

Dec. 24, 1968

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3,417,679

ROAD SURFACING MACHINE

Filed Oct. 25, 1967

4 Sheets-Sheet 1

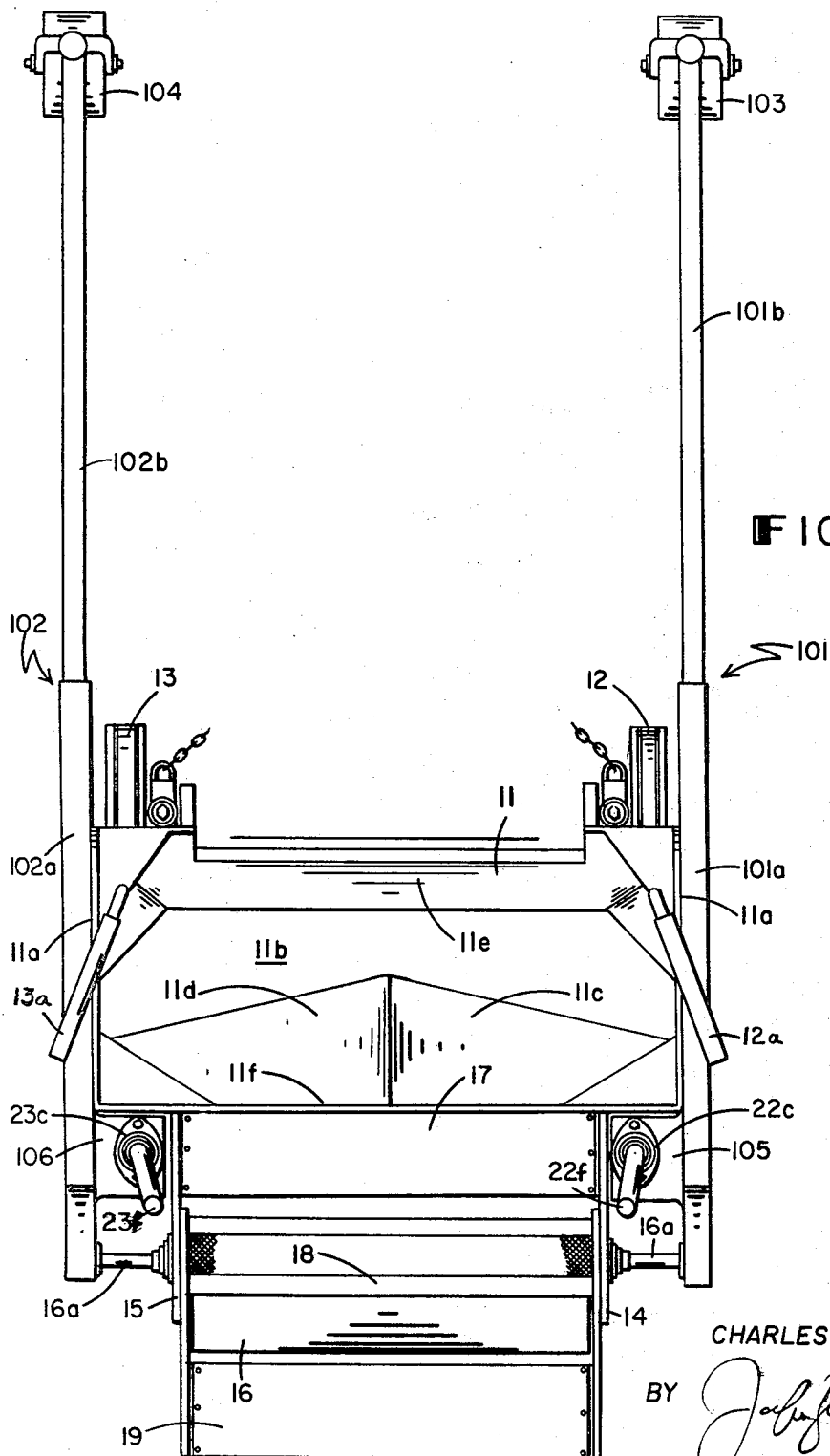


FIG. 1

