(No Model.) 2 Sheets—Sheet 1.

G. N. MILLER & O. E. MOATS.

ROAD SCRAPER.

No. 383,751. Patented May 29, 1888.

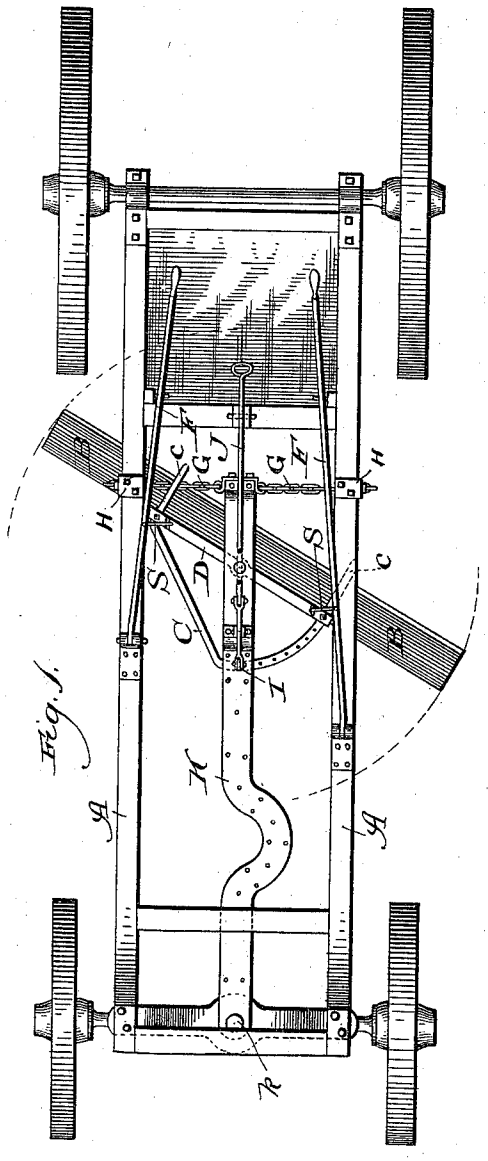


Fig. 1.

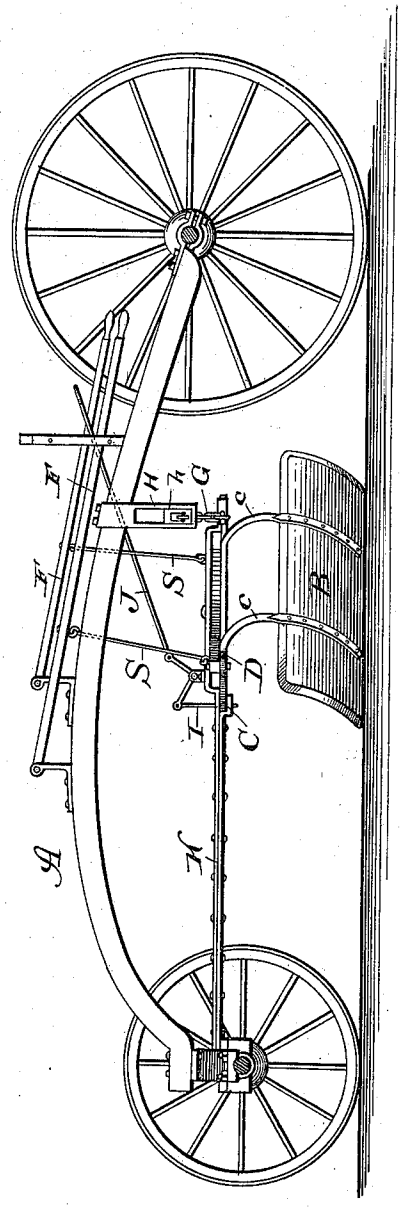


Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

G. N. MILLER & O. E. MOATS.

ROAD SCRAPER.

