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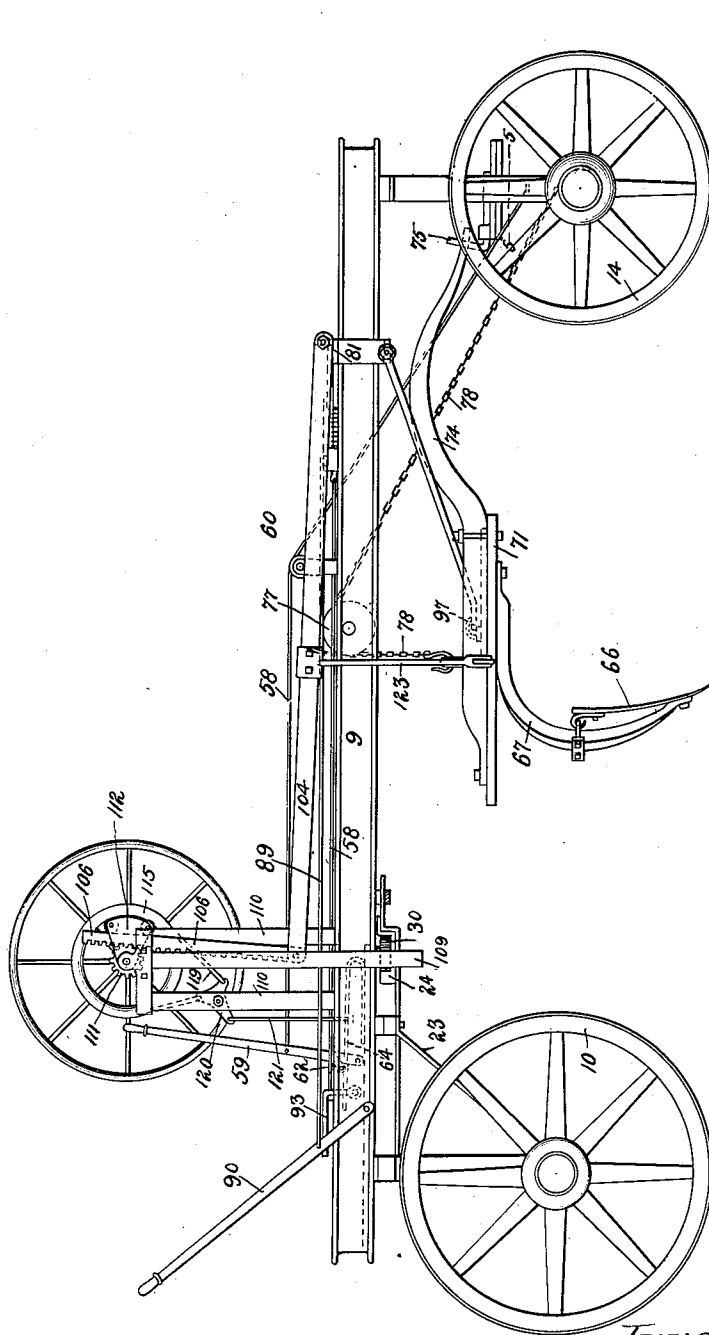
4 Sheets—Sheet 1

J. F. KIMBALL.  
ROAD MACHINE.

No. 527,610.

Patented Oct. 16, 1894.

*Fig. 1.*



*Witnesses.*  
*Wm. N. Rheem.*  
*Julia M. B. v. d. B.*

*Inventor.*  
*James F. Kimball*  
*by Bond, Evans, Pirkard & Jackson*  
*Chas. Atty's*

(No Model.)

