April 23, 1940. S. S. ROBINSON 2,197,879

PAPER LAYING MACHINE

Filed July 24, 1937 2 Sheets-Sheet 1

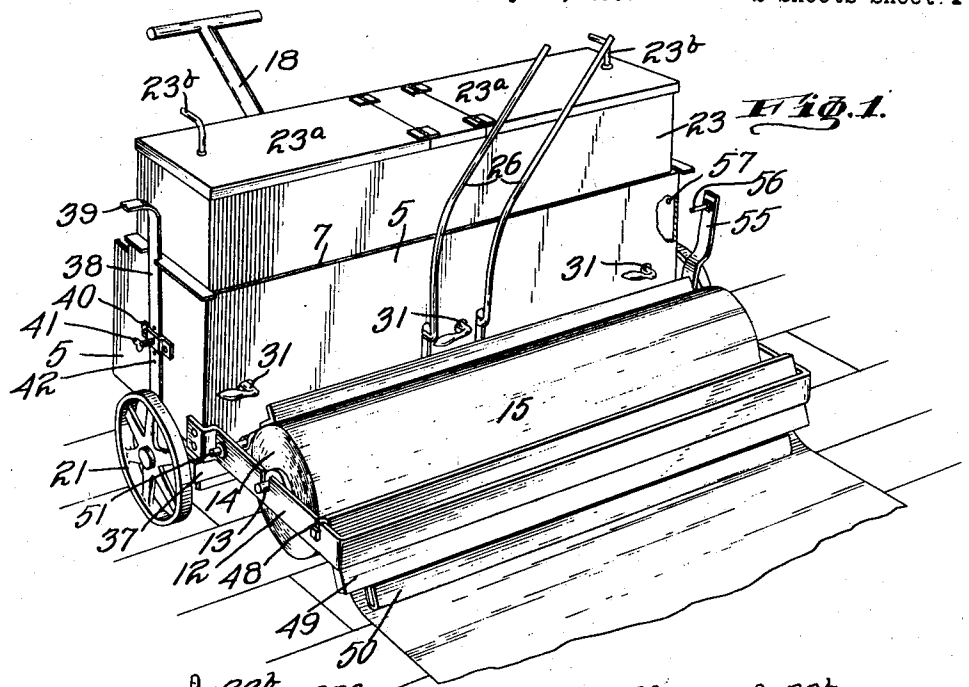


Fig. 1.

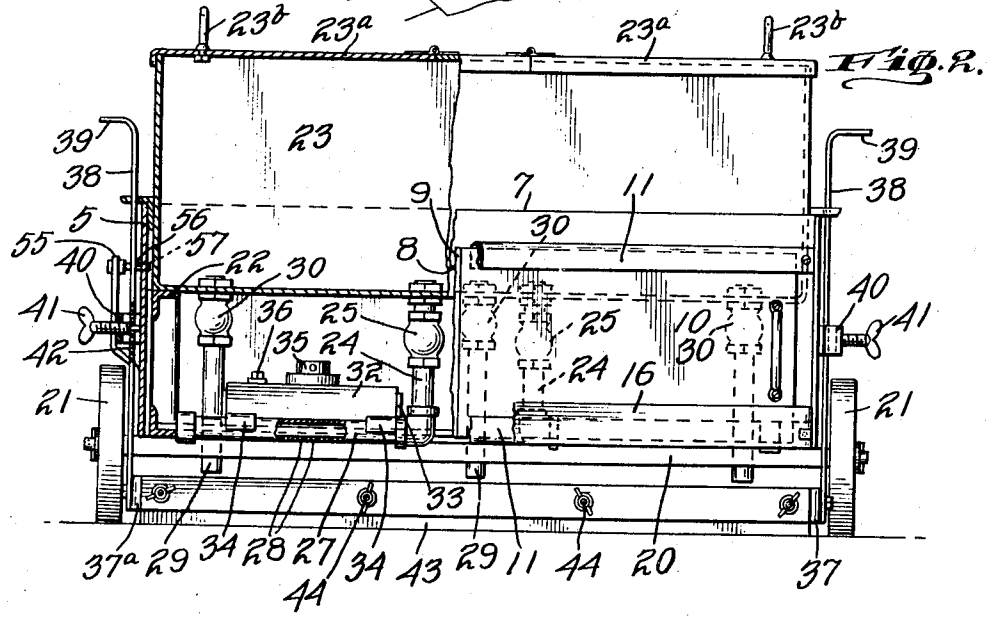


Fig. 2.

