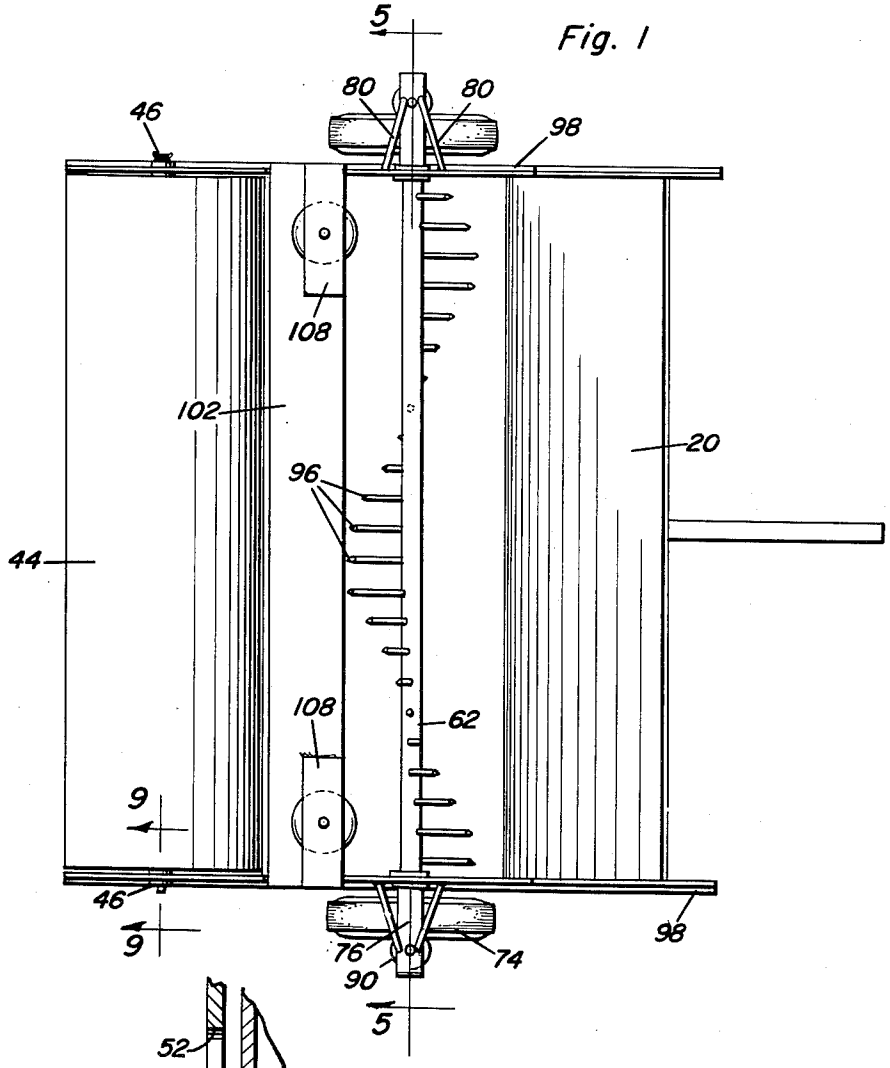
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ROAD PAVER