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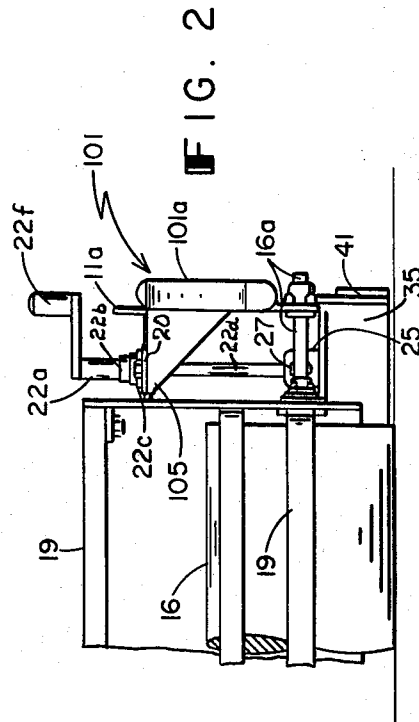
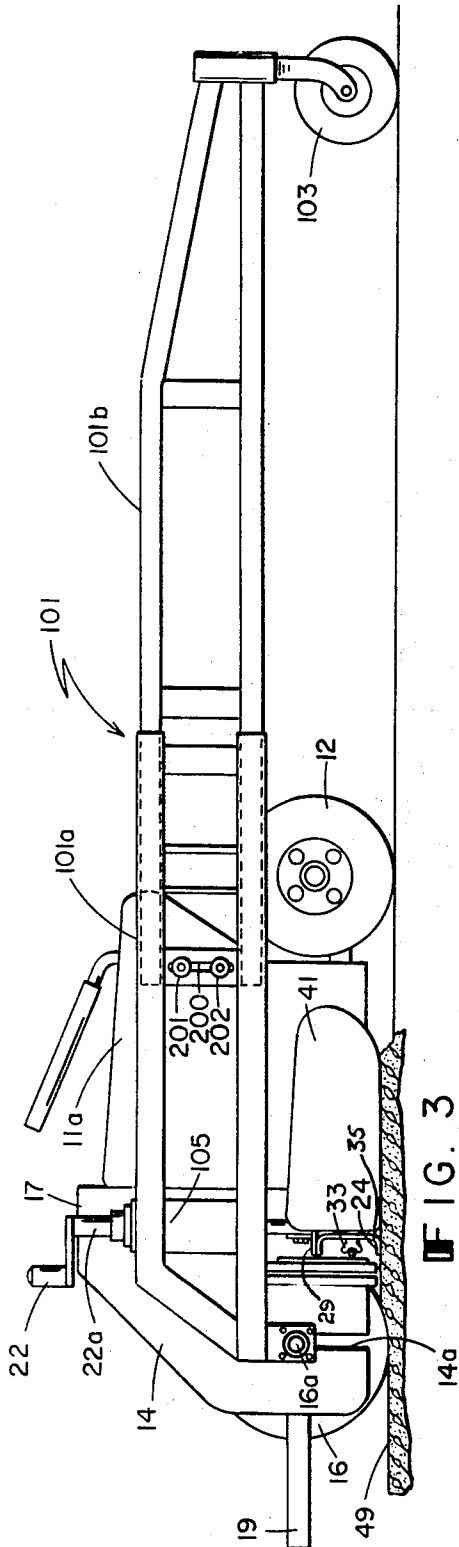
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ROAD SURFACING MACHINE

