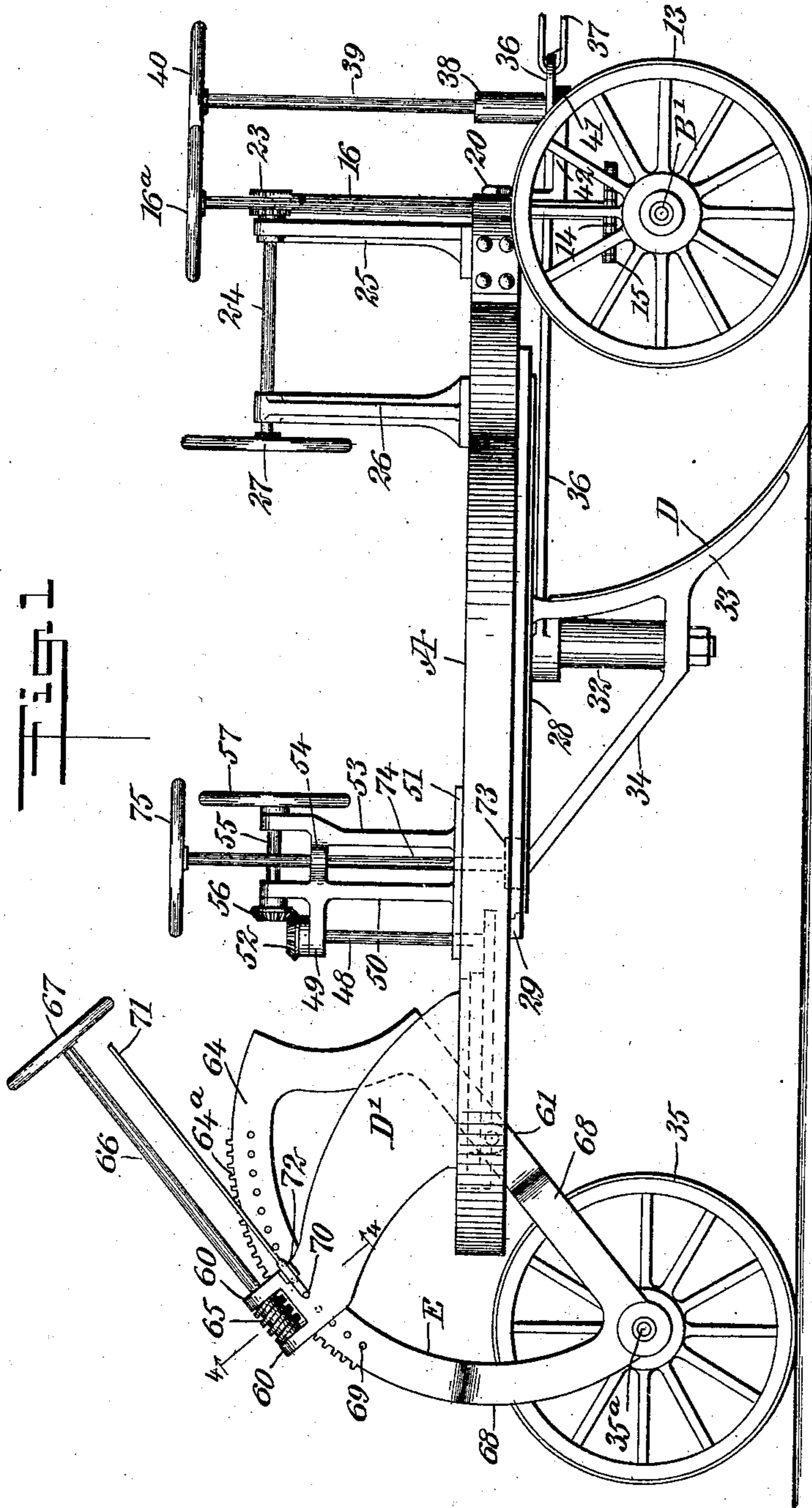


915,492.