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Fig. 1



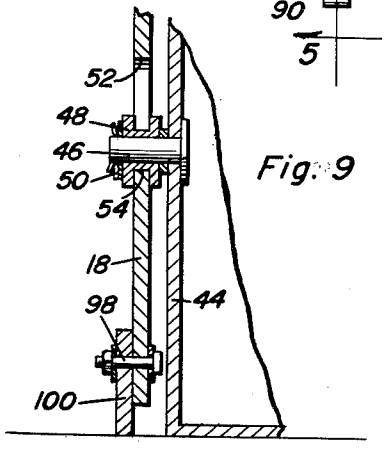


Fig. 9

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Fig. 2

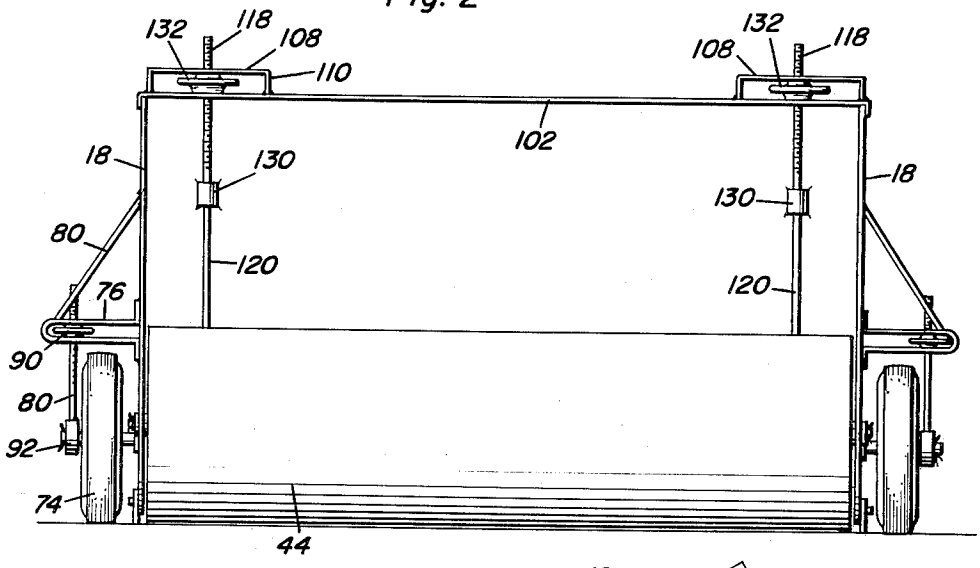


Fig. 3

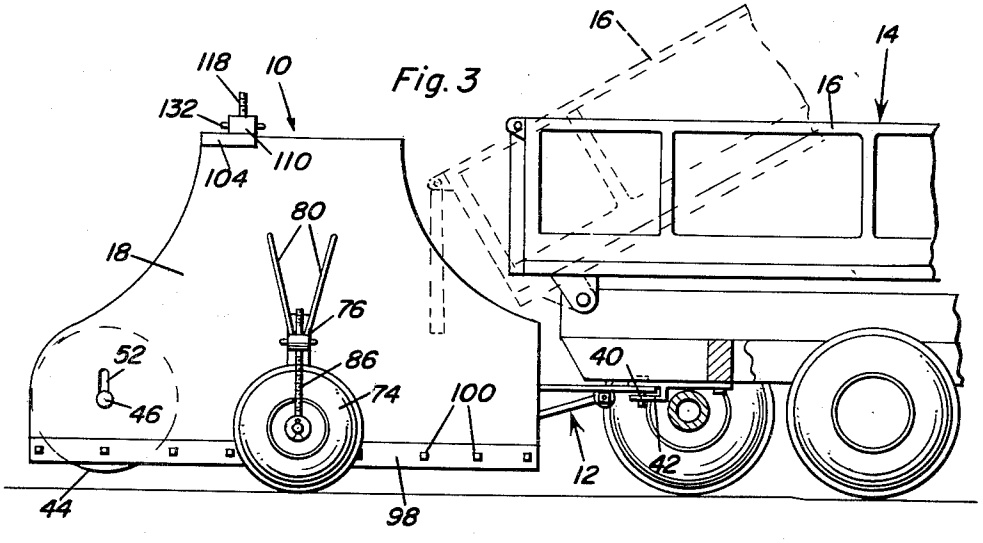
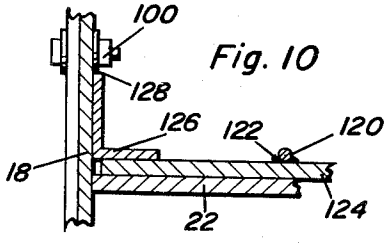


