

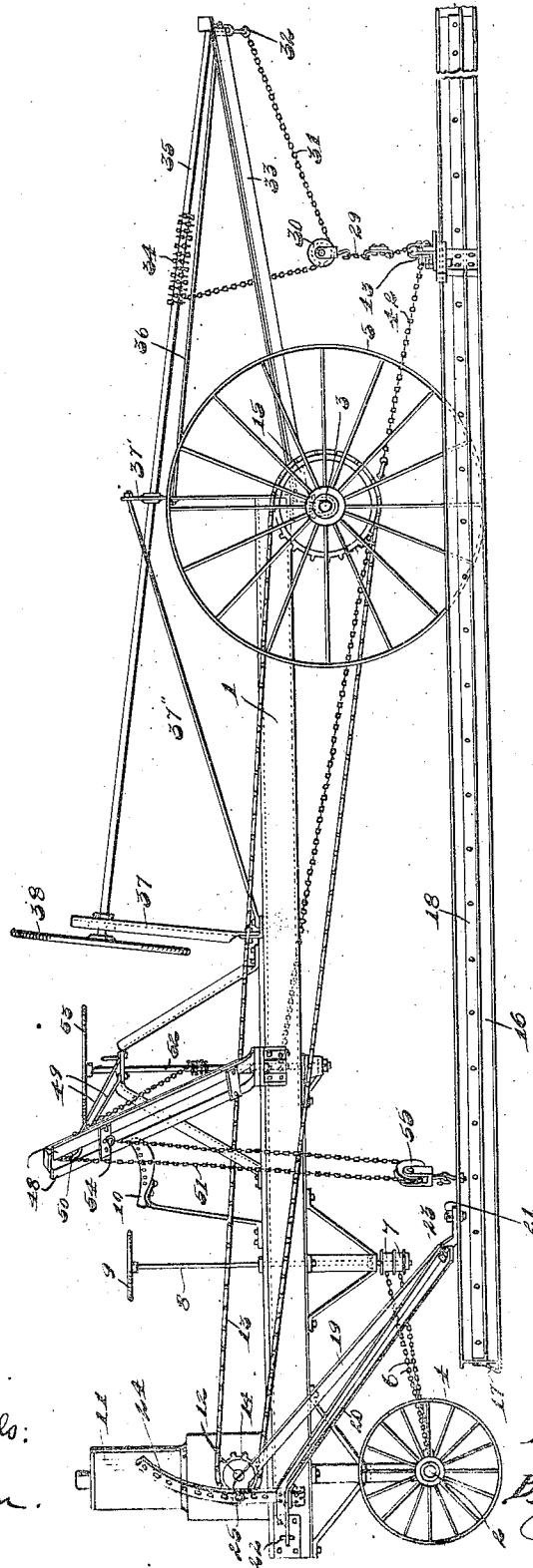
N. S. MONROE.
ROAD LEVELING DEVICE.
APPLICATION FILED MAR. 24, 1911.

1,015,820.

Patented Jan. 30, 1912.

5 SHEETS—SHEET 1.

Fig. 1.



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A. A. Olson.

Inventor:

