April 8, 1930. G. W. BETTES 1,753,593

ROAD MARKER

Filed June 13, 1927 2 Sheets-Sheet 1

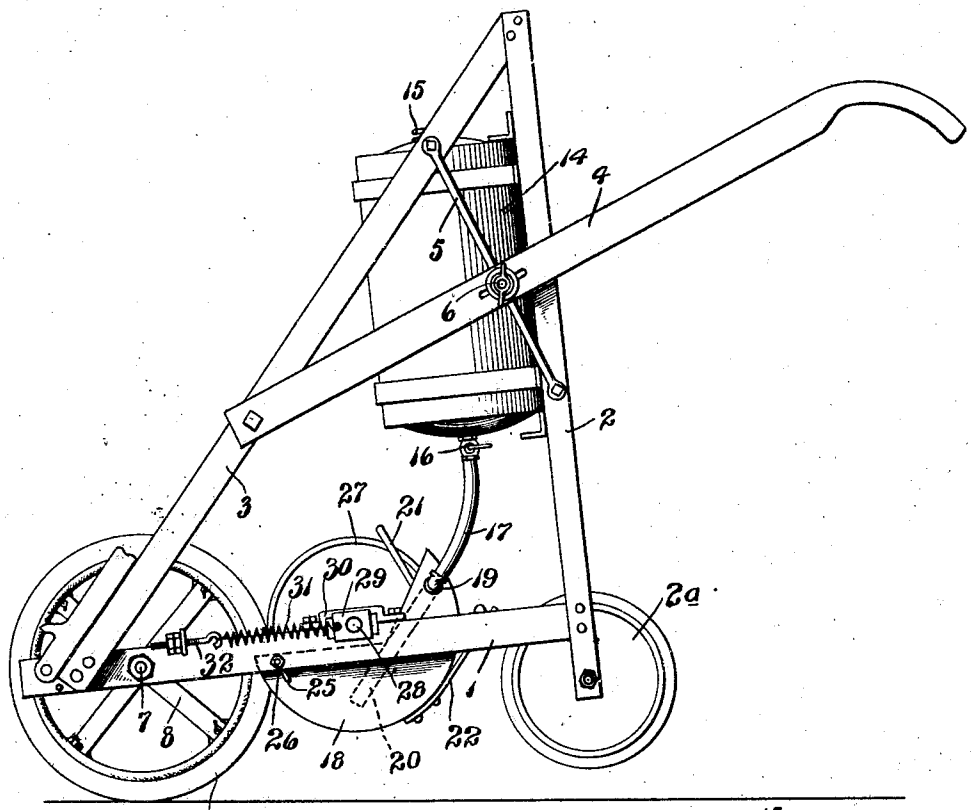


Fig. 1.

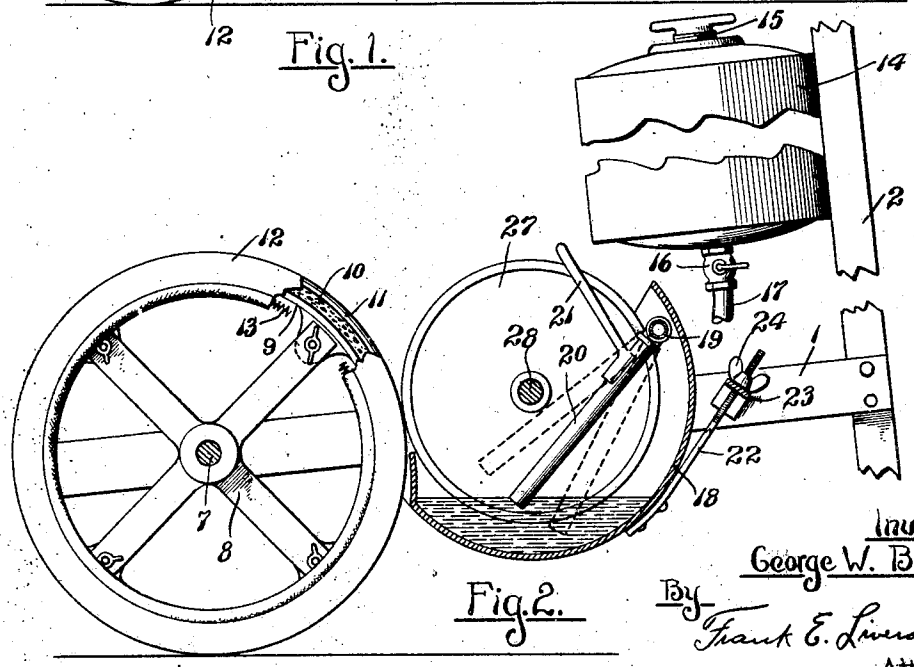


Fig. 2.

