A. McCALLUM.

ROAD SCRAPER.

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1,404,038.

Patented Jan. 17, 1922.

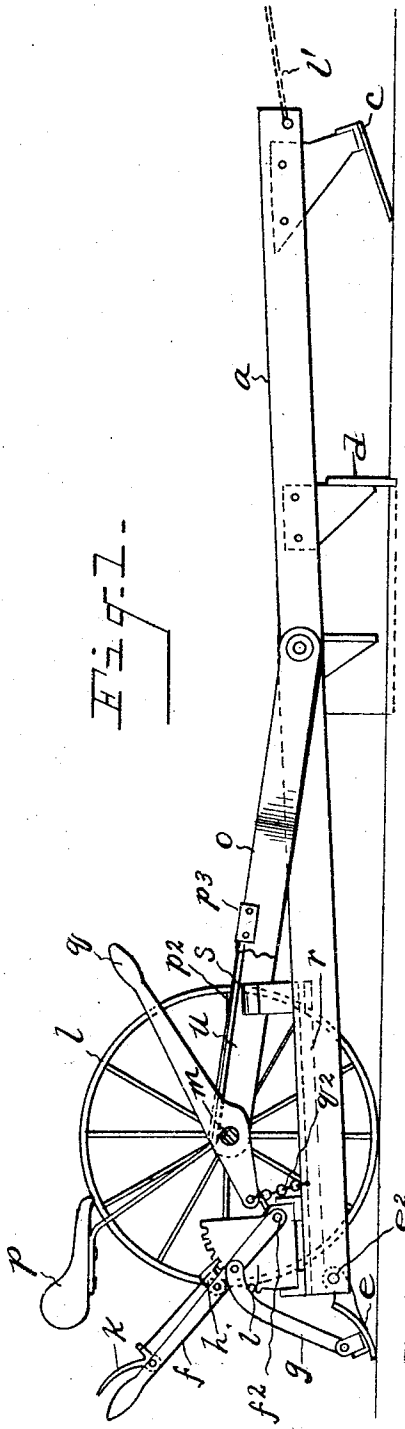


Fig. 1.

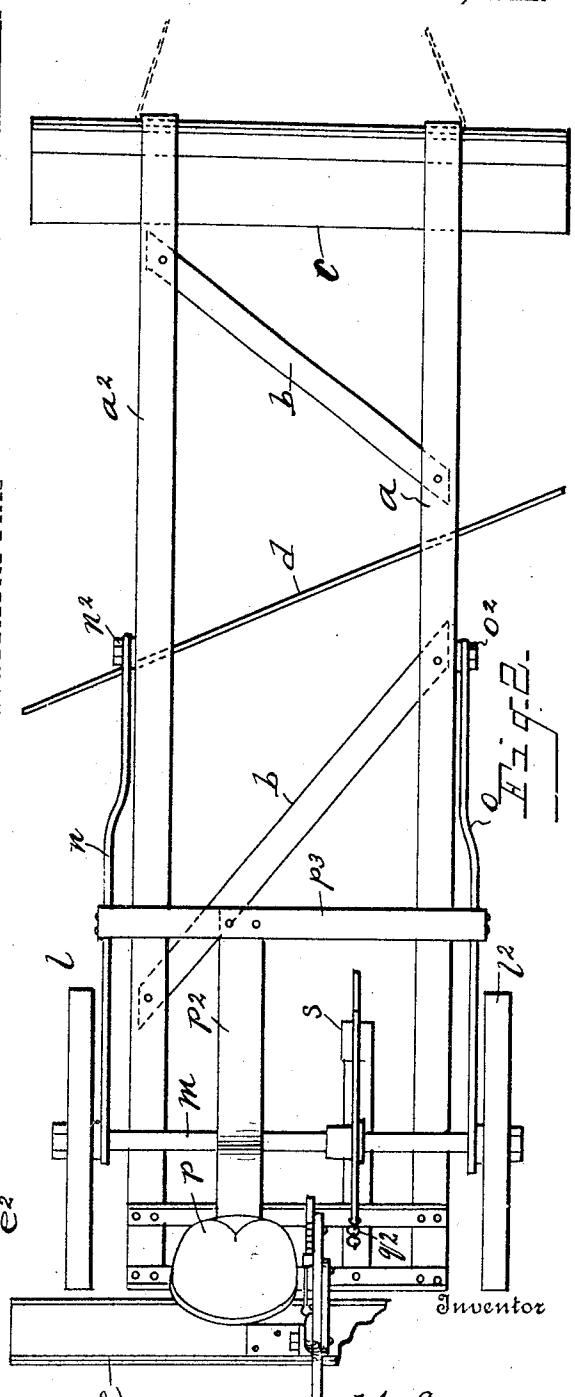


Fig. 2.

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ROAD SCRAPER.

1,404,038. Specification of Letters Patent. Patented Jan. 17, 1922.

