

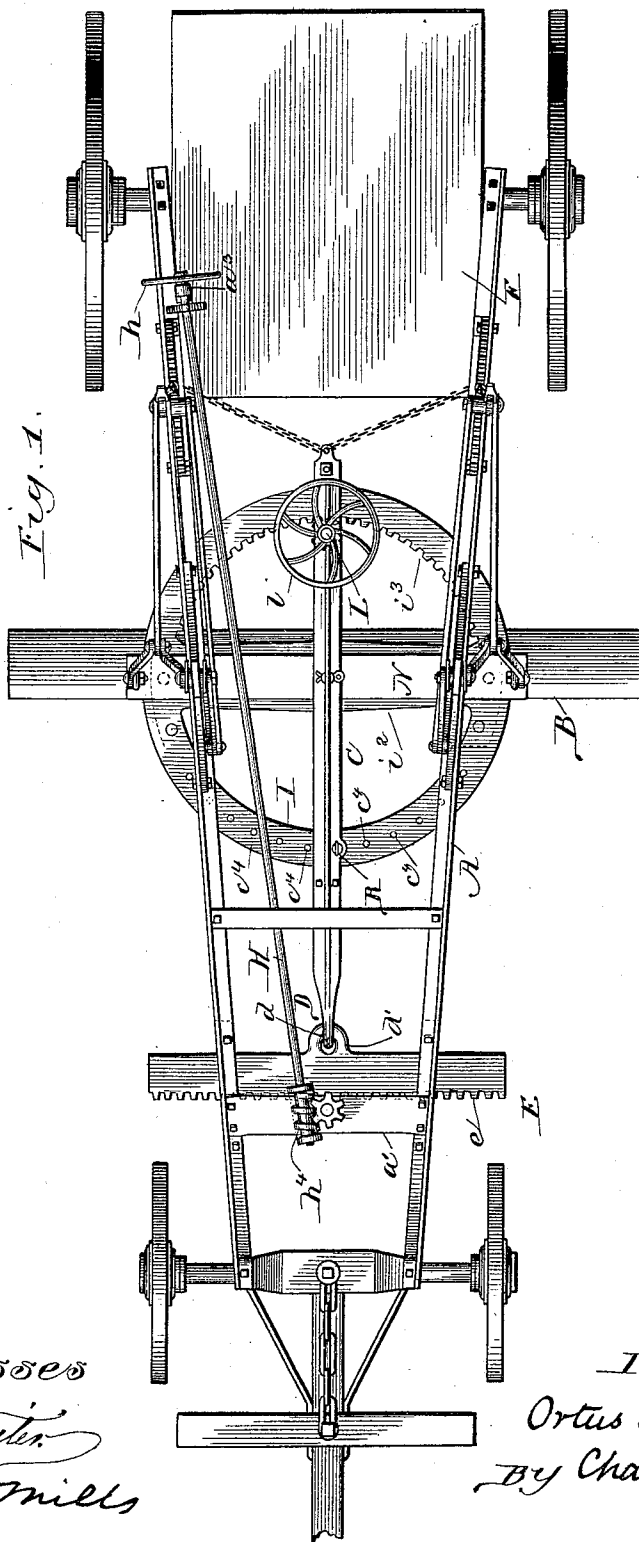
(No Model.)

3 Sheets—Sheet 1.

O. E. MOATS.
ROAD SCRAPER.

No. 460,511.

Patented Sept. 29, 1891.



