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By

Attorneys
My invention relates generally to means for marking highways and other pavements, and particularly to means of this character which is especially adapted to be pulled or pushed over a road to mark lines upon the road surface defining traffic lanes, and an important object of my invention is to provide a practical efficient arrangement of this character which makes the lines in a manner and form providing the expenditure of paint far below that presently required for the purpose, the said arrangement being characterized by a small number of simple parts, capable of being manufactured and assembled inexpensively.

Other important objects of my invention will be apparent from a reading of the following description taken in connection with the drawings, wherein for purposes of illustration I have shown a preferred embodiment of my invention.

In the drawings:
Figure 1 is a side elevational view of the embodiment.
Figure 2 is a top plan view of Figure 1.
Figure 3 is a longitudinal sectional view taken through Figure 2 approximately on the line 3—3.
Figure 4 is a transverse vertical sectional view taken through Figure 3 approximately on the line 4—4 and looking toward the right in the direction of the arrows.
Figure 5 is a transverse vertical sectional view taken through Figure 3 approximately on the line 5—5 looking toward the left in the direction of the arrows.
Figure 6 is an enlarged fragmentary horizontal sectional view taken through Figure 3 approximately on the line 6—6.
Figure 7 is a plan view of a circular road mark.
Figure 8 is a plan view of a rectangular road mark.
Figure 9 is a perspective diagram of a road marked with a center line composed of the oblong marks as shown in Figure 8.
Figure 10 is a plan view of a star-shaped mark.

Referring in detail to the drawings, the numeral 5 generally designates a suitable frame composed of longitudinal side members 6 and 7 which converge at their front ends to meet in the journal 8 in which is journaled the stub shaft 9 on the fork 10 which carries the road engaging front wheel 11.

The rear ends of the side members 6 and 7 are joined by a cross member 12 which may conveniently include fittings 13 and 14 comprising bifurcated rear ends supporting the pivots 15 and 16 on which are pivoted the upper ends of the auxiliary wheel carrying forks 17 and 18 which carry the auxiliary wheels 19 and 20. Secured to the side members 6 and 7 in front of the fittings 13 and 14, respectively, are bands 21 and 22 which have pivoted thereto the adjusting links 23 and 24 which are slotted as indicated by the numeral 25 to engage a bolt 26 on the fork, which bolt has thereon a wing nut 27 which enables fastening the bolt in a position to sustain the auxiliary wheels above the road surface 28 or in contact therewith.

Between and to the rear of the converging portions of the side members 6 and 7 is arranged the road brushing and cleaning arrangement which is generally designated 30 and which comprises the brace 31 and the fitting 33. A rotary shaft 34 is journaled in the fittings 33, 31 and 32 and has thereon a sprocket carrying the sprocket chain 35 which is trained over a sprocket wheel 36 on the marking wheel shaft 37. The shaft 34 also has a gear 38 in mesh with a gear 39 on an auxiliary shaft 40 which is journaled in the fitting 32 and also in the brace 31 and has a universal connection 41 with an obliquely arranged shaft 42 whose laterally outward end is journaled in a fitting 43 mounted on the side member 7 of the frame 5. The shaft 42 has fixed thereto a sprocket over which the sprocket chain 44 is trained. The sprocket chain 44 is also trained over a sprocket on the brush shaft 45 and a support 46 is connected to and between the shaft 42 and the shaft 45, the support 46 being pivoted to the shaft 42 so that the brush 47 may swing up and down with inequalities in the road surface.

Pivoted to a portion of the frame side member 35 is the obliquely depending pivoted support 48 which has a pin and slot connection with the brush shaft 45 axially outwardly of one end of the brush 47 and opposite the position of the support 46.

By means of these arrangements the brush 47 which is cylindrical in form and fixed to the brush shaft 45, has sufficient freedom to rise and fall with the inequalities in the road surface. The weight of the brush and the appurtenances thereof are sufficient to maintain the brush in its depressed ground engaging position. To keep the brush out of engagement with the road surface a suitable arrangement such as a chain 49 is provided which is attached to the side member 7 of the frame 5 and has at its lower end means for engaging a portion of the support or the shaft 45 while the brush is in an elevated position.

The described brush mechanism is forwardly in the frame 5 from the road marking mechanism.
which is generally designated 51 and which includes the already mentioned marking shaft 37 which is revolvably mounted in bearings which are secured by U-bolts 52 traversing the side members 5 and 7, the shaft 37 being provided laterally outwardly of the frame 5 with road surface engaging wheels 54 and 55 of suitable type, and preferably pneumatic tire.

Mounted in the approximate center of the shaft 37 is the marking wheel which is generally designated 56, and whose detailed structure is shown in Figures 3 and 5.