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ROAD MARKER

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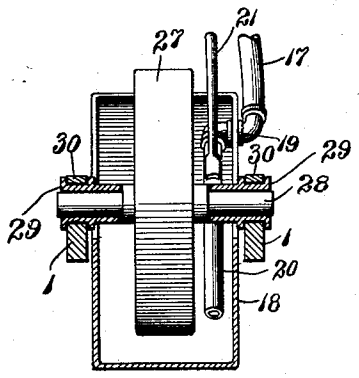


Fig. 3.

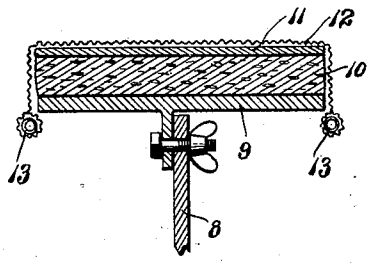


Fig. 4.

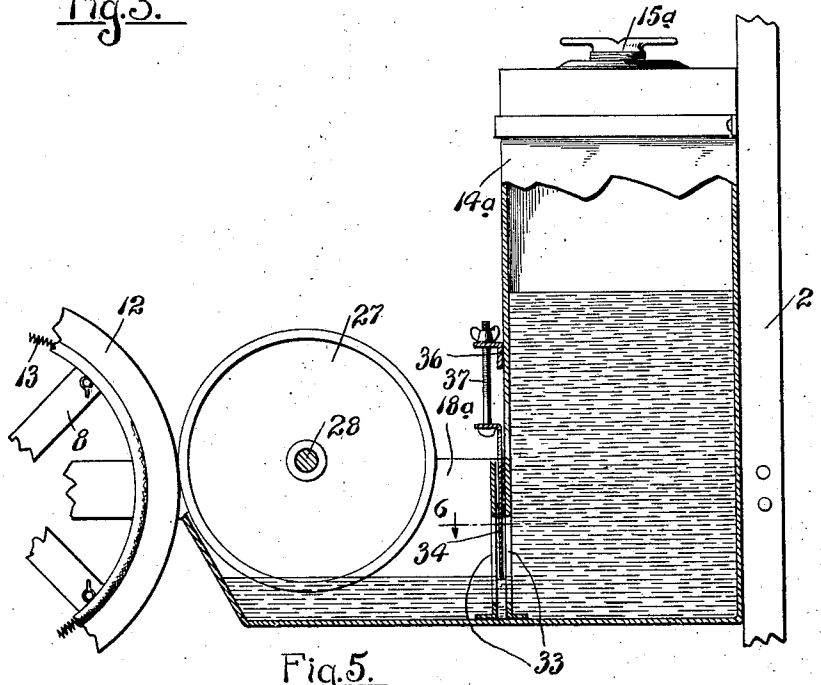


Fig. 5.

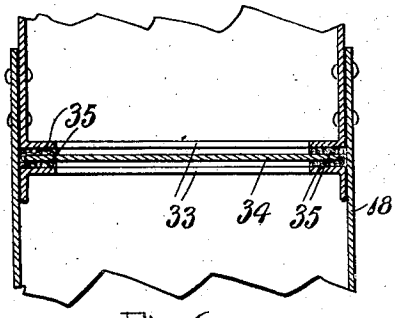


Fig. 6.

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UNITED STATES PATENT OFFICE

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ROAD MARKER

Application filed June 13, 1927. Serial No. 198,573.

This invention relates to a road or street marking machine. I have heretofore devised and patented a road marking machine as disclosed in my Patent No. 1,594,591 issued August 3, 1926, and the present invention is concerned with machines of the same general character but with numerous improvements in the construction to simplify and make more certain the operation.

An understanding of the invention may be had from the following description taken in connection with the accompanying drawings, in which

Fig. 1 is a side elevation of the road marking machine of my invention.

Fig. 2 is a fragmentary enlarged vertical section through the machine between the opposite sides thereof.

Fig. 3 is a transverse vertical section through the machine showing the spreading roller and the paint holding trough into which said roller extends.

Fig. 4 is a fragmentary enlarged vertical section through a side of the transfer roller which transfers paint to the road surface over which it runs.

Fig. 5 is a fragmentary vertical section illustrative of a modified form of the invention, and

Fig. 6 is a horizontal section substantially on the plane of the line 6 in Fig. 5.

Like reference characters refer to like parts in the different figures of the drawings.

In the construction of the machine, a frame is provided having two lower horizontal side bars 1 from the rear ends of which vertical bars 2 extend, with diagonally placed bars 3 connecting the upper ends of the vertical bars and the front end portions of the horizontal bars. A roller 2^a is mounted between the lower ends of the vertical bars 2 as shown in Fig. 1. Handle bars 4 are secured at their front ends to the diagonal bars 3, extending upwardly and rearwardly therefrom, and are adjustably mounted on rods 5 by means of bolts and thumb nuts 6, the handle bars 4 being slotted to permit the adjustment.