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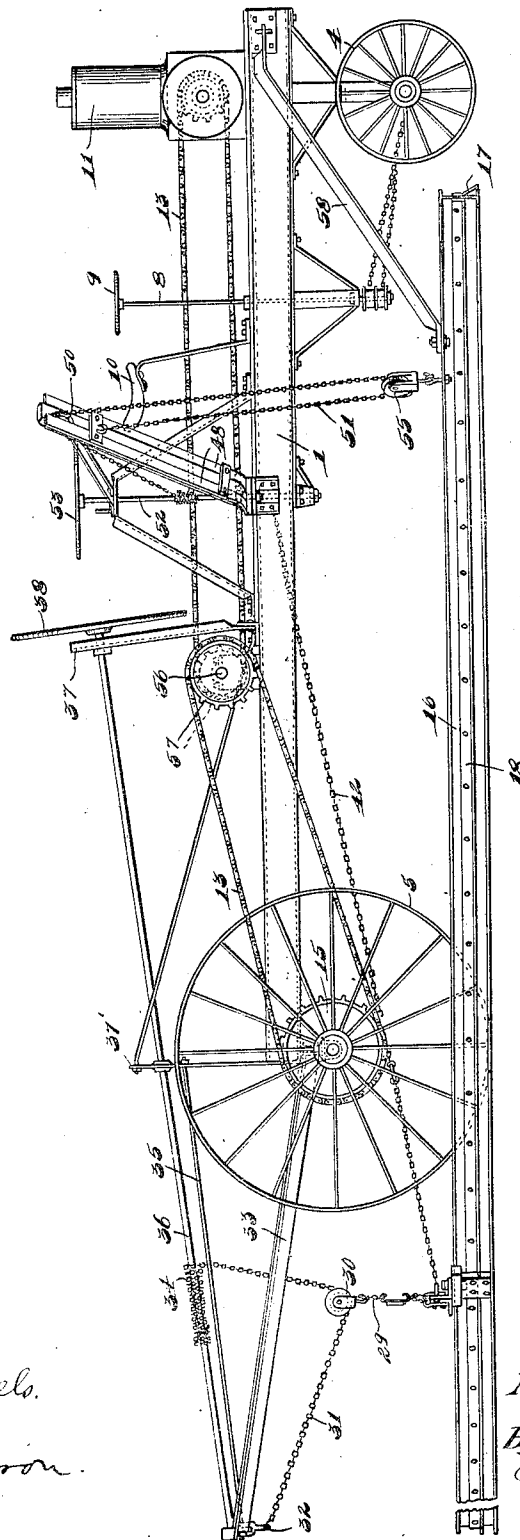
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5 SHEETS--SHEET 2.

1,015,820.

Fig. 2.



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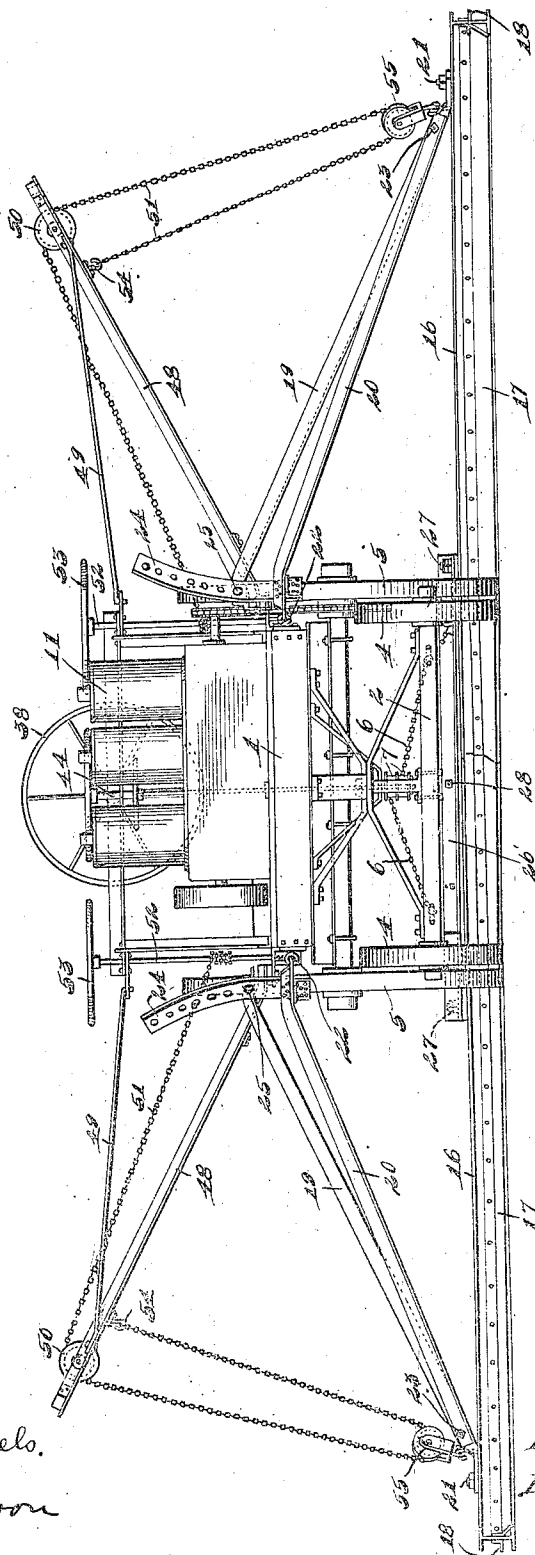
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5 SHEETS—SHEET 3.