Fig. 10



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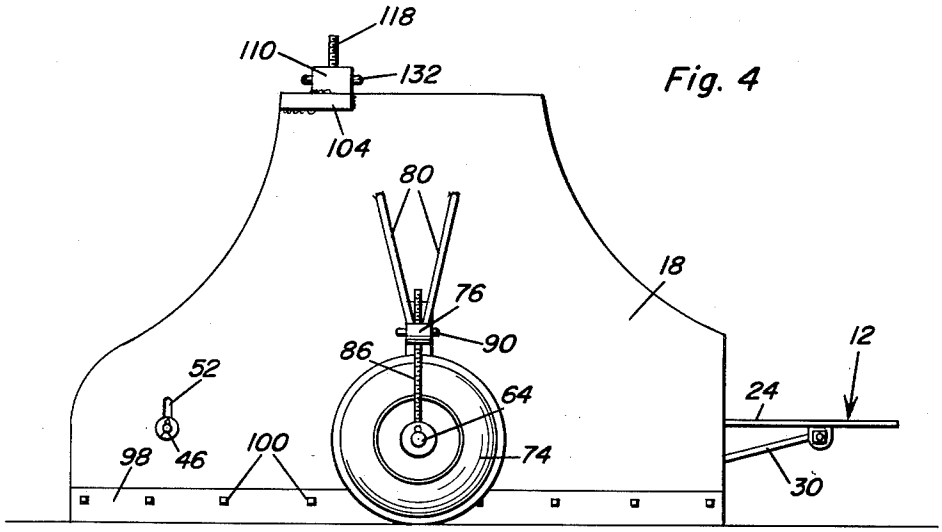