INVENTOR
SAMUEL S. ROBINSON
BY
ATTORNEY

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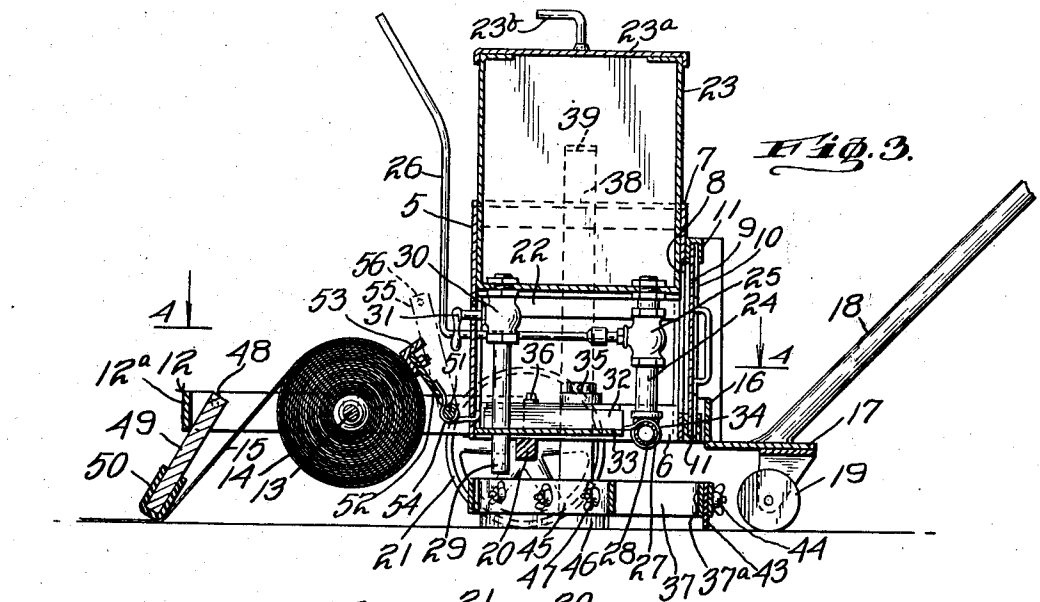


Fig. 3.

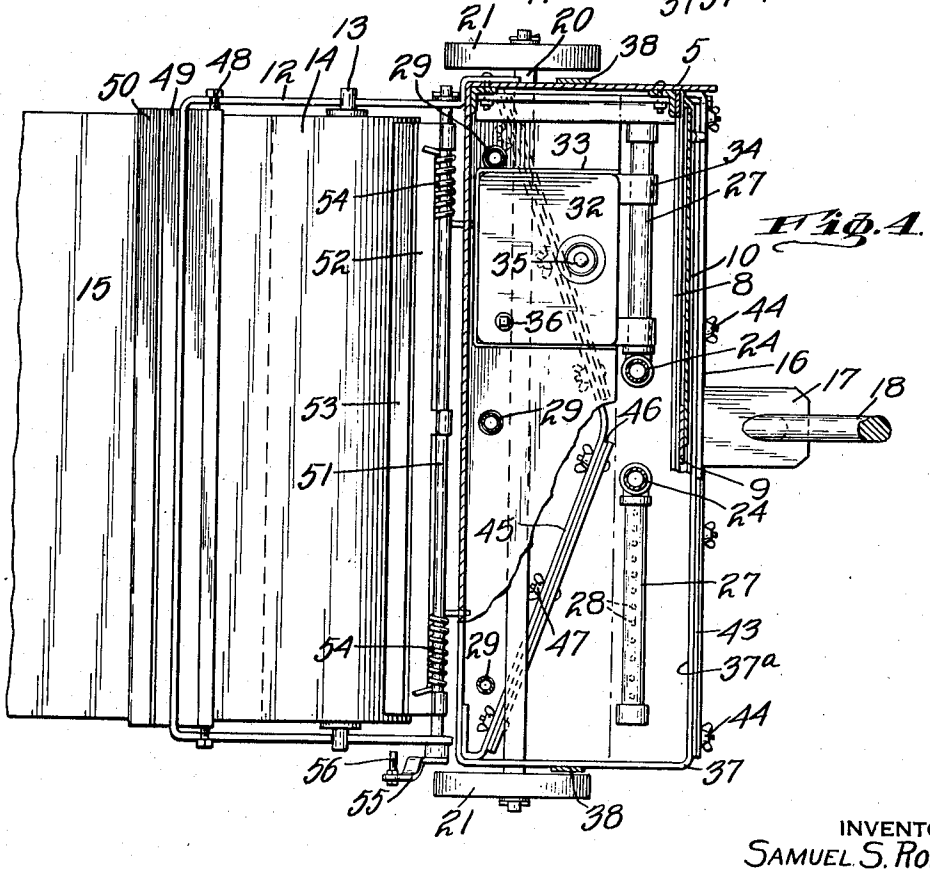


Fig. 4.

