Jan. 13, 1925. 1,523,189

E. J. FLOYD

DIRT MOVER AND ROAD MACHINE

Filed June 24, 1921 6 Sheets-Sheet 1

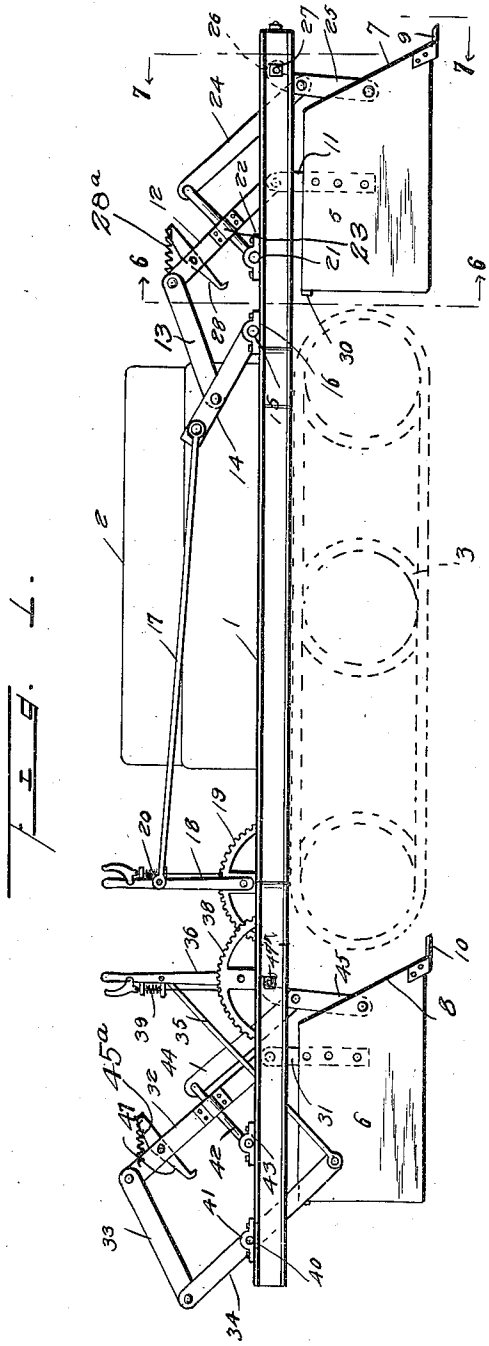


FIG. 1.

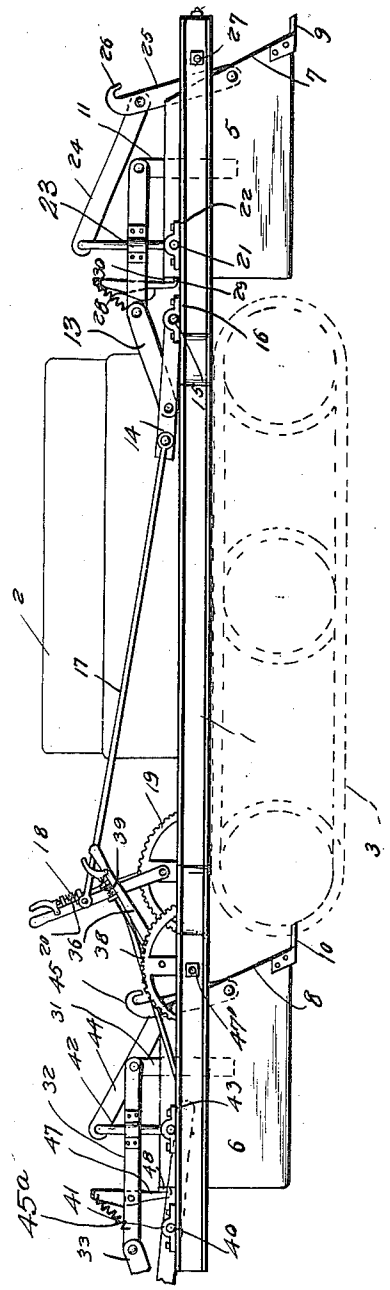


FIG. 2.

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FIG. 3.

