

March 11, 1930.

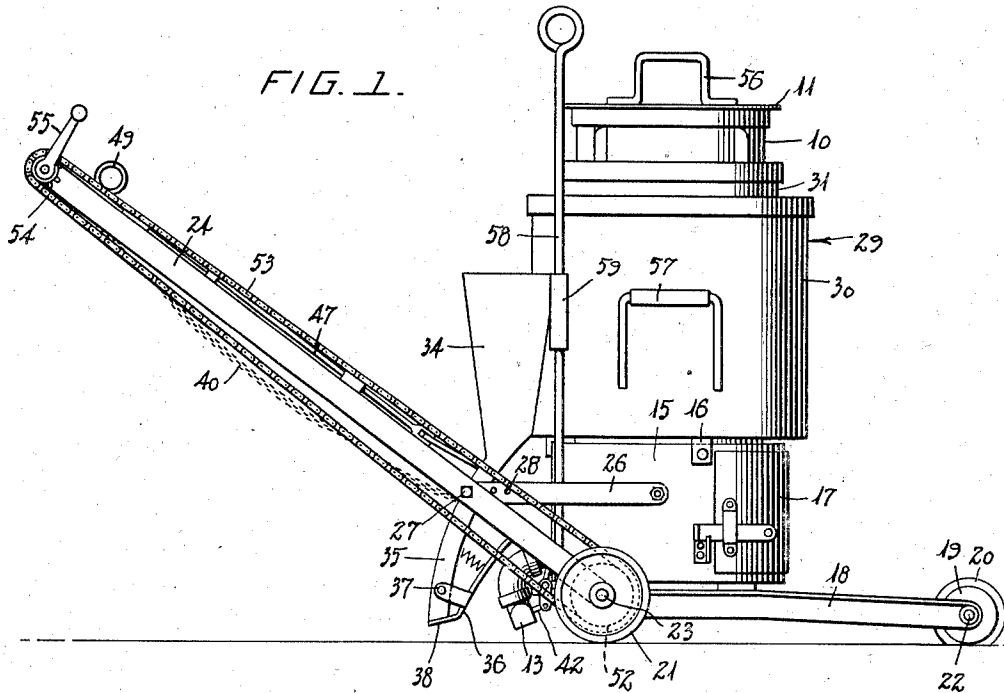
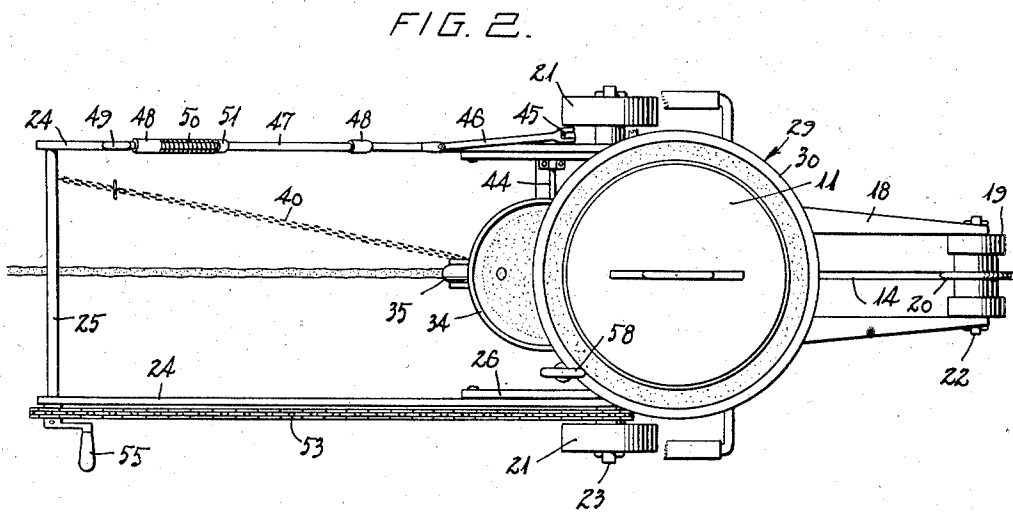
J. N. HELTZEL