M. M. SICKLER.
ROAD MACHINE.
APPLICATION FILED DEC. 18, 1907.

Patented Mar. 16, 1909.

3 SHEETS—SHEET 1.



WITNESSES
F. D. Sweet.
J. H. Peters.

INVENTOR
Marion M. Sickler
BY Munroe
ATTORNEYS

915,492.

M. M. SICKLER.

ROAD MACHINE.

APPLICATION FILED DEC. 18, 1907.

Patented Mar. 16, 1909.

3 SHEETS—SHEET 2.

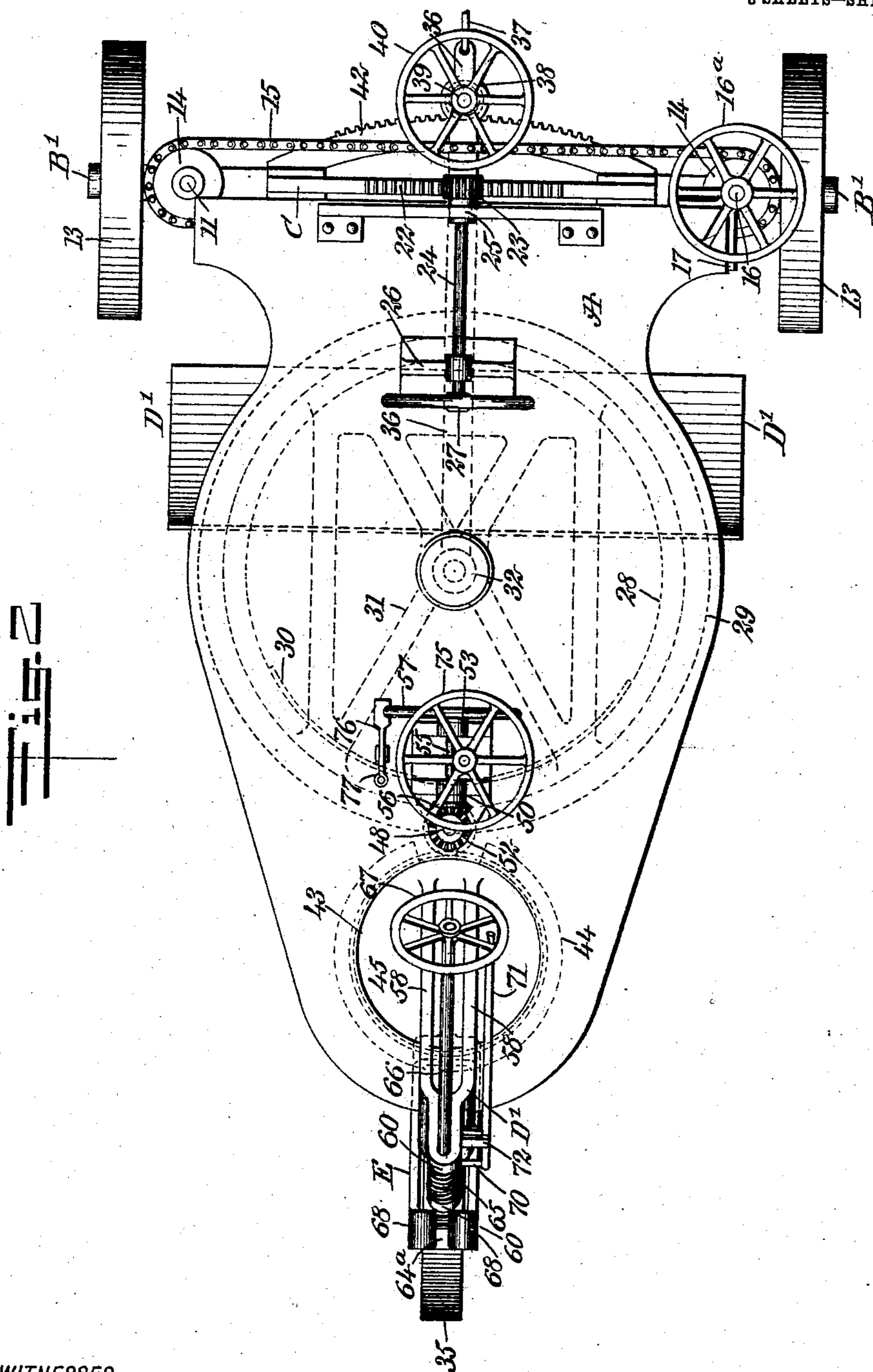


Fig. 2

WITNESSES

F. D. Sweet
W. H. H. H. H.

INVENTOR

Marion M. Sickler

BY

Mum Co.

ATTORNEYS

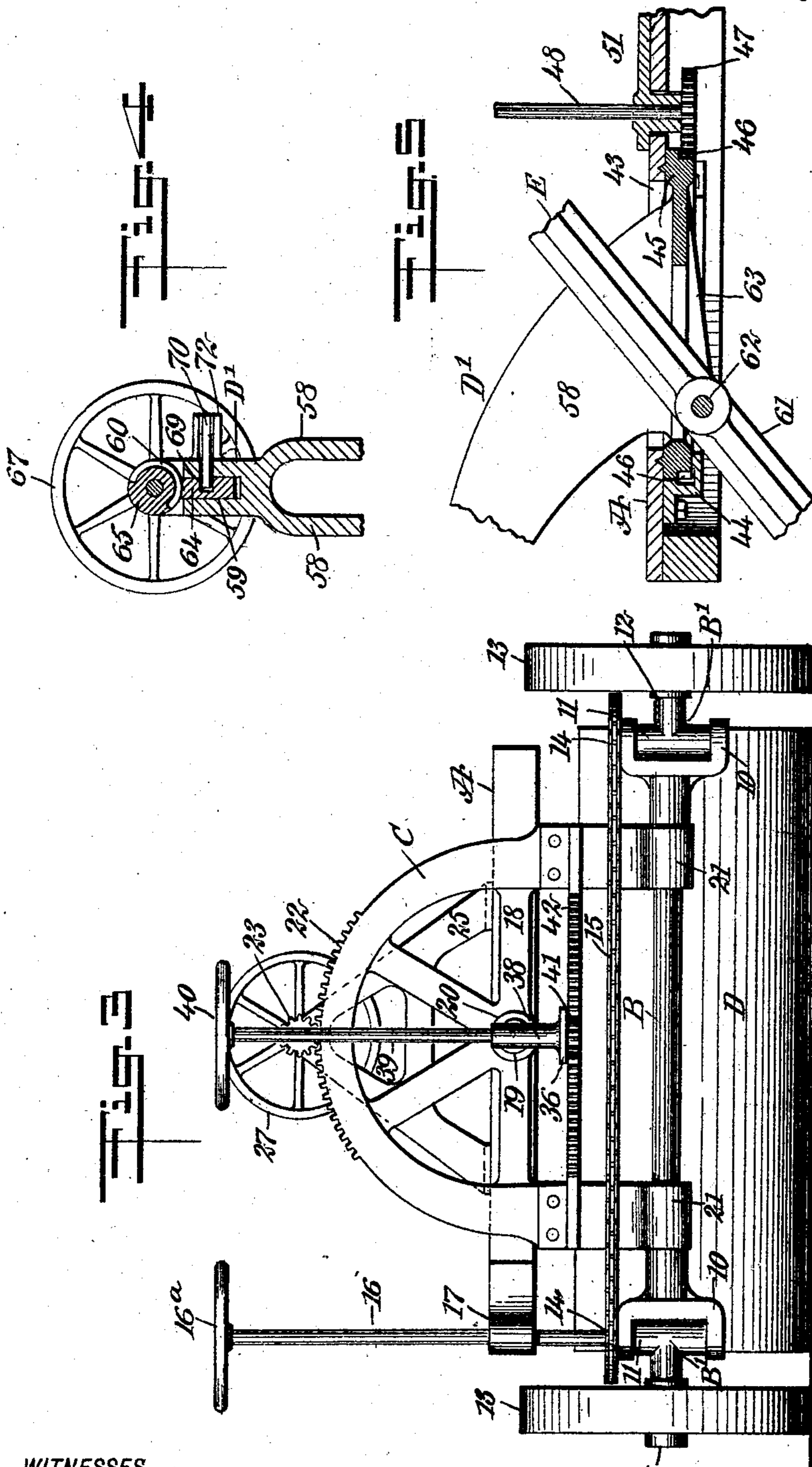
ROAD MACHINE.