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Fig. 3.



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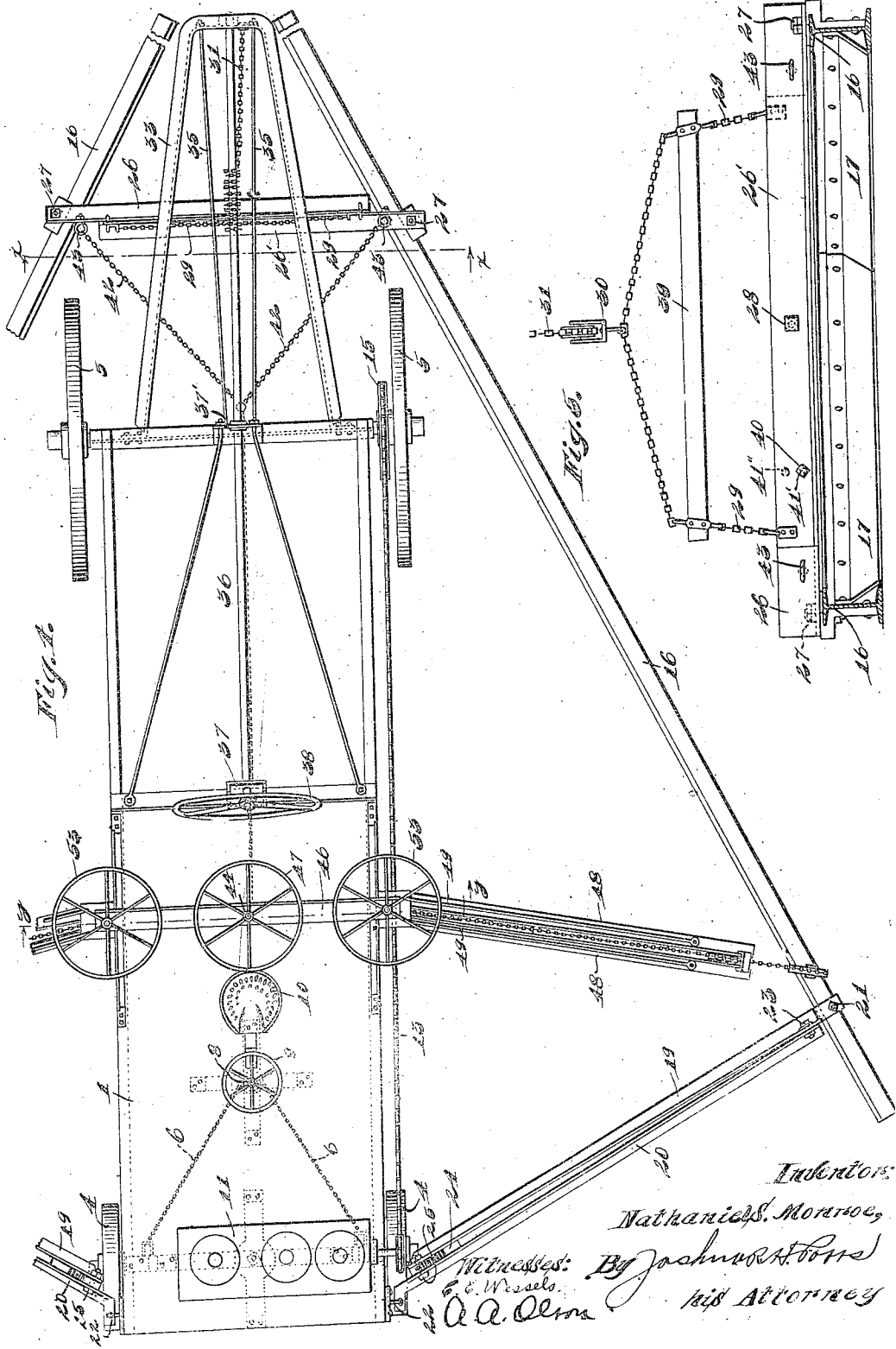
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5 SHEETS-SHEET 4.



