April 23, 1940. S. S. ROBINSON 2,197,878

SURFACING MACHINE

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FIG. 1.

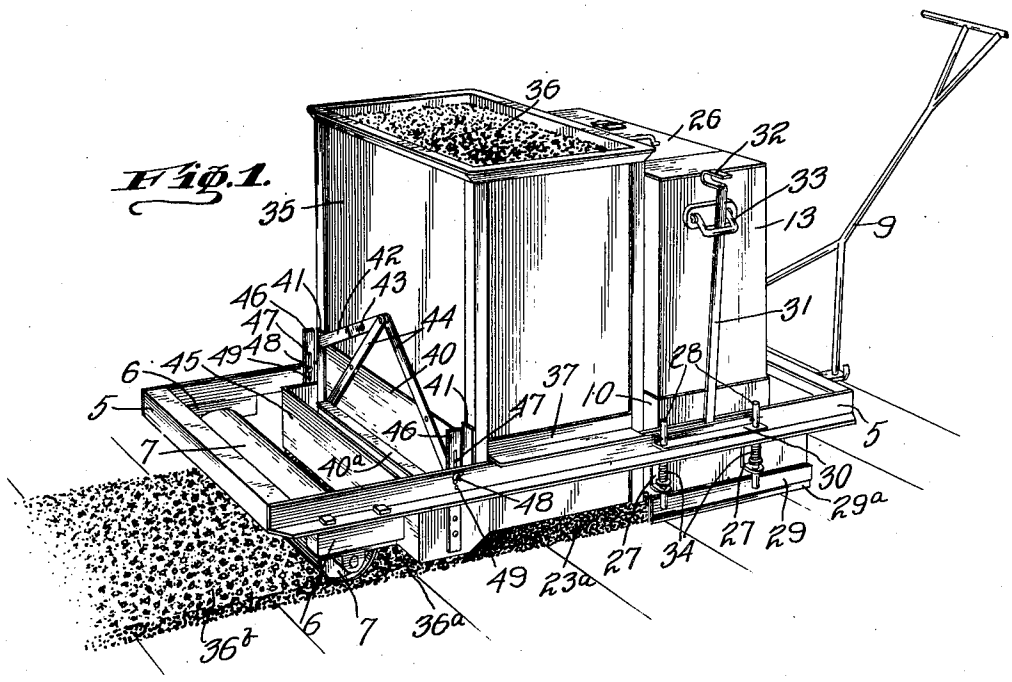
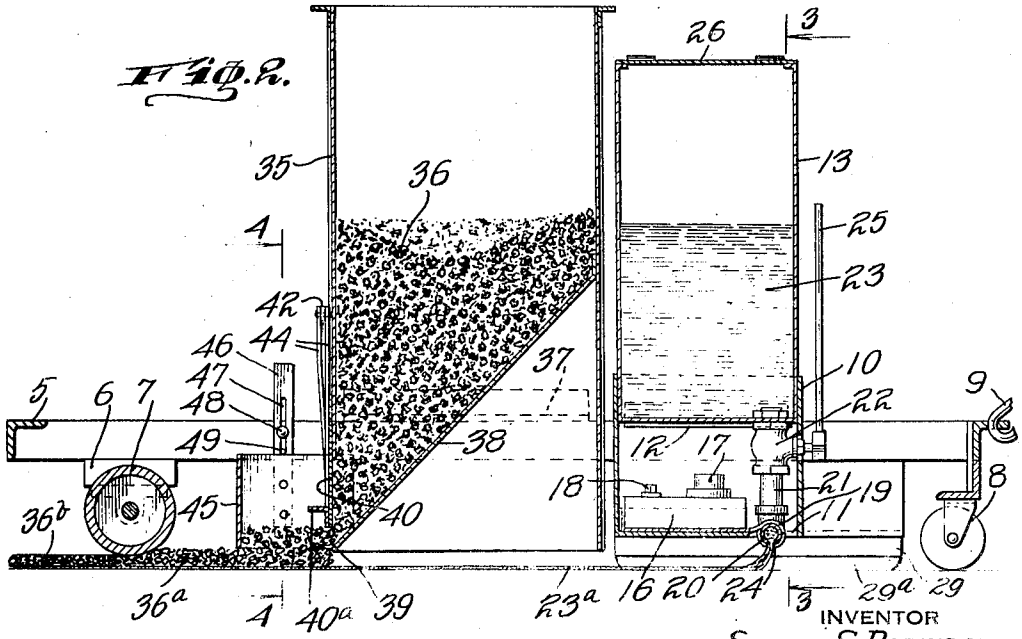


FIG. 2.