Filed Oct. 25, 1967

4 Sheets-Sheet 2



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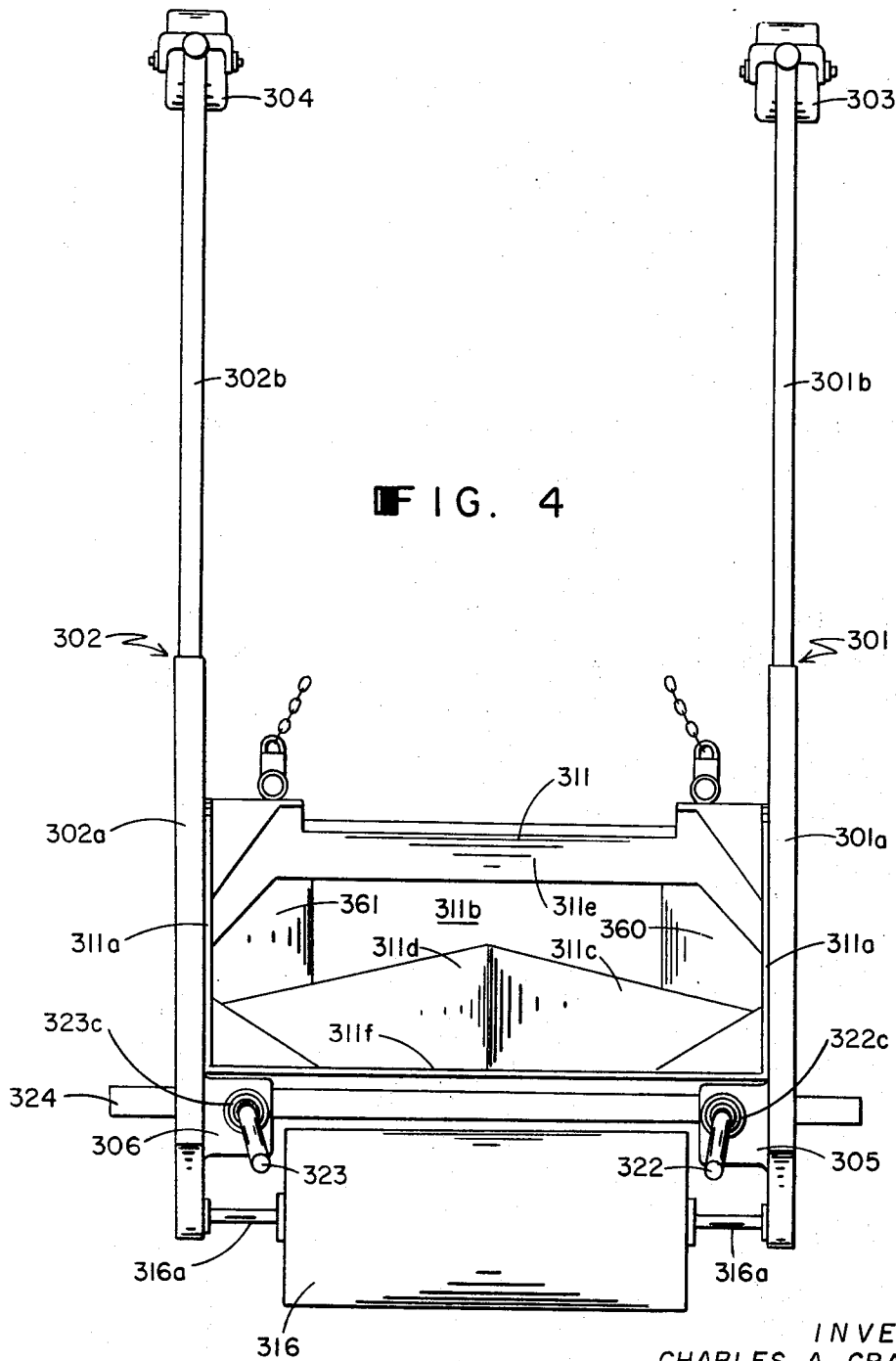
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ROAD SURFACING MACHINE