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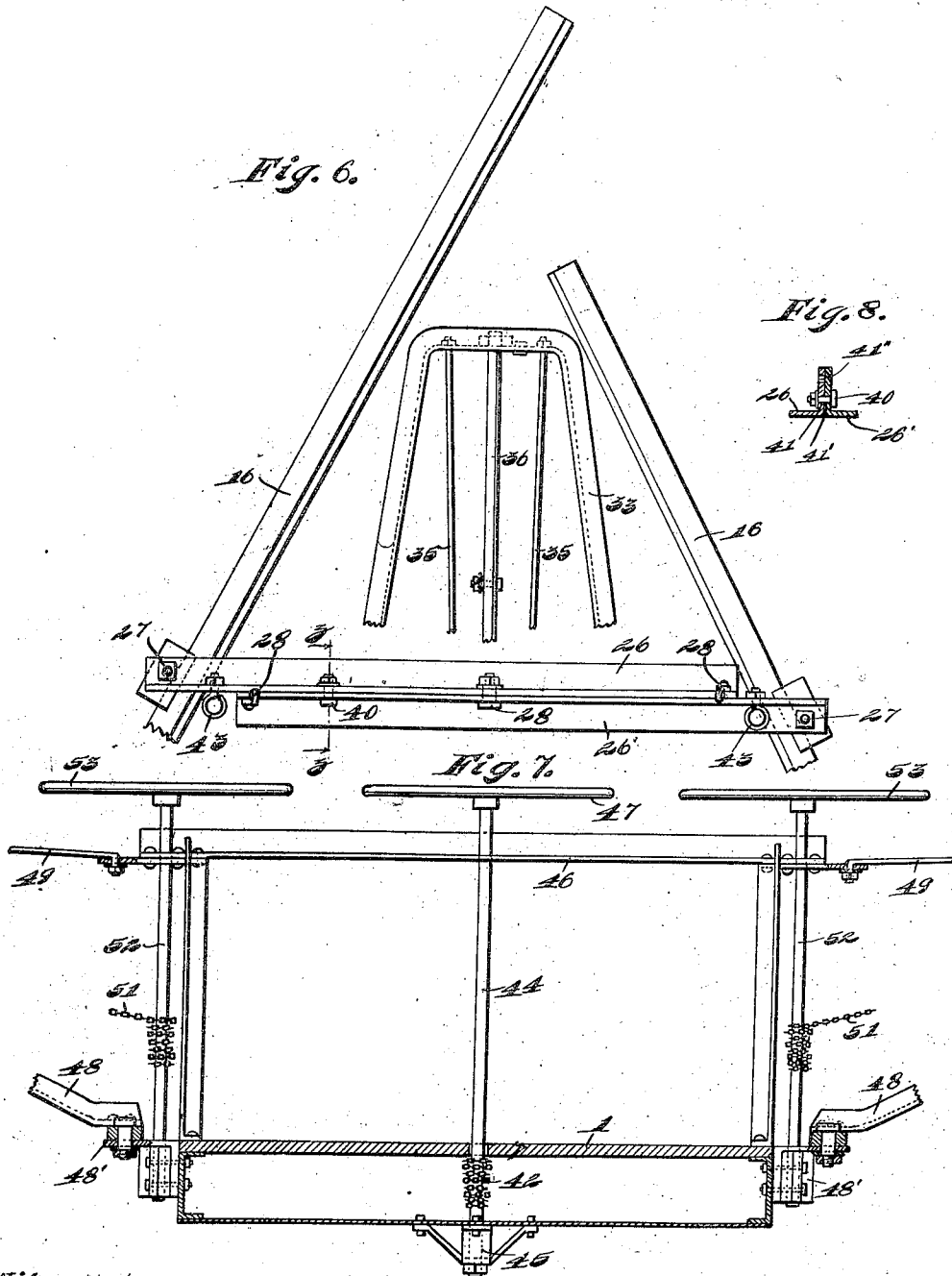
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Patented Jan. 30, 1912.