Fig. 4

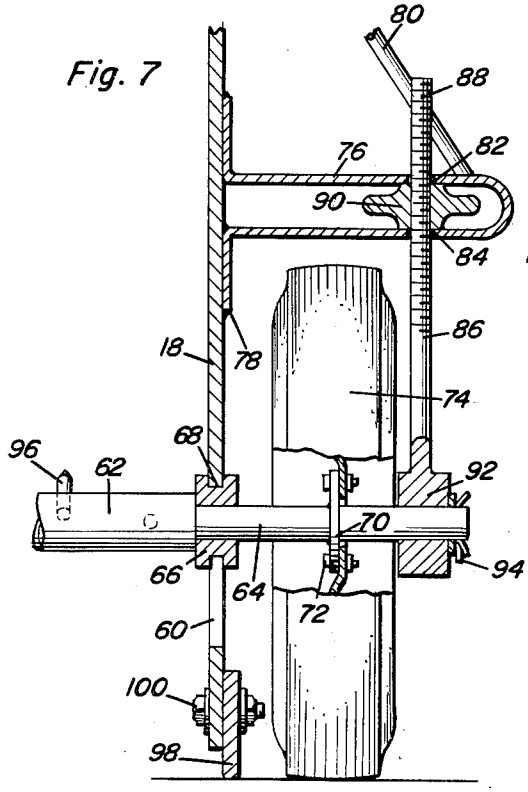


Fig. 7

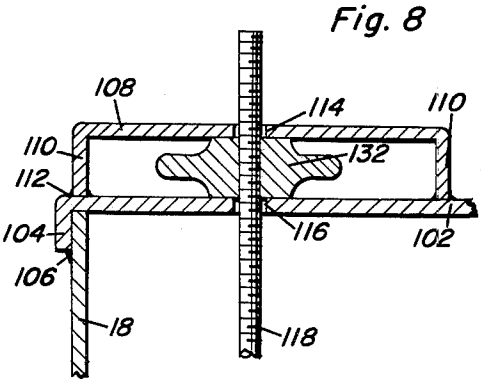


Fig. 8

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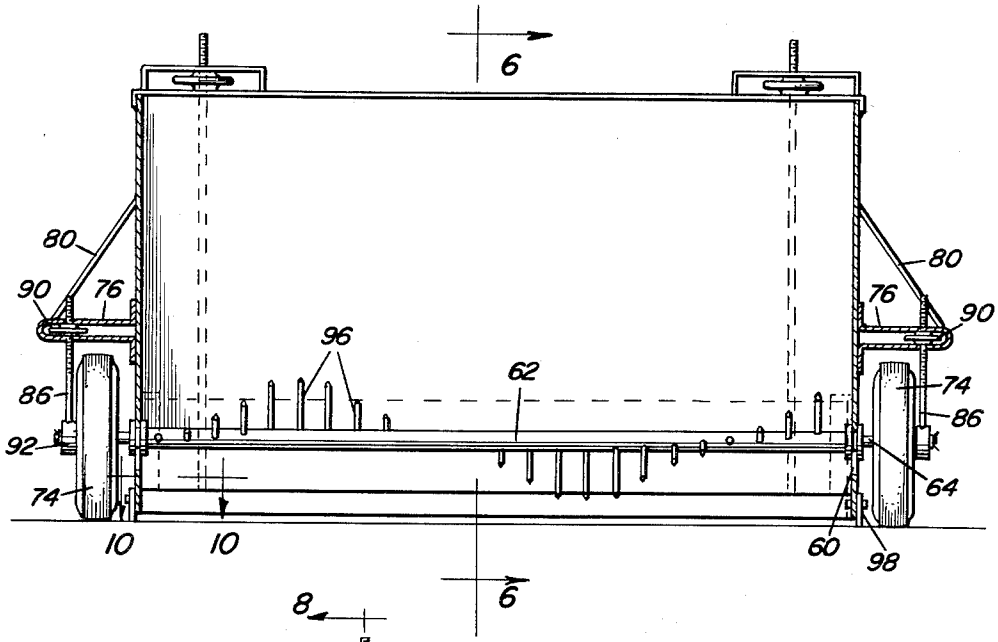
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Fig. 5



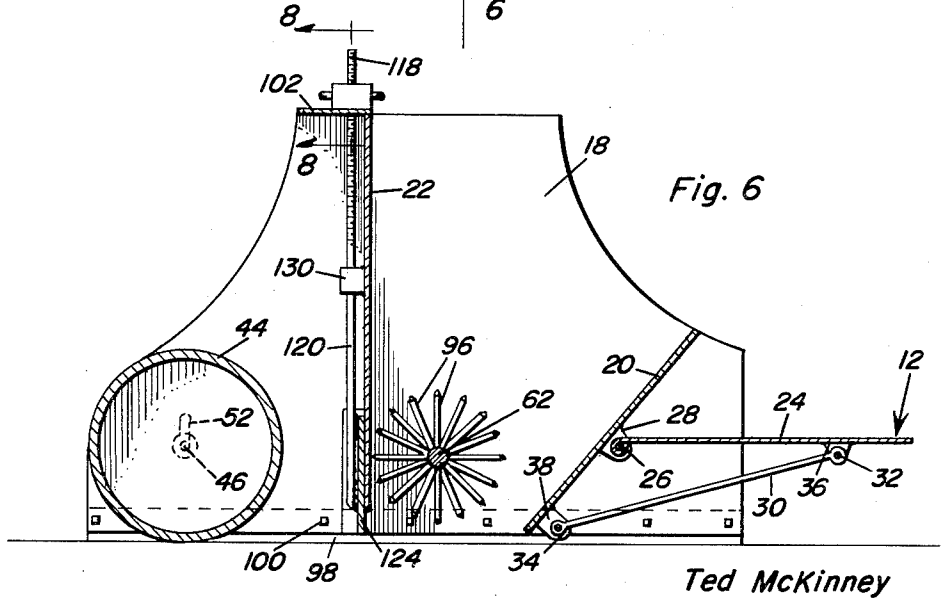


Fig. 6

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ROAD PAVER

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9 Claims. (Cl. 94—46)

This invention comprises a novel and useful road paver and more particularly relates to an apparatus for depositing or applying a coat of paving material to a surface.

The primary object of the invention is to provide an apparatus which will facilitate and enable the applying of a layer or coating of paving material to a surface of a predetermined thickness and with a very precise control of the application of such paving material.