APPLICATION FILED DEC. 18, 1907.

Patented Mar. 16, 1909.

3 SHEETS—SHEET 3.

915,492.



WITNESSES

F. D. Sweet.
Edw. A. Allen

INVENTOR

Marion M. Sickler

BY *Mumukshu Bhattacharya*

ATTORNEYS

UNITED STATES PATENT OFFICE.

MARION MARCELLUS SICKLER, OF BUFFALO, NEW YORK.

ROAD-MACHINE.

No. 915,492.

Specification of Letters Patent.

Patented March 16, 1909.

Application filed December 18, 1907. Serial No. 407,007.

To all whom it may concern:

Be it known that I, MARION M. SICKLER, a citizen of the United States, and a resident of Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Road-Machines, of which the following is a full, clear, and exact description.

The purpose of the invention is to provide a road scraper of very simple construction, and which may be made very light and strong, and one that can be advantageously used upon mountain roads.

It is a further purpose of the invention to provide means for steering the machine under ordinary conditions, and auxiliary steering means that act in conjunction with the main steering means, enabling the machine to turn sharp corners or curves, since it can be turned practically in its own length.

Another purpose of the invention is to provide means for turning the scraper blade at any desired angle to the line of draft, and independent means for inclining the scraper blade in direction of either end so as to cause the blade to cut deeper at one end than at the other.

A further purpose of the invention is to provide means for shifting the draft so that said draft can be applied practically parallel with the line of travel of the machine no matter in what position the scraper blade may be, and also to provide means for raising and lowering the scraper blade.

The invention consists in the novel construction and combination of the several parts as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the claims.

Figure 1 is a side elevation of the machine; Fig. 2 is a plan view; Fig. 3 is a front elevation of the machine; Fig. 4 is a detail section taken through the auxiliary steering and lifting device practically on the line 4-4 of Fig. 1; and Fig. 5 is an enlarged detail sectional view of the rear portion of the bed of the machine where the auxiliary steering and the lifting mechanism are located, showing portions of both of said mechanisms.

A represents the bed of the machine which is by preference wider at the front than at

the rear, and the said bed A at its forward end is supported by an axle B having vertically disposed clip bearings 10 at its end portions, as is shown in Fig. 3, and in these clip bearings 10, vertical members 11 of supplemental T-axes B' are pivoted, and the forward supporting wheels 13 are mounted to turn upon an outwardly extending horizontal member 12 of said supplemental axles, as is also best shown in Fig. 3. Thus it will be observed that the wheels are mounted to turn upon the supplemental axles and the supplemental axles have horizontal pivotal movement relatively to the main forward axle B.

At the upper end of the vertical member 11 of each supplemental axle B', above the upper members of the clip bearings 10, a sprocket wheel 14 is secured to the said supplemental axle and the said sprocket wheels are connected by a chain belt 15, as is also shown in Fig. 3. One of the supplemental axles B', preferably the right-hand one, has a vertical shaft 16 secured to the upper end of its vertical member, and the said shaft 16 passes up through a bearing 17 at a forward corner of the bed A, and the shaft at its upper end carries a hand-wheel 16^a. By means of the shaft 16 and its accompanying hand-wheel 16^a the machine may be steered as far as ordinary purposes are concerned, but an auxiliary steering device is provided adapted to co-act with the main forward steering device just described, which supplemental or auxiliary steering device will be described in detail.