Filed Oct. 25, 1967

4 Sheets-Sheet 3



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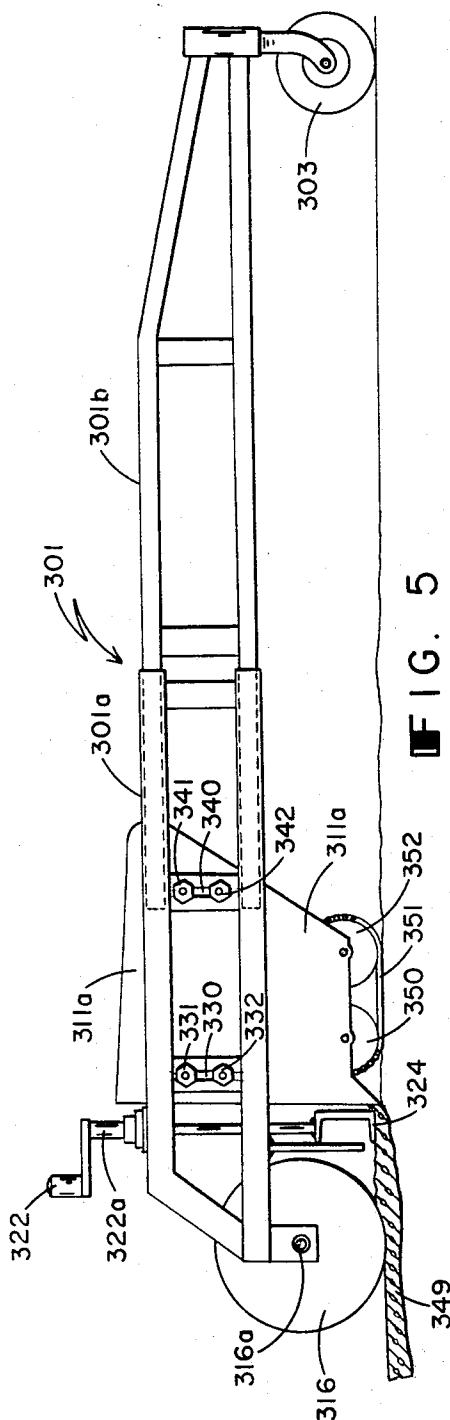
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ROAD SURFACING MACHINE

Filed Oct. 25, 1967

4 Sheets-Sheet 4



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3,417,679

ROAD SURFACING MACHINE

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Continuation-in-part of application Ser. No. 482,474,
Aug. 25, 1965. This application Oct. 25, 1967, Ser.
No. 686,612

5 Claims. (Cl. 94—46)

ABSTRACT OF THE DISCLOSURE

A machine is described which is suitable for forming a new surface of asphalt on a road which has been pitted and eroded by use and weather. A smooth level surface is automatically obtained without any special adjustment, and the machine can also be used in small confined areas such as parking lots. The machine comprises a hopper, a rear screed, a rear roller and two forward arms, each supported by a separate pivotable wheel and by the roller shaft.

Background of invention

This is a continuation-in-part of my co-pending application Ser. No. 482,474, filed Aug. 25, 1965 and now abandoned.

This invention relates to a machine for spreading and compacting road surfacing materials. In particular, it relates to a machine suitable for forming a new surface of asphalt on a road which has been pitted and eroded by use and weather.

Although devices have been hitherto described for spreading and compacting an asphalt surface on a road, such prior devices have generally been unsatisfactory in road resurfacing, particularly because of the irregularities in the road bed to be resurfaced.

One object of this invention is to provide an asphalt spreading and compacting machine which will provide a smooth level surface without any special adjustment.

A further object of this invention is to provide such a machine which can be used in road resurfacing to provide proper smoothness and level.

Other objects and advantages of this invention will be apparent from the specification and claims which follow and from the appended drawings.

Summary of invention

In its most general form, the spreading and compacting machine of this invention comprises a main frame, a pair of forward steerable wheels attached to the frame, an asphalt receiving chamber ("hopper") attached to the frame rearward of the wheels and having an open bottom, a compacting roller attached to the frame rearward of the screed assembly, a separate longitudinal, elongated frame member slidably attached to each side of the main frame and supported on extensions of the shaft of the compacting roller and having a forward pivotable caster wheel and a vertically adjustable screed assembly positioned between the roller and chamber and supported by the longitudinal frame members. The screed assembly preferably comprises threadable screed support members on which are hung a main screed having transversely movable screed extensions, each with a vertical side wall. The longitudinal frame members extend beyond the front steerable wheels and main frame a substantial distance, as for example, one-quarter to one and one-half times the length of the main frame.

