

Jan. 15, 1935.

G. F. TILKE

1,988,024

APPARATUS FOR MARKING ROADS OR WAYS

Filed Nov. 1, 1933

3 Sheets-Sheet 1

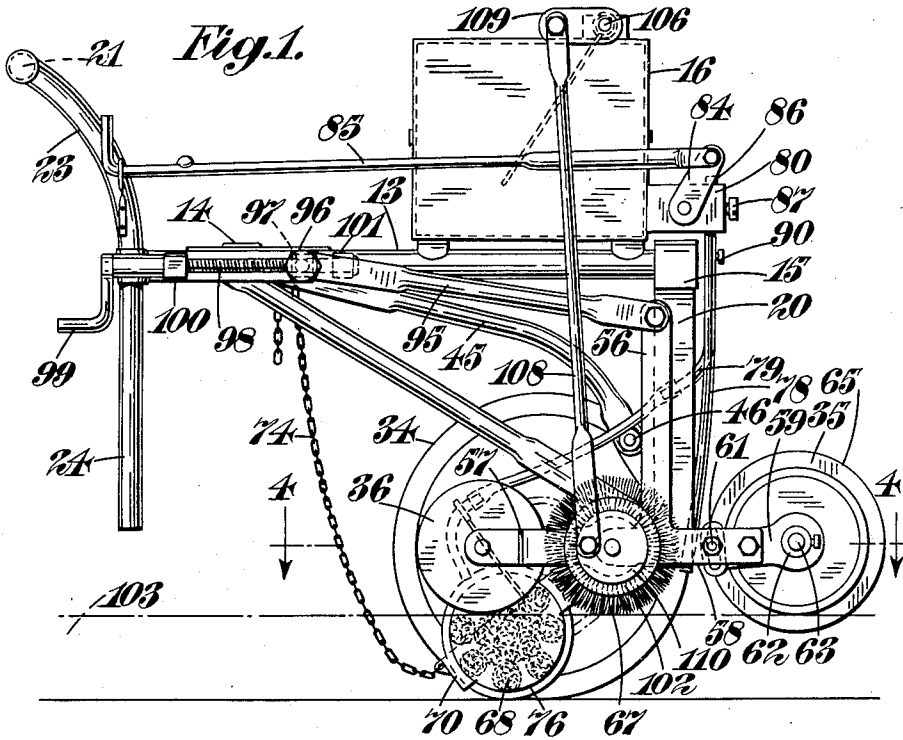
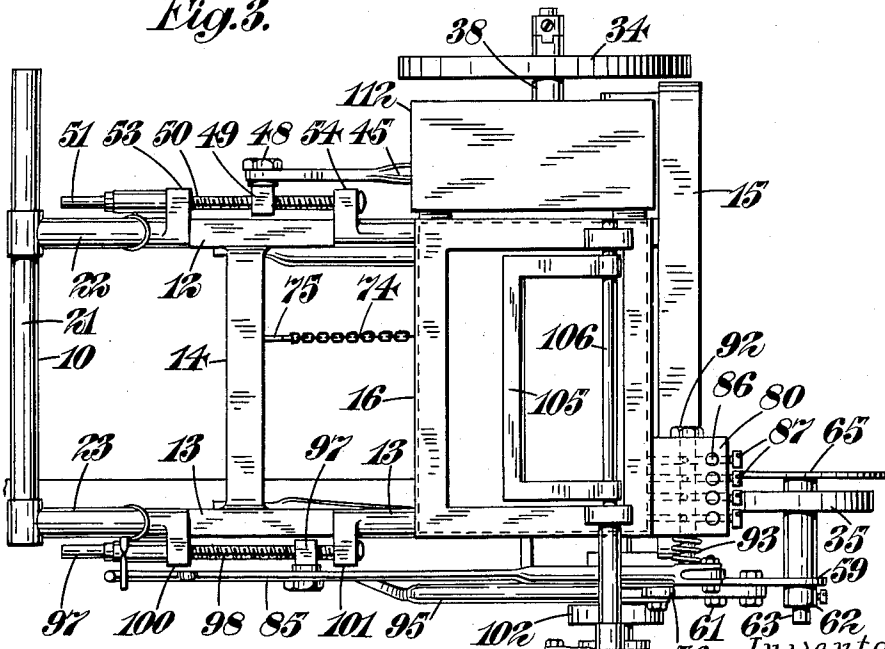


Fig. 3.



