

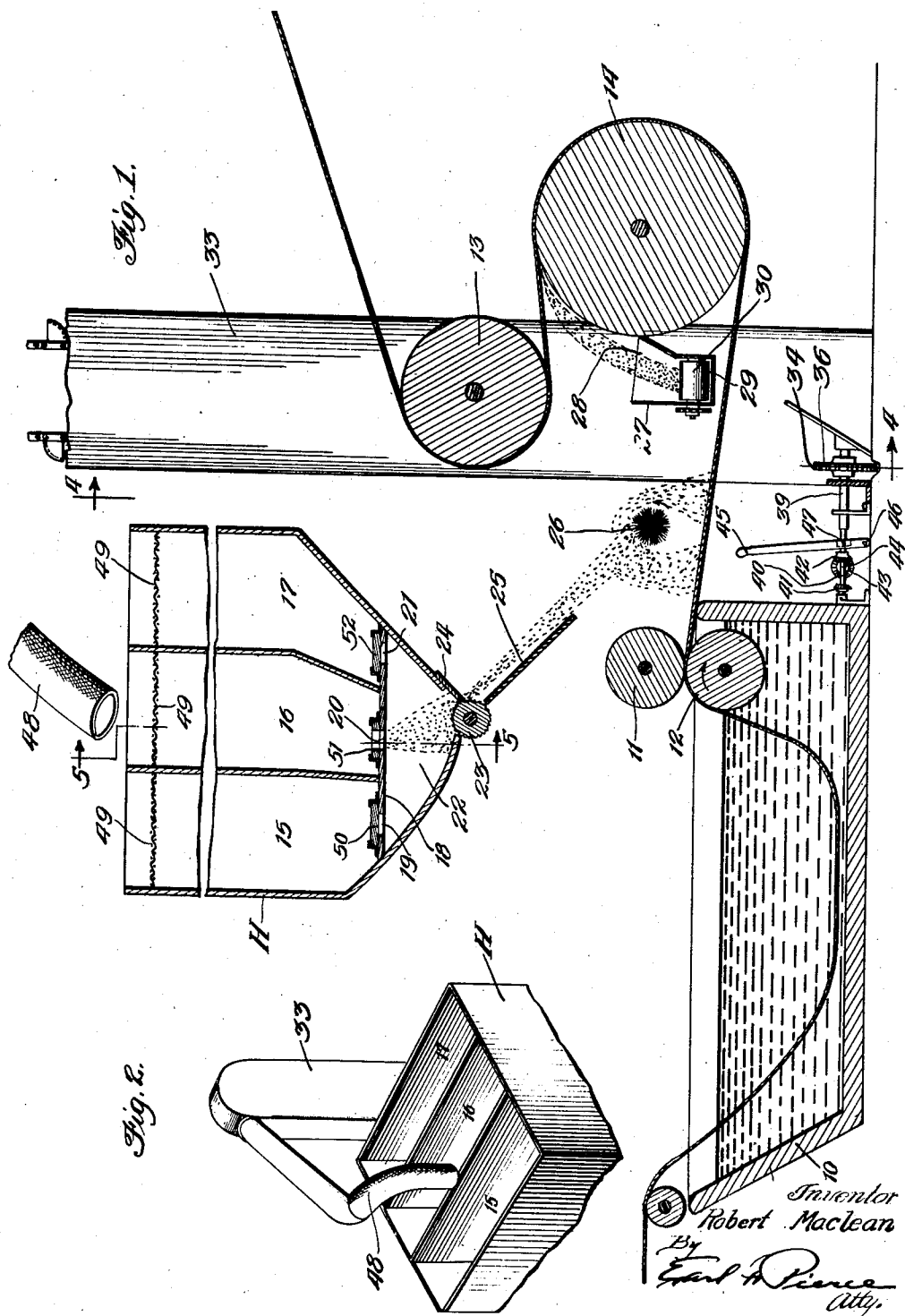
March 2, 1926.

1,574,835

R. MACLEAN
MEANS FOR COATING ROOFING AND OTHER SIMILAR
MATERIALS FOR COVERING BUILDING SURFACES

Filed August 23, 1924

3 Sheets-Sheet 1



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Fig. 4.