The marking wheel 56 comprises the disk 57 which is constituted by two semi-circular plates, 58 and 59, which are fastened to the shaft 37 by half-collars 60 on the plates traversed by bolts. Secured to one side only of the disk by means of pairs of U-bolts 62 are the tubular spokes 59 which are provided intermediate their ends thereof with interior cross members 63 which act as anchors for the inward ends of helical springs 64 which operate against the axially inward end of the marking pad plungers 62. The marking pad plungers are secured slidably in place and against rotation by means of laterally projecting pins 63 and 64 which work in slots 65 and 66 which are made in the walls of the tubular spokes 61 and adjacent the radially outward end thereof. The purpose of having the disk 57 sectional is to enable removing the marking wheel from the axle 31 without removing either of the wheels 54 and 55.

Socketed on the outer end of the plunger 62 by means of a socket 67 and a securing pin or screw 68 are the marking pads 69 which comprise the plate portion 70 and the compressible marking pad per se 71. It will be understood that the plate 70 and the marking pad 71 may be of any suitable shape, such as circular, oblong, rectangular, star-shaped, or any combination of these or other designs suitable for marking a highway or other pavement for traffic directing purposes. As clearly shown in Figure 3, there are a number of the spokes 56, and although the number of such is not limited, eight in an arrangement of the like appear preferable, so that the marks 72 made by the selected marking pads 71, 78, or 79 and the like, will be sufficiently close spaced to give the proper traffic lanes defining effects. As shown in Figure 9 of the drawings the marks 72 are spaced at such distances from each other that in perspective the spaces between the marks disappear in the distance and produce the appearance of a continuous line; while at a less distance from the observer, an attention compelling fitting appearance of the marks give unmistakable traffic definition. To a motorist driving along the road 28 marked in accordance with the present invention, the line made in accordance with the present invention appears in the distance to be continuous, and in the foreground to be active and attention compelling, whereby the device is rendered less apt to fail to be seen or to be disregarded the road markings.

As clearly indicated in Figure 3, the marking plates 50 and the conforming marking pads 71 are curved in longitudinal cross section to conform with the curvature of the periphery of the circle defined by the periphery of the ground engaging wheels 54 and 55, beyond which the pads 71 project as indicated in Figure 3 by reason of the presence of the springs 61, when the pads are not engaged with the road surface 28 as is the lowermost pad shown in Figure 3. In this position the lowermost pad is compressed against the tension of the spring 61 to a position approximately flush with the periphery of the ground engaging wheels at the point of engagement with the road surface 28. The curvature of the pads 50 and their supporting plates 70 being as stated, there is no slipping or scuffing or incomplete contact with the road surface, even where expected irregularities in the road surface exist. It is to be observed that the arrangement of the fastening U-bolts 52 for securing the spokes 59 to the disk 57, permit radial expansion or contraction of the individual spokes, to enable securing a proper adjustment of the radial projection thereof.

Suspended by a U-shaped strap 73 secured as indicated by the numerals 74 and 15 to the respective side members 5 and 7 of the frame 5 and immediately forwardly of the ground engaging wheels 54 and 55 is the paint reservoir which is generally designated 76. The paint reservoir comprises a box 77 which rests on the bight portion of the supporting strap 73 and which has rising from its opposite ends the brackets 78 in which are journaled the opposite ends of the roller shaft 79 which carries the applying roller 80 over which is trained the paint applying and distributing belt 81. Keeping the belt down below the surface of the paint in the reservoir 77 is an idle rotary weight 82. The roller 80 and hence the exterior surface of the paint applying belt 81 is so arranged that the outer surface of the belt is radially inwardly of the outermost position of the pads 71, so that in engaging the belt 81 while the marking wheel is moving in the counterclockwise direction indicated by the arrow in Figure 3, the pads 71 are compelled to compress and to move their shafts 52 in a radially inward direction, whereby a sufficiently strong engagement of the pads with the belt is produced to effect the desired transfer of paint from the belt to the pads for application to the road surface 28.

The spindle of the fork 10 of the front wheel 11 may be provided with a steering handle or a draft member whereby the device may be steered if desired by an operator's like means mounting said marking arms on said axle, 75

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resiliently mounted road surface marking pads on said marking arms, said pads normally projecting radially beyond the periphery of said ground engaging wheel said pads being arranged to be move to a marking position level with the periphery of the ground engaging wheels by contact with the road surface as said device is moved upon the road surface, and means on said frame for supplying marking fluid to said marking pads.

2. A road marking device of the character described, said device comprising an ambulatory frame including a pair of ground engaging wheels, an axe connected between said wheels and fixed for rotation with said wheels, marking arms extending radially from said axe, means mounting said marking arms on said axe within the frame and between said wheels, resiliently mounted road surface marking pads on the outer ends of said marking arms, said pads being arranged to project radially normally beyond the periphery of said ground engaging wheels for yielding engagement with the road surface as said device is moved upon the road surface, and paint applying means carried by said frame in front of said marking arms for applying paint to said marking pads.