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3 Sheets-Sheet 2

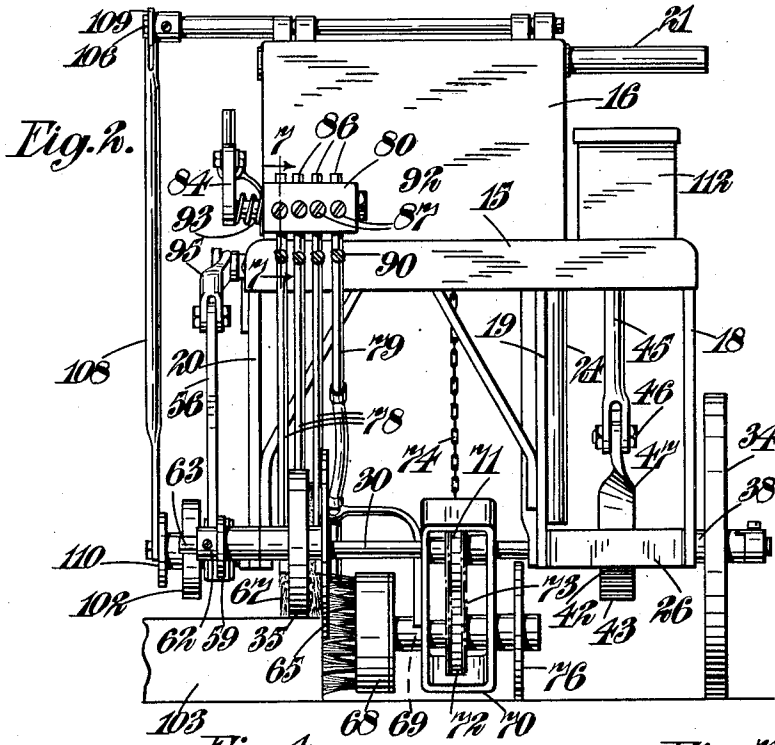


Fig. 2.

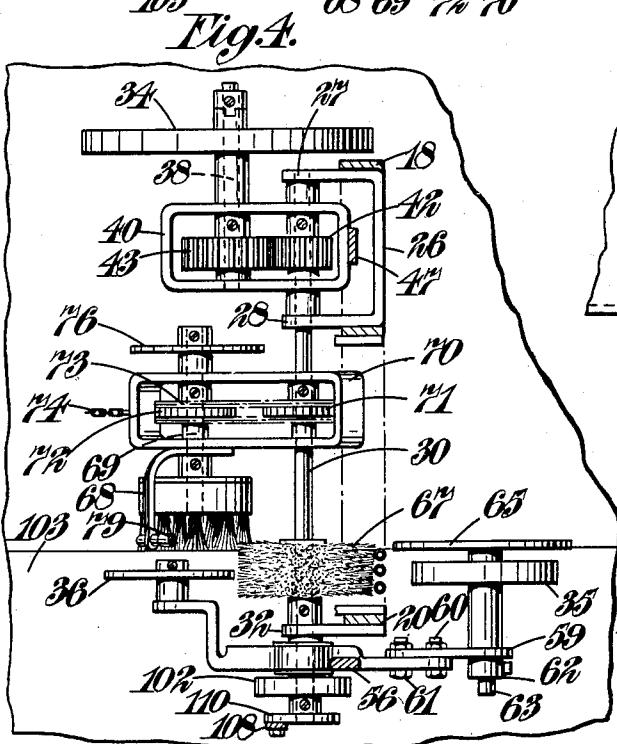


Fig. 4.

