Sept. 19, 1950 R. A. GORDON 2,522,610

ROAD-BUILDING MACHINE

Filed May 18, 1945 2 Sheets-Sheet 1

Fig. 1.

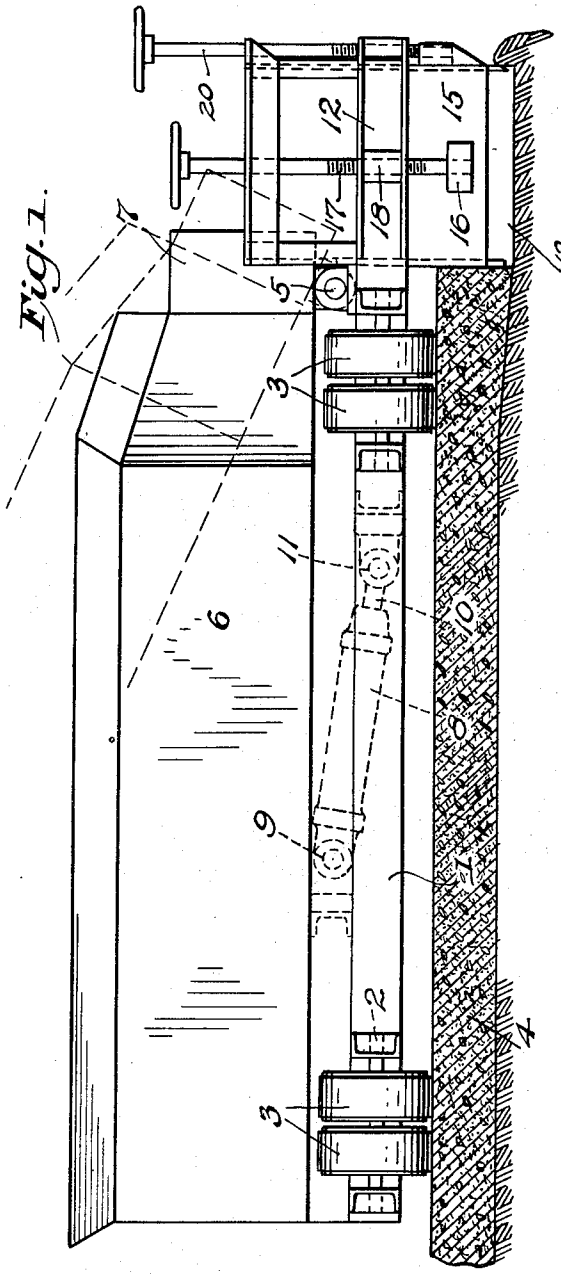
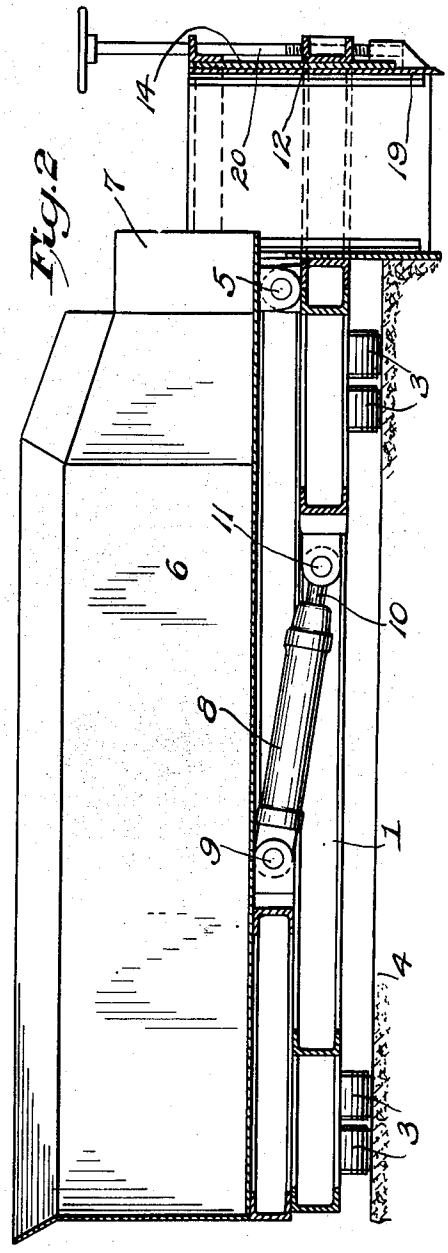