The direct communication between the forward end of the bed A and the main axle B is obtained through the medium of an arched member C, which is provided with a cross bar 18 about centrally between the top and the bottom, and a pivot pin 19 is passed through the central portion of this cross bar in the forward central end portion of the bed A, as is shown in Fig. 3, a boss 20 surrounding the opening through which the pin 19 passes. At each end of the arched member C, an eye or a bearing 21 is produced, through which the axle B is loosely passed and at the upper or crown portion of the arched member C, rack teeth 22 are produced, which teeth are engaged by a pinion 23, and the said pinion 23 is secured upon a shaft 24 that is mounted over the forward central portion of the bed A in bearings 25 and 26 secured to said bed, and a hand-wheel 27 is located at

the inner end of the aforesaid shaft 24. This shaft 24 and its accompanying pinion are adapted to so move the bed as to give the scraper blade D an inclination in direction of either one or the other of its ends, and the said scraper blade is provided with a concaved forward, and a convexed rear face. This scraper blade is secured to or is carried by the lower portion of a ring-like turn-table 28, mounted for rotary movement in a ring-like support 29, that is located in a suitable recess produced in the central under face of the bed A, as is shown in Fig. 2. The ring-like turn table 28 is provided at its rear portion with interiorly located rack teeth 30 for a purpose to be hereinafter mentioned, and braces 31 extend from the under face of the said turn table, and these braces 31 support a post 32 at the central portion of the turn table, which post extends vertically downward, as is illustrated in Fig. 1. The scraper blade D is secured to a shoe 33 correspondingly shaped, which shoe is secured in its turn preferably to the braces of the turn table 28 in front of the post 32, and arms 34 are carried from the rear of the shoe 33 upward to an engagement with the rear under portion of the said turn table 28, as is illustrated in Fig. 1, and the central arm 34 may be also secured to or may receive the lower end of the post 32. The rear end of the bed A is supported by a single wheel 35 which is a pivotal or caster wheel. Consequently when the shaft 24 is turned in one or the other direction causing the pinion 23 to travel over the teeth 22 of the arched member C, the bed A will be tilted in direction of one side or the other, and consequently one or the other end of the scraper blade D will be depressed.

A draft bar 36 is pivotally attached to the upper end portion of the aforesaid post 32, and the said draft bar 36 extends some distance beyond the forward end of the machine, and is provided with a suitable clevis 37, or other means for attachment to a draft device. At the other end portion of the draft bar 36, an upwardly extending socket 38 is formed and through this socket and through the said draft bar, the lower end of a shaft 39 is passed, being suitably supported in said socket, and the said shaft is provided at its upper end with a hand-wheel 40, and at its lower end with a pinion 41, the said pinion 41 being adapted for engagement with the teeth of a horizontal segmental rack 42 that extends from one lower portion of the arched member C to the other, at a point below its center, as is illustrated best in Figs. 1 and 3, and the said draft bar 36, which is capable of movement beneath the bed from side to side, has movement at its outer end over the upper face of the said arched rack 42. This rack 42 and accompanying pinion 41 and shaft 39 are utilized to overcome the side draft of the scraper blade D when said

scraper blade is at an angle to the line of draft, since at such time the tendency is for the machine to slide in direction of the side where the end of the scraper blade is nearest the front, and to overcome this tendency the shaft 39 is operated to carry the draft bar 36 sufficiently far in an opposite direction, or in the direction of the rearwardly inclined end of the scraper blade, to obtain a draft practically parallel with the longitudinal axis of the machine, or the line of travel.