An axle 7 is mounted on and extends between the bars 1 near their front ends, on which a spider 8 having a plurality of diverging arms is rotatably carried, said arms serving as spokes of a wheel, the rim 9, of metal, being detachably connected to the outer ends of the spokes. Over the outer side of the rim 9 a cushion ring 10 of sponge rubber, felt or like material is placed and secured over which is a band 11 of impervious material which in practice may be rubber; while over the band 11 a canvas covering 12 is placed and detachably secured. A convenient way of detachably securing the covering is to make the covering 11 wider than the width of the rim 9, cushioning member 10 and band 12, the overlapping edge portions extending inwardly and being formed at their extremities into loops in which coiled springs 13 are housed, the tendency of which is to contract and thus draw the covering securely against the band 11. It is evident that this covering 12 may be easily removed by stretching a spring at one side of the wheel until an opening is made large enough to slip the covering from the wheel. A new covering may be put in place of the old one should it become worn or so impregnated with paint that it does not properly perform its functions.

A tank 14 having an opening at its upper end, normally closed by an air tight plug 15, is permanently secured to the frame of the machine at the upper portion thereof. The tank has an outlet at its lower end through which the paint escapes thru a valve casing 16 having a manually operable valve which may be opened or closed. The paint passes downwardly through a hose or pipe 17 to a trough 18 of sheet metal which is disposed between and carried by the two horizontal side bars 1 of the frame. By means of suitable elbow couplings 19 passing through a side of the trough 18, the paint carried through the pipe 17, is conducted to the interior of the trough and into the terminal pipe 20 mounted on the inner elbow 19 and which has a handle 21 projecting therefrom so that it may be turned to a plurality of positions, one being shown in full lines in Fig. 2 and two others being shown in dotted lines. The paint will flow from the tank 14 as long as air to replace it may be carried back through the conduit made by the pipes

17 and 20 and their connections 19, but as soon as the lower end of the terminal pipe 20 is covered by the paint so that no air can pass back, the flow of paint stops. It is thus possible to maintain a selected and predetermined level of paint in the trough 18, which level may be changed by varying the position of the terminal pipe 20.

The trough 18 is located directly back of the transfer wheel covered by the canvas covering 12. It is mounted on the bars 1 by means of rods 22 riveted at their lower ends to the trough and extending upwardly and to the rear trough brackets 23 fixed to the inner sides of said bars 1. The upper free ends of the rods 22 are threaded and thumb nuts 24 are screwed on to the ends of said rods against the brackets 23. The ends of the trough 18 near the front are provided with curved slots 25 through which bolts 26, carried by the bars 1, pass to support the front side of the trough and render it adjustable so as to bring the front side of the trough closely adjacent to the transfer roller or wheel.

A spreading roller 27 is mounted on a shaft 28 which extends between the two lower horizontal bars 1 so that the lower portion of the spreading roller extends into the trough 18 and into the paint carried thereby. The ends of the shaft 28 are rotatably mounted in bearing blocks 29, slidably mounted in recesses in the upper sides of the bars 1 and retained in place by stirrups 30 attached to said bars and lying over the upper sides of the blocks. Coiled tension springs 31 are attached to the bearing blocks 29 at their rear ends, and at their front ends are connected by hook bolts 32 adjustably mounted on the bars 1 at the front portions thereof, as shown in Fig. 1. The springs 31 act to draw the spreading roller forward so as to bring its surface into contacting engagement with the covering 12 of the transfer roller or wheel.

In operation the machine is pushed over the pavement with the transfer roller running thereover, so that it rotates by direct contact with said pavement or road. The spreading roller 27 is frictionally driven by reason of its engagement with the transfer roller. The spreading roller runs through the paint, some of which adheres to the outer surface thereof, and is delivered to the covering 12 which takes the paint up and in a sense absorbs it, carrying it from the point of contact with the spreader roller to the surface of the road, where it is applied upon the road or pavement over which the transferring roller passes. With different kinds of paint the depth that the spreading roller should extend into the paint varies and it is very easy to control this depth of extension by merely grasping the handle 21 and moving the pipe 20, to which it is connected, to the proper position.

The pressure of the spreading roller against the covering of the transfer roller evenly distributes the paint over such covering, the underneath cushion ring 10 yielding as much as required, so that an even spread of paint from the spreading roller to the transfer roller is had. In practice the width of the rim of the spreading roller should be somewhat less than the width of the rim of the transfer roller in order that there may not be excess paint at the edges of the transfer roller which would be transferred in beads of paint to the road at the edges of the mark made. This variation in relative widths is optional.

