H. K. CLEMONS.

ROAD DRAG.

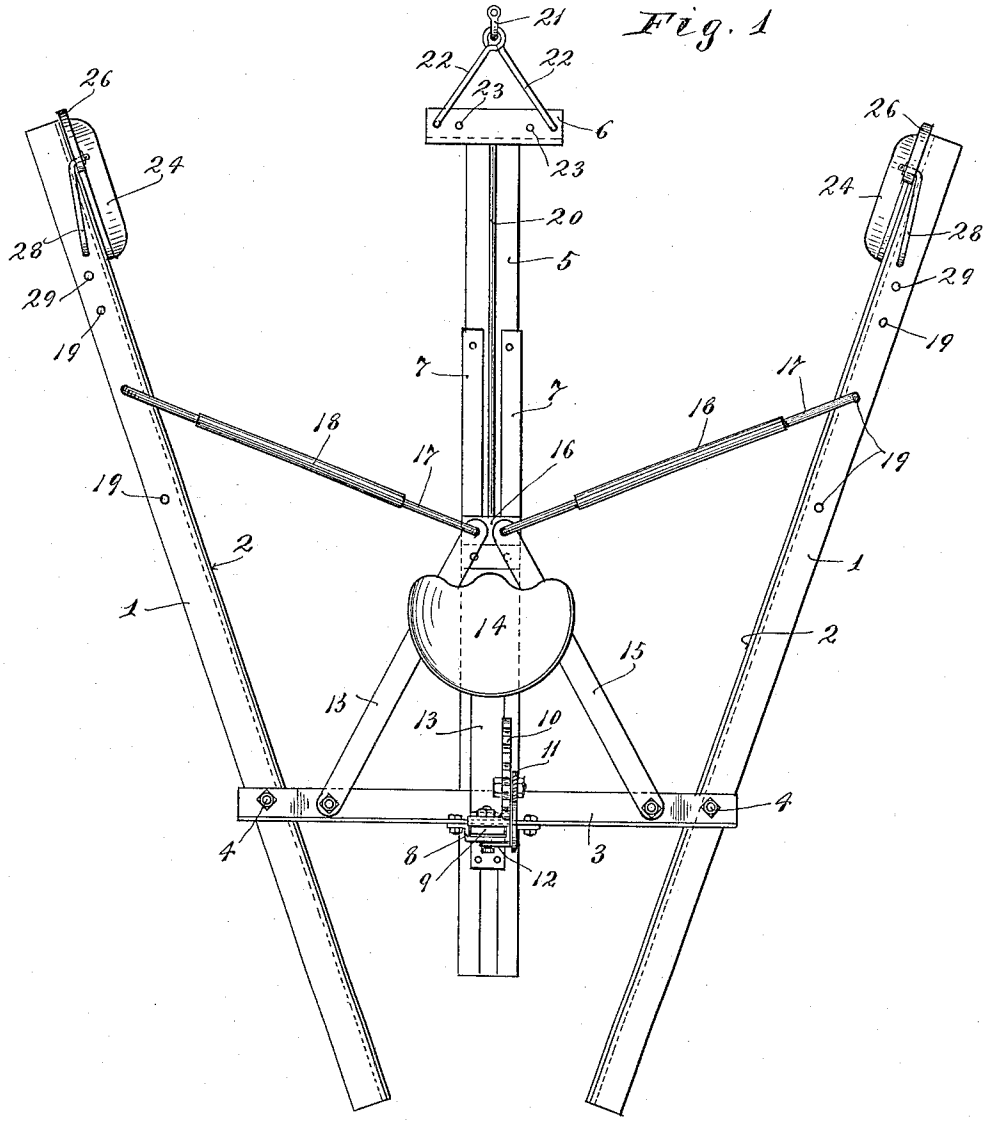
APPLICATION FILED JUNE 11, 1914.

1,146,476.

Patented July 13, 1915.

2 SHEETS—SHEET 1.

Fig. 1



Witnesses.
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2 SHEETS—SHEET 2.