Witnesses
V. Rosier
F. H. Mills

Inventor
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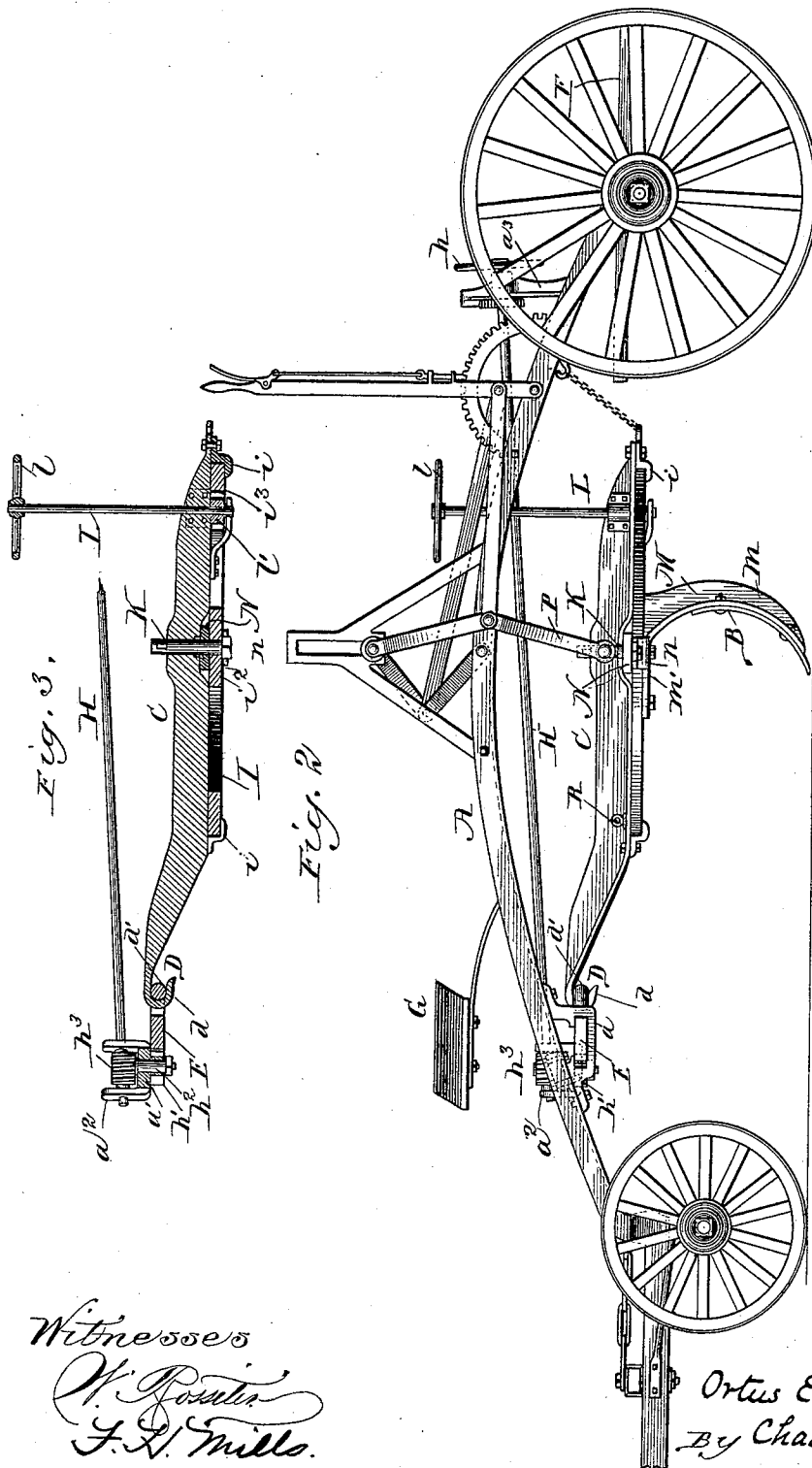
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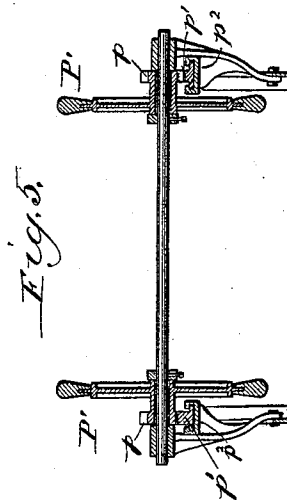
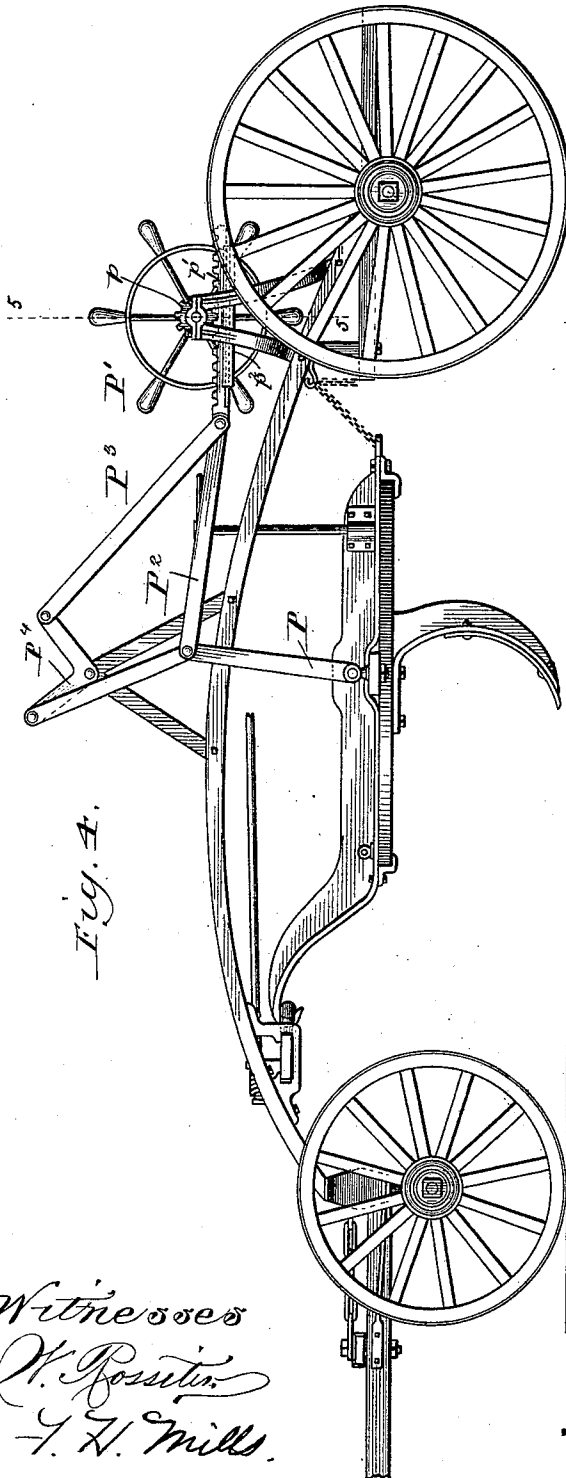
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UNITED STATES PATENT OFFICE.