Fig. 2



Inventor

Ronald A. Gordon

By W. S. McElwell

Attorney

Sept. 19, 1950 R. A. GORDON 2,522,610

ROAD-BUILDING MACHINE

Filed May 18, 1945 2 Sheets-Sheet 2

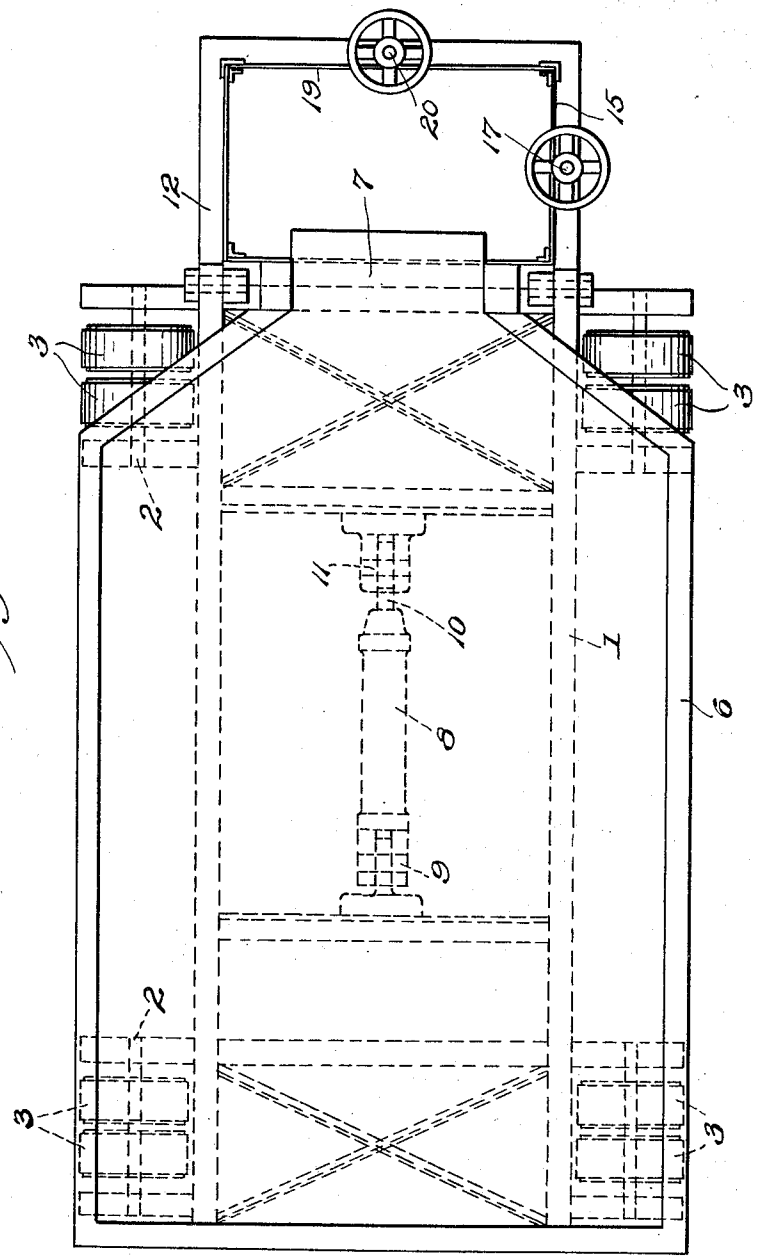


Fig. 3.

Inventor

Ronald A. Gordon

By W. J. McDowell

Attorney

Patented Sept. 19, 1950

2,522,610

UNITED STATES PATENT OFFICE

2,522,610

ROAD BUILDING MACHINE

Ronald A. Gordon, Wilmington, Ohio

Application May 18, 1945, Serial No. 594,524

4 Claims. (Cl. 94—44)

1

This invention relates to material-distributing apparatus and, more particularly, the invention is concerned with apparatus employed in depositing paving materials on road or highway formations.

At present, in the widening of existing paved roads or highways, a parallel trench of desired width and depth is formed at one or both sides of the original paving and, usually, with the employment of dump trucks, paving material is deposited in or adjacent to the berm trench and thereafter, largely through manual labor, is distributed and leveled to provide a bed of desired thickness in the trench and immediately contiguous to the original pavement. Such operations are relatively slow and costly to carry out and, therefore, it is an object of the present invention to provide apparatus by which the paving material, with but a minimum of manual handling, may be deposited in the berm trench and leveled to form the desired bed therein.

Another object is to provide apparatus of this category employing a portable frame mounted for movement longitudinally over the original paving, and wherein the frame carries a low, wide hopper box into which the new material is adapted to be deposited from a standard dump truck, the box being pivotally mounted at one end on the frame, so that, through the aid of suitable raising and lowering mechanism, the same may be tilted to assume an inclined position for effecting a controlled gravitational discharge of the material handled thereby into the road-widening trench at one side of the paving.

It is a further object to provide a machine of the character set forth wherein the frame structure is formed at one end, and over the trench to be filled, with a delivery hopper, the latter being adapted to receive the materials discharged from the tiltable hopper box and direct the same in a guided manner into the trench.