1,750,104

JOINT FILLING MACHINE

Filed Nov. 19, 1926

2 Sheets-Sheet 1



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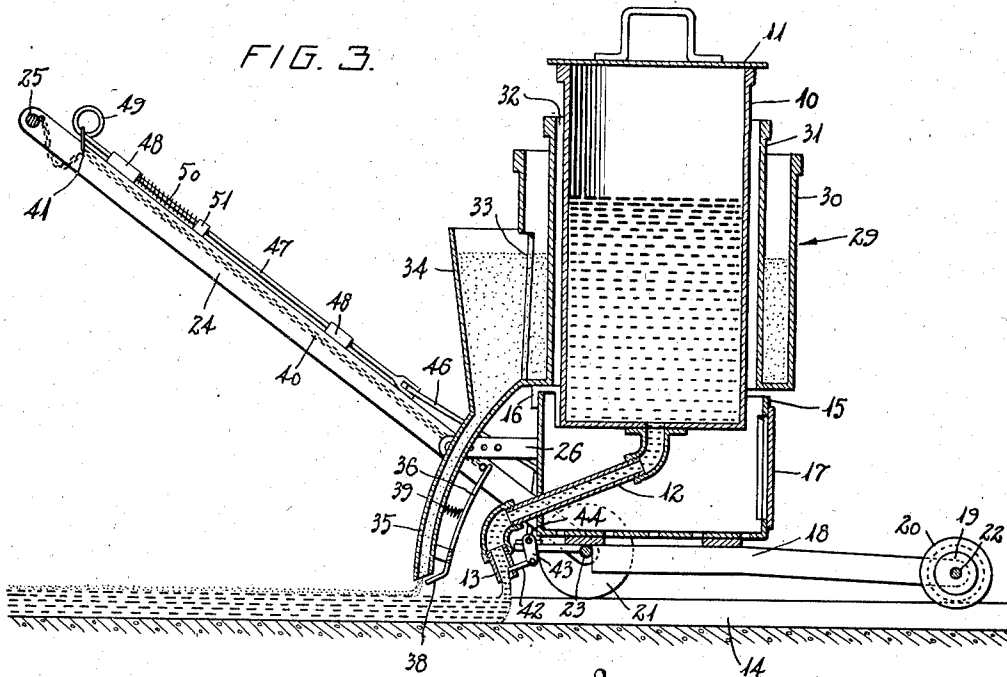
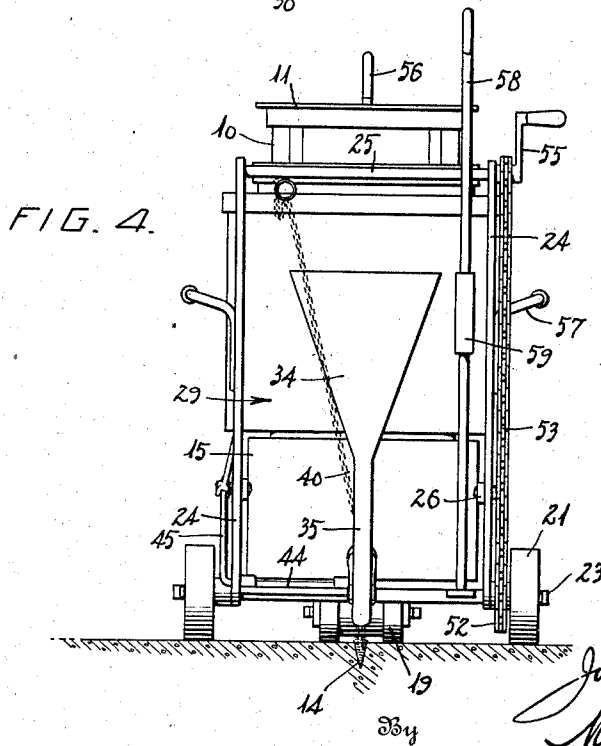
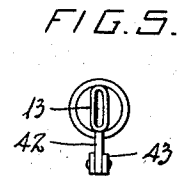
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UNITED STATES PATENT OFFICE

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JOINT-FILLING MACHINE

Application filed November 19, 1926. Serial No. 149,441.

The present invention relates to machines and appliances for filling grooves or open joints in concrete roads or other surfacing structures, and aims to provide a novel and improved machine for conveniently filling the grooves or joints.

One object of the invention is to provide a machine by means of which tar, asphalt or other similar material rendered plastic by heat, or other plastic material, may be conveniently poured into the groove or joint.

Another object is to provide such a machine by means of which sand or other granular material may be poured into or over the groove or joint.

A further object is to provide a combination machine by means of which either or both of the plastic and granular materials may be discharged under control by the operator.

A still further object is to combine receptacles or containers for the plastic and granular materials in combination with a firebox in order that both materials are heated, so as to render the tar, asphalt, or similar material plastic, and to dry the sand or other granular material.

The invention also has for an object to provide novel means for mounting the machine for movement over the groove or joint, and novel means for controlling the discharge of the plastic and granular materials.