Fig. 2

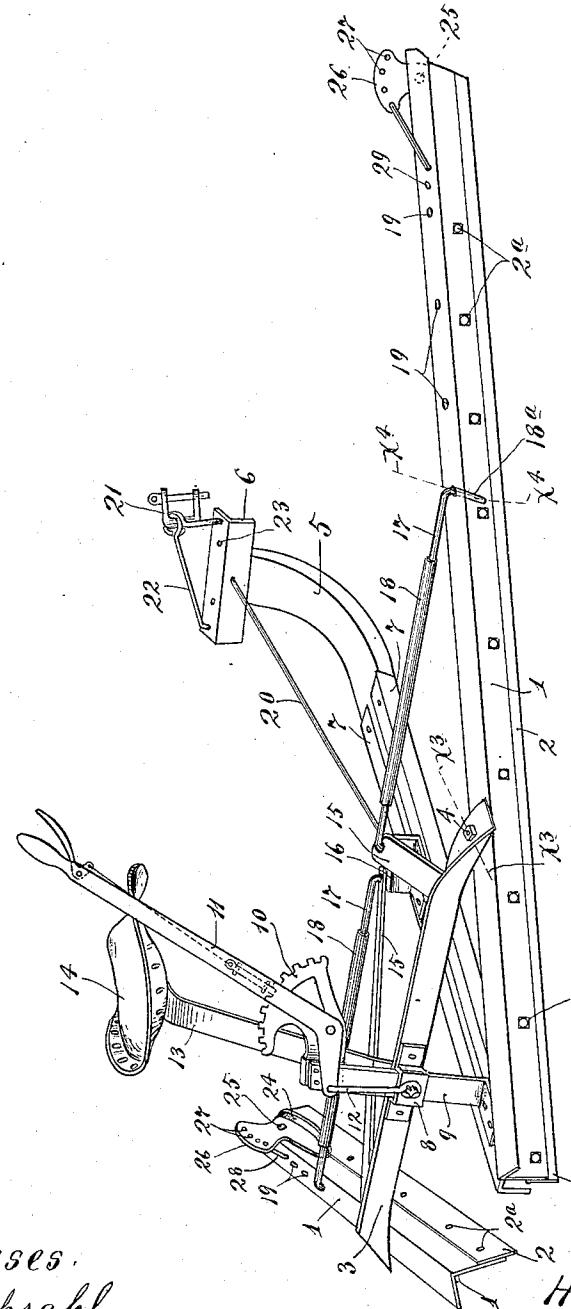


Fig. 4

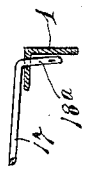
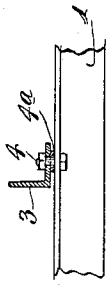


Fig. 3



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UNITED STATES PATENT OFFICE.

HARRY K. CLEMONS, OF ST. PAUL, MINNESOTA.

ROAD-DRAG.

1,146,476. Specification of Letters Patent. Patented July 13, 1915.

Application filed June 11, 1914. Serial No. 844,393.

To all whom it may concern:

Be it known that I, HARRY K. CLEMONS, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Road-Drags; 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.

My invention has for its object to provide an extremely simple and highly efficient road drag or grader, and to such ends, it consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

The invention is illustrated in the accompanying drawings wherein like characters indicate like parts throughout the several views.

Referring to the drawings: Figure 1 is a plan view of the improved road drag or grader; Fig. 2 is a perspective view thereof; Fig. 3 is a detail in section on the line x^3 x^3 on Fig. 2; and Fig. 4 is a detail in section taken on the line x^4 x^4 on Fig. 2.

The scraper blades, as shown and preferred, are made up of angle bars 1 having flat steel blades 2 rigidly but detachably secured thereto, by nut-equipped bolts 2^a. These scraper blades project below the depending flanges of the angle bars 1 and engage with the ground, and when they are worn out, may be replaced by new ones.

A heavy transverse bridge bar 3, at its ends, is secured to the upper and approximately horizontal flanges of the scraper bars 1, by means of short nutted bolts 4, which are left so loose that the ends of the two bars 1 are capable of considerable independent vertical movements in respect to each other. Preferably, small spacing thimbles 4^a are loosely placed between the horizontal flanges of the said scraper bars and bridge bar.