Still, a further object is to provide the delivery box of such a machine with vertically adjustable side and end walls, the same constituting gates for regulating the depth and width of the bed formed by the trench-deposited materials, and also leveling the same as the machine advances longitudinally over the original highway and along the trench.

For a further understanding of the invention, and additional objects and advantages thereof, reference is to be had to the following description and the accompanying drawings, wherein:

Fig. 1 is a side elevational view of the improved road-building machine forming the present invention;

2

Fig. 2 is a vertical longitudinal sectional view taken therethrough;

Fig. 3 is a top plan view.

Referring more particularly to the single specific embodiment of the invention illustrated in the drawings, the numeral 1 designates the frame structure of my improved road-building machine, the frame structure being formed from rigid, interconnected, structural steel members. Said frame structure carries axles 2 for the rotatable reception of supporting wheels 3, the latter being adapted to operate on the upper surface of the bed 4 of original paving. Pivotally connected as a 5 with the frame 1 is a relatively low but wide hopper box 6, the latter possessing considerable volumetric capacity but is built sufficiently low so that a standard dump truck may discharge its contents directly into the box, although, of course, other means for filling said box with paving materials may be employed. The box is formed with a somewhat reduced discharge mouth 7 at its forward end, and the materials may be discharged through this mouth by elevating the box to an inclined or tilted position, as indicated by dotted lines in Fig. 1. When so tilted, the materials contained within the box are discharged gravitationally at a governable rate of flow from the mouth 7 thereof. Any suitable means may be employed for raising and lowering the box, such as the hydraulic jack mechanism indicated at 8 in the drawings, one end of the jack being pivotally connected as at 9 to the under side of the box 6, while the rod 10 of the jack is pivotally connected as at 11 to the frame 1.

In the embodiment of the invention disclosed, the machine may be pushed or towed by an associated automotive vehicle so that it will travel over the paving 4 longitudinally thereof, but with the hopper box extending transversely of the pavement. However, it will be understood that it is within the scope of the invention to mount a propelling engine (not shown) on the frame structure in order that it may drive one or more sets of the wheels 3 and supply power for the hydraulic jack or hoist 8.

The forward end of the frame structure terminates in a substantially rectangular extension 12 which is located above and in vertical registration with a road-widening trench 13, the latter being formed in the berm of the highway immediately adjacent to and parallel with one or more sides of the paving 4. The frame extension 12 effects the support of a material-delivering hopper 14, which is open at its top and bottom

and through which the materials discharged from the hopper box 6 are passed, when said box is tilted, for guided deposit in the trench 13.

The vertical back wall of the delivery hopper carries a vertically slidable strike-off plate 15. This plate is formed with a bearing bracket 16 for the rotatable reception of the lower end of an adjusting screw 17, the threaded portion of the screw being received in an internally threaded bearing 18 carried by the frame extension 12. By rotating the screw 17, the plate 15 may be raised or lowered to vary the distance between the lower edge thereof and the bottom of of the trench 13, whereby to regulate the thickness of the bed of material deposited in the trench and to level the top thereof. Likewise, the outer vertical side wall of the delivery hopper is formed with guides for the reception of a vertically adjustable side gate 19 which, through the medium of a frame-journaled screw 20, may be adjusted to vary the distance between the lower edge thereof and the bottom of the trench, or other berm course to be filled with road material.

In view of the foregoing, it will be seen that the present invention provides a relatively simple yet efficient machine particularly adapted for use in the widening of existing highway pavements and one capable of depositing in a rapid, orderly and regulated manner the new road material employed in the widening operation. The machine greatly reduces the amount of hand labor ordinarily necessary in such an operation as heretofore carried out. The mechanism of the machine is rugged and simple so that it can withstand hard usage without mechanical failure. While I have described my invention as being particularly applicable to an operation in which highway paving is to be widened, nevertheless, it will be understood that this is but one of many uses to which the machine may be placed and therefore I reserve the right to employ the same in all such uses where its efficient employment is indicated and to make such modifications in the construction and mechanical design of the mechanism without departing necessarily from the scope of the following claims.

I claim:

1. A paving material spreader for road-widening operations, comprising a wheeled frame adapted to be advanced longitudinally along a hard surfaced roadway in which a longitudinally extending material-receiving trench is formed at one side of the roadway, a material-receiving hopper box having a substantially flat bottom, upstanding side walls and an open top, the said box terminating at one end in an outlet, the longitudinal axis of said box being disposed in parallel relation with the axes of the frame wheels and transversely of the roadway over which the machine is advanced, the outlet of said box being arranged in vertical registration with the trench at the side of the roadway, a pivotal connection uniting the outlet end of said box with said frame, mechanism for tilting said box vertically about said pivotal connection and maintaining the same in various angular positions of adjustment with respect to the horizontal to admit of the positioning of said box in an elevated and inclined position providing for gravitational discharge of its contents through said outlet, and an open-bottomed delivery hopper stationarily supported at one end of said frame in registration with the outlet of said box and in vertical alignment with said trench, the lower end of said delivery hopper terminating below the upper surface of the roadway, whereby to receive materials discharged gravitationally from said box to direct and deposit the same in said trench while the machine is moving in a longitudinal direction over the hard surfaced roadway.