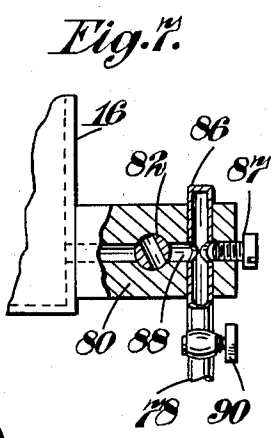


Fig. 1.

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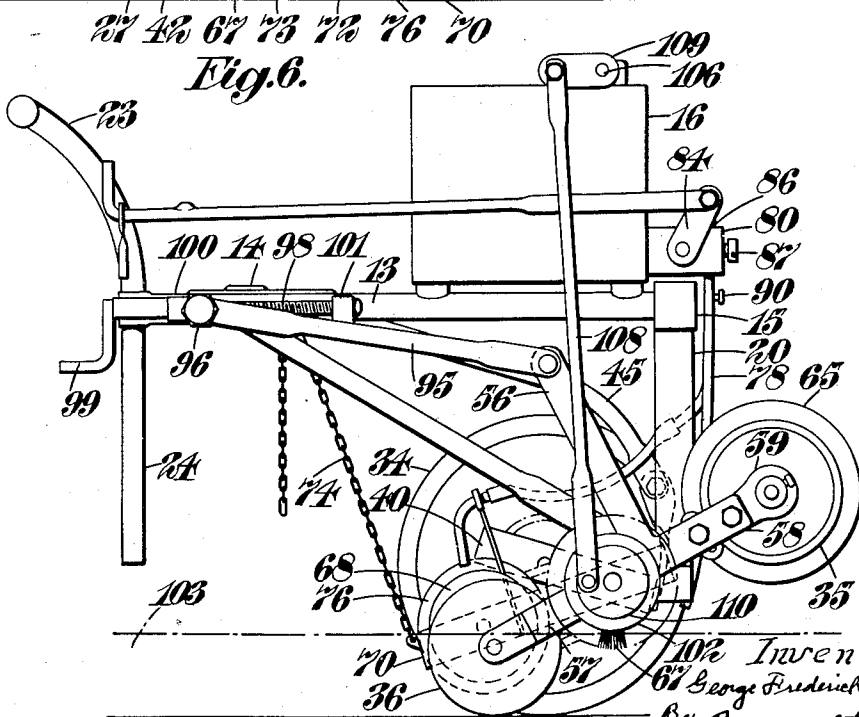
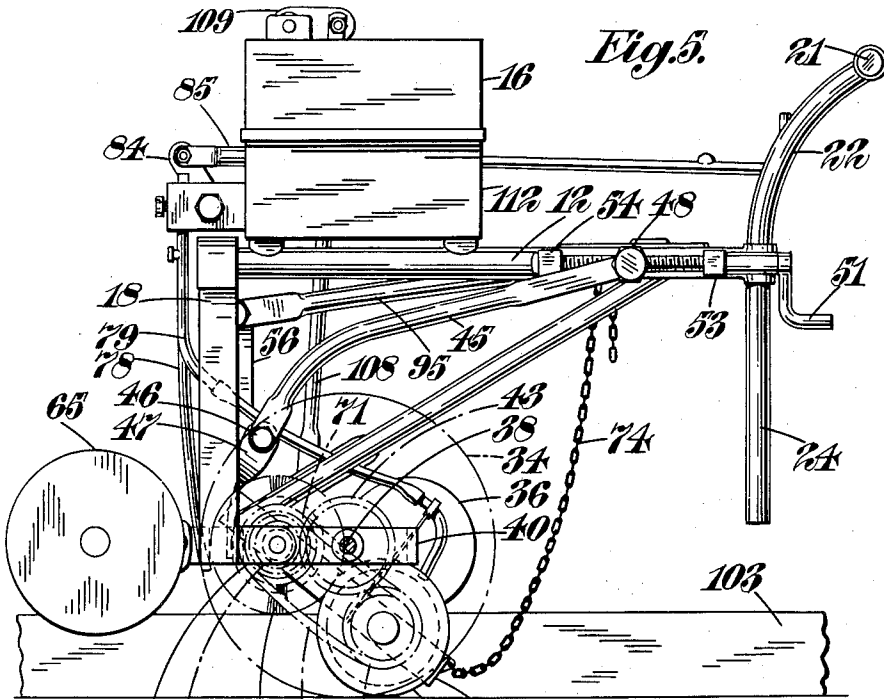
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APPARATUS FOR MARKING ROADS OR WAYS