ORTUS E. MOATS, OF CHICAGO, ILLINOIS, ASSIGNOR TO FREDERICK C. AUSTIN, OF SAME PLACE.

ROAD-SCRAPER.

SPECIFICATION forming part of Letters Patent No. 460,511, dated September 29, 1891.

Application filed January 18, 1889. Renewed June 19, 1891. Serial No. 396,801. (No model.)

To all whom it may concern:

Be it known that I, ORTUS E. MOATS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Road-Scrapers, of which the following is a specification.

In a road-scraper characterized by the several features of my invention the scraper-blade is drawn by a draft-bar, which is in turn drawn from the forward portion of the machine. The draft-bar is at its forward end connected with the body of the machine by a shifting or adjustable connection or draft attachment arranged whereby it can be adjusted transversely to the line of progression, in which way the forward end of the draft-bar can be shifted laterally to either side, so as to cause the scraper-blade to set toward one or the other side of the machine, according to the adjustment of the draft-bar. The draft-bar is at its forward end supported by an exceedingly-simple hinge or pivotal connection involving all of the advantages of a universal joint. The scraper-blade is carried by a single circle, which latter is in turn carried by the draft-bar. The circle turns in bearings on the draft-bar, and said bearings are arranged in front and at the rear of a pivot, by which the circle is pivotally attached to the draft-bar, whereby certain advantages hereinafter particularly specified are attained. The circle is provided with gear-teeth along a portion of its inner edge, and its said toothed portion is engaged by a pinion that can be operated in any suitable way for the purpose of turning the circle.

While it has hereinbefore been proposed to provide in a road-scraper a circle having teeth along its outer edge, such arrangement will not admit of my improved mode of steadying and maintaining the circle in proper working position by bearings such as hereinafter set forth. I also dispense with two circles such as heretofore employed in road-scrapers and further simplify and improve the construction of road-scrapers.

In the accompanying drawings, Figure 1 represents a top plan view of a road-scraper embodying my invention. Fig. 2 represents

the same in side elevation. Fig. 3 is a detail mainly representing a longitudinal vertical section through the draft-bar and certain adjuncts. Fig. 4 represents the road-scraper in side elevation, with an arrangement of rack and gear for operating certain links employed in the scraper-blade raising and lowering device. Fig. 5 is a detail representing a cross-section on line 5 5 in Fig. 4.

In said drawings, A indicates the wheel-supported body-frame, and B the scraper-blade, which latter is connected with and drawn by the draft-bar C. The draft-bar is hinged or pivotally held at its forward end, whereby it may swing and assume various positions severally incident to various desired movements or positions on the part of the scraper-blade, and as a means for throwing the scraper-blade toward either side of the machine the pivotal support for the forward end of the draft-bar is arranged, whereby it can be shifted toward either side of the machine. As a simple and convenient way of providing a shifting pivotal support or bearing for the forward end of the draft-bar its said end is simply attached by a hook-and-eye connection, as at D, with a draft attachment consisting, in one of its simplest forms, of a slide E, that is arranged for adjustment transversely to line of progression of the machine. The hook *d* can be on the draft-bar, and the eye *d'* can be on the slide E, as herein shown, or the hook could be on the slide and the eye on the draft-bar, if so preferred. The slide can be supported upon the body-frame in any suitable way—as, for example, it can be arranged to work in brackets or bearings *a*, attached to the sides of the body-frame.