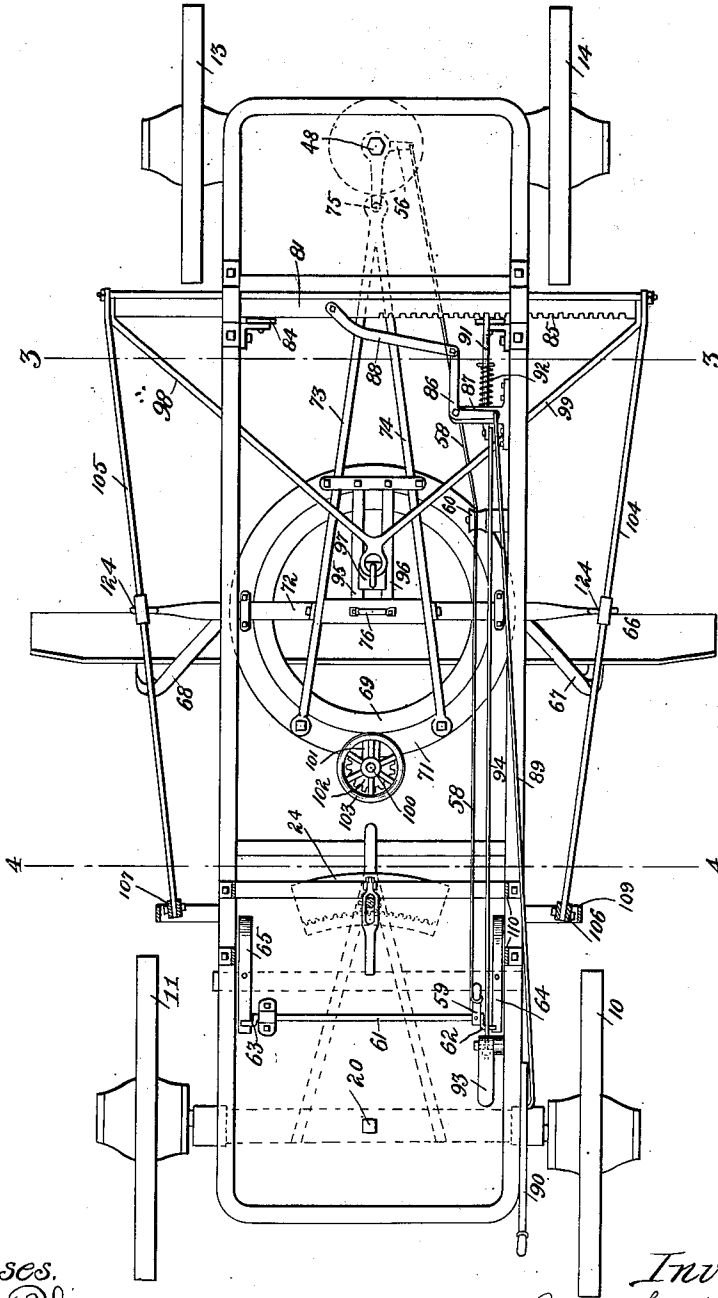
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*Fig. 2.*



Witnesses.  
*S. M. Rheem.*  
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*His Atty's*