The further object of the invention is to provide a road paving apparatus in accordance with the foregoing object which shall be capable of applying a coating or layer of paving material of a very precisely controlled thickness to the surface of a road or the like, rolling or packing this layer of paving material and forming sharp precise side edges of the paving material.

A further object of the invention is to provide a paving apparatus in accordance with the foregoing object which would uniformly distribute the paving material across the entire width of the apparatus to insure uniform feeding of the material from the apparatus upon the surface to be paved.

Still another object of the invention is to provide a road paving apparatus in accordance with the preceding objects wherein the compression or packing roller of the device shall be journalled for free floating action in order to permit independent control of the thickness of the coating of paving material applied.

A still further object of the invention is to provide a paving apparatus in accordance with the preceding objects which shall have improved means for readily varying the vertical adjustment of the body of the apparatus upon its supporting axle and wheels, and this independently of the journalling of the packing roller in the body of the apparatus.

An additional important object of the invention is to provide a paving apparatus in accordance with the above mentioned objects which shall have an independent control means for regulating precisely the thickness of the layer of material applied by the apparatus to a road bed.

Still another object of the invention is to provide an apparatus in accordance with the hereinbefore set forth objects which may be readily supplied with additional paving material from time to time by a truck or the like as the device applies a coating or layer of paving material to a road bed.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a top plan view of a road paving apparatus in accordance with this invention;

FIGURE 2 is a rear elevational view of the apparatus of FIGURE 1;

FIGURE 3 is a side elevational view of the apparatus of FIGURE 1, showing the manner in which the same is attached to a propulsive means such as the rear end of a tractor vehicle or truck, and showing in dotted lines the manner in which the dump body of a truck may discharge additional paving material into the apparatus while the latter is being towed by the truck to effect the laying of paving material upon a road bed;

FIGURE 4 is a side elevational view of the apparatus but showing the body in its lowered position into which

it is moved during the applying of a layer of paving material to a road bed;

FIGURE 5 is a vertical transverse sectional view taken substantially upon the plane indicated by the section line 5—5 of FIGURE 1 and showing the interior of the apparatus and of the paving material chamber thereof and of the paving material feeding means therein;

FIGURE 6 is a vertical longitudinal sectional view taken substantially upon the plane indicated by the section line 6—6 of FIGURE 5 and showing further details of the interior of the apparatus and of the internal arrangement of various parts therein;

FIGURE 7 is a detail view showing in vertical transverse section and upon an enlarged scale a portion of a side wall of the apparatus and in particular the wheel and support means of the apparatus;

FIGURE 8 is a vertical transverse sectional detail view taken upon an enlarged scale substantially upon the plane indicated by the section line 8—8 of FIGURE 6 and showing in particular the adjusting means for controlling the vertical position of the scraper blade which controls the thickness of the coating or layer of paving material applied by the apparatus to a road bed;

FIGURE 9 is a detail view being taken in vertical transverse sections upon an enlarged scale substantially upon the plane indicated by the section line 9—9 of FIGURE 1 and showing in particular the mounting of the packing roller of the apparatus and the free floating mounting of the same; and

FIGURE 10 is a further detail view in horizontal section being taken substantially upon the plane indicated by the section line 10—10 of FIGURE 5 and upon an enlarged scale and showing guide means for slidably retaining and mounting the scraper blade upon the side and rear end walls of the apparatus.

Referring first to FIGURE 3 it will be observed that the numeral 10 designates generally the suitable embodiment of the road paving apparatus embodying therein the principles of this invention and which is shown as being detachably coupled as by a draft means indicated at 12 to a rear portion of a dump truck 14 or other tractor vehicle which comprises a propulsive means for the paving apparatus. The numeral 16 indicates the pivotally mounted dump body of the truck which may be tilted from its load carrying, horizontal position shown in full lines in FIGURE 3 to a tilted dotted line position therein, in which latter position the paving material carried by the dump body can be discharged into the open upper end or inlet opening of the paving apparatus, from whence this material is continuously discharged from the open bottom end of the apparatus and spread upon a road bed as the propulsive means 14 and the paving apparatus 10 are moved progressively along the road bed.