I have herein shown means whereby the slide can be adjusted by an attendant standing upon the rear platform F of the machine, although, if desired, the slide could by similar or other suitable means be operated by a driver or attendant occupying the driver's seat G. The device herein illustrated as one of various mechanical ways for operating the slide E consists of a long rotary rod or shaft H, provided at its rear end with a hand-wheel *h* and at its forward end gear connected with said slide in any suitable way—as, for exam-

ple, the slide can be provided with rack-teeth e , engaged by a pinion h' on the spindle h^2 of a worm-wheel h^3 , that is in turn engaged by a worm h^4 on the shaft H. By such arrangement the slide E can be adjusted toward one or the other side of the machine, according to the direction in which the shaft H is turned. The spindle for the worm-wheel and pinion can have a bearing in a support a' on the body-frame, and said support can also be provided with a bearing a^2 for the shaft H. A suitable bearing a^3 can also be provided on the rear portion of the body-frame for the rear end of the shaft H, and any suitable locking device can be provided for temporarily locking said shaft against rotation.

The hook-and-eye connection at the forward end of the draft-bar obviously permits the draft-bar to move as though it were held at its forward end by a universal joint, whereby the draft-bar may swing, tilt, and rock laterally, and thus permit great freedom of movement on the part of the scraper-blade.

I indicates a circle, which is carried by and attached to the draft-bar by a sliding connection adapted to permit the circle to turn about its center. As a simple connection between the circle and draft-bar I have herein shown cleats i , attached to the draft-bar and arranged to provide supports or bearings for the circle. The circle is formed or provided with a diametrically-arranged cross-bar i^2 , which affords a bearing for the pivot K, by which the circle is pivotally attached to the draft-bar, as best shown in Fig. 3.

The circle I is provided along a portion of its inner edge with a line of gear-teeth i^3 , and the draft-bar carries a rotary rod or shaft L, having at its upper end a hand-wheel l and at its lower end provided with a pinion l' , arranged to engage the toothed portion of the circle. By operating the shaft L the circle can be turned about the vertical axis of the pivot K, and hence the scraper-blade, which is attached to the circle, can be reversed, so as to place one or the other of its upper ends forward or vary its horizontal angle, according to the direction and extent to which the shaft L is turned.

As a means for attaching the scraper-blade to the circle the blade is secured to and preferably backed by stocks or brackets M, having pendent curved portions m , which provide stout abutments at the back of the blade, and horizontal upper portions m' , which are bolted or otherwise suitably secured to the circle, it being observed that while but one of said brackets can be seen in Fig. 2 it is understood that at least a couple of such brackets will be provided, and that the presence of two of said brackets is indicated by dotted lines in Fig. 1.

N indicates a horizontal cross-bar, which extends over the circle and which is arranged intermediate of the circle and the draft-bar. The pivot K passes through the cross-bar N, and said bar is connected with the circle by cleats

n , which, however, permit the circle to turn independently of said bar N. The cleats n are attached to the bar N and engage under the outer edge portion of the circle, it being observed that the horizontal portions of the stocks or brackets M are secured to the circle sufficiently toward the inner edge of the latter to permit the lips or cleats n to engage the outer edge portion of the circle without interfering with the brackets M, and hence without interfering with the free turning of the circle independently of the cross-bar N. The lower ends of hangers P are pivotally connected with the cross-bar N, which said hangers can be suspended and operated as in my applications, Serial Nos. 295,239 and 295,240. Although, of course, other constructions and arrangements of hangers can be herein provided, the hangers such as herein shown are to be hung so as to be capable of a suitable extent of lateral swing in addition to their raising and lowering action, and for such purpose I have shown the lower ends of the hangers pivotally arranged to diverge from the sides of body-frame of the machine.

The circle I can in any suitable way be temporarily locked, so as to prevent it from turning, the arrangement herein shown for such purpose being simply a pin R, carried by the draft-bar and arranged whereby it can be engaged in any one of a series of holes l^4 in the circle.

