby relieving the pressure at the left-hand end of the valve piston 121 so that the latter is moved to the left by the air pressure admitted through the bore 122 to the right-hand end of the valve chamber. The motor is thus reversed and the piston 61 lifted.

When a slot 41' in the advancing partition strip 29 opens the port in the valve head 99, the line 129 is opened, thereby relieving the air pressure at the right-hand end of the valve piston 121 so that the latter is again shifted to the right by pressure supplied through the bore 122. This completes the cycle, leaving the parts in the position shown so that the operation is repeated. When the strip 29 passes beyond the heads 93, 99, the line 128 is opened and relieves the pressure beneath the valve 130 so that the latter is lowered by its spring and cuts off communication between the line 129 and the valve chamber in the motor control valve. This takes the valves out of the control of the head 99 so that further operation of the motor is prevented until the next strip 29 closes the port in the head 93.

Modifications of the apparatus herein disclosed may be resorted to within the spirit and scope of our invention.

We claim:

1. Apparatus for assembling partition strips comprising means for supporting longitudinal strips on edge, means for supporting a group of cross strips, means for effecting a relative movement of the longitudinal strips and the group of cross strips in a direction lengthwise of said longitudinal strips, means for assembling cross strips from said group singly and in succession with the longitudinal strips during said relative movement, and pneumatic means controlled by said longitudinal strips for controlling said assembling operations.

2. Apparatus for assembling partition strips

comprising means for supporting longitudinal strips on edge, means for supporting a group of cross strips, means for effecting a relative movement of the longitudinal strips and the group of cross strips in a direction lengthwise of said longitudinal strips, a motor, means actuated thereby for assembling the cross strips singly and in succession with the longitudinal strips during said movement, and pneumatic means controlled by said longitudinal strips for causing said motor to operate.

3. Apparatus for assembling partition strips including longitudinal strips and cross strips, said longitudinal strips having slots at intervals along their length for receiving the cross strips, a motor, means operated thereby for assembling the cross strips singly and in succession with the longitudinal strips, air valves controlling the operation of the motor, air lines extending from said valves and having ports therein in position to be closed by a said longitudinal strip during the assembling operation, one of said ports being arranged to be opened by said slots in succession, means for supplying pressure to said air lines, and means controlled by the pressure in said lines for operating said valves and thereby controlling the operation of the motor.

4. Apparatus for assembling partition strips including longitudinal strips and cross strips, said longitudinal strips having slots at intervals along their length for receiving the cross strips, a motor, means operated thereby for assembling the cross strips singly and in succession with the longitudinal strips, an air pressure line having a port therein positioned and arranged to be closed by a said longitudinal strip and to be opened intermittently by the slots in said strip during the assembling operations, and means controlled by the pressure in said line for effecting intermittent, periodic operation of the motor.

5. Apparatus for assembling partition strips comprising means for advancing longitudinal strips through an assembly zone, means for supporting a supply of cross strips at said zone, a motor, means actuated thereby for assembling the cross strips in succession with the longitudinal strips, the latter having slots for receiving the cross strips, a contact head positioned and arranged to have sliding contact with a longitudinal strip during the assembling operations, an air pressure line extending to said contact head, said head having a port opening to said line and arranged to be closed by the strip during said sliding contact and to be opened intermittently by said slots, means for supplying air under pressure to said line and causing pressure to be built up in said line when said port is closed, and a valve controlled by the pressure in said air line and controlling the operation of said motor.

6. Apparatus for assembling partition strips comprising means for advancing longitudinal strips through an assembly zone, means for supporting a supply of cross strips at said zone, a motor, means actuated thereby for assembling the cross strips in succession with the longitudinal strips, the latter having slots for receiving the cross strips, a motor control valve controlling the operations of the motor, means providing an air pressure line leading to the motor control valve, an auxiliary valve in said line controlling the operation of the motor control valve, a contact head arranged to have sliding contact with one of said strips during the assembling operation, and an air pressure line extending from said auxiliary valve to said head, the latter having a port in said line arranged to be closed by the strip during said sliding contact and to be opened intermittently by the slots in said strip, said auxiliary valve being under the control of the pressure in said last mentioned air line.

7. Apparatus for assembling partition strips comprising means for advancing longitudinal strips through an assembly zone, means for supporting a supply of cross strips at said zone, a motor, means actuated thereby for assembling the cross strips in succession with the longitudinal strips, the latter having slots for receiving the cross strips, a motor control valve controlling the operations of the motor, means providing an air pressure line leading to the motor control valve, an auxiliary valve in said line controlling the operation of the motor control valve, a contact head arranged to have sliding contact with one of said strips during the assembling operation, an air pressure line extending from said auxiliary valve to said head, the latter having a port in said line arranged to be closed by the strip during said sliding contact and to be opened intermittently by the slots in said strip, said auxiliary valve being under the control of the pressure in said last mentioned air line, a second auxiliary valve, means providing a pressure line extending through said auxiliary valves, a second contact head positioned and arranged to have sliding contact with said strip, an air pressure line extending from said second auxiliary valve to said second head and having a port in said second head arranged to be held closed by said strip, and means for closing said second auxiliary valve while the port in said second head is open, said auxiliary valve being operable by air pressure built up by the closing of said last mentioned line for opening the valve.

8. Apparatus for assembling partition strips comprising a piston motor, means operable thereby for assembling strips from one group of strips in succession with another group of strips, a motor valve, air lines extending from the valve to the opposite ends of the motor cylinder, means for supplying air under pressure to said valve, means operated by the assembling mechanism to actuate said valve, and means controlled by a partition strip to reverse said valve.