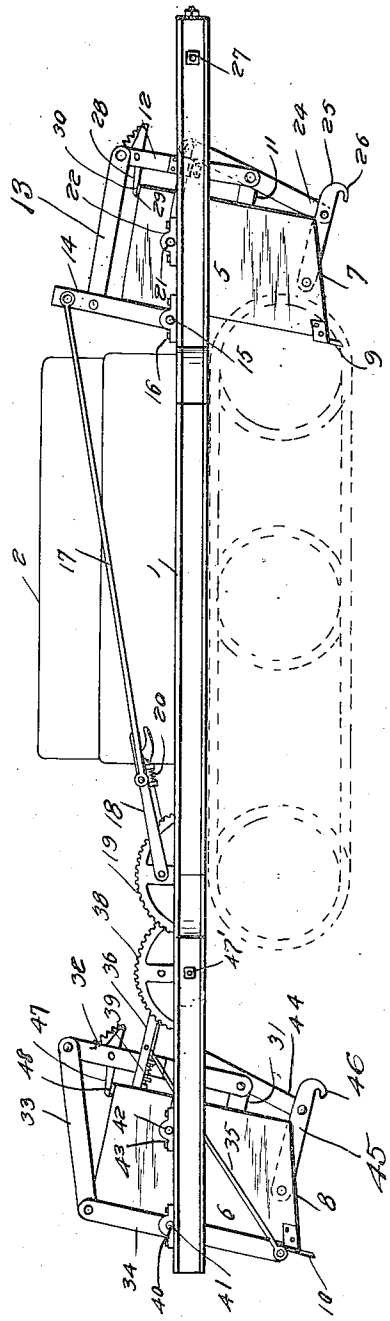
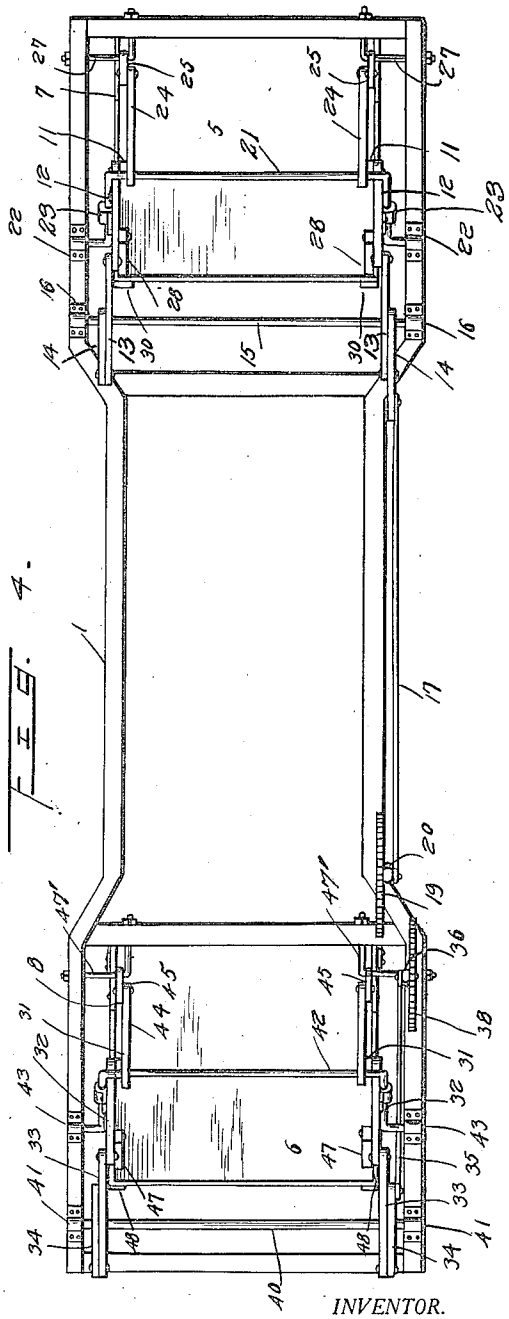


FIG. 4.



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Fig. 5.

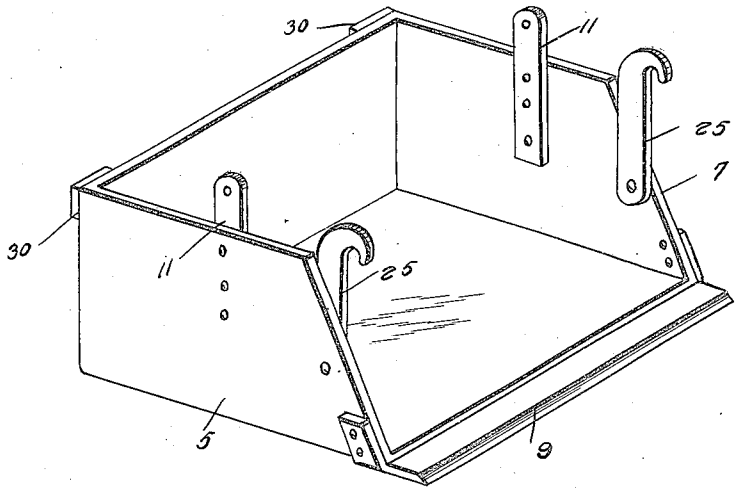


Fig. 6.