Filed Nov. 1, 1933

3 Sheets—Sheet 3



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UNITED STATES PATENT OFFICE

1,988,024

APPARATUS FOR MARKING ROADS OR WAYS

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Application November 1, 1933, Serial No. 696,277
In Great Britain November 9, 1932

11 Claims. (Cl. 91—39)

This invention relates to apparatus for marking roads, ways, platforms or the like, particularly, edges or curbstones thereof, hereinafter referred to generally as "roads". The particular type of apparatus to which the invention relates is that in the form of a machine comprising in combination a main frame mounted on road wheels, a tank for a liquid carried thereby, rotary liquid-applying means arranged to contact with a part of the road to be marked, transmission means for driving the liquid-applying means from a road wheel, and feed means for supplying liquid from the tank to said liquid-applying means.

Various constructions of machines of the type described comprising rotary brushes have heretofore been proposed for marking roads, in which all the road wheels were arranged to run at one level on a road surface, and the marking brush was arranged to run on and mark that surface at the same level. Such machines are not adapted for marking curbstones which at the present day are rendered distinctive for motor traffic by applying to them a white solution by hand which is a tedious and costly proceeding, and the present invention has for one of its objects to provide an improved construction of machine of the type described which shall enable long lengths of curbstones to be whitened more expeditiously and at a lesser cost than heretofore.

According to the invention, there is provided a machine of the type described comprising in combination a main frame, two road wheels arranged one at each side and at different levels for supporting the frame, a tank for a liquid carried by the frame, rotary liquid-applying means comprising two rotary brushes operative at different levels, whereof one is an upper brush arranged to brush a horizontal face, and the second is a side brush arranged to brush a vertical face of a curb, transmission means for driving said brushes from a road wheel, and feed means for supplying liquid from the tank to said brushes, which side brush is mounted to move up and down in the main frame. Consequently, by running the machine along a road, any part of it, such as the top or side of curbstones, with which one or more brushes contact, can be readily whitened, while at least one road wheel runs on the roadway at one level, and the brush operates at a different level.

In order that the side brush shall be capable of whitening curbstones of various heights and of applying liquid to various depths on the side faces of the curbstones, the side brush is preferably adjustable vertically and a wheel may be car-

ried by said rocker and arranged to run on the ground in the lowest position of the rocker.

When a machine is required to apply liquid along a considerable distance, for example, several miles, the tank must be of considerable capacity so that the machine will be of considerable weight, and to facilitate manoeuvring it, according to a feature of the invention, a bar that extends in the direction of travel of the machine and is mounted to rock adjacent to the upper brush about a horizontal axis, carries one of said road wheels at one of its ends and a third road wheel is carried by the other end of said bar. This bar may constitute two arms of a three-armed lever and manually adjusting means on the frame is operatively connected with the third arm of said lever for rocking the bar and thereby facilitating manoeuvring the machine and running the road wheels at one side thereof on to and off from an elevated pavement provided with the curbstones.

Other features of the invention will be described hereinafter and pointed out in the claims.

One embodiment of the invention is diagrammatically illustrated by way of example in the accompanying drawings, wherein:

Figure 1 is a side elevation showing one form of machine according to the invention,

Figure 2 is a front elevation thereof,

Figure 3 is a top plan view,

Figure 4 is a horizontal section taken on the line 4—4 in Figure 1,

Figure 5 is a side elevation showing the opposite side of the machine to that shown in Figure 1, a road wheel having been removed,

Figure 6 is a side elevation corresponding to Figure 1, but showing some parts in a different position, and

Figure 7 is a detail sectional view of a valve box taken on the line 7—7 in Figure 2.