Referring now more particularly to the drawings it will be observed that the road paving apparatus 10 consists of a pair of substantially vertical parallel side walls each indicated by the numeral 18 together with a forward inclined front end wall 20, see FIGURE 6, and a substantially vertical rear end wall 22. It will be observed that the end wall 22 is disposed intermediate the front and rear ends of the side walls, extends from the upper edge of the latter to a point slightly above the lower edges of the side walls.

The draft means 12 previously mentioned, as shown more clearly in FIGURE 6 may conveniently comprise an upper member 24 whose rear end is secured as at 26 to suitable apertured lugs 28 upon the front end wall 20, together with a brace link 30 pivotally connected at its front and rear ends as at 32 and 34 to corresponding lugs 36 and 38 upon the member 24 and upon the front end wall 20.

As shown in FIGURE 3, the forward end of the member **24** may be detachably secured as by a connecting pin **40** to a suitable yoke **42** secured to the tractor vehicle or propulsive means **14**, whereby the paving apparatus may be detachably secured thereto while accommodating limited vertical oscillations.

Referring now especially to FIGURES 1–3, 6 and 9, it will be observed that rearwardly of the rear end wall **22**, the body of the apparatus has disposed between the side walls **18** a cylindrical packing roller **44**. The packing roller includes stub axles or pintles **46** which are received in bearings or journal members **48** being retained therein as by fasteners such as cotter pins **50**, see FIGURE 9. The side walls **18** of the body portion of the paving apparatus have vertically extending slots **52** therein in which are slidably received the annular grooves **54** of the journal or bearing members **48** as shown clearly in FIGURE 9. The arrangement is such that the packing roller **44** is capable of free vertical movement relative to the body by virtue of the free sliding engagement of its journals **48** in these slots **52**.

By this means, the packing rollers weight is supported directly upon the ground or the layer of paving material applied to the surface of road bed on which the apparatus passes, and is not directly carried by the side walls **18** of the body of the apparatus.

From inspection of FIGURES 1 and 6 it will be observed that the body of the apparatus has an open top and an open bottom, there being defined by means of a pair of side walls **18** and the front and rear end walls **20** and **22** a chamber adapted to receive paving material therein. This paving material is continuously dispensed from the open bottom of this chamber, and may be discharged or replenished within the chamber as suggested in FIGURE 3 by being discharged thereinto through an inlet opening which comprises the open top of the chamber. To facilitate this function, the upper and forward edge of the side walls **18** are curved as shown in FIGURES 3 and 6 to facilitate the tilting thereinto of the rear portion of a dump body **16** of the truck or tractor vehicle during the dumping operation.

There is provided a combined body supporting and mounting means and a paving material feeding means. To this end, the side walls **18** have vertical slots **60** therein, see in particular FIGS. 5 and 7, and a shaft or axle **62** extends transversely between the side walls and has diametrically reduced end portions **64** extending through the side walls and journalled in bearing or journal members **66** which have circumferential channels or grooves **68** which are slidingly and guidingly received in the slot **60**. Thus, the shaft **62** is rotatably journalled in the bearing **66** which in turn are freely slidable in the vertical slot **60** in the side walls.

The extending ends **64** of the shaft have radially enlarged mounting flanges **70** thereon upon which are movably secured as by fastening bolts **72** suitable supporting wheels **74**. The axles and wheels thus serve to support the apparatus for movement of the same.

Provision is made also to adjust vertically the position of the shaft or axle **62** with respect to the side walls **18** of the apparatus. For this purpose there are secured laterally and outwardly projecting brackets in the form of housings as at **76** which are secured to the side walls as by welding or the like as at **78**. Suitable brace members **80** serve to rigidify the mounting of these bracket housings upon the side walls. Extending through vertically aligned bores **82** and **84** in the top and bottom surfaces of the bracket housing **76** are adjusting rods **86**. These rods are externally threaded as at **88** at the upper ends and receive thereon manually operated internally threaded adjusting wheels **90** which are received between the top and bottom surfaces of the bracket housing **76** and project beyond the side edges of the latter for convenient access to permit adjustment of the rod. The lower ends of these rods are provided with enlarged bearing elements **92** in which are

journalled the ends of the extremities **64**, the latter being retained therein as by suitable fasteners such as cotter pins or the like as at **94**.