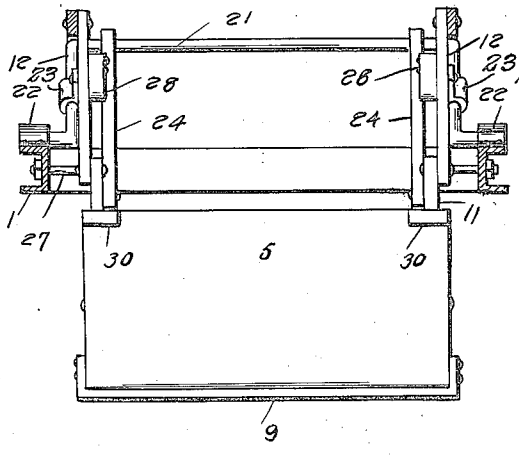
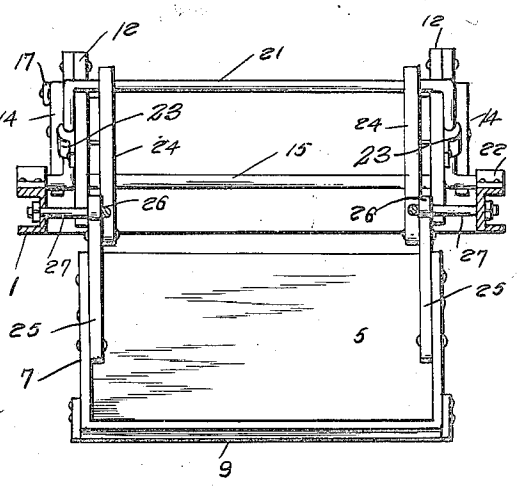


Fig. 7.



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DIRT MOVER AND ROAD MACHINE

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FIG. 8.

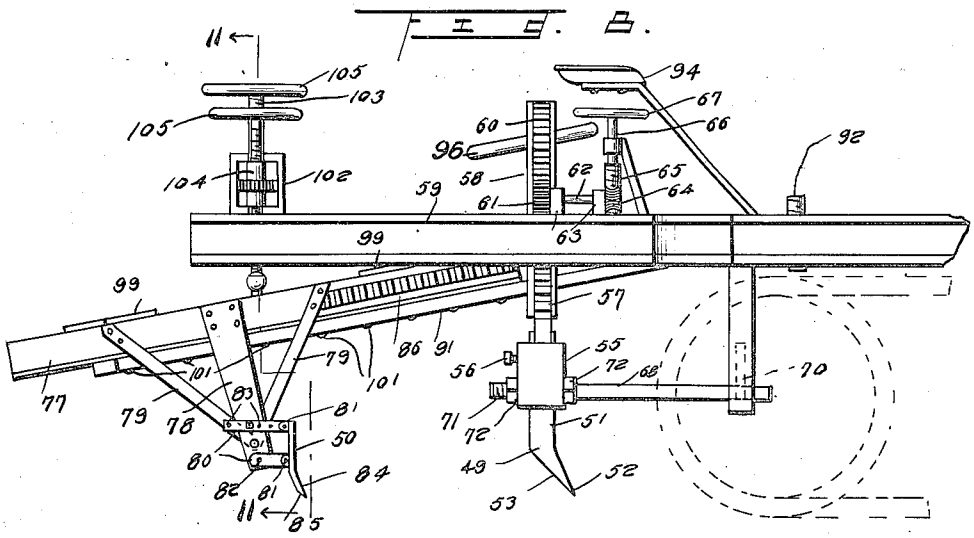
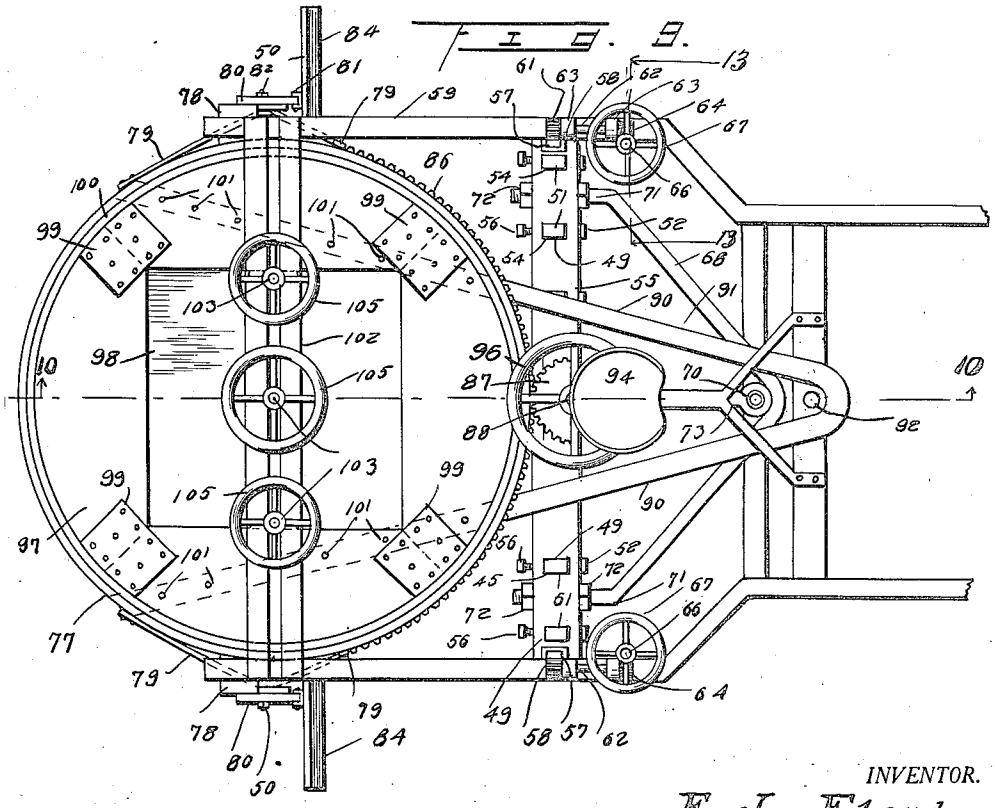