Like reference characters designate like parts throughout the several views.

Referring to the drawings, a main framework 10 of inverted L-shape has an upper portion which comprises two longitudinal members 12, 13 and two transverse members 14, 15 and carries a tank 16 at one end, and has three vertical members 18, 19, 20 at the same end as the tank. At the opposite end a handle bar 21 for pushing the machine forwards is supported by two arms 22, 23, whereof the arm 22 is extended downwards in the form of a leg 24 for resting on the ground. A U-shaped member 26 rigidly connects together the lower ends of the vertical members 18 and 19, and has two limbs 27, 28 in which is journaled a main shaft 30 which is

also journalled in a bearing 32 provided at the bottom of the vertical member 20.

There are three road wheels 34, 35 and 36. The largest wheel 34 is at one side of the machine, whilst the other wheels 35 and 36 are at the opposite side, and are at a different level from the largest wheel so as to run on a pavement along the roadway and yet keep the machine substantially level.

The largest wheel 34 is mounted by means of a short shaft 38 on a rocker 40 which is mounted to rock about the shaft 30 within the U-shaped member 25. A pinion 42 fast on the shaft 30 meshes with a spur gear 43 fixed on the shaft 38 within the rocker 40 and serves to drive the shaft 30 when the road wheel 34 rotates. By mounting the wheel 34 in this manner, the height of the frame above the ground can be adjusted by rocking the rocker 40 by means of manually operable adjusting means comprising a bent connecting rod 45. One end of this rod 45 is pivoted at 46 to an arm 47 fixed on one end of the rocker 40, and has its other end pivoted at 48 to a block 49 movable along a screw-threaded spindle 50 having a handle 51 for turning it, the spindle 50 being journalled in lugs 53 and 54 on the longitudinal member 12.

A three-armed lever 56, 57, 58 is pivoted on the shaft 30 at the side of the frame remote from the wheel 34. The two arms 57 and 58 constitute a bar carrying the road wheels 35 and 36. The arm 57 carrying the wheel 36 is crank shaped, while the arm 58 has a radius arm 59 pivoted to it at 60. One end of this arm 59 is slotted and adjustable by means of bolts and nuts 60, 61, while the other end carries a bearing 62 in which a shaft 63 of the wheel 35 is journalled. In this way the wheel 35 can be adjusted on the bar 57, 58 in relation to the wheel 36, for adapting the machine to various conditions of use.

The wheel 35 has a flange or a separate coaxial disc 65 for contacting with an edge of the road for example the side of a curbstone, and may have its axis of rotation slightly out of parallelism with the axis of rotation of the wheel 36, so that when the machine is pushed forwards the flange 65 tends to rub along the side face of the curbstone or the like.

A rotary liquid-applying means aforesaid comprises a rotary brush 67 arranged to brush a horizontal face, and a side brush 68 operative at right angles thereto and arranged to brush a vertical face of a road. Both of these brushes are rotated in a direction opposite to that in which the road wheels rotate, for applying liquid in a manner simulating a manual painting operation. The brush 67 is carried by the shaft 30, and may be adjustable along the same, while the side brush 68 has its shaft 69 carried by a rocker 70 pivoted to swing about the shaft 30.

Gearing for driving the brush 68 comprises a driving sprocket wheel 71 fast on the shaft 30, a driven sprocket wheel 72 fast on the shaft 69 and an endless chain 73 running on the sprocket wheels within the rocker 70. A chain 74 attached to one end of the rocker 70 can be suspended from a hook 75 on the frame member 14 to hold the brush 68 at any convenient height above the ground. When the chain 74 is released an idler wheel 76 on the brush shaft 69 at the side of the rocker 70 remote from the brush 68 can rest upon and run along the ground.