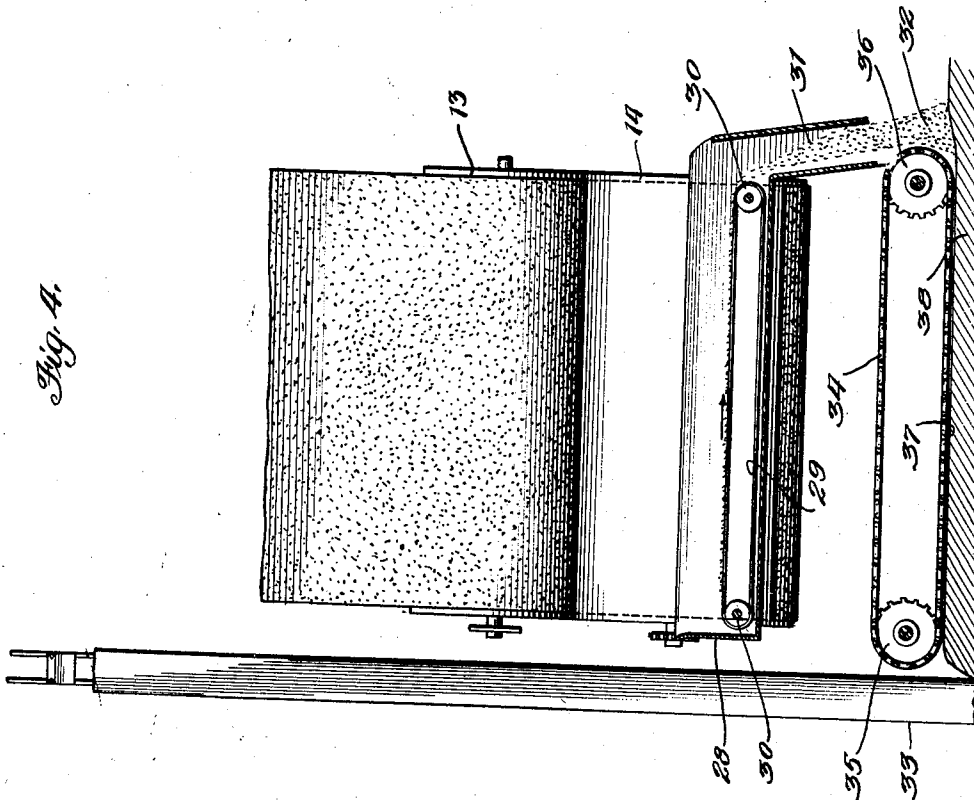
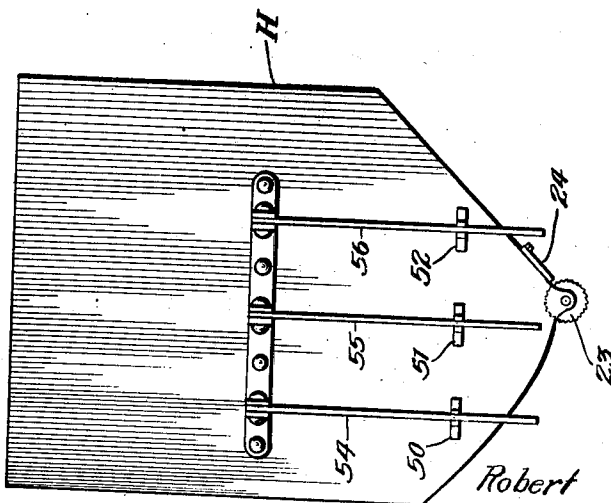


Fig. 3.



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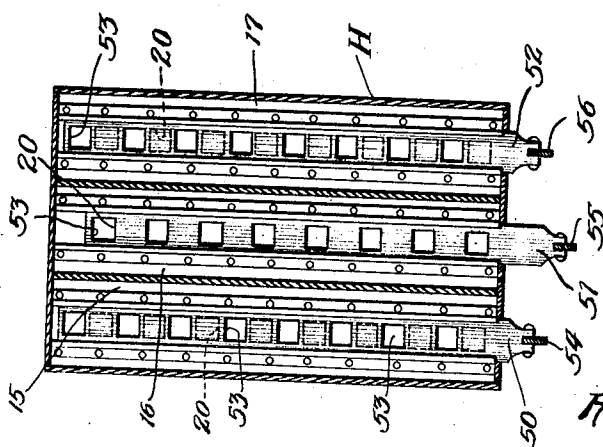
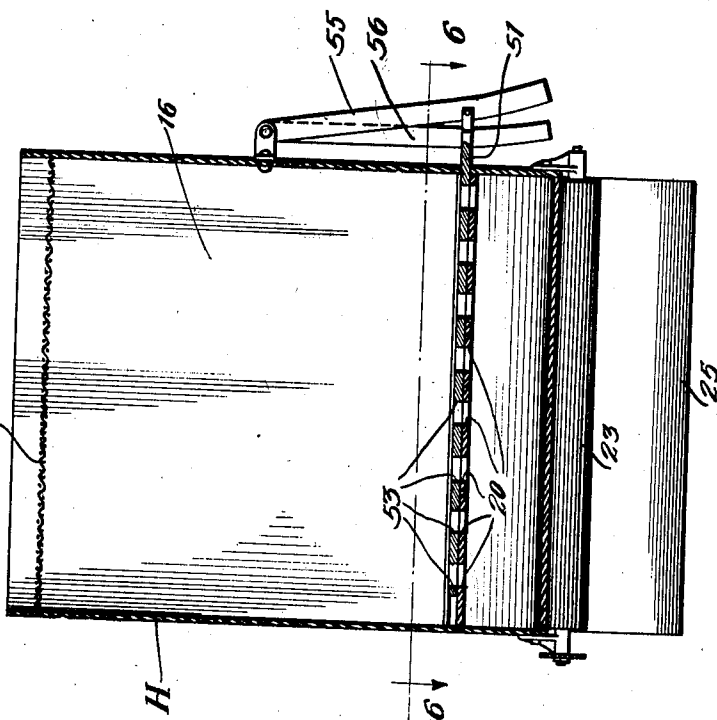
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Robert Maclean