Located centrally between the scraper bars 1 is a runner 5 in the form of a channel bar having an upturned front end with a transverse angular head 6. The depending flanges of the runner 5, instead of directly engaging with the ground, are preferably provided with detachable ground-engaging wearing strips, preferably in the form of angle bars 7, bolted thereto, with their depending flanges overlapping the depending flanges of the channel-shaped body of the said runner, and thus affording detachable and replaceable ground engaging wearing bars for the said runner.

The bridge bar 3, at its central portion, is provided with a guide yoke or bearing 8 that works vertically on a post 9 secured at its lower end to the rear portion of the runner 5, and is provided at its upper end with a rigidly secured lever lock segment 10. A latch equipped lever 11 is pivoted to and coöperates with the latch segment 10 and is provided with an arm that is connected by a link 12, to the guide yoke or bearing 8. The supporting bar 13 of the driver's seat 14 is attached to the central portion of the bridge bar 3. A pair of rearwardly diverging brace bars 15 are attached at their front ends to the intermediate portion of the runner 5, and at their rear ends, to the bridge bar 3. These brace bars 15 hold the bridge bar 3 always at a right angle to the runner 5. As shown, the front ends of the brace bars 15 are connected to an upper flange of an anchor bracket 16 rigidly secured on the runner 5, by the down-turned ends of socalled spreader links, shown in the form of metal rods 17 having down-turned inner and outer ends and reinforcing sleeves 18 applied around their intermediate portions. The down-turned outer ends 18^a of the said spreader links are insertible through any of several longitudinally spaced perforations 19 formed in the upper flanges of the scraper bars 1. Here it is highly important to note that these down-turned ends 18^a, when inserted through any of the perforations 19, will bear against the outer surfaces of the depending flanges of the scraper bars 1 and will engage either with the heads or nuts of the adjacent bolts 2^a, which bolts, it will be remembered, are used to detachably secure the blades 2 to the said bars 1. The engagement of the said ends 18^a with the scraper bars and the bolts, which latter operate as stops, prevents the spreader links 18 from being rotated or turned over, and causes the latter to hold the said bars in working position and against outward rotary movements when they are subjected to the scraping pressure. By placing the depending outer ends of the said spreader links in different perforations 19, the forward divergence and spread of the two scraper bars may be varied at will, so as to adapt the grader to scrape road beds of different width.

Preferably, the head 6 and upturned front end of the central runner 5 is connected by a tension rod 20, and the anchor bracket 16 on the said runner. A draft connection, which, as shown, includes a clevis 21 and a pair of anchor links 22, is applied to the head 6 of the central runner; and the said head is shown as provided with laterally spaced perforations 23 with which the rear ends of said links 22 may be adjustably engaged so as to throw the line of draft either centrally of, or to one side of the central runner 5.

To limit the depth of the cut of the blades 21 and scraper bars 1, vertically adjustable shoes are applied to the front ends of said bars. These shoes 24, at their forward ends, are pivotally attached at 25 to the front ends of the said bars 1, and are provided with upwardly projected segmental flanges 26 having longitudinally spaced perforations 27. Adjustments of the runner 24 may be accomplished by short links 28, the downturned rear ends of which are engageable with any of several perforations 29 in the upper flanges of the scraper bars 1, and the laterally turned front ends of which are engageable with any one of the perforations 27 of the said shoe flange 26. As is obvious, pivotal adjustments of the shoes 24 serve to raise and lower the rear end portions thereof, so as to thereby limit the possible depth of cut of the front ends of the scraper bars. In fact, shoes may be adjusted so low that the front edges of the scraper bars will not cut at all, b ut will leave all the cutting to be done by the more rearwardly extended portions of the said bars.

The flexible connections between the scraper bars and bridge bar, and between the scraper bars, spreader links 18 and central runner 5 are important because they permit independent vertical movements of the front end portions of the said scraper bars and runner, so that they will adapt themselves to irregularities in the road.