INVENTOR
SAMUEL S. ROBINSON
BY
Howard E. Thompson
ATTORNEY

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Fig. 3.

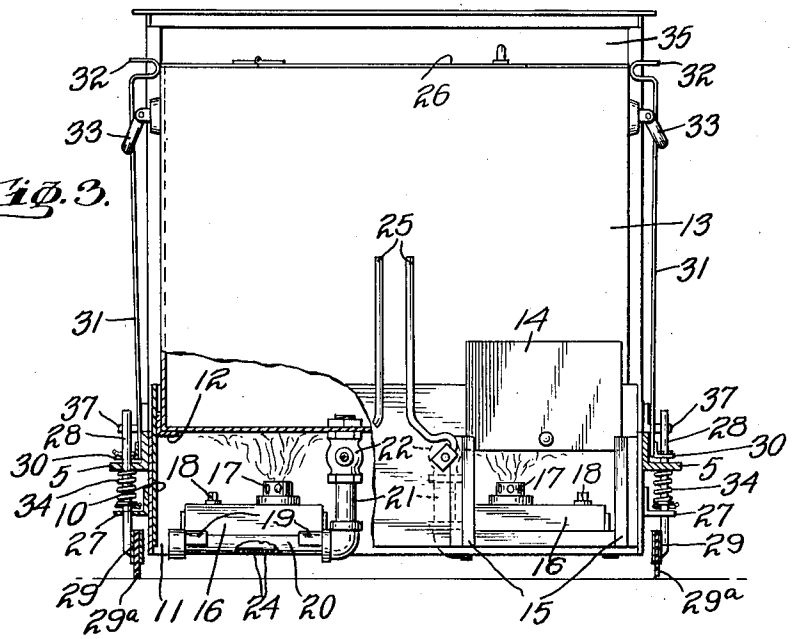
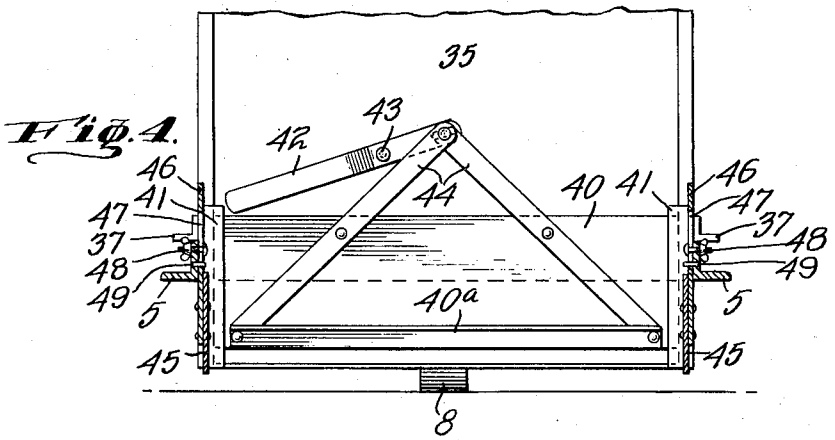


Fig. 4.



INVENTOR
SAMUEL S. ROBINSON
BY
ATTORNEY

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2,197,878

SURFACING MACHINE

Samuel S. Robinson, Passaic, N. J.