The arrangement is such that by manipulating the hand wheels **90**, the rods **86** may be raised or lowered relative to the housing **76** to thus vertically adjust the axle **62**. Thus the body of the paving device can be raised or lowered relative to the supporting wheels and to the road surface over which the device travels.

Between the side walls **18**, the shaft **62** is provided with a plurality of circumferentially and axially spaced arms or spikes as at **96**. These members upon rotation of the shaft as the device travels forward serve to agitate and maintain in a loose condition the paving material discharged into the chamber. In addition, as will be readily apparent from FIGURE 5, the progressive axial and circumferential spacing of these arms or spikes **96** will cause a transverse feeding of the material across the entire width of the chamber to thus maintain an even supply of material for feeding from the open bottom end of the apparatus as set forth hereinafter.

Referring now particularly to FIGURES 4–7 in conjunction with FIGURE 9 it will be observed that each of the side walls **18** has detachably secured as by fastening bolts **98** a pair of edger blades **100**. These blades are secured to the lower edges of the side walls and extend downwardly therebeneath as shown best in FIGURES 7 and 9. Although these blades may be disposed on either the interior or exterior surface of the side walls, it is preferred to provide them upon the exterior surface, as illustrated. The purpose of these blades is to slide upon the surface or road bed upon which the paving material is to be laid in order to provide a form which will limit and confine the side edges of the paving material being deposited upon the road bed below the open bottom of the apparatus.

Referring now especially to FIGURES 1 and 6 it will be observed that the upper edge of the rear end wall **22** is provided with a horizontal top plate or flange **102**. As shown more clearly in FIGURE 8, the side ends of the flange **102** are downturned as at **104** and are welded to the side walls **18** as at **106**. A pair of brackets **108** have downturned legs **110** which in turn are welded to the flange **102** as at **112**, and thus define an open chamber lying beneath the flange **108** and above the flange **102**. As shown best in FIGURE 1, the flange **102** has at its opposite ends a pair of these brackets **108** supported thereon.

Vertically aligned bores **114** and **116**, see FIGURE 8, are provided in the brackets **108** and in the flange **102** and received therethrough the externally threaded upper end **118** of an adjusting rod **120**. Each adjusting rod at its lower end is fixedly secured as by welding, see FIGURE 10, as shown at **122**, to one side of a scraper blade **124**. The latter extends across the entire width of the body between the side walls **18**, and as shown in FIGURE 10 is slidably received between the rearward surface of the rear end wall **22** and angle brackets **126** which are welded to the side walls as at **128**. These brackets thus provide guides which guide and retain the scraper blade **124** against the rearward surface of the rear end wall **22**.

A set of guides **130** are welded or otherwise suitably secured to the rearward surface of the rear end wall, see also FIGURE 2, and thus serve to guidingly support the operating rods **120**. Manually operated hand wheels **132** are threadedly engaged upon the threaded portions **118** of the operating rods between the brackets **108** and the flange **102**, as will be readily apparent from a consideration of FIGURES 2, 5, 6 and 8 so that upon rotation of these hand wheels the operating rods will be raised and lowered and thereby the scraper blade **124** will likewise be vertically adjusted. The arrangement is such that as the scraper blade may be disposed at any desired distance above the surface of the road bed so

as to thereby regulate the depth of a layer or coating of paving material which is discharged from the open bottom end of the chamber of the apparatus as the device is moved forward along the road bed.