3. A device for marking a road surface, said device comprising an ambulatory frame including two spaced side members, an axe rotatably mounted on and across said side members, ground engaging wheels fixed on said axe outwardly of the said side members, a marking wheel on said axe between said side members, said marking wheel comprising a plurality of radial arms having resiliently mounted road surface marking pads at their outer ends, mounting means fastening said radial arms rigidly to said axe, a cross member mounted on and between said side members forwardly of said marking wheel, and paint applying means suspended from said cross member.

4. A device for marking a road surface, said device comprising an ambulatory frame including two spaced side members, an axe rotatably mounted on and across said side members, ground engaging wheels fixed on said axe outwardly of the said side members, said marking wheel on said axe between said side members, said marking wheel comprising a plurality of radial arms having resiliently mounted road surface marking pads at their outer ends, mounting means fastening said radial arms rigidly to said axe, a cross member mounted on and between said side members forwardly of said marking wheel, paint applying means suspended from said cross member, and a single ground engaging wheel located forwardly of said markings means and supporting the front end of said frame.

5. A device for marking a road surface, said device comprising an ambulatory frame including two spaced side members, an axe rotatably mounted on and across said side members, ground engaging wheels fixed on said axe outwardly of the said side members, said marking wheel on said axe between said side members, said marking wheel comprising a plurality of radial arms having resiliently mounted road surface marking pads on said axe between said side members, said marking wheel comprising a plurality of radial arms having resiliently mounted road surface marking pads at their outer ends, mounting means fastening said radial arms rigidly to said axe, a cross member mounted on and between said side members forwardly of said marking wheel, paint applying means suspended from said cross member, and a single ground engaging wheel located forwardly of said markings means and supporting the front end of said frame, and a sprocket chain drive extending operatively from said axe forwardly to said marking wheel.

6. A device for marking a road surface, said device comprising an ambulatory frame including two spaced side members, an axe rotatably mounted on and across said side members, ground engaging wheels fixed on said axe outwardly of the said side members, a marking wheel on said axe between said side members, said marking wheel comprising a plurality of radial arms having resiliently mounted road surface marking pads at their outer ends, mounting means fastening said radial arms rigidly to said axe, a cross member mounted on and between said side members forwardly of said marking wheel, paint applying means suspended from said cross member, a single ground engaging wheel located forwardly of said marking means and supporting the front end of said frame, a road surface cleaning roller depending from said frame in front of said paint applying means and to the rear of said single ground engaging wheels, and a sprocket chain drive extending operatively from said marking wheel.

7. A device for marking a road surface, said device comprising an ambulatory frame including two spaced side members, an axe rotatably mounted on and across said side members, ground engaging wheels fixed on said axe outwardly of the said side members, a marking wheel on said axe between said side members, said marking wheel comprising a plurality of radial arms having resiliently mounted road surface marking pads at their outer ends, mounting means fastening said radial arms rigidly to said axe, a cross member mounted on and between said side members forwardly of said marking wheel, paint applying means suspended from said cross member, a single ground engaging wheel located forwardly of said markings means and supporting the front end of said frame, a road surface cleaning roller depending from said frame in front of said paint applying means and to the rear of said single ground engaging wheels, and a sprocket chain drive extending operatively from said marking wheel.

8. A device for marking a road surface, said device comprising an ambulatory frame including two spaced side members, an axe rotatably mounted on and across said side members, ground engaging wheels fixed on said axe outwardly of the said side members, a marking wheel on said axe between said side members, said marking wheel comprising a plurality of radial arms having resiliently mounted road surface marking pads at their outer ends, mounting means fastening said radial arms rigidly to said axe, a cross member mounted on and between said side members forwardly of said marking wheel, paint applying means suspended from said cross member, a single ground engaging wheel located forwardly of said markings means and supporting the front end of said frame, a road surface cleaning roller depending from said frame in front of said paint applying means and to the rear of said single ground engaging wheels, and a sprocket chain drive extending operatively from said marking wheel.
A device for marking a road surface, said device comprising an ambulatory frame including two spaced side members, an axle rotatably mounted on and across said side members, a plurality of radial arms having resiliently mounted road surface marking pads at their outer ends, mounting means fastening said radial arms rigidly to said axle, a cross member mounted on and between said side members forwardly of said marking wheel, and paint applying means suspended from said cross member, said mounting means comprising a disk secured axially to said axle and U-bolts having their legs passing through said disk and their bights embracing inner end portions of said radial arms at one side of said disk.

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