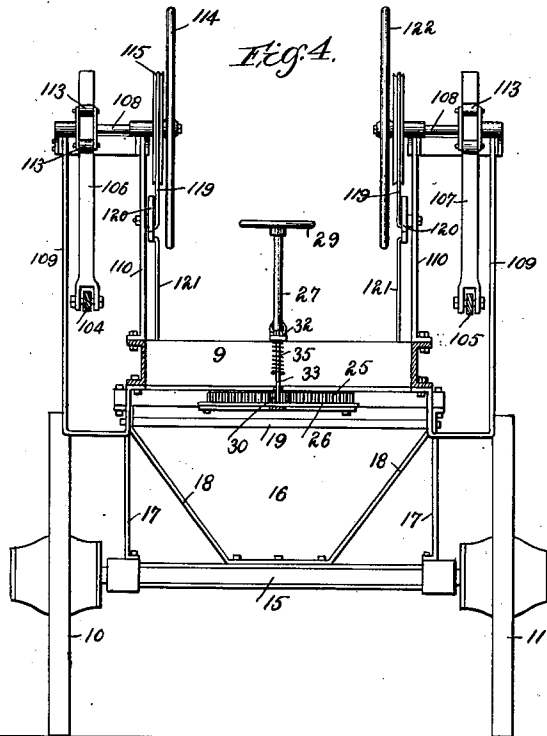
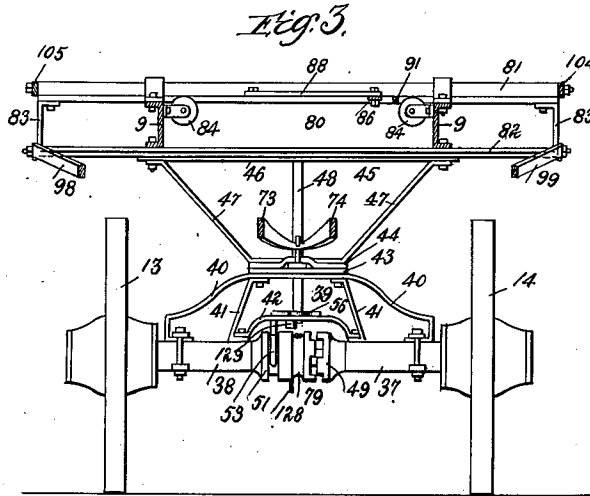
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*Wm. M. Rhee,*  
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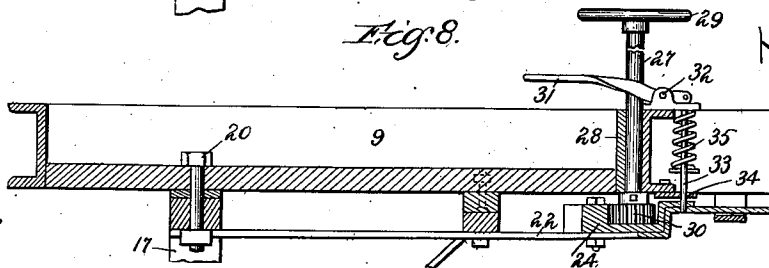
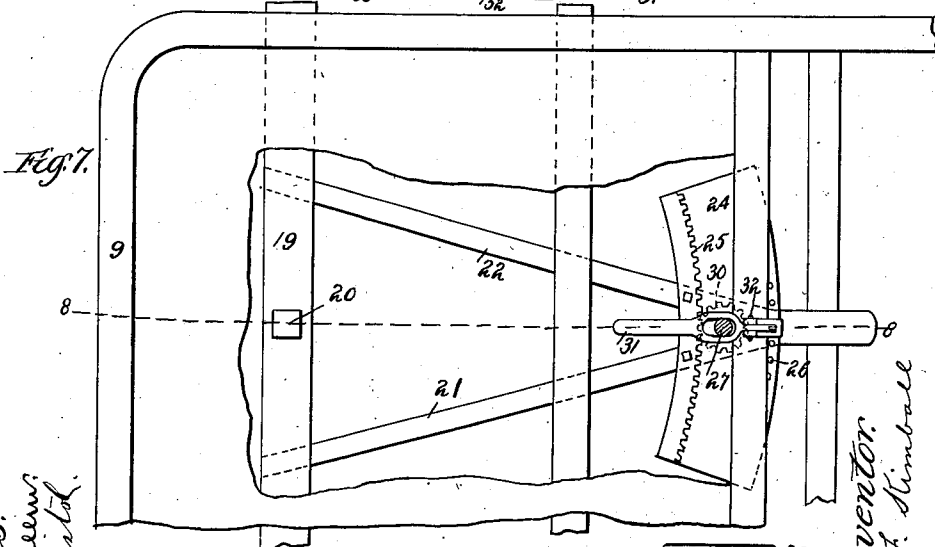
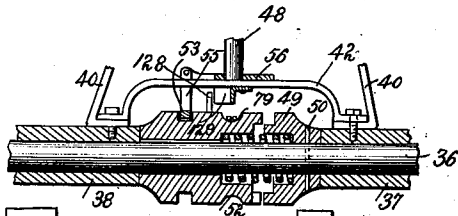
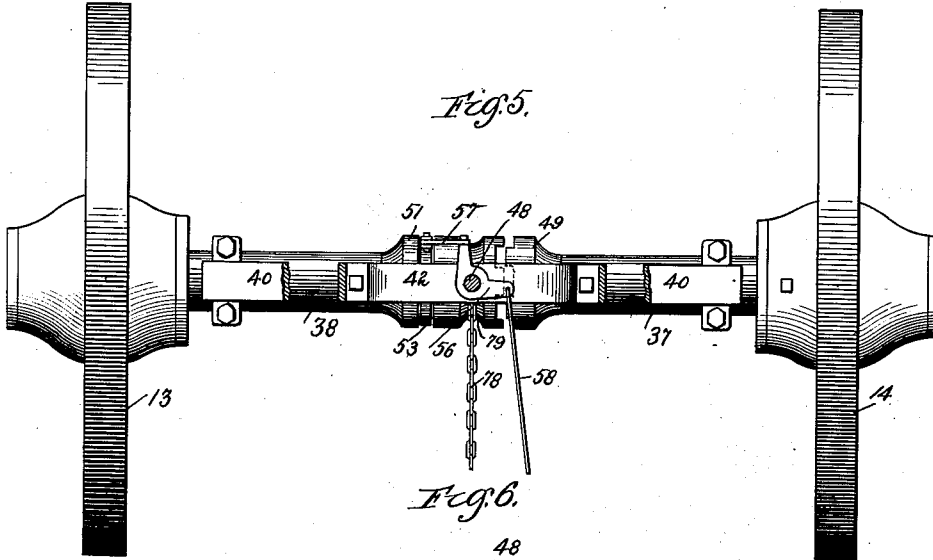
(No Model.)