With further regard to the arrangement of the circle I, hereinbefore referred to, it will be seen that the circle carries the scraper-blade and that said circle is in turn carried by the draft-bar, which latter is provided with bearings for the outer edge portion of the circle. Said bearings are arranged with reference to the circle at diametrically-opposite points, (one in front of and the other to the rear of pivot K,) and are also arranged in a line coincident with the line of draft, whereby while the circle may be turned upon said bearings it will be held in such manner as to withstand the strain incident to the resistance to the scraping action of the blade and under all circumstances will maintain its proper connection with the draft-bar. The cross-bar l^2 of the circle strengthens the same and affords a suitable bearing for the pivot by which the circle is attached, and since the circle lies flatwise against the under side of the draft-bar said pivot will be relieved from undue strain which would otherwise be thrown upon it by the back-pull of the scraper-blade. It will also be noted that by providing the circle with teeth along its inner edge its outer edge portion can accurately fit and work in bearings arranged in front of and to the rear of the pivotal center of the circle, since by said arrangement the circle may have a smooth outer edge well adapted for working in bearings on the draft-bar.

It will be seen by the arrangement hereinbefore described that the draft-bar is at its forward end pivoted to or flexibly connected

with a draft attachment that is adjustable transversely to the line of progression and that said draft attachment is to be connected with some portion of the machine—such, for example, as the body-frame—although it could obviously with the same result be connected with the front axle, which in such instance may be said to constitute part of the body-frame.

10 In Figs. 4 and 5 I have shown as a means for operating the scraper-blade raising and lowering devices, a couple of hand-wheels P' , provided with gears p , arranged to engage sliding rack-bars p' , that are supported by guides p^2 . In Fig. 4 one of said rack-bars is shown pivotally connected at its forward end with a couple of links P^2 and P^3 , one of which is connected with the toggle-jointed hanger P , while the other is connected with a bell-crank P^4 , from which the said toggle-jointed hanger is suspended. By such arrangement the hand-wheel, gear, and rack take the place of the hand-lever shown in preceding figures, it being understood that to each of said hand-wheels a scraper-blade raising and lowering devices, such as shown in Fig. 4, is allotted, which said raising and lowering devices are respectively arranged at opposite sides of the machine.

30 What I claim as my invention is—

1. The combination, substantially as hereinbefore set forth, of the draft-bar and the scraper-blade carried thereby with an adjustable draft attachment with which the draft-bar is connected at its forward end and from which said draft-bar is drawn, said draft attachment being arranged for adjustment transversely to the line of progression and independently of the body-frame of the machine, for the purpose described.

2. The combination, substantially as hereinbefore set forth, of the draft-bar and scraper-blade carried thereby, an adjustable draft attachment from which the draft-bar is drawn, consisting of a slide provided with rack-teeth and arranged for adjustment transversely to the line of progression, and suitable gearing for operating said slide, the draft-bar being attached to and drawn from said slide.

50 3. The combination, with the slide E , arranged for adjustment transversely to the line of progression, of the draft-bar for carry-

ing a scraper-blade and attached to and drawn from the slide, and the rotary shaft H , gear-connected with the slide and extended back to the rear portion of the machine, substantially as described.

4. The combination, with the draft-bar, of the circle provided with a cross-bar which at the center of the circle is pivoted to the draft-bar, bearings on the draft-bar engaging the outer edge of the circle at points in front of and in rear of the pivotal center of the circle, and the scraper-blade attached by brackets to the circle, substantially as described.

5. The combination, with the scraper-blade and a toggle-jointed hanger for the purpose set forth, of the rack-bar P^2 , connected with said hanger, and a gear for operating the rack-bar, substantially as described.

6. The combination of the scraper-blade, the lever P^4 , the toggle-jointed hanger suspended from said lever, the rack-bar connected with the toggle-jointed hanger, a link P^3 , connecting the lever P^4 with the rack-bar, and a gear for operating the rack-bar, substantially as described.

7. The combination of the circle I , pivoted to the draft-bar and provided along its inner edge with gear-teeth, the scraper-blade attached to the circle, and a gear engaging said toothed portion of the circle, substantially as described.

8. The combination, with the draft-bar, of the circle I , provided with a line of gear-teeth, a gear engaging said teeth of the circle, the cross-bar N , connected with the circle by lips or cleats n , which engage the outer edge of the circle and support the same, but permit the circle to turn independently of said cross-bar, and a scraper-blade attached to the circle by brackets which are secured to the circle sufficiently toward the inner edge thereof to permit the said lips or cleats to engage the outer edge portion of the circle without interference between the brackets and the lips or cleats when the circle is turned independently of the cross-bar, substantially as set forth.

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Witnesses:

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