FIG. 9.



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DIRT MOVER AND ROAD MACHINE

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Fig. 10.

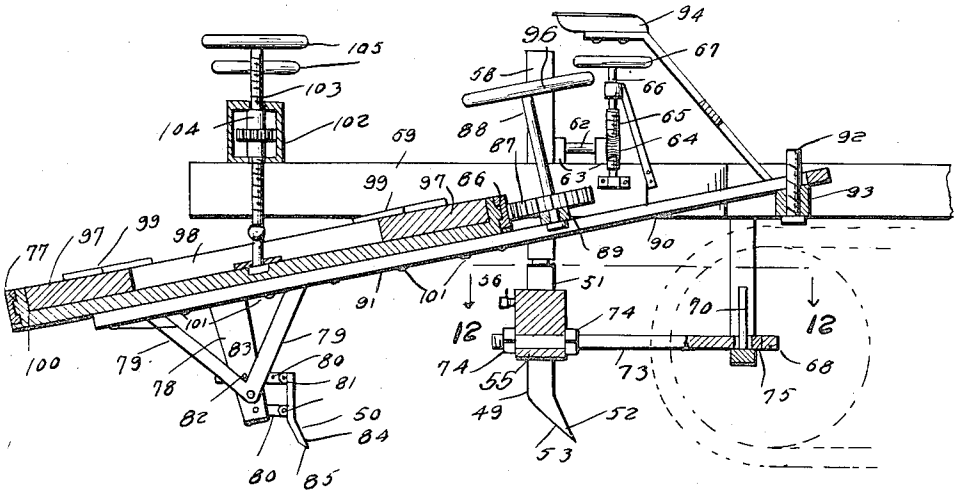
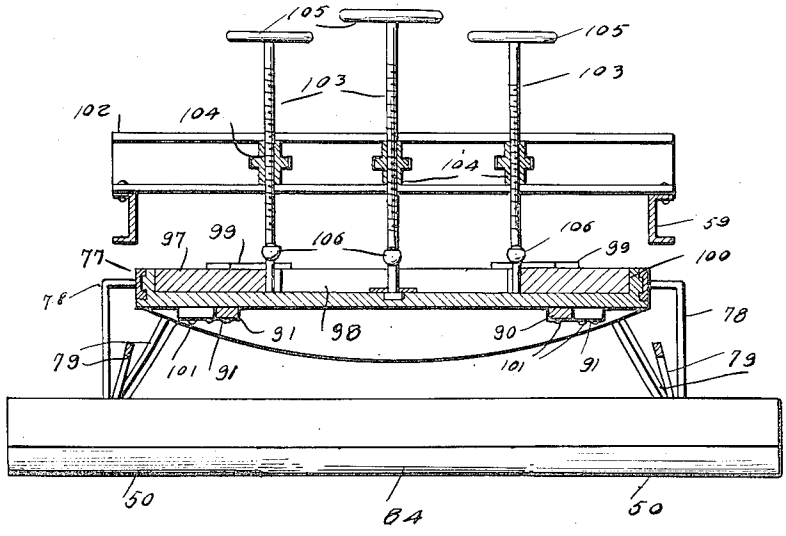


Fig. 11.



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DIRT MOVER AND ROAD MACHINE

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Fig. 12.