4 Sheets—Sheet 4.

J. F. KIMBALL.  
ROAD MACHINE.

No. 527,610.

Patented Oct. 16, 1894.



*Witnesses.*  
*S. M. R. R. R.*  
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# UNITED STATES PATENT OFFICE.

JAMES F. KIMBALL, OF MARIAVILLE, MAINE, ASSIGNOR TO THE WESTERN  
WHEELED SCRAPER COMPANY, OF AURORA, ILLINOIS.

## ROAD-MACHINE.

SPECIFICATION forming part of Letters Patent No. 527,610, dated October 16, 1894.

Application filed May 19, 1893. Renewed September 4, 1894. Serial No. 522,036. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES F. KIMBALL, a citizen of the United States, residing at Mariaville, Hancock county, Maine, have invented certain new and useful Improvements in Road-Machines, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation. Fig. 2 is a top or plan view. Fig. 3 is a vertical cross section on line 3—3 of Fig. 2, looking to the right. Fig. 4 is a vertical cross section on line 4—4 of Fig. 2, looking to the left. Fig. 5 is an enlarged detail, being a horizontal section on line 5—5 of Fig. 1. Fig. 6 is an enlarged detail, being a longitudinal vertical section of the central portion of the front axle. Fig. 7 is an enlarged detail, being a top or plan view of the mechanism for adjusting the angle of the rear axle; and Fig. 8 is a vertical section on line 8—8 of Fig. 7.

My invention relates to road machines, and particularly to that class in which the scraper-blade is suspended below a wheeled carriage.

The object of my invention is to improve the construction and operation of this class of machines, which object I accomplish as hereinafter specified and as illustrated in the drawings.

That which I regard as new will be set forth in the claims.

In the drawings,—9 indicates the body of the scraper carriage, which is mounted upon rear wheels 10—11 and front wheels 13—14. The rear wheels 10—11 are mounted upon an axle 15, upon which is mounted a frame or bolster 16, consisting of upright bars 17, inclined braces 18 connected to said bars, and a cross-bar 19 connecting the upper ends of the bars 17, as best shown in Fig. 4. The bolster 16 supports the body 9, which is secured thereto by a king-bolt 20, as shown in Fig. 2.

21—22 indicate the hounds of the rear axle, which are braced from the rear axle by braces 23, as shown in Fig. 1. The hounds 21—22 are connected at their forward ends, and carry a plate 24 carrying a segmental rack 25, as best shown in Fig. 7. The plate 24 is also provided with perforations 26

arranged in the arc of a circle, as shown in Fig. 7.

27 indicates a shaft vertically journaled in a cross-bar 28, which forms a part of the body 9 of the machine, as shown in Fig. 8.