By Earl to Pierce
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Patented Mar. 2, 1926.

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UNITED STATES PATENT OFFICE.

ROBERT MACLEAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO AMALGAMATED ROOFING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

MEANS FOR COATING ROOFING AND OTHER SIMILAR MATERIALS FOR COVERING BUILDING SURFACES.

Application filed August 23, 1924. Serial No. 733,773.

To all whom it may concern:

Be it known that I, ROBERT MACLEAN, a citizen of the United States, and resident of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Means for Coating Roofing and Other Similar Materials for Covering Building Surfaces, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to improvements in means for coating roofing and other similar materials for covering building surfaces, and is particularly concerned with the provision of a novel type of mechanism for applying comminuted or granulated materials to the felt paper strips forming the base of such roofing materials.

The principal object of my invention is to provide a coating mechanism, of the character described, whereby the manufacturer of roofing materials having comminuted or granulated materials may easily and quickly change from one kind or color of granulated or comminuted material to another kind or color.

The above object of my invention is of very great importance, for the reason that heretofore so much time has been required to change the mechanism so as to apply a coating of one kind or color to another kind or color that it has been practically prohibitive for a manufacturer to change over during the course of a day's output. Heretofore such changes have been made at night, after the day's run has been completed. With my improved mechanism it is capable to change over in the course of one or two minutes and practically without loss of the finished product.

Another object of my invention is to provide an apparatus that will permit the manufacturer to fill orders for any desired number of different kinds of roofing without material loss of time or product. As stated above, the time heretofore required for changing over from one color or kind of coating material to another was so great that such changes were made only after a day's run had been completed. This meant that when a manufacturer received an order for quantities of several different kinds of roof-

ing materials, it would require at least as many days to fill that order as the number of different kinds of roofing material called for by the order. With my improved mechanism or apparatus it is possible to change from one kind of roofing material to another as each portion of the order is filled, and in this manner the filling of the order is greatly expedited, and furthermore, it makes it unnecessary for the manufacturer to accumulate surplus quantities of materials that he may not subsequently have a ready market for. It also makes it possible to fill orders without carrying a large stock of the various kinds of roofing material.

A further object of my invention is to provide an apparatus of the character described that is simple in construction and economical to manufacture.

Other objects of my invention will appear as this description progresses, reference being had to the accompanying drawings, in which

Figure 1 is a longitudinal section of a portion of the machine for coating roofing materials, illustrating certain features of my invention;

Figure 2 is a perspective view of the upper portion of the conveyor system shown in Figure 1;

Figure 3 is an end elevation of the hopper for holding the granulated or comminuted coating materials;

Figure 4 is a transverse section, taken on the line 4—4 of Figure 1;

Figure 5 is a transverse section, taken on the line 5—5 of Figure 1; and

Figure 6 is a horizontal section, taken on line 6—6 of Figures 1 and 5.

Throughout the several views similar reference characters are used for referring to similar parts and the several sections are taken looking in the directions of the small arrows.

The conventional machine for preparing roofing materials of the character referred to herein, comprises an impregnating vat for holding a more or less heavy impregnating fluid and a second vat for holding a more viscous coating fluid. The felt paper strip passes through the first vat where it is thoroughly impregnated with the moisture repellent material and then through the second vat where it acquires a coating of the

more viscous material. From this vat it passes beneath a hopper from which the granulated or comminuted materials, such as slate and baked earthly materials, are deposited upon it, and then passes over two rollers arranged in such manner as to permit the discharge of the excess comminuted or granulated materials. The finished product then passes over a plurality of cooling rollers and from the cooling rollers to the roll-forming machine.