By adjustments of the latch lever 11, the bridge bar 3, and consequently the rear ends of the scraper bars 1 may be given simultaneous and vertical adjustments in respect to the rear end of the central runner 5. It will, therefore, be seen that means is provided for independently regulating the depth of cut of the front and rear ends of the scraper bars.

What I claim is:

1. A road drag or grader having a pair of scraper bars and a centrally located ground engaging runner that is extended forward of the rear ends of said scraper bars, a transverse bridge bar to the ends of which said scraper bars are connected forward of their rear ends with freedom for lateral pivotal, and for vertical adjustments at their front ends, spreaders in front of said bridge bar connecting said central runner to said scraper bars with freedom for lateral adjustments and for independent vertical movements at their front ends, and an adjustable connection between the central portion of said bridge bar and the rear end portion of said runner, for securing the rear ends of said scraper bars in different vertical adjustments in respect to the rear end of said runner.

2. In a road drag or grader, the combination with a transverse bridge bar and laterally spaced scraper blades connected thereto with freedom for independent vertical movements at their front ends, of a ground engaging runner located centrally between said scraper bars, a lever operated vertically adjustable connection between the rear end of said runner and the intermediate portion of said bridge bar, and spreader links adjustably and flexibly connecting the front end portions of said scraper bars to the intermediate portion of said runner.

3. In a road drag or grader, the combination with a pair of scraper bars and transverse bridge bar connected to the intermediate portions thereof, of a ground engaging runner extended centrally between said scraper bars, spreader links adjustably connecting the front end portions of the said scraper bars to the intermediate portion of said runner, said runner having a transversely extended head at its front end, and a draft connection attached to said head.

4. In a road drag or grader, the combination with a pair of scraper bars and transverse bridge bar connected to the intermediate portions thereof, of a ground engaging runner extended centrally between said scraper bars, spreader links adjustably connecting the front end portions of the said scraper bars to the intermediate portion of said runner, said runner having a transversely extended head at its front end, and a draft connection adjustably attached to the said head and adapted to be applied thereto in different positions, so as to throw the line of draft centrally or to one side of the said runner.

5. In a road drag or grader, the combination with a central runner, a bridge bar connected to said runner with freedom for vertical adjustments, scraper bars adjustably connected to the ends of said bridge bar, spreader links pivotally connected to said runner at their inner ends and having downturned ends extended through portions of said scraper bars and bearing against other portions thereof, and stops on said scraper bars against which the downturned outer ends of said spreader links engage.

6. In a road drag or grader, the combination with a central runner having a guide post rising from its rear portion, of a bridge bar guided for vertical movements on said

post, scraper bars adjustably connected to the outer ends of said bridge bar, and adjustable connections between said scraper bars and runner, whereby the forward spread and divergence of said scraper bars may be varied.

7. In a road drag or grader, the combination with a runner having a vertical post on its rear portion, of a bridge bar, means for securing said bridge bar to said post in different vertical adjustments, scraper bars flexibly connected to the outer ends of said bridge bar, and spreader bars adjustably connecting the forward portions of said scraper bars to said runner for independent angular adjustments, the front end portions of said scraper bars and runner being capable of independent vertical movements.

8. A road drag or grader having a pair of scraper bars and a centrally located ground engaging runner that is extended forward of the rear ends of said scraper bars, a transverse bridge bar to the ends of which said scraper bars are connected forward of their rear ends with freedom for lateral pivotal, and for vertical adjustments at their front ends, spreaders in front of said bridge bar connecting said central runner to said scraper bars with freedom for lateral adjustments and for independent vertical movements at their front ends, an adjustable connection between the central portion of said bridge bar and the rear end portion of said runner, for securing the rear ends of said scraper bars in different vertical adjustments in respect to the rear end of said runner, ground engaging shoes applied to the front ends of said scraper bars, and means for independently securing said shoes in different vertical adjustments in respect to the scraper bars to which they are applied.

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

HARRY K. CLEMONS.

Witnesses:
HARRY D. KILGORE,
FRANK D. MERCHANT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."