J. S. MAYNARD.

MACHINE FOR APPLYING ROOFING MATERIAL.

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FIG. 1.

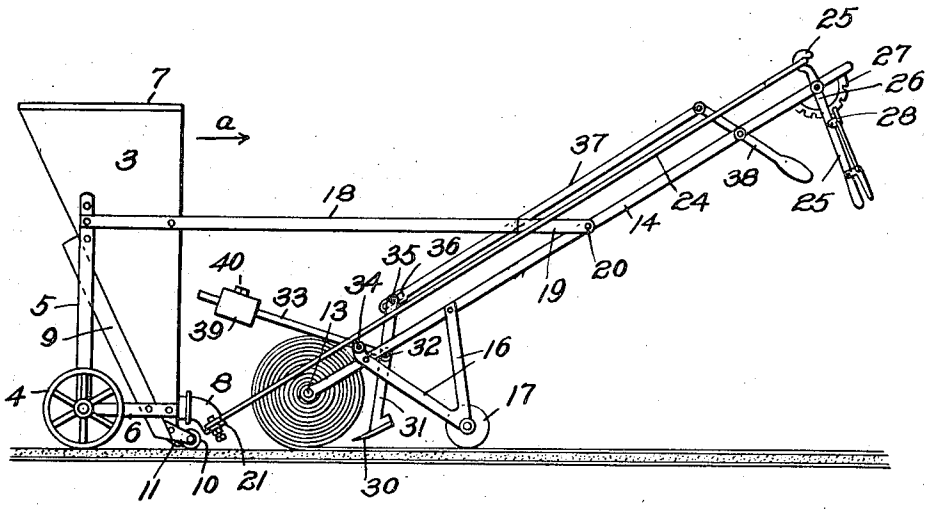
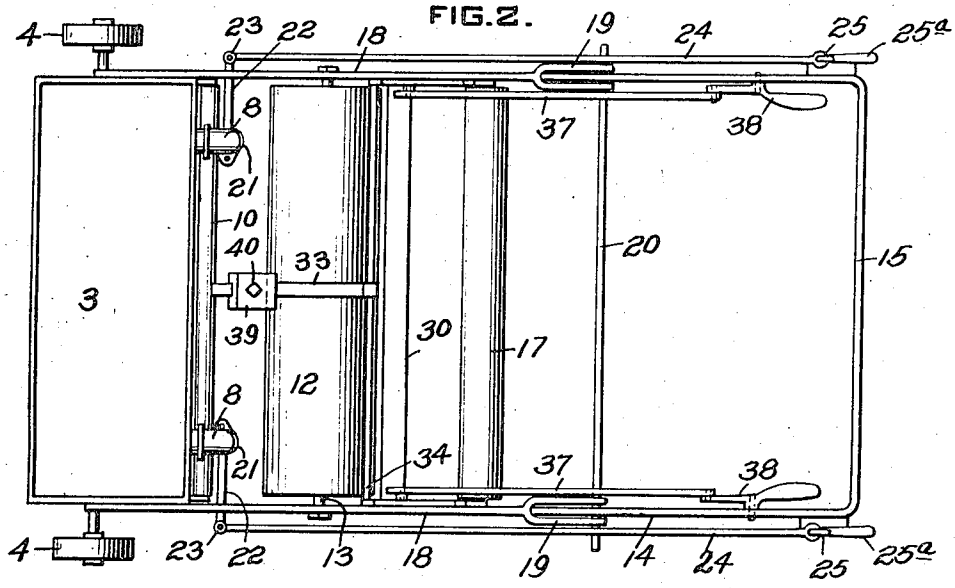


FIG. 2.



WITNESSES

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MACHINE FOR APPLYING ROOFING MATERIAL.

1,289,857. Specification of Letters Patent. Patented Dec. 31, 1918.

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To all whom it may concern:

Be it known that I, JOSEPH S. MAYNARD, a citizen of the United States, and a resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have made a new and useful Invention in Machines for Applying Roofing Material, of which the following is a specification.

This invention relates to machines for applying roofing material.

It is now customary to cover roofs, such as factory roofs, with layers of roofing felt and bituminous material applied hot in liquid form. Several layers of the felt, which is obtained in rolls, are spread upon the roof structure which is generally wood in overlapping relation and to these layers a bituminous coating in hot liquid form is applied. More layers of felt are then applied to the bituminous material in overlapping relation and then more layers of bituminous material so that the layers of felt and liquid material alternate. On the top layer of liquid material sand or gravel, or any other suitable crushed substance is sprinkled and thus the composite roof is formed.

It is customary now to apply the hot liquid bituminous material by means of mops and these mops often catch fire presumably because of spontaneous combustion.

The felt is laid in long strips and in practice it is found difficult, especially in high winds, to prevent it from blowing out of place, and, on account of the manner in which the bituminous material is applied it is difficult to evenly distribute the same.

An object of this invention is to provide a machine or apparatus by means of which the bituminous material in hot liquid form may be evenly distributed and applied with a minimum of fire risk and by which the felt may be laid evenly onto the binding and waterproofing material as the material is applied whereby the felt is securely held in place and prevented from blowing away.

A further object is to provide a machine or apparatus for laying composite roof coverings made up of strip material such as felt and liquid bituminous material such as asphaltum or coal tar which apparatus may be used as a unit for simultaneously applying the liquid material and the felt, or may be separated into two parts one of which may be used in laying the ground layers of felt and the other of which may be used for distributing the last or top coat of bituminous material.

These, as well as other objects which will readily appear to those skilled in the roofing art, I attain in the machine described in the specification and illustrated in the drawings accompanying the same and throughout the several views of which similar elements are denoted by like characters.