9. Apparatus for assembling partition strips comprising means for advancing longitudinal strips through an assembly zone, means for supporting a group of cross strips at said zone, a piston motor, an assembly device connected to the motor piston and actuated thereby to assemble the cross strips singly and in succession with the longitudinal strips, a reversible control valve controlling the operation of the motor, an auxiliary valve controlled by a said strip during the assembly operation for effecting intermittent operation of the control valve in one direction, and means actuated by the motor periodically in alternation with the operation of said auxiliary valve for reversing the motor control valve.

10. Apparatus for assembling partition strips comprising a piston motor, an assembling device connected to the motor piston and operable by reciprocation of the piston to assemble strips of one group in succession with a second group of strips, a motor control valve including a valve piston, an air pressure line extending to said valve, air lines connecting the valve to opposite ends of the motor cylinder, said valve piston being shiftable for reversing the motor, an auxiliary valve controlling the operation of said valve pis-

ton in one direction, means controlled by a partition strip to effect a periodic operation of said auxiliary valve, a third valve controlling the operation of said piston motor in the opposite direction, and means actuated by the motor piston for actuating said third valve periodically in alternation with said periodic operation of said auxiliary valve.

11. Apparatus for assembling partition strips comprising a piston motor, an assembling device connected to the motor piston and operable by reciprocation of the piston to assemble strips of one group in succession with a second group of strips, a motor control valve including a valve piston, an air pressure line extending to said valve, air lines connecting the valve to opposite ends of the motor cylinder, said valve piston being shiftable for reversing the motor, an auxiliary valve controlling the operation of said valve piston in one direction, a contact head positioned and arranged to have sliding contact with a partition strip during the assembling operations, a pressure line extending from the auxiliary valve to said head and periodically opened and closed by the said partition strip, said auxiliary valve being operable by pressure in said last mentioned line, and a valve actuated by the piston motor periodically in alternation with said auxiliary valve and operable to reverse the said valve piston of the motor control valve.

12. Partition assembling apparatus comprising, in combination, means for advancing partition strips lengthwise through an assembling zone, means for supporting the strips in upright position as they advance, a piston motor mounted above the path of said strips, said motor comprising a vertically reciprocating piston and piston rod, a pusher connected to said rod, means for supporting cross strips above said first mentioned strips and feeding them in succession into the path of said pusher, the latter being operable to push said cross strips downward and thereby assemble them with the strips therebeneath, a motor control valve controlling the operation of the piston motor, a second valve controlling the operation of said motor control valve, and means actuated by the motor for operating said second valve.

13. Partition assembling apparatus comprising, in combination, means for advancing partition strips lengthwise through an assembling zone, means for supporting the strips in upright position as they advance, a piston motor mounted above the path of said strips, said motor comprising a vertically reciprocating piston and piston rod, a pusher connected to said rod, means for supporting cross strips above said first mentioned strips and feeding them in succession into the path of said pusher, the latter being operable to push said cross strips downward and thereby assemble them with the strips therebeneath, a motor control valve controlling the operation of the piston motor, a poppet valve, a cam connected to reciprocate with the motor piston and operable as the piston completes its downward stroke to operate said poppet valve, means for supplying air pressure through said poppet valve to the motor control valve for reversing the latter and thereby causing the motor piston to be lifted when the poppet valve is actuated, an auxiliary valve, and an air pressure line extending from the auxiliary valve to the path of a said partition strip and arranged to be closed by said strip and opened by slots in the strip, said auxiliary valve being operable by air pressure in said line and operated in alternation with said poppet valve for reversing the motor control valve.

14. Apparatus for assembling partition strips comprising means for advancing a longitudinal partition strip, a motor, assembly mechanism actuated thereby for assembling cross strips with said longitudinal strip, a contact head having a port therein, means for holding the said longitudinal strip against said head and closing said port as the strip advances, an air line extending from said port, and means controlled by pressure variations in said line for controlling the operation of said motor.

15. Apparatus for assembling partition strips comprising a traveling conveyor, means for supporting a longitudinal strip in upright position on the conveyor and causing it to travel with the conveyor, a motor, mechanism actuated by the motor for assembling cross strips with said longitudinal strip, a contact head having a port therein, means for holding said head in position for the port to be closed by said longitudinal strip as it advances with the conveyor, valve mechanism controlling the operation of the motor, means providing an air line extending from said port to said valve mechanism, and means for supplying air pressure to said line and causing said pressure to fluctuate with the opening and closing of said port, said valve mechanism being controlled and operated by said fluctuating pressure for effecting a periodical operation of the motor.

16. Apparatus for assembling partition strips comprising a horizontal traveling conveyor, a guide bar positioned over the conveyor and extending lengthwise thereof, said guide bar having a longitudinal slot and forming a support for partition strips placed in said slot and carried on the conveyor, and spring means for holding the strip against one wall of said slot as a strip advances with the conveyor.

17. Apparatus for assembling partition strips comprising a horizontal traveling conveyor, a guide bar positioned over the conveyor and extending lengthwise thereof, said guide bar having a longitudinal slot and forming a support for partition strips placed in said slot and carried on the conveyor, a contact head having an opening extending therethrough, said head having a stationary mounting in position to bear against a partition strip as the latter advances with the conveyor and thereby close said opening, an air line extending from said opening, means for supplying air pressure to said line, and means controlled by said pressure for assembling cross strips with said longitudinal strip.

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