In my co-pending application Ser. No. 468,278, filed June 30, 1965, now Patent No. 3,335,646, I describe a tow-type spreading and compacting machine wherein the main frame, the forward steerable wheels, the receiving

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chamber and the compacting roller are substantially similar in construction and orientation as they are in the present invention. Likewise, the screed assembly in said co-pending application, now Patent No. 3,335,646, is of similar construction and operation, except that in the present case the threadable screed support members are attached to the longitudinal frame members rather than the main frame. Although the laterally-adjustable screed assembly of said co-pending application is preferred, its use is not required in the present invention. Thus, the screed can be of fixed width or it can be of adjustable width.

Brief description of drawings

FIG. 1 is a plan view of such a machine.

FIG. 2 is a rear elevation of the right portion of FIG. 1, it being understood that the left portion has a corresponding structure.

FIG. 3 is a right side elevation of FIG. 1.

FIG. 4 is a plan view of a different form of this invention.

FIG. 5 is a right side elevation of FIG. 4.

Specific example of invention

The embodiment illustrated in FIGS. 1-3 comprises a forward asphalt receiving and depositing chamber or hopper 11 comprising two side plates 11a having open lower cut-out sections 11aa, back plates 11c and 11d, which are joined at a top ridge and flared downward and outward, a back wall 11f and a front plate 11e, forming an open top and a narrower open bottom 11b.

The frame which supports the hopper also supports a pair of steerable wheels 12 and 13 actuable respectively by handles 12a and 13a. Rearward of the hopper is a large transverse compacting roller 16 which is normally provided with a wooden top frame 17, a top scraper 18 and a bottom step 19. The shaft of the roller 16 has an extension 16a on each side to support elongated, longitudinal frame members 101 and 102. At each forward end of frame members 101 and 102 are pivotable caster wheels 103 and 104 and towards the rear are inward platforms 105 and 106 supporting threaded collars 22b by means of bearings 22c and 23c mounted on brackets 20 and 21. Handles 22f and 23f connect to hollow sections 22a and 23a terminating in collars 22b. Threaded into collars 22b are support members 22d. These assemblies 22 and 23 are vertically adjustable and support the main screed 24 by means of yokes 25 on the screed with pins 27 connecting to support members 22d.

In addition to the support connection to the shaft extension of the roller, the longitudinal frames 101 and 102 have vertical slots 200 through which protrude bolts 201 and 202 attached to the main frame so as to permit limited vertical motion to take place as the caster wheels 103, 104 bob up and down.

The frame members 101 and 102 are thus supported between the front wheels 12 and 13 and the rear roller 16.

The screed assembly as illustrated in the drawings comprises a main screed 24 with a transverse plate 29 welded on top which serves as a top guide for the screed extensions 35 having vertical side walls 41, with wing nut 33 as the single adjustment. Other details of the screed assembly are as shown in United States Patent No. 3,355,646.

Each of the elongated longitudinal frame members 101 and 102 consists of two parts, the permanent side rails 101a and 102a and the removable extension portions 101b and 102b. When the extension portions are used, the bolts 201 and 202 are left loose so that the entire frame members can slide upward or downward on the bolts 201 and 202 in the slot 200. If, however, it is decided to use the machine in a conventional manner without the forward surface levelling feature of this

invention, the bolts **201** and **202** are tightened so that the frame members **101a** and **102a** are actually firmly attached to the side plate so that in effect **101a** and **102a** become part of the main frame. This versatility is important where the same machine is to be used for resurfacing crowded or restricted areas, such as parking lots, rather than roads.