With the foregoing and other objects in view, which will be apparent as the description proceeds, the invention resides in the construction and arrangement of parts, as hereinafter described and claimed, it being understood that changes can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of the improved machine.

Fig. 2 is a plan view thereof.

Fig. 3 is a longitudinal vertical median section showing the machine in operation.

Fig. 4 is a rear view of the machine.

Fig. 5 is a bottom view of the spout for the plastic material.

A container or receptacle 10 is provided for holding the asphalt, tar or similar material, and said container has a removable cover or top 11 which may be removed for filling the container and stirring the material therein. A discharge pipe 12 extends downwardly and rearwardly from the bottom of the container 10 for the flow of the plastic material from said container, and terminates at its rear end in a downwardly extending spout 13 which is preferably flattened side-wise or reduced in width, as seen in Fig. 5. The material discharged from the spout 13 is permitted to flow into a groove or open joint 14 formed in the concrete road or other surfacing structure, in order to fill said groove or joint and thereby seal the joint and exclude rain and moisture therefrom.

The plastic material container 10 is mounted on a firebox 15 by means of supporting brackets 16 secured to the lower portion of the container 10 and resting on the rim of the firebox. The lower portion of the container 10 is disposed within the mouth of the firebox 15, and the brackets 16 are preferably secured to the wall of the firebox to render the structure rigid. The firebox is of larger diameter than the container 10 to permit the products of combustion to pass upwardly between the container and rim of the firebox. The discharge pipe 12 extends rearwardly through the wall of the firebox, with the spout 13 in rear of said firebox, as seen in Figs. 1 and 3. The wall of the firebox is provided with a suitable door 17 that may be opened for placing wood, coal, charcoal or other fuel within the firebox, to provide the heat for melting the material in the container 10.

The fire box 15 is mounted on a carriage comprising a suitable metal frame 18, with a front wheel 19 and two rear wheels 21 mounted on the respective axles 22 and 23. The front wheel 19 is a pilot wheel to guide the machine along the groove or joint 14, inasmuch as said wheel has an annular pilot flange 20 adapted to run in the groove or joint, with the wheel 19 bearing on the surface of the concrete at opposite sides of the groove.

Bars 24 extend rearwardly and upwardly and have their lower forward ends engaging the rear axle 23 for the upward and downward swinging movement of said bars, and a transverse handle rod 25 is mounted in the rear upper terminals of said bars 24, for conveniently pushing or pulling the machine along the groove. Braces 26 are pivotally connected with the opposite sides of the firebox 15 and are secured to the bars 24 by means of which bolts 27, the brace bars 26 having apertures 28 to receive the bolts 27 for adjusting the bars 24 to different inclined positions for the convenience of the operator.

The container or receptacle 29 for the sand or other granular material is of annular form to surround the container 10, and has the outer and inner cylindrical walls 30 and 31, respectively. The container 29 seats on the brackets 16, and the inner wall 31 is of larger diameter than the container 10 thus providing an annular space 32 between the two containers which provides a discharge flue for the products of combustion that rise from the firebox 15 around the container 10. The products of combustion and flames thus pass upwardly between the two containers for heating the container 10 from the exterior and container 29 from the interior. The container 29 is open at the top to permit sand to be readily poured into said container, and the container 29 has an opening 33 in the rear portion of the wall 30, and a hopper or funnel 34 is secured to the wall 30 behind the opening 33 to receive the sand from the container 29 and into which sand may also be poured. The hopper 34 is open at the top in order that the sand may be observed. The hopper 34 has a spout 35 extending downwardly in rear of the spout 13 for the discharge of sand or other granular material in rear of the spout 13 through which the plastic material is discharged. The container 29 may be seat loosely on the firebox around the container 10, so that the container 29 may be readily lifted off the firebox container 10, especially when the machine is used without sand.

In order to control the flow of sand, a lever 36 disposed in front of the spout 35 is fulcrumed or pivoted, as at 37, to the spout 35 and has a sand valve 38 at its lower end extending rearwardly and downwardly to seat upwardly against the lower end of the spout 35 which is preferably inclined similarly to the valve 38. A spring 39 is confined between the spout 35 and upper arm of the lever 36 to normally close said valve, and a chain 40 or other operating member is connected to the upper arm of said lever 36 for swinging said lever to open the valve 38. The chain or flexible element 40, as shown, is connected to the handle rod 25 and has a finger ring 41 which may be conveniently

grasped by the operator for pulling the chain 40 and swinging the valve 38 open.