Feed means for supplying the brushes 67 and 68 with liquid comprises a plurality of vertical feed pipes 78 each open at their upper ends into a

valve box 80 common to them all, mounted on the rear wall of the tank 16. Three such pipes 78 are shown for delivering liquid to a situation in front of the brush 67, and a fourth pipe 79 is shown for delivering an adjustable quantity of liquid to the top of the side brush 68, whereof rows of bristles are preferably arranged radially to facilitate the liquid penetrating to all parts of the brush. A single valve 82 serves to control all the feed pipes 78, 79 simultaneously. This valve is operated by means of a crank arm 84 and a connecting rod 85 by the driver of the machine.

The valve box has two sets of cleaning openings. As shown one set of openings is arranged in the top wall of the box 80 and is closed by the closed upper ends 86 of the feed pipes 78, 79, while the other set is in the front side wall and is closed by plugs 87. Each feed pipe within the box 80 has openings in its side walls which can register with a side opening in the box 80 and a duct 88 controlled by the valve 82. Each feed pipe is further provided with its own control valve 90 for shutting it off or opening it independently of the other feed pipes. By turning the valve 82 into the position shown in Figure 7 the entire feed can be shut off, whilst by opening the valve 82 all the feed pipes can be supplied simultaneously with liquid from the tank. If any feed pipe becomes clogged, it can be removed bodily from the valve box by hammering on the top of it, or after a plug 87 has been removed, a cleaning member can be inserted through the feed pipe and through the valve 82. For cleaning the spigot of the valve 82 which has a plurality of holes, one for each feed pipe, it may be removed endwise from the valve box. For this purpose the spigot may have at one end a head 92 in the form of a nut which is normally kept bearing against the box by a coil spring 93 between the crank arm 84 and the opposite end of the box 80.

When the tank is filled with whitening liquid for example, and it is desired to paint the curbstones of a road, and the machine is on the roadway away from the pavement, the rocker 40 and the bar 57, 58 may be adjusted to lie in the positions shown in Figure 6, for which purpose the arm 56 of the three-armed lever is pivotally connected to one end of a connecting rod 95, whereof the other end is pivoted at 96 to a block 97 movable along a screw-threaded spindle 98 having a handle 99 for turning it in lugs 100, 101 on the frame member 13. In this position the tank lies substantially horizontal, and a wheel 102 fast on the shaft 30 outside the bar 57, 58 lies nearly at the level of the top of the curbstone indicated by the line 103. The wheel 35 is elevated above the line 103. By slewing the machine the wheel 35 can be placed on to the curbstone with its flange 65 lying against the edge thereof. The two handles 99 and 51 can then be turned so that the machine lies substantially horizontally with the two wheels 35 and 36 running on the pavement, and the wheel 34 on the roadway. In this position of the machine, the brush 67 will apply liquid to the top of the curbstone and the brush 68 to the side face thereof. The rocker 70 is self-adjusting, and the depth to which the side face is brushed is varied according to the road or curbstone conditions. The machine is thus conveniently manoeuvred for curbstones of varying heights, and for applying liquid to them under varying conditions as to area to be covered.

The main frame can be swung about the shaft 30 by turning the handle member 99 for adjusting the height of the handle member 21 to varying

conditions of the road or curbstone. The shaft 30 is parallel with the axes of rotation of the road wheels and is a floating shaft and can be removed endwise from the machine, leaving the road wheels intact.

Preferably, an agitator 105 is provided in the tank for agitating the liquid. This agitator may be carried by a spindle 106 journalled at the top of the tank and operated by a connecting rod 108 which is pivoted at one end to a crank arm 109 on the spindle 106, and at its other end to a disc crank 110 on the shaft 30.

If desired, a clutch, for example a dog clutch, preferably arranged to be controlled by the driver of the machine may be arranged between the brush 67 and the shaft 30, or in the described transmission between the shaft 30 and both the brushes 67 and 68.

The machine is particularly adapted for use with aqueous mixtures containing finely divided white particles in suspension, e. g. whiting, but it may be used with other liquids, e. g. paints.