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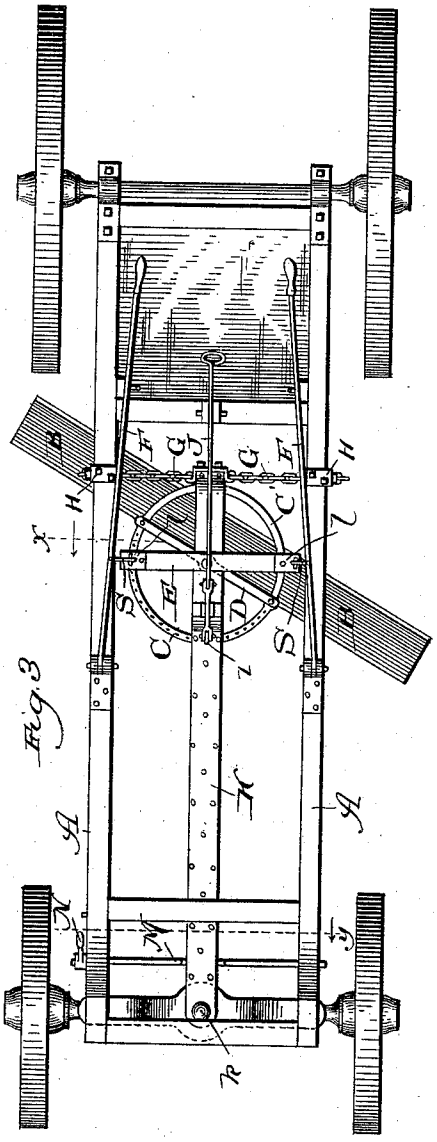


Fig. 3.

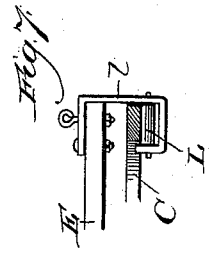


Fig. 7.

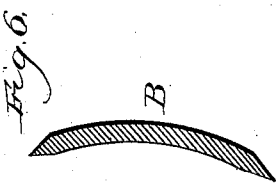


Fig. 6.

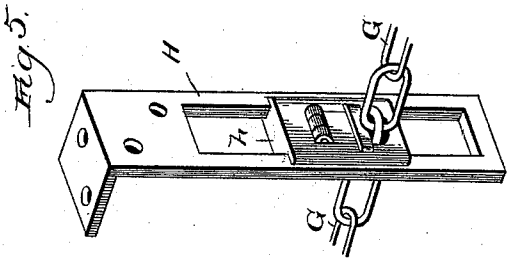


Fig. 5.

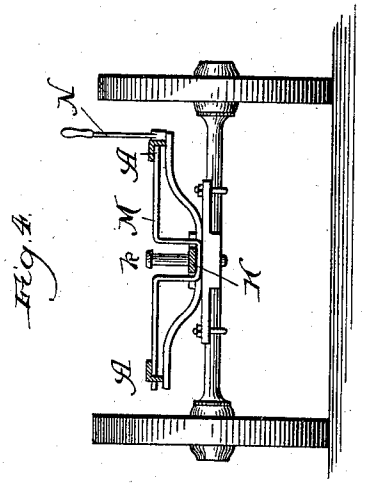


Fig. 4.

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UNITED STATES PATENT OFFICE.

GEORGE N. MILLER, OF ASHTON, AND ORTUS E. MOATS, OF CHICAGO, ASSIGNORS TO FREDERICK C. AUSTIN, OF CHICAGO, ILLINOIS.

ROAD-SCRAPER.

SPECIFICATION forming part of Letters Patent No. 383,751, dated May 29, 1888.

Application filed February 4, 1888. Serial No. 263,042. (No model.)

To all whom it may concern:

Be it known that we, GEORGE N. MILLER, a citizen of the United States, residing at Ashton, Lee county, Illinois, and ORTUS E. MOATS, a citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Road-Scrapers, of which the following is a specification.

In the drawings, Figure 1 is a plan view of our improved road-scraper. Fig. 2 is a side elevation of the same. Fig. 3 is a plan view of a road-scraper, showing certain modifications. Fig. 4 is a transverse section taken in the line *y y* of Fig. 3, looking in the direction of the arrows. Fig. 5 is an enlarged perspective view of the chain-adjuster. Fig. 6 is a transverse vertical section of the scraper-blade, and Fig. 7 is an enlarged detail of the traveler and its attachment.

In the drawings, A represents parallel bars mounted on wheels, to which the parts are connected; B, the scraper-blade; C, the scraper-blade supporting-rack; *c*, the ends of such rack, which are fastened to the scraper-blade; D, the sway-bar; E, the lever-bar; F, the levers; G, the adjusting-chain; H, the chain-adjuster; *h*, the chain-clamp, movable up and down in the adjuster; I, a pin by which the scraper-blade supporting-rack is held in different positions; J, the lever for engaging and disengaging such pin; K, the draw-bar; L, the traveler; *l*, the traveler-support; M, a crank-rod by which the forward end of the draw-bar may be raised; N, a lever by which such crank is turned, and S, links connecting the lever-bar with the levers.