29 indicates a hand-wheel carried by the shaft 27 at its upper end.

30 indicates a pinion mounted upon the lower end of the shaft 27 and meshing with the teeth of the rack 25, as shown in Figs. 7 and 8. The arrangement is such that by rotating the hand-wheel 29 the angular position of the rear axle and wheels may be adjusted.

31 indicates a foot lever pivoted in a bracket 32 carried by the bar 28, as shown in Fig. 8.

33 indicates a pin connected to one end of the lever 31 and depending therefrom. The lower end of the pin 33 is adapted to pass through perforations in a plate 34 mounted over the plate 24, which perforations register with the perforations 26 of the plate 24. By this arrangement the rear axle may be locked at any desired angle to the body of the machine.

35 indicates a spring mounted upon the pin 33 and adapted to exert a downward pressure thereupon, as shown in Fig. 8.

36 indicates the front axle, which carries sleeves 37—38 at opposite sides of the center, as shown in Fig. 6.

39 indicates a front lower bolster or frame formed of bars 40—41, as shown in Fig. 3.

42 indicates a cross-bar connecting the lower ends of the bars 41—41.

43 indicates the lower rim of the fifth-wheel. 44 indicates the upper rim, which is best shown in Fig. 3.

45 indicates an upper bolster or frame, which consists of a cross-bar 46 and supporting bars 47. The bars 47 carry the upper rim 44 of the fifth-wheel, as shown in Fig. 3.

48 indicates a king-bolt extending from the body of the machine to the cross-bar 42, as shown in Fig. 3.

49 indicates a clutch section, which is mounted upon the front axle 36 and is keyed thereto by a pin 50, which passes through the axle; or in any other suitable manner.

51 indicates a second clutch section mounted

upon the axle 36 opposite the clutch section 49, which it is adapted to engage. The clutch section 51 is movable longitudinally of the axle 36 into engagement with the clutch section 49.

52 indicates a spring which is mounted upon the axle 36 between the clutch sections 49—51, suitable recesses being provided in said clutch sections to receive the spring 52. The tension of the spring normally holds the sections 49—51 out of engagement with each other.

53 indicates a collar fitted in a groove 54 in the clutch section 51, which collar is provided with an upwardly projecting arm 55.

56 indicates a bell-crank lever pivotally mounted upon the king-bolt 48, as shown in Fig. 5.

57 indicates a link connecting one arm of the lever 56 to the arm 55.

58 indicates a cord or chain which is connected to the other arm of the lever 56 and extends rearward along the body of the machine to a lever 59, as shown in Figs. 1 and 2.

60 indicates a roller over which the cord 58 passes.

The lever 59 is mounted upon and rigidly secured to a rod 61 which extends transversely of the body of the machine, and is provided at its ends with crank arms 62—63, as best shown in Fig. 2.

64—65 indicate spring foot levers mounted at opposite sides of the body of the machine in such position that their ends will lie under the arms 62—63 respectively, whereby by operating the lever 59 said levers may be depressed. The tension of the springs serves to normally hold the lever 59 in its forward position, thereby relaxing the cord 58 and permitting the bell-crank lever to remain in the position shown in Fig. 5, leaving the clutch sections 49—51 out of engagement with each other. By drawing back the lever 59 the bell-crank lever 56 may be operated to throw the clutch section 51 into engagement with the clutch section 49, in which position the clutch section 51 will be rotated by the rotation of the front axle. The object of this construction will be hereinafter explained.

66 indicates the scraper blade, of the construction common to machines of this class, which is supported by the usual bars 67—68. The bars 67—68 are secured to a ring 69, which is provided on its periphery with a segmental rack, and is fitted into an outer ring 71, as shown in Fig. 2. The ring 71 carries a cross-bar 72, which is secured thereto and projects beyond the sides of the body 9, as shown in Fig. 2.

73—74 indicate bars which are connected at their rear ends to the ring 71 and at their forward ends are united and curved, forming the usual goose-neck. Their forward ends are pivotally connected to a hook 75, which is pivoted upon the king-bolt 48, as best shown by dotted lines in Fig. 2.