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To all whom it may concern:

Be it known that I, ANGUS McCALLUM, citizen of the United States, residing at Pontiac, county of Oakland, State of Michigan, have invented a certain new and useful Improvement in Road Scrapers, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to road scrapers or road-building machinery and consists in an improvement upon the structure of my Patent No. 1,112,713, dated Oct. 6, 1914.

Heretofore certain difficulties have been experienced in the way of my road plane of the type described in that it was not adapted to be transported from place to place and over railroad crossings, cement roads, and other like roads of travel. It could not be readily handled or transported with facility without dismembering. It was also desirable to afford means for the operator to ride thereon and provide means to govern the plane as to depth of cut and in other respects as required.

In order to avoid these difficulties, I have primarily mounted the plane upon an axle which is supported by wheels and upon which axle is mounted a seat so that the weight of the driver or operator is carried entirely upon the axle and wheels. By this means the driver's weight is not carried on the cutting and smoothing parts of the machine and they are entirely free therefrom. Furthermore, by appropriate levers hereinafter described the driver can regulate both the depth of the cut in the manner hereinafter described and also raise the smoothing part of the machine entirely free from the roadway, whereby the entire machine can be carried over railroad tracks or to any distance upon the wheels and yet permit of its full operation when desired, in accordance with the principles set forth in my patent above referred to.

The general object of my device is to provide a machine particularly adapted for producing an even, level surface in the road, such machine adapted to carry the operator and so constructed that the scraper and leveling elements may be lifted from the surface of the road. This machine is also constructed so that it will seek and maintain a general road level to regulate the depth of cut irrespective of minor irregularities in the road surface.

In the drawings,—

Figure 1 is an elevation partly in section, one of the wheels being broken away.

Fig. 2 is a plan view of my device part of the rear portion being broken away.

My road-leveling machine comprises a frame consisting of a pair of parallel side rails a and a^2 suitably separated from each other and braced by means of cross-members b, b. At the forward end of this frame is secured a cross-member c adapted to contact the surface of the road, and so fixed to the frame as to present a sloping surface to the road and adapted to afford a point of contact with the road which will serve as a fulcrum upon which the frame will pivot in the raising or lowering thereof. This cross-member extends across the entire crown of the road and will therefore establish a general level to which the scraper blade will cut, which result would not be accomplished in case tractor wheels were used at the forward end as each wheel would be liable to fall in any small depression in the road.

A fixed transverse scraper d is suspended from said frame intermediate its ends; such transverse scraper is shown as extending diagonally across the frame so the earth which is not deposited in the small depressions in the road as the same is carried forwardly by the scraper will roll off to one side of such scraper blade. The angle of contact of this blade d with the surface of the road will, of course, be subject to slight variations with the raising or lowering of the frame.

At the rearward end of the frame is pivoted a leveling member or drag e. This rear member is arcuate in cross-section, the curved surface is adapted to engage the surface of the road and it is pivoted to the frame as at e^2. It is adapted for adjustment as to height and angle of contact with the surface of the road by means of a hand-lever f pivoted to the frame at f^2. A link g connects this hand-lever with the leveling blade so that actuation of the hand-lever serves to tilt the leveler about its pivot e^2 raising and lowering the same relative the frame and changing the angle of contact of

the curved surface of the leveler with the surface of the road. A spring-actuated, releasable dog h adapted to engage in the toothed edge of the quadrant i when operated by the handle k is provided to secure the leveler at any position to which it may be moved.

It will be observed that each of the blades carried by the frame project beyond the tread of the wheels, as shown in Fig. 2, so as to level the surface of the road to a greater width than such tread and fill up the depressions which will be worn in the center of the road. A chain shown in Fig. 1, and broken away in the drawing, extends forwardly of the frame to connect with a tractor or whiffletree if the device is to be hauled by horses.

The construction of the device and the operation as thus far described is similar to, though not identical with, that in my patent named above. Scraping and leveling blades scrape and even the surface of the road due to the weight of the frame. However, I provide in the device here shown a pair of wheels l and l^2 mounted on an axle m. This axle m is carried by a platform or secondary frame consisting of a pair of parallel side rails n and o pivoted to the main- or drag-frame as at n^2 and o^2, such side rails separated and spaced from each other by means of a brace b^3. A seat p carried by a spring support p^2 secured to the brace p^3 and supported by the axle m is provided to carry the driver.

It will be observed, therefore, that in the operation of this device, the drag-frame bears on the surface of the road by its own weight and that the extent to which the scraper d cuts into the road is regulated by the tilting of the rear blade or drag member, which tilting serves to raise or lower the drag-frame upon the forward cross-member as a fulcrum; while the secondary frame mounted upon the wheels and which secondary frame carries the driver and is pivotally connected with the drag-frame is not supported in any way by such drag-frame and does not normally support the same.