In making our improved scraper we make a supporting-carriage consisting of axles and wheels connected by parallel bars A, in the usual way. The scraper-blade and other operative parts are intended to be connected with and supported by the supporting-carriage. From the front axle we run back a draw-bar, K, which is intended to receive the strain of drawing the scraper-blade forward when in operation. The front end of this draw-bar may be pivoted to the axle by a bolt, as shown in Figs. 1 and 3, or in any other proper way which will permit the axle to turn and change its position as the scraper is turned around. To permit the wheel on one side of the front axle to turn at a sufficiently acute angle, we curve the draw-bar to one side, as shown in Fig. 1 of the drawings. This will enable the machine to be turned in a short space, but always in the same direction. The curve in the draw-bar can obviously be made on the one side or the other, so that the scraper may be turned to the right or to the left, as may be preferred. We contemplate making them in both ways, so that users can exercise their choice. To permit the scraper to be turned in either direction, either when the draw-bar is curved or when it is straight, we have shown in Figs. 3 and 4 certain devices which we will now explain. In this case, for illustration merely and not from necessity, the draw-bar is shown as straight. The front end is bolted to the front axle by a bolt, *k*, which rises some distance above the axle, so that the front end of the draw-bar may be raised to any point desired within the limits of the bolt. To raise the front end of the draw-bar on this bolt conveniently and easily, we have provided a crank-rod, M, which may be pivoted in suitable bearings in the parallel bars A, or in any other suitable manner. To the end of this crank-rod is connected a lever, N, by which such rod may be turned. As the rod M is turned by the operation of the lever, the crank, which is located immediately under the draw-bar, is raised, and the forward end of the draw-bar correspondingly raised. The bolt *k* can be sufficiently long to enable the front end of the draw-bar to be raised enough to permit the wheels of the front axle to turn under it. In this way we are enabled to use either a curved or a straight draw-bar, and at the same time to turn the scraper either to the right or to the left at a very acute angle. The advantage of using the curved draw-bar is that a turn may be made in one direction without operating the lever N.

The rear end of the draw-bar is connected by a chain, G, or other flexible connection, so that it may be both laterally and vertically adjustable. By the lateral adjustment the draw-bar is moved toward one or the other of the parallel bars A and the scraper-blade carried to the one side or to the other, as it may be desirable to cut more at one side than at the other, while by the vertical adjustment

the depth of cut of the scraper-blade may be regulated. We prefer to use a chain to effect the flexible connection clamped or held in a sliding clamp, *h*, which may move up and down in an attachment, H, which is bolted or otherwise securely fastened to the parallel bars A, as shown in the drawings. This enables the chain to be raised or lowered. Its position, construction, and operation will be readily understood by reference to Figs. 2 and 5 of the drawings, and need not be more minutely described in detail. We will simply add that any other flexible connection may be adopted, if preferred, as the object of using a chain is simply to get a flexible connection for the rear end of the draw-bar which would permit both vertical and lateral adjustment.

We make our scraper-blade of steel and of the usual size and shape, except that we prefer to sharpen it at both edges and ends, as shown in Figs. 2 and 6. This enables us to reverse it or turn it upside down when the edge which has been in operation has become dulled. This gives us all the advantages of two blades for the same machine, as we do not need to stop work to sharpen the blade when only one side has become dulled. All we need to do is to unscrew the bolts holding in it place and turn it edge for edge. We also prefer to sharpen both ends of the blade, as shown in Fig. 2, so that when it is used in a machine in which either end of the scraper-blade may be extended forward, as shown in Fig. 3 of the drawings, the forward or cutting end will be sharpened. Even when the blade is not in use in such a machine, we still prefer to have both ends sharpened, as in the operation of turning or reversing the blade above described it could be turned end for end, so that when the sharp edge was used there would be a sharp end at the same time; but while we have described the blade as sharpened at both edges, so as to be reversible, and while this is the form in which we prefer to use it, we do not mean to be confined in all cases to the use of such a blade with the other improvements which are herein described and claimed.