In Figs. 5 and 6 a modified construction is shown wherein the tank 14 with its closing cap 15 is replaced by a tank 14ª having a light closing cap or plug 15ª, the tank, however, being located at a lower position than in the machine shown in Fig. 1. With this construction the paint holding trough, open at its upper side, is supplied by the trough 18ª which is permanently secured in front of the lower end portion of the tank 14ª. The spreading roller 27 extends into this trough even as in the first described structure such roller extends into the trough 18. Alined openings 33 are made in the front side of the tank 14ª adjacent to its lower end and in the back side of the trough so that the paint may escape from the tank into the trough. The level of the paint is controlled by a gate 34 vertically slidable between the adjacent front and rear sides of the tank and trough and having suitable packing material 35 associated so that paint will not escape around the edges of the gate. The gate at its upper edge is formed with a forwardly turned flange while an angle 36 is fastened to the front side of the tank, a distance above it. An adjusting bolt 37, with a thumb nut at its upper end passes through the flange and angle for controlling the position of the gate. Paint will pass from the tank into the trough until the level of the lower edge of the gate is reached.

With either of the constructions shown the tanks may be filled with paint by removing the upper closing plug 15 or 15ª, valve 16 being moved to closed position or the gate 34 being moved to its lower position during the time of filling the tank. Then after the air tight closing plug has been replaced, valve 16 may be opened, or the gate 34 elevated, to permit the paint to flow into the trough to the desired height controlled by the gate, shown in structure in Fig. 5, and by the position of the lower end of the pipe 20 in the structure shown in Figs. 1 and 2. The paint will remain at the predetermined selected level, that which is taken by the spreading roller being replaced from the tank.

The covering 12 lasts for a considerable

time, but wears out long before the life of the machine is ended, necessitating its replacement from time to time, which can be easily done as previously described. The material of this covering, preferably, is canvas as I have found the same to be very satisfactory, although there are many other materials which will serve the purpose almost, if not quite as well. The paint is taken up by this covering from the spreading roller and transferred from the covering to the road over which the machine is passed, leaving a plain and regular mark wherever the transfer roller has passed. This construction is very practical and with it the paint flows freely to the trough without danger of obstructions caused by lumps or other obstructions in the paint. It is relatively simple and economical to produce.

The invention defined in the appended claims are to be considered comprehensive of all forms of structures coming within their scope.

I claim:

1. A road marking machine comprising, a transfer roller covered with paint holding material, said roller being adapted to ride over the surface of a road and be rotated by frictional engagement therewith, a spreading roller bearing against the transfer roller and rotated thereby, a trough for holding paint into which the spreading roller extends at its lower portion, a tank for holding a large quantity of paint located above the trough, and a conduit for carrying paint from the lower end of the tank to said trough, said conduit extending into the trough and having its lower end at a predetermined position, whereby when the paint rises above the lower end of said conduit the flow of paint from the tank to the trough is stopped, thereby maintaining the paint in said trough at a substantially constant level, said conduit at the lower portion thereof within the trough being manually adjustable to different positions to vary the height of the lower end of said conduit with respect to the bottom of the trough, whereby the level of paint in said trough may be selectively determined.

2. A road marking machine comprising, a transfer roller having its periphery covered with paint holding material and adapted to ride over the surface of a road and to be rotated by frictional engagement therewith, a spreading roller bearing against the transfer roller and rotated thereby, a trough for holding paint into which the spreading roller extends at its lower portion, a tank for holding a large quantity of paint located above the trough, a terminal pipe associated with the trough and having its outlet end adjustable vertically with respect to the bottom of the trough and a flexible conduit communicating with said tank and said terminal pipe.

3. A road marking machine comprising, a transfer roller having its periphery covered with paint holding material and adapted to ride over the surface of a road, a spreading roller having its periphery bearing against the periphery of the transfer roller the periphery of the spreading roller being narrower than the periphery of the transfer roller, and means for supplying paint to the periphery of the spreading roller which in turn applies paint to the periphery of the transfer roller.

4. A road-marking machine comprising, a transfer roller adapted to ride over the surface of a road and to be rotated by frictional engagement therewith, a spreading roller bearing against the transfer roller and rotated thereby, a trough for holding paint into which the spreading roller extends at its lower portion, a tank for holding a large portion of paint located above the trough, a supply pipe extending from said tank to said trough, the lower end of said supply pipe having pivoted connection with the upper portion thereof whereby the outlet end of the pipe may be adjusted vertically relative to the trough.

5. In a road-marking machine, a paint transfer mechanism including a trough for holding paint, a transfer device partially submerged in the paint in the trough, a tank for holding a large quantity of paint located above the trough, and a supply pipe extending from said tank to said trough, the lower portion of said supply pipe having pivoted connection to the upper portion thereof whereby the outlet end of the supply pipe may be adjusted vertically relative to the trough.

In testimony whereof I affix my signature.

GEORGE W. BETTES.