76 indicates a hook or ring centrally secured upon the upper side of the bar 72, as shown in Fig. 2.

77 indicates a pulley mounted in the frame of the machine over the ring 76.

78 indicates a chain, the rear end of which is connected to the ring 76, its forward end being connected to the clutch section 51 around which it is adapted to be wound, a suitable groove 79 being provided for that purpose. By this arrangement, when the clutch section 51 is rotated the chain 78 will be wound upon it, thereby lifting the scraper blade. To throw the clutch sections out of engagement when the blade reaches its highest point, I provide the clutch section 51 with a pin 128 which projects from its periphery, which pin is adapted to engage a cam 129 secured to the bar 42. The cam 129 is wedge shaped, and it is so placed that when the clutch sections are in engagement and the clutch section 51 is rotated sufficiently to elevate the scraper blade to its highest point, the pin 128 will strike the cam, and the clutch section 51 be thereby moved back out of engagement with the clutch section 49. This will exert a forward pull upon the chain 58, thereby moving the lever 59 forward and setting the brakes.

80 indicates a frame, consisting of an upper bar 81 and lower bar 82 connected at their ends by bars 83; which frame 80 is arranged transversely of the body 9 of the machine near its forward end, being mounted upon rollers 84 carried by the body of the machine, as best shown in Fig. 3. The bar 81 is provided with teeth forming a rack 85, as shown in Fig. 2.

86 indicates a bell-crank lever mounted in a bracket 87 carried by the body 9, one of the arms of which lever is connected by a rod 88 to the bar 81. The other arm of said lever is connected by a connecting rod 89 to a lever 90 pivotally secured to the body 9 near its rear end.

91 indicates a pin or dog, which is adapted to enter the spaces between the teeth of the rack 85 to lock the bar 81 in position. The dog 91 is normally held in engagement with the rack 85 by a spring 92, as shown in Fig. 2.

93 indicates a foot lever carried by the body 9 near its rear end, which lever is connected by a rod 94 to the dog 91, the arrangement being such that by depressing the lever 93 the dog 91 may be withdrawn from engagement with the rack 85. By this construction, by moving the lever 90 in one direction or the other the bar 81 and frame 80 may be moved transversely of the body of the machine.

95—96 indicate parallel bars carried by the cross bar 72 and ring 71, which bars are arranged a short distance apart and extend longitudinally of the machine.

97 indicates a block adapted to slide between bars 95—96.

98—99 indicate rods pivotally connected to

the block 97 and to the opposite ends of the frame 80, as shown in Figs. 2 and 3. The rods 98—99 serve to steady the outer ring 71.

100 indicates a rod vertically mounted in a suitable bracket 101 carried by the ring 71.

102 indicates a pinion mounted upon the lower end of said rod 100 and intermeshing with the rack carried by the ring 69.

103 indicates a hand-wheel secured upon the rod 100, by means of which it may be rotated. By rotating the hand-wheel 103 the ring 69 may be rotated within the ring 71, thereby adjusting the angle of the scraper blade 66 to the line of motion.

104—105 indicate rods, the forward ends of which are connected to the opposite ends of the frame 80, their rear ends being connected respectively to rack bars 106—107 arranged at opposite sides of the machine near its rear end. The rack bars 106—107 extend upward, as shown in Figs. 2 and 4.

108 indicates a shaft mounted in suitable bearings carried by supports 109—110 rising from the body 9 of the machine at one side, as shown in Fig. 4. The shaft 108 carries a pinion 111, which pinion intermeshes with the teeth of the rack bar 106, as best shown in Fig. 1. The rack bar 106 is held in engagement with the pinion 111 by a bracket 112, carrying rollers 113, as shown in Figs. 1 and 4, the rack bar passing between the rollers 113 and the pinion 111.

114 indicates a hand-wheel mounted upon the shaft 108. 115 indicates a brake-wheel also mounted upon the shaft 108.

119 indicates a brake-band which encircles the brake-wheel 115, the ends of which band are connected to a triangular lever 120 of the usual description.