Therefore, in the operation of this device the weight of the driver or any weight carried by the secondary frame or wheels has no effect upon the extent to which the scraper cuts into the road, as such weight is not borne in any way by the drag frame. When it is desired, however, to elevate the scraper or drag-frame from the road so as to transport the machine from one place to another, or to pass over an obstacle such as a railroad track, the lever q which is pivoted to the axle, is depressed and by means of linkage, here shown as a chain indicated at q^2, which connects one end of the lever with the drag-frame, the drag-frame is raised from the surface of the road, the forward cross-member acting as a fulcrum in such movement. An overhanging clip s carried by a short arm r which forms a part of the main-frame is adapted to engage over the lever q when it is depressed sufficiently to be brought thereunder so as to hold the lever down and maintain the frame in its elevated position. It will be seen that this frame has one elevated position only, such being a sufficient distance from the ground as to entirely clear the same. There can be, therefore, no regulation of the cutting depth of the scraper knife by elevating or lowering the frame by the lever q as it has but one elevated position which raises the cutter elements clear of the road. As this lever q is pivoted to the axle, when the frame is elevated and hooked in such elevated position, the weight of the frame with the exception of the weight of the forward end is carried by the wheels.

What I claim is:

1. A machine for evening roads, having in combination a frame, a forward cross-member that contacts the ground which cross-member is carried by such frame, a middle blade carried by the frame, a rear blade or drag that is arranged to ride over the ground without cutting the same, such rear blade being pivoted to the frame, a lever pivotally mounted on the frame connected with the rear blade so as to tip the same, said rear blade being set with respect to the other blades so that the tipping of the rear frame raises or lowers the blade upon the forward cross-member as a fulcrum, thereby regulating the cut of the middle blade, a pair of wheels mounted on an axle provided with a seat for a driver, such mounted wheels pivotally connected with such frame, but not supported thereby or adapted to normally support the same, means for elevating such frame and supporting the same in said elevated position by the wheels.

2. A machine for evening roads, having in combination a main frame, a cross-member carried at the forward end of such main frame contacting the ground, a middle blade carried by such frame, a drag-blade carried at the rear of such frame pivotally supported therefrom, means for tilting such drag-blade, such drag-blade being set with respect to the other two blades so that the tilting thereof raises or lowers the main frame on the forward cross-member as a fulcrum, thereby regulating the cutting of the middle blade, a secondary frame mounted on a pair of tractor wheels and provided with a driver's seat, such secondary frame pivotally connected with said main frame, a lever pivoted to said secondary frame, con-

nected with the rear of said main frame so the same may be elevated thereby upon the forward cross member as a fulcrum, means for supporting such main frame by said wheels in its elevated position.

3. A machine for evening roads, having in combination a drag-frame provided at its forward end with a cross-member adapted to contact the road and a scraper disposed intermediate its ends and a drag member arcuate in cross-section, the curved surface of which contacts the road, pivotally mounted at the rearward end of said drag-frame, means for tipping said drag member so as to raise or lower its contact edge thereby lowering or raising the drag-frame upon the forward cross member as a fulcrum in such manner regulating the cut of the scraper blade, a secondary frame provided with a driver's seat carried by a pair of wheels mounted on an axle, such secondary frame pivotally connected with such drag-frame yet not supported thereby or normally supporting the same, a lever pivoted to such secondary frame, one end of which is attached to the drag-frame so that the lever may be operated to raise said drag-frame upon the forward cross-member as a fulcrum, elevating the scraper and drag-blades from the road, means for engaging such lever so as to maintain such drag-frame in such elevated supported position.

4. In a machine for evening roads, a pair of tractor wheels mounted on an axle, a drag-frame provided at its forward end with a cross member adapted to contact the road and a vertical transverse scraper intermediate its ends, and a drag member pivoted to the rear thereof, such drag member adjustable as to height and angle of contact with the surface of the road, such drag-frame pivotally connected with said axle and provided with means for being elevated upon its forward cross member as a fulcrum so as to be supported by said axle.

5. In a machine for evening roads, supporting wheels mounted on an axle, a drag-frame provided at its forward end with a cross-member adapted to contact the surface of the road and a vertical diagonally-extending transverse scraper blade suspended intermediate its ends and a drag-member pivoted at the rear of said frame, said drag-member arcuate in cross-section, the curved surface of which is adapted to contact with the surface of the road, a lever for tilting said drag member so as to raise or lower its contact edge, thereby lowering or raising the rearward portion of the frame upon the cross-member as a fulcrum, such drag-frame pivotally connected with the axle of said supporting wheels, though not normally supported thereby, a lever pivoted to said axle and connected with the rear end of said drag-frame so as to elevate said frame upon its forward cross-member as a fulcrum, means for supporting such frame in said elevated position.

6. In a device of the class described, in combination, a main drag frame provided with a forwardly-positioned cross member adapted to contact the ground, and a scraper member positioned rearwardly thereof, a secondary frame one end of which is supported by wheels, the opposite end of which is pivoted to the main frame, means carried by said wheels connected with the main frame in such a manner that the rear end of the main frame may be elevated pivoting about its forward cross member as a fulcrum and be supported in such elevated position clear of the ground by said wheels.

In testimony whereof, I sign this specification.

ANGUS McCALLUM.