5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

NATHANIEL S. MONROE, OF ARTHUR, ILLINOIS.

ROAD-LEVELING DEVICE.

1,015,820.

Specification of Letters Patent.

Patented Jan. 30, 1912.

Application filed March 24, 1911. Serial No. 616,715.

REISSUED

To all whom it may concern:

Be it known that I, NATHANIEL S. MONROE, a citizen of the United States, residing at Arthur, county of Douglas, and State of Illinois, have invented certain new and useful Improvements in Road-Leveling Devices, of which the following is a specification.

My invention relates to road leveling devices and has for its object the provision of a device of this character which will be of improved construction and efficient in operation.

Other objects will appear hereinafter. With these objects in view, my invention consists in the combination and arrangement of parts hereinafter described and claimed.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification and in which—

Figure 1 is a side elevation of a road leveling device embodying my invention, Fig. 2 is a similar view of a slightly modified form of the machine, Fig. 3 is a front elevation of the form shown in Fig. 1, Fig. 4 is a top plan view thereof, one side being broken away, Fig. 5 is an enlarged detail section taken on substantially line $x-x$ of Fig. 4, Fig. 6 is a fragmentary top view of the rearward end of the machine, Fig. 7 is an enlarged transverse section taken on substantially line $y-y$ of Fig. 4 and Fig. 8 is a detail section taken on line $z-z$ of Fig. 6.

The preferred form of my construction as illustrated in the drawings, comprises a body or platform 1 the respective ends of which are mounted upon the front and rear axles 2 and 3, said axles being supported in wheels 4 and 5 respectively. The front axle 2 is mounted for horizontal oscillation for steering, operation of said axle in order to effect steering, being effected through the medium of chains 6 which are connected with winding drums 7 fixed to the lower end of the rotatably mounted steering bar 8. The upper end of the bar 8 is provided with the hand wheel 9 which may be engaged to effect rotation of said bar from a position in the driver's seat 10 which is arranged as shown in close proximity thereto.

Mounted upon the platform 1 at the forward end thereof is a motor 11 which may be of any approved design or type, the power shaft 12 of said motor being opera-

tively connected with the rear or driving axle 3 by a sprocket chain 13, said chain traveling over sprocket wheels 14 and 15 carried respectively by said power shaft and 60 axle.

Arranged at the opposite sides of the body 1 are elongated scraper bars each of which comprises the eye-beam 16 to the inner side of which is secured the scraping plate 17 65 and to the outer thereof the reinforcing angle-iron 18. The forward divergently disposed ends of said scraper bars are pivotally connected with the forward end of the body 1 through the medium of connecting 70 devices each of which comprises a pair of links 19 and 20. The outer extremity of each link 19 is pivoted at 21 with the forward end of the adjacent scraper bar so as to permit of relative swinging of said 75 scraper bars in a horizontal direction. This being so, angular adjustment of the scraper bars relative to the surface acted upon may evidently be effected by rocking the inner ends of the links 19 vertically. The inner 80 extremity of the link 20 is pivotally connected at 22 with the body 1, the outer extremity of said link being pivotally connected at 23 with the corresponding link 19 adjacent the outer extremity thereof. Car- 85 ried by each of the links 20 adjacent the inner extremity thereof is an upwardly extending curved bar 24, the corresponding pivotal point 23 being the center of curvature of said member. Said members 24 90 serve to support the inner extremities of the links 19, connection between said links and said supporting members being effected by the pins or bolts 25. The members 24 are each provided with a plurality of 95 spaced perforations for engagement by the pin 25 coöperating therewith, such construction evidently affording means for securing the inner extremities of the links 19 in various angular positions and hence the 100 scraper bars 16 in various angular positions relative to the surface acted upon as above mentioned. With this provision then in order to effect such adjustment of the scraper bars, it is only required to remove 105 the pins 25 and to adjust the links 19 to properly position said scraper bars where upon said pins may again be inserted to lock said links and hence said bars in their position of adjustment. 110