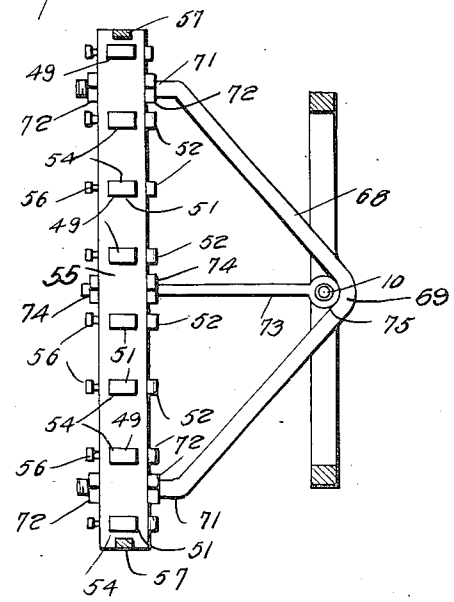


Fig. 13.

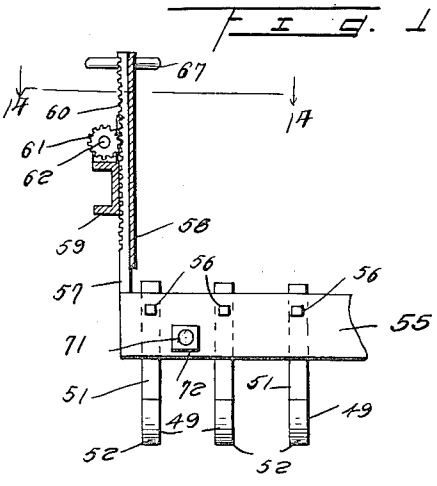


Fig. 14.

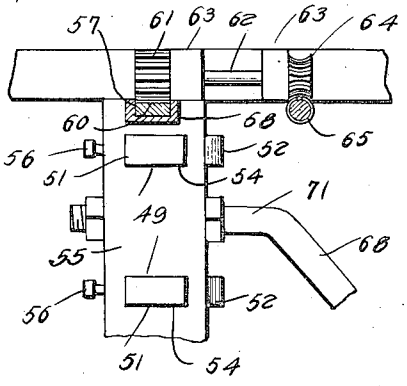


Fig. 15.

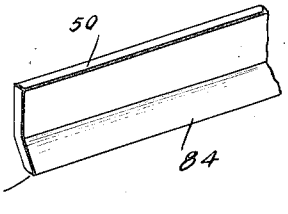
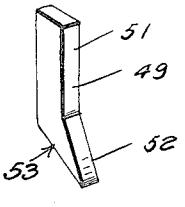


Fig. 16.



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Patented Jan. 13, 1925. 1,523,189

UNITED STATES PATENT OFFICE.

EDWARD J. FLOYD, OF ROME, GEORGIA.

DIRT-MOVER AND ROAD MACHINE.

Application filed June 24, 1921. Serial No. 480,152.

To all whom it may concern:

Be it known that I, EDWARD J. FLOYD, a citizen of the United States, residing at Rome, in the county of Floyd and State of Georgia, have invented certain new and useful Improvements in Dirt-Mover and Road Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has relation to certain new and useful improvements in a dirt mover and road machine and has for its primary object the provision of a machine of the character stated which will be of comparatively simple construction and which will be highly efficient in use.

The invention has for another object the provision of a dirt mover and road machine which will be of such a type that an ordinary tractor may be converted into the improved form of dirt mover and road machine by the addition of parts constructed for this purpose.

The invention has for a further object the provision of a dirt mover and road machine of the character stated which will include the ordinary endless tread tractor and the usual type of motor or engine mounted on the frame above the endless tread tractor wheels.

The invention has for a further object the provision of a dirt mover and road machine of the character stated which will include forward and rear dirt pans adapted to be dumped by operating levers, and a scraping member adapted to be substituted for the rear dirt pan together with means for mounting the scraping member and adjusting the same and a plurality of cutting members adjustably mounted in front of the scraping elements.

The invention has for a further object the provision of a dirt mover and road machine of the character stated in which the dirt pans may be readily adjusted or swung to inoperative or tilted position and in which the scraping elements and digging elements may be readily adjusted when employed in place of the rear dirt pan.

The invention has for a still further object the provision of improved and novel means for adjusting the operative parts of the dirt mover and road machine independently of one another and with the minimum expenditure of time and energy.

The invention has for another object the provision of a dirt mover and road machine of the character stated in which all of the parts will be of simple and efficient construction and operation and in which the various parts may be readily replaced, if required.

With the foregoing and other objects in view, the invention consists in the novel construction, combination and arrangement of cooperating elements as hereinafter more specifically set forth, shown in the accompanying drawings and claimed.

In the drawings forming a part of the present application,

Figure 1 is a side elevation of the complete machine with the dirt pans in operative position.

Figure 2 is a view similar to Figure 1, showing the pans in their raised positions.