An opening 43 is made in the bed A at the central rear portion, which opening is shown in Figs. 2 and 5. Below this opening 43 a ring-like support 44 is secured to the under face of the bed and in this support a turn table 45 is mounted to revolve, being preferably of ring-like construction, as is indicated in Fig. 5, and this turn table 45 has exterior teeth 46. A pinion 47 is attached to the lower end of an upwardly extending vertical shaft 48, which shaft 48 at its upper portion, as is shown in Fig. 1, is passed through the horizontal branch arm of a vertical standard 50 that rises from a base 51 secured upon the upper face of the bed, and the shaft 48 is provided at its upper end with a bevel gear 52. A second standard 53 is located in front of the standard 50, being connected therewith by an arm 54, and in the upper end of these two standards 50 and 53 a horizontal shaft 55 is mounted to turn, provided at its rear end with a bevel pinion 56 that meshes with the bevel pinion 53 on the shaft 48, and at the forward end of the shaft 55, a suitable hand-wheel 57 is secured. Thus by turning the hand-wheel 57, the turn table 45 may be given motion in the desired direction.

The lower bifurcated end portions 58 of an upwardly and forwardly extending bracket D' are secured in any suitable or approved manner to each side of the central portion of the turn table 45. The bracket D' extends beyond the rear of the bed A, as is particularly shown in Figs. 1 and 2, and in its end portion a transverse slot 59 is produced, as is shown in Fig. 4, and in the end portions of this slot bearings 60 are formed. The forward straight section 61 of a skeleton segment E is passed through the turn table 45 between the members 58 at the lower end of the aforesaid bracket D', as is illustrated best in Figs. 1 and 5, and this member 61 of the said segment E is pivotally attached to the said turn table 45 through the medium of a downwardly extending web 63, for example, as is shown in Fig. 5, the pivot pin for the segment being designated as 62. The curved rear portion of the member 64 of the said segment E is made to slide freely in the transverse slot 59 at the rear end portion of the bracket D', and the rear edge of the said segment E is provided with teeth 64^a that are engaged by a worm 65 located between the bearings 60, as is shown best in Fig. 1, which

worm is operated through the medium of an upwardly and forwardly extending shaft 66 secured thereto and provided at its upper end with a hand-wheel 67.

5 The lower portion of the segment E, or that portion that is below the bed A, is bifurcated to receive between its members the rear supporting wheel 35 that is provided with a suitable spindle 35^a. That portion of
10 the segment E that is provided with teeth 64^a is likewise provided with a series of apertures 69, and these apertures are adapted to receive a locking pin 70, shown in Figs. 1 and 4, operating through the medium of a suitable
15 lever 71 that extends preferably parallel with the shaft 66, the lever being provided with a suitable fulcrum 72 carried by the said bracket D'. When the shaft 66 is operated it will raise or lower the segment E, causing the
20 bed A to move in a corresponding direction, and consequently either raise the scraper blade D from the ground or cause it to enter the ground to a greater or lesser depth, and the bed A is then held in adjusted position
25 through the medium of the lever 71 and the locking pin 70. If it is desired to turn a very sharp corner, or around a very abrupt curve, the segment E operating in connection with the turn table 45 and operating through
30 the medium of the shafts 48 and 55, can be turned simultaneously in a reverse direction to the direction in which the forward wheels are operated by the main steering gear, thus causing the machine to turn quickly, and
35 permitting it to turn practically in its length.

The main turn table 28 is made to carry the scraper blade D to desired position relatively to the line of travel of the machine in the following manner: A pinion 73, shown in
40 dotted lines in Fig. 1, meshes with the teeth 30 at the inner rear portion of the turn table 28. This pinion 73 is secured to a shaft 74 that is journaled in the connecting bar 54 between the standards 50 and 53, and the shaft
45 74 is provided with a hand-wheel 75 at its upper end, and after the turn table 28 has been adjusted it is held in position by a pin 77 that passes down through the bed and into one of a number of apertures in the turn table 28, the said pin being preferably carried
50 by a foot lever 76, as is illustrated in Fig. 2.