2. A paving material spreader for road-widening operations, comprising a wheeled frame adapted to be advanced longitudinally along a hard surfaced roadway in which a longitudinally extending material-receiving trench is formed at one side of the roadway, a material-receiving hopper box having a substantially flat bottom, upstanding side walls and an open top, the said box terminating at one end in an outlet, the longitudinal axis of said box being disposed in parallel relation with the axes of the frame wheels and transversely of the roadway over which the machine is advanced, the outlet of said box being arranged in vertical registration with the trench at the side of the roadway, a pivotal connection uniting the outlet end of said box with said frame, an hydraulic jack mechanism pivotally connected at one end with said frame and at its other end with the under side of said box for tilting the latter vertically about said pivotal connection to admit of the positioning and retention of said box in elevated and inclined positions providing for gravitational discharge of its contents through said outlet, and an open-bottomed, vertically disposed delivery hopper stationarily supported at one end of said frame in registration with the outlet of said box and in vertical alignment with said trench, whereby to receive materials discharged gravitationally from said box to direct and deposit the same in said trench while the machine is moving in a longitudinal direction over the hard surfaced roadway.

3. A paving material spreader for road-widening operations, comprising a wheeled frame adapted to be advanced longitudinally along a hard surfaced roadway in which a longitudinally extending material-receiving trench is formed at one side of the roadway, a material-receiving hopper box having a substantially flat bottom, upstanding side walls and an open top, the said box terminating at one end in an outlet, the longitudinal axis of said box being disposed in parallel relation with the axes of the frame wheels and transversely of the roadway over which the machine is advanced, the outlet of said box being arranged in vertical registration with the trench at the side of the roadway, a pivotal connection uniting the outlet end of said box with said frame, mechanism for tilting said box vertically about said pivotal connection and maintaining the same in various angular positions of adjustment with respect to the horizontal to admit of the positioning of said box in an elevated and inclined position providing for gravitational discharge of its contents through said outlet, an open-bottomed delivery hopper stationarily supported at one end of said frame in registration with the outlet of said box and in vertical alignment with said trench, the lower end of said delivery hopper being disposed at one side of said roadway and below the upper surface thereof, whereby to receive materials discharged gravitationally from said box to direct and deposit the same in said trench while the machine is moving in a longitudinal direction over the hard surfaced roadway, and a vertically adjustable strike-off plate carried by said frame and cooperative with

said hopper for regulating the thickness of the bed of materials deposited in said trench.

4. A paving material spreader for road-widening operations, comprising a wheeled frame adapted to be advanced longitudinally along a hard surfaced roadway in which a longitudinally extending material-receiving trench is formed at one side of the roadway, a material-receiving hopper box having a substantially flat bottom, upstanding side walls and an open top, the said box terminating at one end in an outlet, the longitudinal axis of said box being disposed in parallel relation with the axes of the frame wheels and transversely of the roadway over which the machine is advanced, the outlet of said box being arranged in vertical registration with the trench at the side of the roadway, a pivotal connection uniting the outlet end of said box with said frame, mechanism for tilting said box vertically about said pivotal connection and maintaining the same in various angular positions of adjustment with respect to the horizontal to admit of the positioning of said box in an elevated and inclined position providing for conventional discharge of its contents through said outlet, an open-bottomed delivery hopper stationarily supported at one end of said frame in registration with the outlet of said box and in vertical alignment with said trench, whereby to receive materials discharged gravitationally from said box to direct and deposit the same in said trench while the machine is moving in a longitudinal direction over the hard surfaced roadway, a vertically adjustable strike-off plate carried by said frame and cooperative with said hopper for regulating the thickness of the bed of materials deposited in said trench, and a vertically adjustable side plate carried by said frame, said side plate being disposed in a plane substantially at right angles to said strike-off plate.

RONALD A. GORDON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
Re. 20,611	Nickerson	Jan. 4, 1938
1,163,770	Ransome	Dec. 14, 1915
1,767,243	Kime	June 24, 1930
2,011,417	Robb	Aug. 13, 1935
2,089,094	Kime	Aug. 3, 1937
2,116,504	Arndt	May 10, 1938
2,186,081	Slavin	Jan. 9, 1940
2,280,234	Harvey	Apr. 21, 1942

FOREIGN PATENTS

Number	Country	Date
794,554	France	Dec. 12, 1935