The rearward ends of the scraper bars are connected by a sectional connecting member

which comprises the sections 26 and 26'. The outer extremities of the sections 26 and 26' are pivotally connected as at 27 with the scraper bars in the same manner as links 19, above described, the overlapping inner end portions of said sections being pivotally connected medially by the pivot pin or bolt 28 so as to permit of vertical oscillation of said sections. The inner extremities of said sections 26 and 26' are connected with chains 29, as shown in Fig. 5, said chains 29 being connected at their upper extremities with a pulley 30 suspended in the bight of the chain 31; the rearward extremity of said chain 31 being fixed as at 32 with the rearward extremity of an extension 33 of the body 1, the opposite extremity 34 of said chain 31 being wrapped around a drum shaft 35.

36 indicates brace rods for the extension 33. The shaft 35 is rotatably mounted in bearings 37 and 37', the forward end of said shaft being provided with a hand-wheel 38 which may be operated from a position upon the body 1.

37'' indicates brace rods for the bearing 37'. The arrangement is such, as will be observed, that by rotating the shaft 35 to effect the winding or unwinding of the chain 31, the pulley 30 may be vertically adjusted and hence the rearward extremities of the scraper bars which are connected therewith. Extending between the lower ends of the chains 29 is a bar 39 to the respective extremities of which said chains are secured intermediate their extremities as shown in Fig. 5. As will be observed, the lower ends of the chains 29 depend divergently from said bar 39. This being so, upon upward movement of the pulley 30 as in the manner just described, said chains 29, in being correspondingly moved upwardly, will tend to assume a vertical position with the result that the inner ends of the connecting sections 26 and 26' will be rocked upwardly and hence the scraper bars angularly rocked relative to the surface of the ground. This being so, upon upward drawing upon the chains 29, with the inner ends of the connecting sections 26 free, angular adjustment of the scraper bars in the manner permitted by the links 19 will be effected. The bar 39, however, as will be observed, serves to limit such adjustment of the scraper bars through the medium of the chains 29, since upon the latter assuming a vertical position, angular adjustment of the scraper bars by said chains will cease. If desired the sections 26 and 26' may be rigidly connected, so as to form a rigid connecting member, by the pin or bolt 40 which is adapted to engage registering perforations 41 and 41' provided in the sections 26 and 26' respectively as clearly shown in Figs. 5, 6 and 8. Also, said sections may be

locked in angularly disposed positions through the medium of said pin by reason of the provision of a second perforation 41'' in the section 26, said perforation 41'' being brought into registration with the perforation 41' of the section 26' when said sections 26 and 26' are rocked to their angular positions by the chains 29.

Arranged at the rearward end of the body 1 medially thereunder, is a chain 42, the rearward bifurcated end thereof being connected with the connecting member formed by the sections 26 and 26' through the medium of eyes 43 provided at the respective ends of said member. The forward extremity of the chain 42 is secured to a vertically extending shaft 44 which is mounted centrally in the body 1, the lower extremity of said shaft being mounted in a bearing 45 and the upper end thereof in a transversely extending bearing member 46. Provided at the upper extremity of the shaft 44 is a hand-wheel 47 through the medium of which said shaft may be readily rotated by the hand. With this provision, it will be observed that the rearward ends of the scraper bars may be forwardly adjusted, that is drawn forwardly by proper rotation of the shaft 44. Such movement of said bars evidently effects increased divergence of the forward extremities thereof, thus adapting the device for employment upon roads of various widths. With this construction then, in order to adjust the width of the path of the machine, that is the width of the strip acted upon when the machine is in operation, the hand-wheel 44 needs only to be properly rotated; such rotation of said wheel being evidently effected from a position upon the body 1.