In the accompanying drawings, I have illustrated merely the second vat 10, in which the felt paper strip receives the coating of more viscous material and then passes through the pressing rolls 11 and 12 where the excess coating material is removed. From these rolls the paper strip passes around the two rolls 13 and 14 in such manner as to permit the excess granulated or comminuted coating material to drop from the coated surface of the paper strip. The strip then passes to the cooling rolls and the roll-forming machine, as described above.

For supplying various kinds or colors of comminuted or granulated coating materials to the paper strip as it passes between the rolls 11, 12 and 14, I provide a hopper H comprising a plurality of compartments 15, 16 and 17. These compartments have a common bottom plate 18, having a row of discharge openings 19, 20 and 21 for each of the compartments 15, 16 and 17, respectively. These openings discharge into an equalizing chamber 22 at the bottom of the hopper.

A corrugated feed roller 23 extends across the bottom of the equalizing chamber 22 and partially fills the discharge opening formed in the bottom of this chamber. A slidable gate 24 is used in conjunction with the feed roller 23 to control the quantity of material fed to the coated paper strip. The material discharged between the roller 23 and the gate 24 drops upon the apron 25 and is directed by the latter upon the rotating brush 26. This brush tends to distribute the coating materials evenly upon the coated surface of the felt paper strip so as to produce a uniform product.

In order to insure thorough coating of the paper strip, an excess quantity of coating material is fed to the coated paper strip and that portion of this material that does not adhere to the strip is discharged into the conveyor trough 27, as shown at 28. A conveyor belt 29, of any suitable construction, is mounted upon the two rollers 30 and conveys the excess material to the chute 31 at the front side of the machine where it drops to a position such as shown at 32 to enable the operator to determine the quantity of excess material being used, and thus be able properly to regulate the quantity of material

being delivered to the paper strip. The excess material that accumulates at the point 32 is conveyed from this point to the bottom of the vertical conveyor 33 by means of a suitable drag conveyor 34, mounted upon the sprockets 35 and 36 and operating in a trough 37 formed in the floor 38. The sprocket 36 is mounted upon a hollow shaft 39 into which telescopes the shaft 40, rigidly supporting the beveled gears 41 and 42. These gears may be alternately shifted into or out of engagement with the driving pinion 43 carried by any suitable drive shaft 44. For this purpose I provide the handle 45 that is pivoted at the point 46 and connected with the shaft 40 by means of the collar 47. The means just described provide a convenient means for reversing the direction of rotation of the conveyor 34. The purpose of this construction will be referred to later on.

The granulated or comminuted coating materials are supplied to the compartments 15, 16 and 17 of the hopper by means of the vertical conveyor 33. The upper end of this conveyor is, as shown in Figure 2, provided with a flexible spout 48 that can be positioned to discharge in any one of the compartments. I prefer to place screens 49 at the top of each compartment to remove granulated particles of coating material that are too large to be used for coating the paper strip.

For controlling the discharge of coating materials from the several compartments into the equalizing chamber 22 I make use of gates 50, 51 and 52. These gates each have a series or row of openings 53 that can be brought into registry with the corresponding series of openings 19, 20 or 21, as the case may be. Levers 54, 55 and 56, pivotally mounted upon the side of the hopper H, provide means for manipulating the gates 50, 51 and 52, respectively.

In order to describe the operation of my improved coating machine, it will be assumed that it is being operated to coat the paper strip with granulated or comminuted material from the compartment 16 and that it is desired to change to the material in the compartment 15. The first operation is to close the openings 20 by pushing inwardly upon the handle 55. The operator then permits the machine to continue in operation until all of the material has been discharged from the equalizing chamber 22. The various rollers are then stopped and the operator shifts the lever 45 so as to reverse the direction of the conveyor 34. This completely clears the trough 37 of any coating material that might be therein and piles it up at the point 32, from which it is removed by the operator who uses a shovel, or any suitable implement for this purpose. In this manner the entire machine is cleared of the

coating material previously supplied from the compartment 16. The operator thereupon opens the gate 50 to permit the coating material to flow from the compartment 15 into the equalizing chamber 22 and again starts the rolls of the machine to cause the paper strip to be fed beneath the distributing brush 26. He then returns the lever 45 to the position shown in Figure 1 so that the excess material will be carried to the bottom of the conveyor 33 and returned by the latter to the compartment 15 to which the flexible discharge spout 48 has been shifted.