Various modifications may be made in the details of construction described above without departing from the invention. For example a tool box 112 may be carried on the frame adjacent to the tank 16, and provision may be made for readily removing and replacing the brushes. For example, the brush 67 may be made in two halves bolted together, and the rocker 70 and sprocket wheel 71 may be adjustable along the shaft 30 to permit the brush 68 being slid axially off its spindle 69.

I claim:

1. A machine of the character described for marking curbstones, comprising in combination a main frame, two road wheels arranged one at each side and at different levels for supporting the frame, a tank for a liquid carried by the frame, rotary liquid-applying means comprising two rotary brushes operative at different levels, whereof one is an upper brush arranged to brush a horizontal face, and the second is a side brush arranged to brush a vertical face of a curb, transmission means for driving said brushes from a road wheel, and feed means for supplying liquid from the tank to said brushes, said side brush mounted to move up and down in the main frame.

2. A machine of the character described for marking curbstones, comprising in combination a main frame, two road wheels arranged one at each side and at different levels for supporting the frame, a tank for a liquid carried by the frame, rotary-liquid-applying means comprising two rotary brushes operative at different levels, whereof one is an upper brush arranged to brush a horizontal face, and the second is a side brush arranged to brush a vertical face of a curb, transmission means for driving said brushes from a road wheel, feed means for supplying liquid from the tank to said brushes, said side brush journalled in a rocker mounted to swing about a horizontal axis in the main frame, and a wheel that is carried by said rocker and is arranged to run on the ground in the lowest position of the rocker.

3. A machine of the character described for marking curbstones, comprising in combination a main frame, two road wheels arranged one at each side and at different levels for supporting the frame, a tank for a liquid carried by the frame, rotary liquid-applying means comprising two rotary brushes operative at different levels, whereof one is an upper brush arranged to brush a horizontal face, and the second is a side brush

arranged to brush a vertical face of a curb, transmission means for driving said brushes from a road wheel, feed means for supplying liquid from the tank to said brushes, said side brush mounted to move up and down in the main frame, a bar that extends in the direction of travel of the machine and is mounted to rock adjacent to the upper brush about a horizontal axis and carries one of said road wheels at one of its ends, and a third road wheel carried by the other end of said bar.

4. A machine of the character described for marking curbstones, comprising in combination a main frame, two road wheels arranged one at each side and at different levels for supporting the frame, a tank for a liquid carried by the frame, rotary liquid-applying means comprising two rotary brushes operative at different levels, whereof one is an upper brush arranged to brush a horizontal face, and the second is a side brush arranged to brush a vertical face of a curb, transmission means for driving said brushes from a road wheel, feed means for supplying liquid from the tank to said brushes, said side brush journalled in a rocker mounted to swing about a horizontal axis in the main frame, a bar that extends in the direction of travel of the machine and is mounted to rock adjacent to the upper brush about a horizontal axis and carries one of said road wheels at one of its ends, a third road wheel carried by the other end of said bar, which bar constitutes two arms of a three-armed lever, and manually adjusting means on the frame operatively connected with the third arm of said lever for rocking the bar.

5. A machine of the character described for marking curbstones, comprising in combination a main frame, two road wheels arranged one at each side and at different levels for supporting the frame, a tank for a liquid carried by the frame, rotary liquid-applying means comprising two rotary brushes operative at different levels, whereof one is an upper brush arranged to brush a horizontal face, and the second is a side brush arranged to brush a vertical face of a curb, transmission means for driving said brushes from a road wheel, feed means for supplying liquid from the tank to said brushes, said side brush mounted to move up and down in the main frame, a bar that extends in the direction of travel of the machine and is mounted to rock adjacent to the upper brush about a horizontal axis and carries one of said road wheels at one of its ends, and a third road wheel carried by the other end of said bar, one end of which bar pivotally carries a radius arm by which one of the said road wheels is carried.