INVENTOR
SAMUEL S. ROBINSON
BY
ATTORNEY

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2,197,879

PAPER LAYING MACHINE

Samuel S. Robinson, Passaic, N. J.

Application July 24, 1937, Serial No. 155,430

7 Claims. (Cl. 91—30)

This invention relates to machines for laying tar or composition paper or other similar covering material upon roofs, floors, or other surfaces, and the object of the invention is to provide a frame with means for supporting and guiding the frame over a suitable support, means for supporting a roll of covering material in said frame above the surface over which the frame passes, and further to the provision of means for guiding and ironing or smoothing the material as it is applied to the supporting surface; a further object being to provide means for removably supporting a tank or container in the frame, and in the provision of two groups of discharges from which tar, pitch, or other material may be discharged from said container onto a surface in advance of applying the sheet or strip material thereto; a further object being to provide means for retaining the pitch or other material within predetermined boundaries and for distributing said material over the surface to be covered to securely attach the covering material to said surface; a still further object being to provide means for heating the container to maintain the coating material at the desired temperature; and with these and other objects in view the invention consists in a machine of the class and for the purpose specified which is simple in construction, efficient in use, and which is constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:

Fig. 1 is a perspective view of a machine made according to my invention indicating the method of its use.

Fig. 2 is a front and sectional view of the machine with parts of the construction omitted.

Fig. 3 is a longitudinal sectional view substantially through the central portion of the machine, and

Fig. 4 is a section on the line 4—4 of Fig. 3.

In practice, I provide a frame consisting of an oblong rectangular casing portion 5 which is open at the top and closed at the bottom except for a longitudinal opening 6 adjacent the front wall 7 of said casing, said wall having a front opening 8 controlled by two sliding doors 9 and 10 operating in guide channels 11 at the upper and lower portions of said opening. Attached to the casing 5 is a rearwardly extending yoke-shaped frame 12 having sliders 13 therein for receiving a supporting roller 14 for a roll of suitable strip sheeting or covering material 15 such as tar paper.

At the forward portion of the casing 5 is a front plate 16 carrying centrally thereof a forwardly directed part 17 with which a suitable handle member 18 is attached for drawing the machine over a surface to be covered. The casting 17 has a guide roller or caster 19 on the lower surface thereof. Arranged at the bottom of the casing 5 is a transverse shaft 20 which projects beyond the sides of the casing, and wheels 21 are rotatable on the ends of said shaft to form the other guides for the machine.

Arranged within the side walls of the casing 5 are angle-iron cleats 22 upon which an oblong or rectangular tank or container 23 is adapted to rest in supporting the same within the upper end of the casing 5. The tank 23 has attached to the bottom wall thereof adjacent the forward wall of the tank, two depending pipes 24 arranged at the central portion thereof. In these pipes are valves 25 having L-shaped operating levers 26 extending through the back of the casing 5 as seen in Figs. 1 and 3 of the drawings. These levers may be operated to control the discharge of the pitch or other compound from the tank into horizontal extensions 27 of the pipes 24 which register with the opening 6 in the casing 5. The extensions 27 have longitudinally spaced discharge openings 28, note Fig. 2, to distribute the compound over the transverse area of a surface over which the machine passes as will be apparent.

Adjacent the rear wall of the tank 23 are three depending pipes 29 having valves 30 controlled by operating handles 31 projecting through the rear wall of the casing, as clearly seen in Figs. 1 and 3 of the drawings. This construction provides means for discharging strips or ribbon-like deposits of the compound upon a surface whenever it is desired so to do. These discharges may be used separately or in conjunction with the discharges through the pipes 27 as will be apparent. When used separately the ribbon-like deposits will provide localized application of the compound which will suffice in many applications of sheet material to a predetermined surface. It will be understood that one, two, or all of these discharges may be in operation at one time.

Arranged within each side of the casing 5 are burner tanks 32 which seat within U-shaped frame parts 33, as seen in Fig. 4, the tanks having at the forward ends thereof, hook-shaped mem-

bers 34 which are adapted to rest upon the horizontal extensions 27. The tanks 32 are provided with burner heads 35 and with filling plugs 36. These tanks operate in the manner of torch burners using kerosene or similar fuel, and provide sufficient heat for maintaining a hot compound placed in the container 23 at the desired temperature. However, when heated compounds are not used, these burners or heaters will not be employed or put into operation. It will be understood that access to the burners 35 is controlled through the opening 8 and the sliding doors 9 and 10 controlling said opening, it being understood that the tanks 32 are readily insertable and removable through said opening.