121 indicates a rod connecting the lever 64 with the triangular lever 120, the arrangement being such that by operating the lever 64 either by hand or through the lever 59 the triangular lever 120 will be operated, loosening the brake-band 119 upon the brake-wheel 115. The tension of the spring lever 64 is such that the triangular lever 120 is normally held in such position as to tighten the band 119 upon the brake-wheel 115. A hand-wheel 122 is mounted similarly upon the opposite side of the machine, the parts of which are indicated by the same reference numbers as those just described, as their constructions are identical.

123—124 indicate rods or chains connecting the opposite ends of the cross-bar 72 with the rods 104—105 respectively, as best shown in Figs. 1 and 2. By this arrangement, by moving the rack-bars 106—107 vertically the scraper blade may be raised or lowered by hand.

The operation is as follows: Should the operator desire to raise the scraper blade by power, the lever 59 is drawn back, depressing the spring lever 64—65 and releasing the brake-band 119. By drawing back the lever

59 the bell-crank lever 56 will be operated, throwing the clutch section 51 into engagement with the clutch section 49. The rotation of the front axle will cause the clutch section 51 to rotate, winding the chain 78 upon it and lifting the scraper blade. When the blade reaches its highest point, the engagement of the pin 128 with the cam 129 will throw the clutch sections out of engagement and set the brakes, thereby holding the blade in its elevated position, as above described. Should the operator desire to change the angle of the rear wheels to the line of motion, he may do so by rotating the hand-wheel 29, first operating the foot lever 31 to draw the pin 33 out of engagement with the plate 34. By thus changing the angle of the rear wheels the carriage may be more easily manipulated to cause the scraper blade to act upon parts of the work to which access is difficult.

In cases where the condition of the ground is such that the carriage cannot be brought to the desired position, the scraper blade may be projected to one side by depressing the foot lever 93 to release the rack 85, and then throwing the lever 90 backward, thereby shifting the frame 80 laterally. The scraper blade 66 will therefore be moved in a similar direction.

To change the angle of the blade to the line of motion, the hand-wheel 103 is operated in the usual manner.

I do not wish to limit myself to the specific construction of the parts shown, as it is obvious that many changes in detail of construction may be made without departing from the spirit of my invention.

That which I claim as my invention, and desire to secure by Letters Patent, is—

1. In a road machine, the combination with a carriage body, and front and rear axles therefor, of two clutch sections mounted on one of said axles, and one of which is movable into and out of engagement with the other, a scraper-blade arranged under the carriage body, supported from a part thereof and adjustable to varying angles relative to the line of draft, devices connecting one of the said clutch sections with the scraper blade support, means for engaging the clutch sections for bodily lifting the scraper support and blade by the rotation of the axle, and means for adjusting the scraper-blade to varying angles relative to the line of draft, substantially as described.

2. In a road machine, the combination with a carriage body, and front and rear axles therefor, of two clutch sections mounted on one of said axles, and one of which is movable into and out of engagement with the other, a scraper supporting frame arranged under the carriage body and movable vertically, a scraper-blade carried by said scraper-supporting frame, devices connecting one of said clutch sections with the scraper-supporting frame, and means for engaging the clutch sec-

tions for bodily lifting the scraper frame and blade by the rotation of the axle, substantially as described.

3. In a road machine, the combination with a carriage body, and front and rear axles therefor, of two clutch sections mounted on one of said axles, and one of which is movable into and out of engagement with the other, a scraper-supporting frame arranged beneath the carriage and pivotally connected at its front end with a part thereof to swing in a vertical plane under said carriage, a transverse scraper blade carried by the rear end of the scraper-supporting frame and moving vertically therewith, and means for engaging the clutch sections for bodily lifting the scraper-supporting frame and blade under the carriage body by the rotation of the axle, substantially as described.

4. In a road machine, the combination with a carriage having front and rear axles, of two clutch sections mounted on one of the axles, one clutch section being rigidly attached to the axle and the other loose thereupon and movable into and out of engagement with the rigidly attached section, a scraper-blade, devices connecting the loose and movable clutch section with the scraper-blade, means for moving the loose and movable clutch section into engagement with the rigidly attached clutch section for lifting the scraper-blade, and automatically operating mechanism for disengaging the clutch sections when the scraper-blade is raised to the desired height, substantially as described.