To fasten the scraper-blade in place, so that it can be adjusted up and down to cut deep or shallow, or to change the angle with reference to the other parts of the machine, we employ a scraper-blade supporting-rack, C. As shown in Fig. 1 of the drawings, this rack consists of a straight portion and a curved portion. It may be termed an "angular supporting-rack." The curved portion is provided with a number of holes, and the draw-bar is also provided with a hole to permit the pin I to pass through the draw-bar and one of the holes in the supporting-rack. The ends of this supporting-rack terminate in curved arms *c*, as particularly shown in Fig. 3 of the drawings, to enable the scraper-blade to be bolted to them and to be turned as the scraper-blade supporting-rack is turned; but to still further assist in holding the scraper-blade in place and to enable it to be adjusted to different heights, we use a sway-bar, D, which is attached to the scraper-supporting rack and to the draw-bar by a pivoted connection. This enables the sway-bar to turn with the blade and to relieve the eye in the draw-bar through which the scraper-supporting rack passes from a portion of the strain of drawing the blade forward. To the ends of this sway-bar, as shown in Fig. 1, links S are attached to connect with levers F, extending back within reach of the operator, so that by raising them he can raise the rear end of the draw-bar, the chain G, or other flexible connection, and the scraper-blade, and by lowering them he can lower these parts. In this way he can at all times regulate and control the depth of cut which the scraper-blade is permitted to take.

By the use of a scraper-blade supporting-rack like that shown in Fig. 1 the blade cannot be thrown in its cutting operations beyond a certain angle. While it may be turned back for purposes of transportation until it is substantially parallel with the bars A, it cannot be thrown at right angles to these bars for the purposes of use. To permit this to be done, we employ a modified scraper-blade supporting-rack and other parts shown in Fig. 3. As shown in that figure, we use a semicircular supporting-rack and an auxiliary supporting-rack, C′, which is a complete circle. The circular or auxiliary rack is placed above the semicircular rack, so that the semicircular rack does not appear in Fig. 3. The semicircular rack is provided with holes at desired distances apart throughout its entire extent, and, as shown in the drawings, the circular or auxiliary rack has its half immediately above it also provided with holes. The semicircular rack has its ends curved downward and fastened to the scraper-blade, as above described. A sway-bar, D, is attached to the circular or auxiliary rack, and is pivoted at its middle to the draw-bar, but has no link-connection with the levers F, as in the other case. A lever-bar, E, is also fastened to the draw-bar by the same pivot, and has its ends connected to the levers by the links S. At the ends of this bar we employ traveler attachments *l*. (Shown in detail in Fig. 7.) They are pieces of iron, preferably attached to the ends of the bar E and bent down to receive a roller or traveler, L. The circular or auxiliary supporting-rack C′ moves on this traveler, and is prevented from separating from the bar E beyond the distance between such bar and the traveler. A pin, I, passes through the draw-bar and the scraper-supporting rack, and is thrown into or out of engagement by a lever, J, well illustrated by Fig. 2.

What I regard as new, and desire to secure by Letters Patent, is—

1. In a road-scraper, the combination of a supporting-carriage, a draw-bar vertically adjustable at its forward end to permit the wheels to run under it while turning the machine,

and means for effecting such adjustment while the machine is in operation, substantially as described.

2. In a road-scraper, the combination of a supporting-carriage, a draw-bar laterally and vertically adjustable at its rear end, a vertically-adjustable flexible attachment for the rear end of the draw-bar, vertically-sliding clamps in which the ends of the flexible attachment are secured, and a scraper-blade vertically and laterally adjustable with the rear end of the draw-bar, substantially as described.

3. In a road-scraper, the combination of a supporting-carriage, a draw-bar vertically adjustable at its forward end, and a cranked rod and lever for effecting such vertical adjustment, substantially as described.

4. In a road-scraper, the combination of a supporting-carriage, a draw-bar, a scraper-blade, and an angular scraper-blade supporting-rack, the circular portion of which is provided with holes to permit its adjustment, substantially as described.

5. In a road-scraper, the combination of a supporting-carriage, a draw-bar, a scraper-blade, a scraper-blade supporting-rack, an auxiliary supporting-rack, and a traveler on which the auxiliary supporting-rack travels while turning, substantially as described.

6. In a road-scraper, the combination of a supporting-carriage, a draw-bar, and a scraper-blade provided with sharpened sides and ends, substantially as described.

7. In a road-scraper, the combination of a supporting-carriage, a laterally-curved draw-bar, and a scraper-blade, substantially as described.

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