Provided at opposite sides of the body 1 substantially mid-way the extremities thereof, are outwardly projecting cranes each comprising a pair of parallelly extending bars 48, the inner ends of which are swingingly secured to the bearing members 48' provided at the sides of the body 1; brace rods 49 being arranged for cooperation with the members 48. Mounted in the outer extremities of said cranes between the arms 48 are sheaves 50 over which travel chains 51. Corresponding ends of the chains 51 are secured to shafts 52 which are mounted at the opposite sides of the body 1, the respective ends of said shafts being mounted in bearings provided in members 48' and 46 as clearly illustrated in Fig. 7. Provided at the upper extremities of the shafts 52 are hand-wheels 53 whereby said shafts 52 may be readily rotated to effect the winding of the chains 51 thereon or unwinding of said chains therefrom. The opposite extremities of the chains 51 are fastened at 54 to the corresponding cranes adjacent the outer extremities of the latter. Carried in the bight

of each of the chains 51 is a pulley 55 which is connected with the forward extremity of the adjacent scraper bar. With this arrangement it will be seen that vertical adjustment of said ends of said scraper bars may be readily effected by operation of the shafts 52 to effect the winding of the chains 51 thereon since by this operation said chains will be shortened and hence the pulleys 55 elevated carrying the forward ends of the scraper bars therewith.

With a road leveling device then of the construction as set forth, a construction is provided wherein the scraper bars may be adjusted to any angular position relative to the surface acted upon in order to regulate the cut thereof. Provision is also made for effecting the operative width of the device and for elevating the scraper bars to in-operative position if desired, all adjustments being adapted to be effected from a position upon the body of the device. The rearward ends of the scraper bars, as clearly shown in Fig. 6, terminate in spaced relation in order to permit of the passage of lumps of earth or other solid matter which may be entrapped between the scraper bars, said ends, however, terminating in such a manner that the path of one will overlap that of the other so that the entire surface of the road will be acted upon.

In Fig. 2 wherein is illustrated the modified form of the device, a counter-shaft 56 and counter-sprockets 57 are interposed in the chain 13, such construction being found of high efficiency. Also in this form the means for adjusting the angular dispositions of the scraper bars relative to the surface of the road acted upon, namely the links 19 and 20 and the parts cooperating therewith, are dispensed with, a single link 58 being employed in their stead. With the exceptions noted, the constructions shown in Fig. 2 and in the remaining figures are identical hence no further description is needed of the former.

A machine of the construction as set forth is durable and economical, and the same is of great efficiency in operation.

While I have illustrated and described the preferred construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction as set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. A device of the class described, comprising a wheeled body; angularly disposed forwardly diverged scraper bars arranged at opposite sides of said body; means pivotally connecting the forward ends of said bars with said body, said means being manually adjustable for effecting angular adjustment of said bars relative to the surface acted upon; means pivotally connecting the rearward ends of said bars, said means maintaining said bar ends in spaced relation; means manually operable from said body for effecting elevation of the respective ends of said bars; and means manually operable from said body for forwardly drawing the rearward ends of said scraper bars to increase the divergency of the forward ends thereof, substantially as described.

2. In a device of the class described, the combination of a wheeled body; angularly disposed bars arranged at opposite sides of said body; a pivotal connection between the rearward ends of said bars; a pair of links pivotally connecting the forward end of each of said bars with said body, the inner end of one of the links of each of said pair of links being adjustably secured for effecting angular adjustment of the scraper bars relative to the surface acted upon, substantially as described.

3. A device of the class described, comprising a wheeled body; angularly disposed forwardly diverged scraper bars arranged at opposite sides of said body; means pivotally connecting the forward ends of said bars with said body, said means being manually adjustable for effecting angular adjustment of said bars relative to the surface acted upon; means pivotally connecting the rearward ends of said bars, said means maintaining said bar ends in spaced relation; means at the forward ends of said body for effecting elevation of the forward ends of the said scraper bars; and manually operable means for effecting elevation of the rearward ends of said bars, substantially as described.

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

NATHANIEL S. MONROE.

Witnesses:

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JOSHUA R. H. PORTS.