A rectangular frame 37 is adjustably supported below the casing 5 by rods 38 extending outwardly at each side of the casing, the upper ends of the rods having hand-grip portions 39. These rods also pass through strips 40 in which are arranged screws or pins 41 adapted to engage one of a number of apertures 42 in adjusting the height of the frame 37 with respect to the surface over which the machine passes, and particularly to regulate the contact of a rubber strip 43 with said surface, the strip 43 being detachably supported on the front member 37a of the frame 37 by means of fasteners 44.

A supplemental V-shaped frame 45 is supported within the frame 37 in the manner clearly illustrated in Fig. 4 of the drawings, and this supplemental frame is also provided with depending rubber strips 46 secured thereto by fastenings 47. The supplemental frame 45 forms a spreader to spread and evenly distribute the coating compound upon the surface over which the machine passes, whereas the frame 37 or the flexible strip 43 thereof serves to retain the compound upon the surface rearwardly of the roller 19 and to prevent undesirable flow of said compound as will be apparent.

The top of the container 23 has two hinge covers 23a by means of which a compound may be placed into either end or side portion of the container as will be apparent. The covers have suitable handle members 23b by means of which said cover may be raised.

At the rear end of the side portion of the frame 12 are notches 48 in which a freely swinging smoothing or ironing bar 49 is adapted to be hung in such manner as to extend in a rearwardly inclined position, the inclination being limited by engagement with the cross head 12a of the frame, in the manner clearly seen in Fig. 3 of the drawings.

Arranged upon the lower edge of the bar is a soft or cushioned facing 50 which will prevent destruction to the paper or other sheeting 15 in its passage beneath the bar in the application of laying and smoothing the same upon the surface and compressing it onto the coating material applied to the surface in the operation of the machine.

Mounted in the frame 12 adjacent the casing 5, is a transverse rod 51 upon which is free to swing a transverse tension strip 52 having a reinforced angle-iron edge 53 adapted to bear upon the surface of the paper roll 15. Tension is attributed to the strip 52 by coil springs 54 arranged on the end portions of the rod 51 and engaging the casing 5 and said strip, as clearly seen in Figs. 3 and 4 of the drawings. Tension of the springs 54 will be such as to prevent accidental unraveling of the paper roll 15 while at the same time permitting the withdrawal of paper therefrom in the operation of the machine.

At one end of the rod 51 is a projecting offset lever 55 having an inwardly projecting pin 56, by means of which the device 52 may be supported in inoperative position by placing the pin 56 in an aperture 57 in the wall of the casing 5 as will be apparent upon a consideration of Fig. 1 of the drawings.

The machine as illustrated in the accompanying drawings is designed primarily for use in laying such sheet or strip material, as tar paper or roofing paper, upon predetermined surfaces for purpose of water-proofing or otherwise protecting such surfaces in which event tar, pitch, or similar compounds are preferably used as a means for securing or adhering the paper to the surface.

In laying paper of this type, it is desirable to overlap adjacent strips when laid side by side. In some of these cases, the coating material is not applied on the overlapped portions of the strips, and in such cases it will be apparent that only one of the discharge tubes 27 may be employed. On the other hand, one of these tubes plus one or more of the discharges 29 may be employed, especially when a strip or ribbon-like seal is all that is necessary between the strip being laid and its next adjacent surface.

It will of course be apparent that my invention will also find its usefulness in laying strip material of any kind or class where a relatively large surface is to be covered or coated, and especially wherein it is desirable to apply a suitable adhering compound or fluid to the surface in advance of laying the strip material thereon. For example, my invention may be utilized in the laying of various types and kinds of floor coverings including under or inner protective or proofing coverings or coatings.

It will be understood that by supporting the roll of strip material above the surface over which the machine passes, in the manner illustrated, a more perfect laying operation of the strip material is accomplished, especially by virtue of the ironing or smoothing bar employed. This will operate to lay the strip material in a smooth and non-buckling manner upon a surface which will effect a more perfect seal or covering for the surface as will be apparent.

It will be understood that the illustration in the accompanying drawings simply demonstrates one method of carrying the invention into effect, and the structure of the machine may be changed or modified to suit different uses and other adaptations of the fundamental and basic principles of the machine herein disclosed.