Figure 3 is a similar view showing the pans in their tilted positions.

Figure 4 is a top plan view of the complete machine.

Figure 5 is a detail view of one of the pans removed.

Figure 6 is a detail transverse section on the plane of line 6—6 of Figure 1, looking in the direction indicated by the arrows.

Figure 7 is a detail sectional view on the plane of line 7—7 of Figure 1, looking in the direction indicated by the arrows.

Figure 8 is an elevation of the machine with the rear pan removed and the scraping elements substituted therefore.

Figure 9 is a plan view of the rear portion of the machine as shown in Figure 8, on an enlarged scale.

Figure 10 is a transverse vertical section on the plane of line 10—10 of Figure 8, looking in the direction indicated by the arrows.

Figure 11 is a transverse vertical section on the plane of line 11—11 of Figure 8, looking in the direction indicated by the arrows.

Figure 12 is a horizontal section on the plane of line 12—12 of Figure 10, looking in the direction indicated by the arrows.

Figure 13 is a sectional view on the line 13—13 of Figure 9.

Figure 14 is a sectional view on the line 14—14 of Figure 13.

Figure 15 is a detail perspective view of a portion of the scraper blade, and

Figure 16 is a detail perspective view of one of the digging members.

Referring more in detail to the drawings in which similar reference characters designate corresponding parts throughout the several views, 1 indicates the main frame of the machine which is preferably of rectangular form and has the engine 2 mounted thereon. The endless tread wheels 3 are employed beneath the frame of the machine and mounted in the usual manner. The forward and rear ends of the main frame 1 are extended. It will be evident by referring to the drawings that the forward pan 5 is adapted to operate in the extended forward portion of the same while the rear dirt pan 6 is adapted to operate in the rear extended portion, as will be evident by referring to the drawings. The forward dirt pan 5 and also the rear dirt pan 6 have inclined forward edges 7 and 8 respectively and blades 9 and 10 mounted upon their respective forward lower edges so that dirt or the like may be readily gathered in the pans 5 and 6 when the latter are in operative position. The forward dirt pan 5 has a pair of side arms 11 extended upwardly from its opposite side edges intermediate the ends of the pan and projecting above the upper edge thereof. A pair of raising and lowering arms 12 are pivotally mounted upon the upper ends of the arms 11 and serve to raise and lower the pan 5, as will be later clearly understood. These arms 12 have pivoted to the upper ends thereof the connecting links 13 which are also pivoted to the arms 14 of an operating shaft 15 which is mounted in suitable bearings 16 on the main frame 1 at the junction of the forwardly extended portion with the main portion of the main frame 1. A thrust rod 17 is pivoted to one of the rods 14 and also has pivotal connection with an operating lever 18 employed in connection with the segmental rack 19 and provided with the usual form of latching mechanism 20 to retain the lever 18 in adjusted position.

Mounted transversely on the forward portion of the main frame 1, forwardly of the operating shaft 15, is a crank shaft 21, the offset end portions of which are mounted in suitable bearings 22 carried on the main frame 1 while the main portion of the crank shaft 21 is properly extended above the main frame 1. Each arm 12 has a bracket member 23 mounted thereon for forming a loose connection between the arm 12 and the angular portion of the crank shaft 21, as clearly shown in the drawings. Pivotally mounted on the main portion of the crank shaft 21 are the links 24, which are also pivotally connected with the latch members 25 mounted pivotally on the front of the forward dirt pan 5 and extending forwardly and upwardly therefrom, the upper hooked ends 26 of the latch members 25 being adapted for engagement with the supporting rods 27 carried on the forward portions of the main frame 1 when the forward dirt pan 5 is in its normal or operative position. In order to retain the forward dirt pan 5 in load carrying position, the hooks 28 are carried by the arms 12 and have their lower turned ends 29 adapted through the urgency of springs 28^a for engagement over the lug 30 carried on the end of the dirt pan 5, as shown in Figure 2 of the drawings. The rear dirt pan 6 is provided with a pair of upstanding side arms 31 intermediate the ends thereof and extending upwardly from the sides of said pan 6 above the upper edge thereof. A pair of operating bars 32 are pivoted at their forward ends to the upper ends of said side arms 31 and said bars 32 are inclined upwardly and rearwardly and connected pivotally at their upper ends with bars 33 of the rear dirt pan operating frame which frame also includes bars 34 normally extended parallel with the bars 32 and having pivotal connection at one end with the bars 33. One of the bars 34 has pivotal connection at its opposite or remaining end with the lower end of the lever controlled operating bars 35, which is pivotally connected with the rear dirt pan operating lever 36 mounted on the main frame 1, as shown. This lever 36 is also adapted for operation in connection with the rack segment 38 and has the conventional form of spring latch mechanism 39 to lock the lever in adjusted position. The bars 34 are also pivotally mounted intermediate their ends to the shaft 40 which is mounted in suitable bearings 41 on the rear end of the main frame 1.