Application July 24, 1937, Serial No. 155,429

7 Claims. (Cl. 94—44)

This invention relates to machines for applying slag or similar coating material to a roof, floor or other surface and particularly to a machine of this kind which can be conveniently moved and transported from place to place; and the object of the invention is to provide a machine of the character described comprising a frame with means involving a roller for guiding the frame in its movement over a surface, and further to the provision of two storage tanks or compartments, one or both of which may be detached from the frame in the shipment or handling thereof; a further object being to provide a machine of the character described wherein one tank contains tar, pitch or similar coating material with two means for discharging the material from said tank unto a surface, and further to the provision of means for heating said tank to maintain said coating material soft and appliable during the use of the machine; a still further object being to provide a storage hopper for slag or other similar material adapted to be discharged unto a surface after the coating material has been applied thereto, and further to the provision of means for controlling and regulating the discharge of the slag onto a surface and for evenly spreading such material on the surface in advance of said compressing or compacting roller; a still further object being to provide means adjacent the discharge of the tar or pitch onto the surface for keeping said tar or pitch from spreading at opposite sides of the machine in the movement of said machine over a predetermined surface, said last named means being adjustable and tensionally engaging said surface; and with these and other objects in view, the invention consists in a device 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 longitudinal sectional view through the machine as shown in Fig. 1 with parts of the structure omitted.

Fig. 3 is a section substantially on the line 3—3 of Fig. 2 with parts of the structure broken away, and,

Fig. 4 is a partial section on the line 4—4 of Fig. 2.

In practice I provide a suitable rectangular frame 5 having hangers 6 at the rear end portion thereof for supporting a transverse roller 7 forming one means for guiding the frame over a support as well as means for rolling down or compressing material to be laid on a surface as later described. The forward end of the frame is provided centrally thereof with a caster or swivelled roller 8 for supporting the forward end of the frame and to aid in guiding the movement of the frame over a supporting surface. A handle 9 is loosely coupled with the forward end of the frame as seen in Fig. 1 of the drawings to draw the machine over a supporting surface.

At the forward end portion of the frame is a substantially box-shaped casing 10 which is open at the top and provided with an elongated opening 11 in the bottom wall thereof at the front of said casing, the side walls of the casing having inwardly extending cleats, one of which is shown at 12 in Fig. 3 of the drawings, upon which a tank 13 is adapted to rest. The casing 10 or the front wall thereof is provided with two openings, arranged one at each side of the casing and one of which is shown in Fig. 3 of the drawings; and these openings are closed by doors 14 sliding vertically in side guide strips 15, the openings in the casing controlled by the door 14 giving access to the interior thereof and especially to burner tanks 16 having burner heads 17 and filling plugs 18. The tanks 16 rest on the bottom of the casing 10 and these tanks have forwardly projecting supporting hooks 19 which are adapted to engage discharge pipes 20 arranged transversely of the machine and coupled with depending pipes 21 coupled with the bottom of the tank 13 through valves 22 which control the flow of pitch or other material 23 arranged in the tank 13 into the pipe 20 and out through a number of discharge orifices 24 in the lower edge of the pipe 20 and spaced longitudinally thereof. Arranged outwardly of the casing 10 and tank 13 are two valve operating levers 25 by means of which the valves 22 may be opened and closed and regulated as to flow. The top of the tank 13 is provided with an opening controlled by a hinged door 26, and it will be understood that hot tar or pitch may be inserted into the tank through this opening, and the same may be maintained in heated state by the burners 17 which are simply in the form of torch-like burners having sufficient heating properties to maintain this result.

At each side of the casing 10 below the frame

5 are arranged L-shaped brackets 27 in which the upwardly extending rods 28 of side runners and housing members 29 are mounted; said rods also extending upwardly through the frame 5, and coupled therewith is a plate or strip 30 having an upwardly extending bar 31 having a hook-shaped end 32 cooperating with the tank 13 and a handle member 33 on the side wall of the tank to support the shoe 29 in different positions. The shoe 29 includes an elongated rubber strip 29a which contacts the surface over which said shoe or runner passes. Arranged on each rod 28 between the brackets 27 and the frame 5 are springs 34 which provide a yielding mounting of the runners 29 as will be apparent. One purpose of the adjustment of the runners 29 is to lift the same above a supporting surface to clear a previously laid coating and to prevent marring of such coating in the operation of laying a series of strips of the coating material side by side.

At 35 I have shown a container or hopper for slag or similar material 36 arranged in the frame 5 rearwardly of the tank 13; the container 35 having outwardly extending angular cleats 37 adapted to rest upon the side rails of the frame as clearly seen in Figs. 1 and 3. The bottom 38 of the container is inclined backwardly to form the hopper contour and said container is provided at its lower rear edge portion with a discharge opening 39, the size of which is controlled by a vertically movable door 40 guided in side strips 41 on the container, said door being raised and lowered by a lever 42 pivoted to the container as indicated at 43, and two diverging links 44 attached to the door. The lower edge of the door 40 is also preferably reinforced by an angle-iron strip 40a to strengthen said edge.