From the foregoing description it will be observed that the forward steering gear is independent of the other mechanisms and that
55 the supplemental rear steering gear, while independent of the main steering gear, may likewise be used concertedly therewith, and that the supplemental rear steering mechanism can be independently used for raising
60 and lowering the scraper blade. It is also evident that the mechanism for changing the line of draft is independent in its action, as is the means for inclining the scraper blade endwise and the means for adjusting the scraper
65 blade in position relatively to the line of

draft. All of these mechanisms are within easy control of persons standing on the bed A and are exceedingly simple in their character.

Having thus described my invention, I 70 claim as new and desire to secure by Letters Patent,—

1. In a road machine, a frame, two supporting wheels at one end of the frame, a single supporting wheel at the other end of the 75 frame, a steering device for the two wheels, a steering device for the single wheel, and means for raising and lowering the said single wheel.

2. In road machines, a wheel-supported 80 bed, two supporting wheels being located at the front and one wheel at the rear, a main steering device for the wheels at the front end of the bed, and a supplemental steering device for the wheel at the opposite end of 85 the bed, and means for independently controlling each steering device.

3. In a road machine, a frame and a wheel support mounted at one end of the frame to rotate and to swing, whereby provision is 90 made for raising and lowering the frame and for facilitating the turning of the machine.

4. In road machines, a bed, a pair of supporting wheels at the front of the bed, pivotal supports upon which said wheels turn, means 95 for simultaneously operating said pivotal supports, a single supporting wheel at the rear of the bed, a rotating support for the said single wheel, and means for operating the said support. 100

5. In road machines, a bed, a pair of supporting wheels at the front of the bed, pivotal supports upon which said wheels turn, means for simultaneously operating said pivotal supports, a single supporting wheel at the 105 rear of the bed, a rotating support for the said single wheel, means for operating the said support, and means for raising and lowering said rear supporting wheel, operating independently of the means for rotating its 110 support.

6. In a road machine, the combination with a bed, a turn table mounted therein, and means for operating the turn table, of a supporting wheel, and a support therefor connected with the said turn table. 115

7. In a road machine, the combination with a bed, a turn table mounted therein, and means for operating the turn table, of a supporting wheel, a support therefor pivoted to 120 the turn table, and means for rocking the support upon its pivot.

8. In a road machine, the combination with a bed, a turn table mounted therein, and means for operating the turn table, of a supporting wheel, a segmental support therefor pivoted to the turn table and provided upon 125 its convex edge with rack teeth, a bracket carried by the turn table through which the segmental support is loosely passed, and en- 130

gaging means for the rack teeth carried by said bracket.

9. In a road machine, the combination with a bed, supporting wheels located at the forward end of the bed, means for simultaneously turning the said wheels in a lateral direction, a single supporting wheel located at the rear of the bed, a rotatable support for the said single supporting wheel, and means for operating said support, of an arched member pivotally attached to the forward end of the said bed, provided with rack teeth at its upper convex edge, a support for the lower end of the said arched member connected with the carrying means of the forward wheels, and means engaging with the said rack teeth for moving the bed sidewise in one or the other direction.

10. In a road machine, the combination with a bed, and a scraper carried thereby, of a rack, a support for the rack connected with the bed at its forward end, a draft bar pivotally connected with the said bed and extending forwardly over the said rack, a shaft mounted on the said draft bar, a pinion carried by the shaft engaging with the said rack, and means for turning the said shaft.

11. In a road machine, wheel supported frame, an arched and toothed bar pivoted to the frame and in which one of the axles has bearings, a pinion meshing with the teeth of the bar, and means for operating the pinion.

12. In a road machine, a frame, a turn table mounted in the frame, means for operating the turn table, a toothed segmental wheel support pivoted to the turn table, a worm meshing with the teeth of the said support, and means for operating the worm.

13. In a road machine, a frame, a turn table mounted in the frame and provided with a bracket, a toothed segmental wheel support pivoted to the turn table and having guided movement in the said bracket, a shaft mounted in the bracket and provided with a handle, and a worm on the shaft and meshing with teeth of the segment.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MARION MARCELLUS SICKLER.

Witnesses:

E. C. BATCHELDER,
JOHN A. SICKLER.