The flow of plastic material from the spout 13 is controlled by a valve 42 slidable in the spout 13 lengthwise of the slot of the spout, in order to regulate the discharge of the plastic material. The valve 42 is pivoted to an arm 43 on a rock shaft 44 mounted for turning movement on the frame 18 of the carriage, and a longer arm 45 at the outer end of said shaft 44 is connected by a link 46 with the lower end of a slide rod 47 movable in guides 48 secured on one bar 24, said rod 47 having a finger ring or handle 49 at its upper end which may be conveniently grasped by the operator for pulling the rod 47 so as to move the valve 42 open. A coiled spring 50 on the rod 47 is confined between one guide 48 and a collar 51 secured on said rod, to move the valve 42 to closed position.

For conveniently propelling the machine, a sprocket wheel 52 is secured to one of the rear wheels 21 and is connected by an endless sprocket chain 53 with a sprocket wheel 54 of smaller diameter mounted for rotation on one protruding end of the rod 25 and provided with a hand crank 55 which may be conveniently rotated for driving the corresponding wheel 21 to move the machine either forwardly or rearwardly on the concrete.

The cover 11 and container 29 have handles 56 and 57, respectively, for conveniently lifting them, and a poker rod 58 is carried by the machine for poking of stirring the fuel in the firebox 15, or for poking or stirring the materials in the containers 10 and 29. The rod 58 is normally held by a sleeve 59 carried by the container 29 through which the rod is inserted downwardly, in order that the rod is conveniently carried by the machine.

The operation of the machine is simple, it being apparent that the machine is moved over the groove or joint 14 which is facilitated by the movement of the flange 20 of the pilot wheel in said groove, and the valves 42 and 38 are controlled by the operator for the proper or desired discharge of the materials. The materials may thus be discharged at a rate in proportion to the speed of movement of the machine, and the discharge of materials may be regulated manually. As shown in Fig. 3, the plastic material is discharged from the spout 13 to fill the groove 14 and the sand or granular material is discharged from the spout 35 in rear of the spout 13 so that the sand or similar material is distributed over the plastic material. It will be understood, however, that the groove or joint may be filled with either the plastic material or the granular material, or both. The valve 38 extending rearwardly and downwardly will discharge the granular material rearwardly from the spout 35 and will spread such material transversely so as to spread

over the plastic material delivered into the groove.

This machine therefore enables the grooves or open joints in concrete roads and other surfacing structures to be conveniently filled in an efficient manner and at minimum cost.

Having thus described the invention, what is claimed as new is:—

1. A machine of the character described comprising a carriage, a plurality of material containers mounted thereon and each having a discharge spout for delivering the material into a groove or joint of a surfacing structure, and means for controlling the discharge of materials from said spouts, one container surrounding the other and having its spout located in rear of the spout of said other container.

2. A machine of the character described comprising a firebox, a pair of material containers mounted thereover and having a discharge flue between them leading upwardly from the firebox, each container having a discharge spout, one spout being in rear of the other spout, and means for controlling the discharge of materials from said spouts.

3. A machine of the character described comprising a firebox, two material containers mounted thereon with one container surrounding the other, said containers being spaced apart to provide a flue surrounding the inner container and leading upwardly from the firebox, each container having a discharge spout, one spout being in rear of the other spout, and means for controlling the discharge of materials from said spouts.

4. A machine of the character described comprising a firebox, a material container supported thereon and having a discharge spout extending through the wall of the firebox, an annular material container surrounding the firstnamed container and supported above the wall of the firebox, said containers being spaced apart to provide a flue leading upwardly from the firebox, the secondnamed container having a discharge spout, and means for controlling the flow of materials from said discharge spouts.

5. A machine of the character described comprising a carriage, a container for tar, asphalt, or similar material mounted on the carriage and having a discharge spout for delivering the material into a groove or joint over which the carriage is moved, a container for sand also mounted on the carriage and having a discharge spout in rear of the afore-said discharge spout, and independent means for controlling the discharge of the materials from said spouts.

6. A machine of the character described comprising a carriage, a container for tar, asphalt or similar material mounted on the carriage and having a discharge spout for delivering the material to a groove or joint over which the carriage is moved, a container

for sand also mounted on the carriage and having a discharge spout in rear of the afore-said discharge spout, and independent means for controlling the discharge of the materials from said spouts, one of said containers surrounding the other.

7. A machine of the character described comprising a container for one material having a discharge spout, an annular container for another material surrounding the firstnamed container, said annular container having an opening in the outer wall thereof, a funnel secured to said outer wall across said opening and communicating with said annular container through said opening, said funnel having a discharge spout in rear of the firstnamed spout, and means controlling the flow of materials through said spouts.

In testimony whereof I hereunto affix my signature.

JOHN N. HELTZEL.