Adjustable vertically in the frame 5, rearwardly of the container 35 is a trough 45 having upwardly extending strips 46 with elongated apertures 47 therein to receive bolts 48 in the frame 5 for the vertical adjustment of said trough; a pin 49 being also provided in the frame which enters the slot 47 to maintain vertical alinement of the trough 45. The trough 45 controls the height of the lay of the slag or other material upon a predetermined surface and it is desirable to feed a surplus of the slag from the hopper container 35 into the trough 45 to insure a full and complete coverage of a surface as will be apparent.

In the use of the machine, it will be understood that the tar, pitch, or other coating material is first laid and spread onto the surface by discharge through the tubes 20 to form a relatively thin coating of such material as indicated at 23a in Fig. 2 of the drawings. The side runners 29 serve to house the coating material 23a within the boundaries of the machine and as the machine progresses over a surface the slag 36 is then applied thereto to a predetermined thickness as indicated at 36a, controlled by the discharge trough or gage member 45, after which the roller 7 will compress the material to form a substantially even compact thickness or layer of the slag as indicated at 36b in Fig. 2 of the drawings.

It will be understood that my invention is not necessarily limited to the specific arrangement of the several parts herein shown and described; and in some weather conditions a single burner tank 16 may be arranged centrally of the casing to maintain tar, pitch, or other material in fluid or semi-fluid state, and in fact in some weather conditions, the use of heat will not be essential.

It will also be understood that my improved machine may be utilized for laying various kinds and classes of surfacing materials or compounds either separately or jointly with a coating material. A machine of this type will effect a great saving in the cost of coating or surfacing roofs, floors, and other surfaces requiring the application of materials of the kind herein mentioned, or which are suitable for use in a machine of the character described. By making the tanks or containers detachable the handling of the complete machine is facilitated thus giving it the portable properties which are advantageous and also produces a relatively compact arrangement of the several parts or units of the machine; it being understood in this connection that the burners are freely insertable and removable through the machine by the openings controlled by the door 14.

It will be understood that while I have shown in the accompanying drawings a machine of what might be termed the hand portable type and hand operated type; that this machine may be made on larger scales and operated by any suitable power means, and the application or laying of finely divided or relatively coarse material of any kind or class similar to the laying of slag as is illustrated in the accompanying drawings and herein described. In some cases, the application of the compound is not essential unless the water-proofing or other characteristics of the compound are desired. To give one illustration of another adaptation and use of the invention, the hopper may be used as a container for concrete or any suitable concrete mixture for laying floors, pavements, roadways and the like.

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

1. A surface coating machine comprising a frame, means for moving and guiding the frame over a surface, a tank at one end of the machine forming a container for predetermined fluid or semi-fluid coating material, means for discharging material from said tank onto the surface over which the machine passes, another container in the machine rearwardly of said tank for discharging other coating material upon the surface treated with said first named material in the progress of a machine over a surface, a roller for compressing or compacting the second named material on said surface, means comprising a receptacle between the roller and said container and in communication with the container for controlling the lay of the material on said surface, said last named means being independently adjustable, and adjustable means for controlling the discharge of material from said container into said receptacle.

2. A surface coating machine comprising a frame, means for moving and guiding the frame over a surface, a tank at one end of the machine forming a container for predetermined fluid or semi-fluid coating material, means for discharging material from said tank onto the surface over which the machine passes, another container in the machine rearwardly of said tank for discharging other coating material upon the surface treated with said first named material in the progress of a machine over a surface, a roller for compressing or compacting the second named material on said surface, means comprising a receptacle between the roller and said container and in communication with the con-

tainer for controlling the lay of the material on said surface, said last named means being adjustable, adjustable means for controlling the discharge of material from said container into said receptacle, means at opposite sides at the first named end of the frame for confining material discharged from said tank to predetermined boundaries, means for selectively moving said last named means into operative and inoperative positions, and tensional means for supporting said last named means in operative position.