6. A machine of the character described for marking curbstones, comprising in combination a main frame, two road wheels arranged one at each side and at different levels for supporting the frame, a tank for a liquid carried by the frame, rotary liquid-applying means comprising two rotary brushes operative at different levels, whereof one is an upper brush arranged to brush a horizontal face, and the second is a side brush arranged to brush a vertical face of a curb, transmission means including a horizontal shaft for driving said brushes from a road wheel, feed means for supplying liquid from the tank to said brushes, a rocker mounted to swing about said shaft, and an axle that is journalled in the rocker and carries the side brush and is geared with said shaft.

7. A machine of the character described for

marking curbstones, comprising in combination a main frame, two road wheels arranged one at each side and at different levels for supporting the frame, a tank for a liquid carried by the frame, rotary liquid-applying means comprising two rotary brushes operative at different levels, whereof one is an upper brush arranged to brush a horizontal face, and the second is a side brush arranged to brush a vertical face of a curb, transmission means including a horizontal shaft for driving said brushes from a road wheel, feed means for supplying liquid from the tank to said brushes, a rocker mounted to swing about said shaft, an axle that is journaled in said rocker and carries a road wheel and is geared with said shaft, and manually operable adjusting means mounted on the frame and arranged to swing the rocker, and a second rocker that carries said side brush and is mounted to swing about said shaft.

8. A machine of the character described for marking curbstones, comprising in combination a main frame, two road wheels arranged one at each side and at different levels for supporting the frame, a tank for a liquid carried by the frame, rotary liquid-applying means comprising two rotary brushes operative at different levels, whereof one is an upper brush arranged to brush a horizontal face, and the second is a side brush arranged to brush a vertical face of a curb, transmission means for driving said brushes from a road wheel, feed means for supplying liquid from the tank to said brushes, which feed means comprises a plurality of feed pipes for supplying liquid to said brushes, which feed pipes open into a valve box common to them all, and a single valve arranged to control all the feed pipes simultaneously.

9. A machine of the character described for marking curbstones, comprising in combination a main frame, two road wheels arranged one at each side and at different levels for supporting the frame, a tank for a liquid carried by the frame, rotary liquid-applying means comprising two rotary brushes operative at different levels, whereof one is an upper brush arranged to brush a horizontal face, and the second is a side brush arranged to brush a vertical face of a curb, transmission means for driving said brushes from a road wheel and feed means for supplying liquid from the tank to said brushes, said side brush mounted to move up and down in the main

frame, said feed means comprising a plurality of feed pipes arranged to supply liquid from the tank to said brushes, said feed pipes opening into a valve box common to them all, and a single valve arranged to control all the feed pipes simultaneously, said valve box having two sets of cleaning openings, each provided with a movable closure member, said sets of openings having arranged in the walls of the box at right angles to one another, and respectively serve to place the feed pipes into open communication with the atmosphere at their upper ends by way of the valve in one position of the latter, and to place the tank into open communication with the atmosphere by way of the pipes and the valve in the other position of the latter.

10. A machine of the character described for marking curbstones, comprising in combination a main frame, two road wheels arranged one at each side and at different levels for supporting the frame, a tank for a liquid carried by the frame, rotary liquid-applying means comprising two rotary brushes operative at different levels, whereof one is an upper brush arranged to brush a horizontal face, and the second is a side brush arranged to brush a vertical face of a curb, transmission means for driving said brushes from a road wheel, feed means for supplying liquid from the tank to said brushes, said side brush journaled in a rocker mounted to swing about a horizontal axis in the main frame, and an agitator in the tank arranged to be driven by a road wheel.

11. A machine of the character described for marking curbstones, comprising in combination a main frame, two road wheels arranged one at each side and at different levels for supporting the frame, a tank for a liquid carried by the frame, rotary liquid-applying means comprising two rotary brushes operative at different levels, whereof one is an upper brush arranged to brush a horizontal face, and the second is a side brush arranged to brush a vertical face of a curb, transmission means for driving said brushes from a road wheel and feed means for supplying liquid from the tank to said brushes, said side brush journaled in a rocker mounted to swing about a horizontal axis in the main frame, said main frame having at one end a handle bar which is mounted to swing about an axis distinct from, but parallel with, the axes of rotation of the road wheels.

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