It will also appear that by detaching the members 26 and 31 and removing the tanks 32, the entire container 23 including the depending pipes thereon may be removed from the casing 5 in the shipment and handling of the device. The frame 37 and its associated parts may also be detached as well as the bar 49.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a strip laying machine of the class described, a casing, a receptacle for supporting a compound in said casing to be applied to a surface over which the machine passes, independent discharges arranged and extending transversely of the machine and in communication with said receptacle, said discharges being adapted to apply the compound over substantially the entire cross

sectional area of the surface over which the machine passes, manually adjustable means controlling and regulating the discharge of the compound through said independent discharges onto said surface, said discharges being arranged in two groups, one of said groups forming a spreading discharge, and the other group forming ribbon-like deposits of the compound onto the surface over which the machine passes.

2. In a strip laying machine of the class described, a casing, a receptacle for supporting a compound in said casing to be applied to a surface over which the machine passes, independent discharges arranged and extending transversely of the machine and in communication with said receptacle, said discharges being adapted to apply the compound over substantially the entire cross sectional area of the surface over which the machine passes, manually adjustable means controlling and regulating the discharge of the compound through said independent discharges onto said surface, said discharges being arranged in two groups, one of said groups forming a spreading discharge, the other group forming ribbon-like deposits of the compound onto the surface over which the machine passes, and means cooperating with the first named group of discharges for spreading and distributing the compound applied to said surface.

3. In a strip laying machine of the class described, a casing, a receptacle for supporting a compound in said casing to be applied to a surface over which the machine passes, independent discharges arranged and extending transversely of the machine and in communication with said receptacle, said discharges being adapted to apply the compound over substantially the entire cross sectional area of the surface over which the machine passes, manually adjustable means controlling and regulating the discharge of the compound through said independent discharges onto said surface, said discharges being arranged in two groups, one of said groups forming a spreading discharge, the other group forming ribbon-like deposits of the compound onto the surface over which the machine passes, means cooperating with the first named group of discharges for spreading and distributing the compound applied to said surface, and means removably arranged within said casing below said receptacle for heating the receptacle to maintain the compound in freely flowable condition for application to said surface.

4. In a machine of the class described, a tank forming a storage for adhesive material to be applied to a predetermined surface, two elongated tubes arranged at opposite sides of the machine and in a plane transversely to the path of movement of the machine over the surface to be treated, each tube having a plurality of discharges spaced longitudinally thereof whereby adhesive material discharged from both of said tubes will spread over substantially the entire transverse area of the surface over which the machine passes, independent manually operated means for controlling and regulating the discharge of adhesive material from said tubes onto said surface, means adjusted vertically in the machine associated with said tubes for controlling and regulating the spreading of the adhesive material upon said surface, and other means for discharging ribbon-like deposits of adhesive material onto said surface.

5. In a strip laying machine wherein the strip material is laid on a predetermined surface, a casing, means for supporting the casing to move over a predetermined surface, a tank in said casing for receiving an adherent compound to be applied to the surface in advance of laying the strip material thereon, two apertured discharge tubes arranged in end to end relationship transversely of said machine, each of said tubes having a separate feed tube registering with said tank, and a manually operated valve in each of said feed tubes for independently controlling the discharge of compound from said tank and through the respective discharge tubes.

6. In a strip laying machine wherein a roll of the strip material is supported in the machine and means provided to lay the strip on a predetermined surface, a casing, means for supporting the casing to move over a predetermined surface, a tank in said casing for receiving an adherent compound to be applied to the surface in advance of laying the strip material thereon, two apertured discharge tubes arranged in end to end relationship transversely of said machine, each of said tubes having a separate feed tube registering with said tank, a manually operated valve in each of said feed tubes for independently controlling the discharge of compound from said tank and through the respective discharge tubes, and said discharge tubes each forming means in conjunction with said casing for removably supporting independent burners under said tank.

7. In a strip laying machine wherein the strip material is laid upon a predetermined surface from a roll supported in the machine in the progress of the machine over said surface, a casing, means for supporting the casing to move over a predetermined surface, a tank in said casing for receiving an adherent compound to be applied to the surface in advance of laying the strip material thereon, two apertured discharge tubes arranged in end to end relationship transversely of said machine, each of said tubes having a separate feed tube registering with said tank, a manually operated valve in each of said feed tubes for independently controlling the discharge of compound from said tank and through the respective discharge tubes, and adjustable means for controlling and regulating the spreading of the compound discharged from said tubes, said means comprising a frame having an elongated scraper arranged forwardly of said tubes adapted to confine the flow of compound discharged therefrom, a substantially V-shaped spreader arranged rearwardly of said tubes, the sides of said V-shaped spreader extending rearwardly for urging the compound toward the sides of said machine, and said frame having upwardly extending arms at the sides thereof cooperating with clamping means on said casing for selectively controlling the vertical adjustment of said frame.

SAMUEL S. ROBINSON.