A crank shaft 42 is also mounted by its offset opposite ends in the bearings 43 provided therefor near the rear end of the main frame 1 and the main portion of the crank shaft 42 normally extends upwardly and forwardly and has pivoted thereon the links 44, which are also connected pivotally to the latches 45 for the rear dirt pan 6. The latches 45 are pivotally mounted on the forward portions of the rear dirt pan 6 and project upwardly, the hooked upper ends 46 of said latches 45 being adapted for engagement over the angle bars, 47' carried by the rear portion of the main frame 1, when the rear dirt pan 6 is in its normal or dirt gathering position, as shown in Figure 1 of the drawings.

From the foregoing description taken in connection with the accompanying drawings it will be understood that the rear dirt pan 6 may be operated independently of the forward dirt pan 5, as desired, and the rear dirt pan 6 moved to its various positions by operation of the controlling lever 36 pro-

vided therefor while the forward dirt pan 35 is controlled by the operating lever 18. By referring to the drawings it will be evident that a rearward movement of the lever 18 will result in raising the forward dirt pan 35 to its uppermost position as shown in Figure 2 of the drawings, during which movement the hooks 26 are carried out of engagement with the rods 27, while a forward movement of the lever 18 from the position shown in Figure 1 will result in swinging the dirt pan 5 into its dumping position as shown in Figure 3 of the drawings. It will also be evident by referring to the drawings that a forward movement of the controlling lever 36 will result in swinging the operating frame of the rear dirt pan 6 so as to move the latter to the raised position shown in Figure 2 of the drawings while a rearward movement of the lever 36 from the position shown in Figure 1 will swing the operating frame so as to move the rear dirt pan 6 to its dumping position as shown in Figure 3 of the drawings during which movement, the hooks 45 disengage the rod 46. Attention may also be directed at this time to the hooks 47 carried by the bars 32 of the dirt pan controlling frame and which are adapted to engage the lugs 48 at the rear side of the rear dirt pan 6 when the latter is in the position shown in Figure 2 of the drawings under urgency of springs 45ª and thereby hold the dirt pan 6 against movement.

When it is desired to employ this machine as a road machine or scraper, the rear dirt pan 6 and the operating mechanism therefor may be removed and the other attachments shown in Figures 8 to 14 inclusive substituted therefor. This attachment comprises a plurality of digging members 49 and a scraper blade 50 which are adapted to be adjustably mounted in supporting means provided therefor on the rear extended end of the main frame 1, as will now be described in detail.

The digging members 49 comprise shank portions 51 and downwardly and forwardly extended operating lower ends 52 formed with said shank portions 51 and having beveled or cutaway rear edges 53, as shown in the drawings. The shank portions 51 are mounted in suitable sockets 54 extended vertically through the cutter carrying beam 55 and secured in adjusted position by set screws 56 or the like. Any suitable number of digging blades may be provided and the beam 55 is extended transversely beneath the rear portion of the main frame 1, as shown in Figures 8 and 9 of the drawings. The beam 55 is retained in proper position by means of the end supporting standards 57 connected with the opposite end portions of the beam 55 and working in suitable guide brackets 58 provided therefor on the outwardly offset extended side members 59 of the rear extended portion of the main frame 1, as shown in Figures 8 and 9 of the drawings. The standards 57 are provided with racks 60 on one face and with which are engaged the pinions 61 carried by the shaft 62 mounted in suitable bearing brackets 63 provided therefore on the extended longitudinal members 59 of the main frame 1 and carrying worm gears 64 upon their opposite end which are operated by suitable gears 65 on the shafts 66 having hand wheels 67 or the like mounted upon their upper ends whereby the opposite ends of the beam 55 may be readily raised and lowered by operation of the hand wheels 67. In order to assist in retaining the cutter carrying beam 55 in proper position a substantially V-shaped supporting rod 68 is provided and has its bight portion 69 engaged around a suitable supporting pin 70 carried by the main frame 1, while the opposite ends 71 of the bar 68 are turned and extended at an angle and in parallel relation with each other through the opposite end portions of the cutter carrying beam 55 as shown in Figure 9 of the drawings, suitable stop nuts 72 being mounted on the ends 71 and engaging the opposite side faces of the beam 55. This will permit of raising and lowering of the beam 55 and at the same time assist in supporting and bracing this beam. A central bracing bar 73 is also provided for the beam 55 and has one end extended therethrough with suitable stop nuts 74 mounted on the bar 73 and bearing against opposite side faces of the beam 55, the forward end of the bar 73 being turned as shown at 75 and engaged around a supporting pin 76 carried on the end of the main portion of the main frame 1.