3. A machine for coating predetermined surfaces with a moisture proof semi-fluid compound and then applying a slag coating upon the surface thus treated, said machine comprising a rectangular frame, rollers for guiding and supporting the frame over a surface to be treated, one of said rollers serving to compress the slag coating onto the surface, independent containers detachably supported in the frame, one container supporting the slag and the other the compound, the slag container having a hopper discharge at the lower rear edge thereof and arranged transversely of the machine, adjustable means at the discharge end of the hopper for controlling and regulating the lay of the slag on the surface, two discharge tubes arranged transversely of the machine, one at each side portion thereof, each tube being in communication with the compound container and having nozzle discharges spaced longitudinally of the tubes and arranged transversely of the machine, independent manual controls for regulating the discharge of compound from said tubes, and two heating units detachably supported in the frame and arranged beneath the compound container in heating the compound therein.

4. A machine for coating predetermined surfaces with a moisture proof semi-fluid compound and then applying a slag coating upon the surface thus treated, said machine comprising a rectangular frame, rollers for guiding and supporting the frame over a surface to be treated, one of said rollers serving to compress the slag coating onto the surface, independent containers detachably supported in the frame, one container supporting the slag and the other the compound, the slag container having a hopper discharge at the lower rear edge thereof and arranged transversely of the machine, adjustable means at the discharge end of the hopper for controlling and regulating the lay of the slag on the surface, two discharge tubes arranged transversely of the machine, one at each side portion thereof, each tube being in communication with the compound container and having nozzle discharges spaced longitudinally of the tubes and arranged transversely of the machine, independent manual controls for regulating the discharge of compound from said tubes, two heating units detachably supported in the frame and arranged beneath the compound container in heating the compound therein, said first named means comprising a vertically adjustable receptacle.

5. A machine for coating predetermined surfaces with a moisture proof semi-fluid compound and then applying a slag coating upon the surface thus treated, said machine comprising a rectangular frame, rollers for guiding and supporting the frame over a surface to be treated, one of said rollers serving to compress the slag coating onto the surface, independent containers detachably supported in the frame, one container supporting the slag and the other the compound, the slag container having a hopper discharge at the lower rear edge thereof and arranged transversely of the machine, adjustable means at the discharge end of the hopper for controlling and regulating the lay of the slag on the surface, two discharge tubes arranged transversely of the machine, one at each side portion thereof, each tube being in communication with the compound container and having nozzle discharges spaced longitudinally of the tubes and arranged transversely of the machine, independent manual controls for regulating the discharge of compound from said tubes, two heating units detachably supported in the frame and arranged beneath the compound container in heating the compound therein, said first named means comprising a vertically adjustable receptacle, and manually adjustable means regulating the discharge of material from the hopper into said receptacle.

6. In a surfacing machine of the class described for laying finely divided particles on a treated surface in a ribbon-like deposit on the surface, a container for said particles, said container having a hopper discharge at the lower end thereof whereby the particles may be discharged by gravity from the lower end of the hopper onto said surface, a supplemental open bottom receptacle vertically adjustable in the machine and in communication with and extending throughout the length of the discharge of said hopper and forming a supplemental storage for the particles to be distributed onto the surface, and manually adjustable means controlling the discharge of the material from the hopper to the receptacle to maintain a supply of material in the receptacle greater than the requirements for distribution onto the surface in the progress of the machine over a surface.

7. A machine for coating predetermined surfaces with a moisture proof semi-fluid compound and then applying a slag coating upon the surface thus treated, said machine comprising a rectangular frame, rollers for guiding and supporting the frame over a surface to be treated, one of said rollers serving to compress the slag coating onto the surface, independent containers detachably supported in the frame, one container supporting the slag and the other the compound, the slag container having an adjustable hopper discharge at the lower end thereof and arranged transversely of the machine, other adjustable means adjacent the discharge end of the hopper for controlling and regulating the lay of the slag on the surface, fluid discharge means arranged transversely of the machine in communication with the compound container and having nozzle discharges spaced longitudinally of said means adapted to deposit a continuous ribbon of compound, and manually actuated means for selectively controlling the width of ribbon deposited.

SAMUEL S. ROBINSON.