In the drawings Figure 1 is a view in side elevation of a machine or apparatus embodying this invention, the two parts shown connected to form a unit machine for simultaneously applying the liquid bituminous material and the layers of felt, and Fig. 2 is a top plan view of said unit machine.

The device consists of a hopper-like receptacle 3 for the liquid bituminous material. The hopper is mounted on wheels 4 by means of supports 5 and 6 and is provided with a cover 7 and outlet spouts or distributing nozzles 8. It will be understood that the hopper and the cover are thoroughly insulated with suitable heat insulating material such as asbestos or magnesia covering for maintaining the liquid bituminous material in a fluid state as long as possible.

Carried by a stiffening member 9 secured to the back of the hopper is a spreading roller 10 and below said roller a scraper 11 is positioned. The spreading roller and the scraper are adapted to come into use in applying the final or top coat of liquid bituminous material. When this is done the unit machine is separated into two parts and the hopper moved in the direction of arrow A for distributing the liquid material. When moved in this direction roller 10, which will be in the rear of the distributing nozzle 8, will spread the liquid material into a thin film; the scraper maintaining the roller clean.

A roll 12 of suitable felt mounted on a rod 13 is carried by said rod at the end of a frame 14. The frame 14 consists of side members and a rear connecting member 15 which forms a handle for pushing the apparatus. Depending from sides 14 are support members 16 and these at their lower end carry a roller 17 which serves as a smoothing roller for the felt and as a fulcrum as hereinafter described. Side members 14 of the

frame are connected up to two horizontal side members 18 which extend rearwardly from the hopper and support members 5. The rear ends of members 18 are bifurcated as shown at 19 and a cross bar 20 passes through openings in the bifurcated ends and openings in the side members 14 thus detachably securing members 14 and 18 together.

Each of the distributing nozzles 8 is provided with a hinged cover 21, and a lever arm 22 connected to the cover, connects at 23 with a rearwardly extending controlling rod 24. Each controlling rod 24 at its rear end is provided with an eye adapted to hook over the upper end 25 of a control lever 26. A notched segment 27 is provided for holding the control lever in different positions; the control lever being provided with a detent 28 coöperating with the notches in the segment. An adjustment for the distributing nozzles is provided placing the nozzles under the control of the operators. It is found that the ordinary form of molasses spout may be used as distributing nozzles 8.

A knife 30 which extends across the machine is provided for severing the felt of the roll from the laid felt when desired. As the felt roll decreases in diameter as the felt is laid it is necessary to provide means for adjusting the position of the knife in accordance with the decrease in size of the felt roll. In order to accomplish this the knife is secured to a support member 31 and this support member is pivotally mounted at 32 to the outer end of a lever 33 fulcrumed at 34 to supporting frame 16. The upper end of support 31 carries a pin 35 which lies within a slot 36 formed in the forward end of a rod 37. The rear end of rod 37 is connected to the upper end of a lever handle 38, and, when the rod 37 by means of said handle is moved to the rear sufficiently far the knife will be projected forwardly and will enter the felt immediately below the roll so that when the roll is lifted from the roof by being swung about roller 17 as a fulcrum the felt of the roll will be severed from that which has been laid.

The outer end of lever arm 33 carries a weight 39 movable along said lever and adapted to be locked in position by means of a set screw 40 in adjusted position. Lever 33 bears on the top of felt roll 12, and, by means of the weight raises the knife as the felt roll decreases in diameter. The weight is used to lift the knife about fulcrum point 34 and it will be adjusted so that its effective weight will be just sufficient to raise the knife without putting unnecessary pressure on the felt roll.

When it is desirable to use the bitumen distributer itself rod 24 is removed so that side member 14 may be separated from side member 18. When this is done the rod is reinserted through the bifurcated ends of member 18 and serves as a handle for propelling the hopper. At this time the rods 24 are unhooked from levers 25[a] and will rest on the outer ends of rod 20.

Having thus described my invention what I claim is—

1. In a machine for applying roofing material, means for laying sheet material from a roll, a hopper for liquid bituminous material carried in advance of said roll, a cutting device for said sheet material, and means for automatically varying the position of said device as the diameter of said roll decreases.

2. In a machine for applying roofing material, and in combination with a roll of sheet material, a hopper for liquid material carried in advance of said roll, means for distributing liquid material from said hopper, a cutting device for said sheet material, and means supported by said roll for positioning said device.

3. In a machine for applying roofing material, a hopper for liquid bituminous material, adjustable means for feeding material from said hopper to the roof, means for guiding a roll of sheet material in contact with the roof in the rear of said hopper, a knife for severing the sheet material, and means for automatically varying the position of said knife as the diameter of said roll varies.

4. In a machine for applying roofing material, a hopper for liquid bituminous material, means for feeding material from said hopper to the roof, means for guiding a roll of sheet material supported by the roof in the rear of said hopper, a pivoted knife, means for moving said knife toward and from said roll, and means for automatically varying the position of said knife as the diameter of said roll varies.

5. In a roofing machine, means for guiding a roll of felt supported by the roof, a knife carried by said means for severing the felt, mechanism for automatically positioning said knife as the diameter of said roll decreases, means for distributing liquid bituminous material to said roof in the path of said roll, and means for detachably securing said roll guiding means and said liquid distributing means to form a unitary structure characterized in that said two means may be detached one from the other and used separately, one in laying the ground layer of felt and the other in laying the last or top layer of liquid bituminous material.

In testimony whereof, I have hereunto subscribed my name this 7th day of August, 1918.

JOSEPH S. MAYNARD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."