The scraper blade 50 is carried by the ring 77 which has a pair of depending standards 78 braced by the connecting members 79 connecting the standards 78 with the ring 77. Each end of the scraper blade 50 has a pair of rearwardly extended upper and lower arms 80 pivotally connected thereto as shown at 81 and also connected with the standards 78 for supporting the blade 50, as shown at 82. The lower arm 80 is preferably held rigid with the standard 78 while the upper arm 80 is provided with a plurality of spaced openings 83 to receive the securing members for securing said arm 80 to the standards 78 so that the blade 50 may be readily adjusted to various inclines. It will also be seen that the scraper blade 50 at its lower edge is inclined downwardly and forwardly, as shown at 84, and is furthermore beveled upon its rear face along its lower edge, as shown at 85. The ring 77 is provided at its upper face for a portion of its circumference with ratchet teeth 86 meshing with a

ratchet wheel 87 carried on the shaft 88 which is mounted in suitable bearings in a transverse supporting bar 89 mounted on the diverging rearwardly extended portions 90 of the substantially V-shape supporting bracket 91 which has its bight portion extended around the supporting post or hitch 92 having threaded engagement with a socket member 93 in the rear portion of the main frame 1. The supporting post or hitch 92 is mounted upwardly in front of the operator's seat 94, as shown clearly in Figures 8, 9 and 10 to properly support the bracket 91 in its different inclined positions, as will be readily understood. It will also be understood that an operating wheel 96 or the like is mounted on the upper end of the shaft 88 whereby the gear 87 may be readily rotated to adjust the ring 77 and thereby change the position of the scraper blade 50 with respect to the longitudinal center of the machine.

The ring 77 has a sectional circular supporting plate 97 positioned therein and provided with a central opening 98 of rectangular form, the purpose of which will presently appear. The sections of the plate 97 are secured together by suitable connecting plates 99 at their meeting ends, as shown clearly in Figure 9 of the drawings. The sectional supporting plate 97 rests upon a cylindrical flat supporting plate 100, to the bottom of which is secured the rear ends of the diverging portions 90 of the bracket supporting members 91 by suitable securing members 101, as also shown in Figure 9 of the drawings. A transverse supporting bar 102 is mounted above the rear end of the main frame 1 and has the central and side shafts 103 rotatably mounted in bearing members 104 provided upon said supporting bar 102. Suitable hand wheels 105 are mounted upon the upper ends of the shafts 103 and have their lower ends connected with the plates 97 and 100 whereby rotation of the shafts 103 may serve to raise and lower the plates 100 and 97 together with the scraper blades 50 carried by the ring 77, thereby changing the incline of the plates 100 and 97 with respect to the plane of the main frame 1. It will be understood that the shafts 103 have suitable connections with the plate 100 and also 97, as shown at 106 to prevent binding of the parts.

From the foregoing paragraphs, taken in connection with the accompanying drawings it will be evident that the scraper blades 50 may be readily adjusted either vertically or with respect to the longitudinal center of the machine and when moved to the new position will be securely supported therein. Therefore the machine is especially adapted with this attachment for use as a road building machine.

While the preferred embodiment of the invention has been shown and described it will be understood that minor changes in the details of construction and arrangement of parts may be resorted to within the scope of what is claimed without departing from the spirit of the invention.

What is claimed is:—

1. A machine of the class described having a frame, a crank journaled thereon, operating mechanism for the crank including a raising and lowering arm slidable on said crank, a pan suspended by said arm, coacting means on the arm and pan to engage in the raised position of the pan, a latch on the pan to engage the frame, and an operative connection between the crank and said latch.

2. A machine of the class described having a frame, a shaft journaled on said frame having a crank, a pan, a raising and lowering arm slidable longitudinally of the crank and pivotally connected to the pan, interengageable means between said arm and pan in the raised position of the pan, a latch pivoted to the pan and engageable with the frame, a link connection between said crank and said latch, an operating shaft, and an operative connection between said shaft and said raising and lowering arm.

3. A machine of the class described having a frame, a shaft journaled thereon provided with a crank, a raising and lowering arm slidable longitudinally of the crank, a pan to which said arm is pivoted, a hook depending from the arm and engageable with the pan in the raised position of the latter, a latch pivoted to the pan and engageable with the frame in the raised position of the latter, a link connection between said crank and said latch, a connecting link extending from said arm and operating means connected to said connecting link.

4. A machine of the character set forth, comprising, in combination with an endless tread tractor, a frame secured to the tractor and projecting forwardly and rearwardly beyond the same, the forwardly and rearwardly projecting portions of the frame being wider than the intermediate portion thereof and the tractor, and earth working means carried by said projecting portions of the frame.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD J. FLOYD.

Witnesses:
A. RAWLINS,
LINTON G. WALTERS.