It is preferred that the relatively narrow screed is brought fairly close to the roller axle. Thus, when the front caster wheels **103** and **104** jump or fall as they probe the forward road surface irregularities, the screed blade itself rises or falls very little.

For road resurfacing, the machine is preferably dimensioned for single lane width. Thus, for example, the compacting roller is typically about 18 inches in diameter and 5-7 feet wide. The steerable wheels which are often paired, are also preferably about 18 inches in diameter. The overall length with the extension portions in position is typically about 10-12 feet, the extension portion alone being approximately 5 feet. The machine is generally towed and the front wheels steerable by conventional steering methods, as for example, chain and sprocket drive.

In a large machine, a truck can move in between the two longitudinal members to unload its materials into the hopper. Although this invention is primarily concerned with resurfacing of old roads with asphaltic material, it is also applicable to use in new roads and highways with materials other than asphalt, as for example, granular material such as granular stone and other flowable road building materials.

In the embodiment illustrated in FIGS. 4 and 5 the frame **311** is of similar construction to the frame illustrated in FIGS. 1-3, comprising two side plates **311a** having open lower cutout sections, back plates **311c** and **d**, joined at a top ridge and flared downward and outward, back wall **311f**, and a front plate, forming an open top and a narrower open bottom. In this case, however, frame **311** with its hopper is supported by a moveable assembly comprising four wheels **350** and **352** in two tracks **351** beneath curved plates **360** and **361**. The large transverse compacting roller **316** does not support the frame **311** as in the previous embodiment but, as in the prior embodiment, has shaft extensions **316a** on each side to support the elongated longitudinal frame members **301** and **302**. The forward ends of frame members **301** and **302** have similar pivotable caster wheels **303** and **304** at the rear of inward platforms **305** and **306** supporting threaded collars by means of bearings mounted on brackets. Handles **322** and **323** connect to hollow sections terminating in the collars. Support members are threaded into the collars. Assemblies **322** and **323** are vertically adjustable and support the main screed **324** by means of yokes on the screed with pins connecting to the support members.

Frames **301** and **302** have vertical slots **330** and **340** through which protrude bolts **331**, **332**, **341**, and **342** attached to the main frame **311** so as to permit limited vertical motion to take place as the caster wheels **303** and **304** bob up and down.

As in the preceding embodiment, the frame members **301** and **302** have permanent side rails **301a** and **302a** and removeable extension portions **301b** and **302b**.

In this embodiment the frame **311** can either be of the towable type or can contain mechanisms to render it self-propelled.

I claim:

1. A road surfacing machine comprising a main frame, a chamber for receiving road building material supported by said frame, a compacting roller, a pair of longitudinally extended members, each of said longitudinally extended members having a separate forward pivotable wheel, a screed assembly and adjustable screed support members; said main frame being movably supported; said chamber being spaced between said roller and said wheels; said screed assembly being supported rearwardly of said chamber by said adjustable screed support members from said longitudinally extended members; the shaft of said roller having an extension on either side; each side of said main frame having a protruding bolt; each said longitudinal member having a vertically slotted member engageable with said bolt and having means engaging said shaft extension so that said longitudinal member is supported by said shaft extensions and said pivotable wheels but is guided in its vertical motion by said bolt in said slots.

2. The machine of claim 1 wherein the portion of each longitudinal member containing the wheel is removeable and said bolts are actuatable so as to hold the remaining portions of the longitudinal members tightly in position against the main frame when said wheel portions are removed, with the result that said remaining portions of the longitudinal support members are rigidly connected to the frame.

3. The machine of claim 1, wherein the screed assembly comprises a main screed supporting a transversely moveable screed extension having a vertical side wall.

4. The machine of claim 1, wherein said movable support comprises wheels spaced forwardly of the rear of said main frame; said main frame being supported by both said wheels and said roller.

5. The machine of claim 1 wherein the movable support consists of rollable means exclusive of said roller and said roller does not support said frame.

References Cited

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843,856 9/1952 Germany.

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