It will be particularly noted that there are thus provided independent adjustments of the body of the apparatus upon the support wheels 74, and of the scraper edge 124 upon the body, and that each of these adjustments can be effected without effecting the journalling of the packer roller 44 which is floatingly journalled in the body.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A road paver comprising, parallel side walls interconnected by a rearwardly sloping front wall adjacent forward ends of the side walls and a rear end wall disposed forwardly of rear end portions of said side walls, said front and rear end walls defining a hopper between the side walls, supporting wheel means rotatably mounted by said side walls intermediate the front and rear end walls, roller means freely slidable vertically between defined limits on said side walls rearwardly of said rear end wall, side edging means mounted along bottom edges of said side walls and extending beyond said roller means and front wall, vertical adjusting means operatively connected to said side walls and wheel means for vertically adjusting said side walls and side edging means above the ground and thereby operatively position said roller means, and feeding means disposed between said side walls and mounted on said wheel means for rotation about a transversely extending axis, said feeding means distributing paving material uniformly between said side walls, for discharge from the hopper upon said surface to be paved.

2. The combination of claim 1 including a scraper blade secured to said rear end wall and extending downwardly therefrom, means for varying the lower edge of said scraper blade from said surface to be paved whereby to control the thickness of the layer of paving material applied to said surface from the open bottom end of said hopper.

3. A road paver comprising, parallel side walls interconnected by a rearwardly sloping front wall adjacent forward ends of the side walls and a rear end wall disposed forwardly of rear end portions of said side walls, said front and rear end walls defining a hopper between the side walls, supporting wheel means rotatably mounted by said side walls intermediate the front and rear end walls, roller means freely slidable vertically between defined limits on said side walls rearwardly of said rear end wall, side edging means mounted aong bottom edges of said side walls and extending beyond said roller means and front wall, vertically adjusting means operatively connected to said side walls and wheel means for vertically adjusting said side walls and side edging means above the ground and thereby operatively position said roller means, said roller means including a roller disposed between said side walls and mounted for rotation about a transversely extending axis of rotation, said side walls having journals for said roller, and means mounting said journals for vertical movement relative to said side walls.

4. The combination of claim 3 wherein said mounting means comprises vertical slots in said side walls, said roller having pintles on its ends received in said journals; said journals being slidably mounted in said slots.

5. The combination of claim 3 including feeding means disposed in said hopper and mounted for rotation about a transversely extending axis, said feeding means distributing paving material uniformly between said side walls for discharge from the open bottom of the latter upon said surface to be paved, said feeding means comprising a shaft, a plurality of axially and circumferentially spaced arms on said shaft.

6. A road paver comprising, parallel side walls interconnected by a rearwardly sloping front wall adjacent forward ends of the side walls and a rear end wall disposed forwardly of rear end portions of said side walls, said front and rear end walls defining a hopper between the side walls, supporting wheel means rotatably mounted by said side walls intermediate the front and rear end walls, roller means freely slidable vertically between defined limits on said side walls rearwardly of said rear end wall, side edging means mounted along bottom edges of said side walls and extending beyond said roller means and front wall, vertically adjusting means operatively connected to said side walls and wheel means for vertically adjusting said side walls and side edging means above the ground and thereby operatively position said roller means, feeding means disposed in said hopper and mounted for rotation about a transversely extending axis, said feeding means distributing paving material uniformly between said side walls for discharge from the open bottom of the latter upon said surface to be paved, said feeding means comprising a shaft, a plurality of axially and circumferentially spaced arms on said shaft, said shaft extending through said side walls, said supporting wheel means comprising wheels mounted on said shaft.

7. The combination of claim 6 including journals for said shaft, said side walls having vertical slots slidably receiving said journals.

8. The combination of claim 7 wherein said vertical adjusting means includes brackets on said side walls, rods mounted on said brackets for vertical adjustments, bearings on said rod receiving said shaft.

9. The combination of claim 3 including scraper blade secured to said rear end wall and extending downwardly therefrom, means for varying the lower edge of said scraper blade from said surface to be paved whereby to control the thickness of the layer of paving material applied to said surface from the open bottom end of said hopper, said scraper blade having guide means slidably securing it to said rear end wall, an actuating means secured to said scraper blade for vertically adjusting the latter.

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