The equalizing chamber 22, described above, not only performs the function of conveying the materials from each of the compartments 15, 16 and 17 to the apron 25, but also insures a substantially uniform discharge of material between the roller 23 and the gate 24 that might not be obtained if the material were discharged directly from the compartments 15, 16 and 17 upon the apron 25. With the above described apparatus, it is possible, easily and quickly, to change from one kind or color of surfacing or coating material to another kind or color without substantial interruption in the manufacturing processes and with very little or practically no loss of time or material.

While I have described the details of construction of the preferred embodiment of my invention, it is to be clearly understood that my invention is not limited to these details, but is capable of other adaptations and modifications within the scope of the appended claims.

Having thus described my invention, what I claim is:

1. A machine for coating roofing with surfacing materials comprising means for drawing a paper strip through said machine, a hopper comprising a plurality of different compartments for holding surfacing materials of different colors, and an equalizing chamber located beneath and communicating with said compartments, said equalizing chamber being provided with a controllable outlet for discharging the surfacing materials upon said strip, means for controlling the passage of surfacing materials from said compartments to said equalizing chamber, a conveyor having an adjustable discharge for supplying surfacing material to any one of said compartments, a second conveyor for receiving the excess surfacing materials fed to said strip, said second conveyor discharging into said first named conveyor, and means for reversing the direction of movement of said second conveyor.

2. A machine for coating roofing with surfacing materials comprising means for drawing a paper strip through said machine, a hopper comprising a plurality of different compartments for holding surfacing mate-

rials of different colors, and an equalizing chamber located beneath and communicating with said compartments, said equalizing chamber being provided with a controllable outlet for discharging the surfacing materials upon said strip, means for controlling the passage of surfacing materials from any one of said compartments to said equalizing chamber, a conveyor for supplying surfacing material to any one of said compartments, a second conveyor for receiving the excess surfacing materials fed to said strip, said second conveyor discharging into said first named conveyor.

3. A machine for coating roofing with surfacing materials comprising means for drawing a paper strip through said machine, a hopper comprising a plurality of different compartments for holding surfacing materials of different colors, and an equalizing chamber located beneath and communicating with said compartments, said equalizing chamber being provided with a controllable outlet for discharging the surfacing materials upon said strip, means for controlling the passage of surfacing materials from any one of said compartments to said equalizing chamber, and a conveyor for supplying surfacing material to any one of said compartments.

4. A machine for coating roofing with surfacing materials comprising means for drawing a paper strip through said machine, a hopper comprising a plurality of different compartments for holding surfacing materials of different colors, and an equalizing chamber located beneath and communicating with said compartments, said equalizing chamber being provided with a controllable outlet for discharging the surfacing materials upon said strip, and means for controlling the passage of surfacing materials from any one of said compartments to said equalizing chamber.

5. A machine for coating roofing with surfacing materials comprising means for coating a strip of roofing with a surfacing fluid, a plurality of compartments for supplying surfacing materials to said strip, and an equalizing chamber between said compartments and said strip.

6. A machine for coating roofing with surfacing materials comprising an equalizing chamber having a discharge outlet, means for passing a strip of roofing beneath said outlet, means for supplying different colored surfacing materials to said equalizing chamber, and means for returning excess materials to said last named means comprising a reversible conveyor.

7. A machine for coating roofing with surfacing materials comprising an equalizing chamber having a discharge outlet, means for passing a strip of roofing beneath said outlet, means for supplying different

colored surfacing materials to said equalizing chamber, and means for returning excess materials to said last named means.

8. A machine for coating a strip of roofing material with granular materials, comprising means for advancing the strip through the machine, a plurality of compartments for holding surfacing materials of different character, an equalizing chamber for receiving granular materials from said compartments, valve means for controlling the flow of materials from said compartments to said equalizing chamber, means for regulating the discharge of material from said equalizing chamber onto said strip, means for collecting excess material thrown from said strip, and means for conveying said excess material back to the compartment from which it came.

9. A machine for coating a strip of roofing material with granular materials, comprising means for advancing the strip through the machine, compartments for separately

holding a plurality of different kinds of granular materials, means for separately receiving and discharging the materials from said compartments upon said strip, and means for receiving excess material thrown from said strip and conveying it back to the compartment from which it was discharged.

10. A machine for coating a strip of roofing material with granular materials, comprising means for advancing the strip through the machine, a plurality of compartments for holding granular materials of different character, means for receiving granular materials from said compartments and distributing said materials on said strip, and other means for cutting off the supply of granular material from one compartment to said distributing means and for establishing communication between another compartment and said distributing means.

In witness whereof, I hereunto subscribe my name this 21st day of August, 1924.

ROBERT MACLEAN.