5. In a road machine, the combination with a body, and front and rear axles, of clutch section 49 mounted upon and keyed to said front axle, clutch section 51 movable into engagement with said clutch section 49 and loosely mounted upon said axle, spring 52, bell-crank lever 56, devices connecting said bell-crank lever with said clutch section 51, whereby by the operation of said lever said clutch section 51 will be moved into engagement with said clutch section 49, connecting device 58, lever 59 connected thereto, whereby by operating said lever said clutch sections may be thrown into engagement with each other, a scraper blade, and devices connecting said scraper blade to said clutch section 51, whereby by the rotation of said clutch section said scraper blade may be lifted, substantially as described.

6. In a road machine, the combination with a carriage body mounted on wheels, of a frame surmounting the carriage body and movable bodily in a transverse direction thereupon, a scraper-blade suspended from the said transversely movable frame, and lever mechanism for bodily shifting said frame in a transverse direction upon the carriage body, substantially as described.

7. In a road machine, the combination with a body, and front and rear axles, of a clutch section 49 mounted upon and keyed to said

front axle, a clutch section 51 movable into engagement with said clutch section 49 and loosely mounted upon said axle, spring 52, bell-crank lever 56, devices connecting said bell-crank lever with said clutch section 51, whereby by the operation of said lever said clutch section 51 will be moved into engagement with said clutch section 49, connecting device 58, lever 59 connected thereto, whereby by operating said lever 59 said clutch sections may be thrown into engagement with each other, a scraper blade, devices connecting said scraper blade to said clutch section 51, whereby by the rotation of said clutch section said scraper blade may be lifted, and a brake for said lifting devices, substantially as described.

8. In a road machine, the combination with a carriage, and a transversely movable frame 80, of a scraper blade, bars 104—105 connected at their forward ends to said frame 80 and projecting rearward therefrom at opposite sides of the machine, means for raising and depressing the rear ends of said bars, a scraper blade suspended from said bars, and means for shifting said frame 80 laterally, substantially as described.

9. In a road machine, the combination with a carriage, and a transversely movable frame 80, of bars 104—105 connected at their forward ends to said frame and extending rearward therefrom, rack bars 106—107 connected to said bars 104—105, pinions intermeshing with said rack bars, means for rotating said pinions to elevate or depress said rack bars, a scraper blade, bars 123—124 supporting said scraper blade from said bars 104—105, and means for shifting said frame 80 transversely, substantially as described.

10. In a road machine, the combination with a carriage, and a transversely movable frame 80, said frame having a rack 85, of a bell-crank-lever 86, bar 88 connecting said lever with said frame 80, a lever 90, connecting rod 89, locking dog 91, lever 93, rod 94 connecting said lever 93 with said dog 91, bars 104—105, means for elevating or depressing the rear ends of said bars, a scraper blade, and supporting bars 123—124 supporting said plate, substantially as described.

11. In a road machine, the combination with a body, and front and rear axles therefor, of clutch sections carried by one of said axles, one of said clutch sections being keyed on said axle, a scraper blade, devices connecting the loosely mounted clutch section to said scraper blade, means for moving said clutch sections into and out of engagement with each other, whereby said scraper blade may be lifted by the rotation of said front axle, a cam, and a pin movable into engagement with said cam when the scraper blade reaches its highest position, whereby said clutch sections will then be thrown out of engagement with each other, substantially as described.

12. In a road machine, the combination with

a body and front and rear axles therefor, of clutch sections carried by one of the axles, one clutch section being rigidly attached to the axle and the other loose and movable thereupon, a scraper-blade, a chain connected with the scraper-blade and attached to and winding upon the loose and movable clutch section, means for moving the clutch sections into engagement with each other for lifting the scraper-blade by the rotation of the axle, and devices for automatically disengaging the clutch sections when the scraper-blade reaches its highest position, substantially as described.

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Witnesses:

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