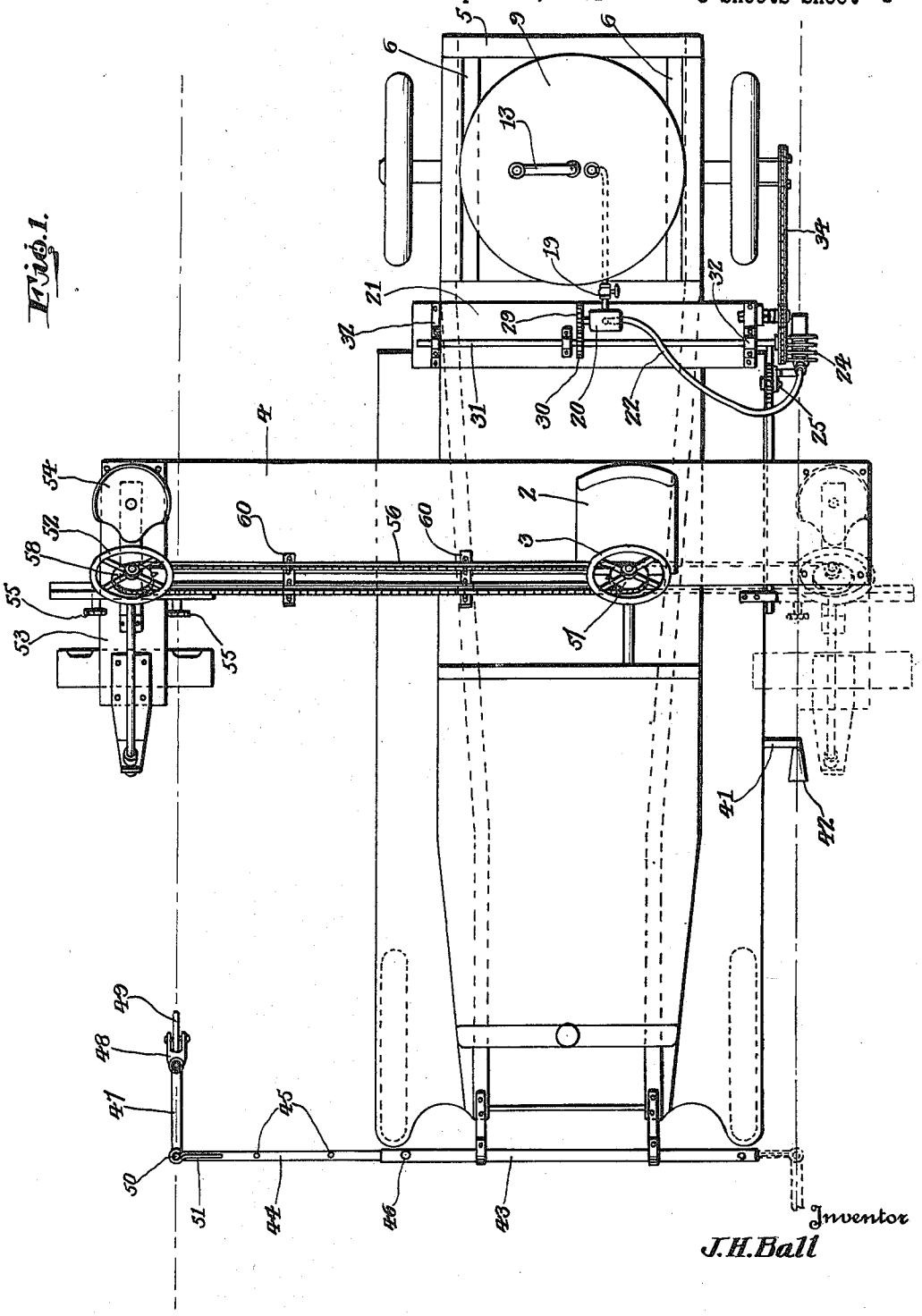
Sept. 26, 1933. J. H. BALL 1,928,551

ROAD STRIPING MACHINE

Filed Sept. 12, 1931 3 Sheets-Sheet 1

Fig. 1.




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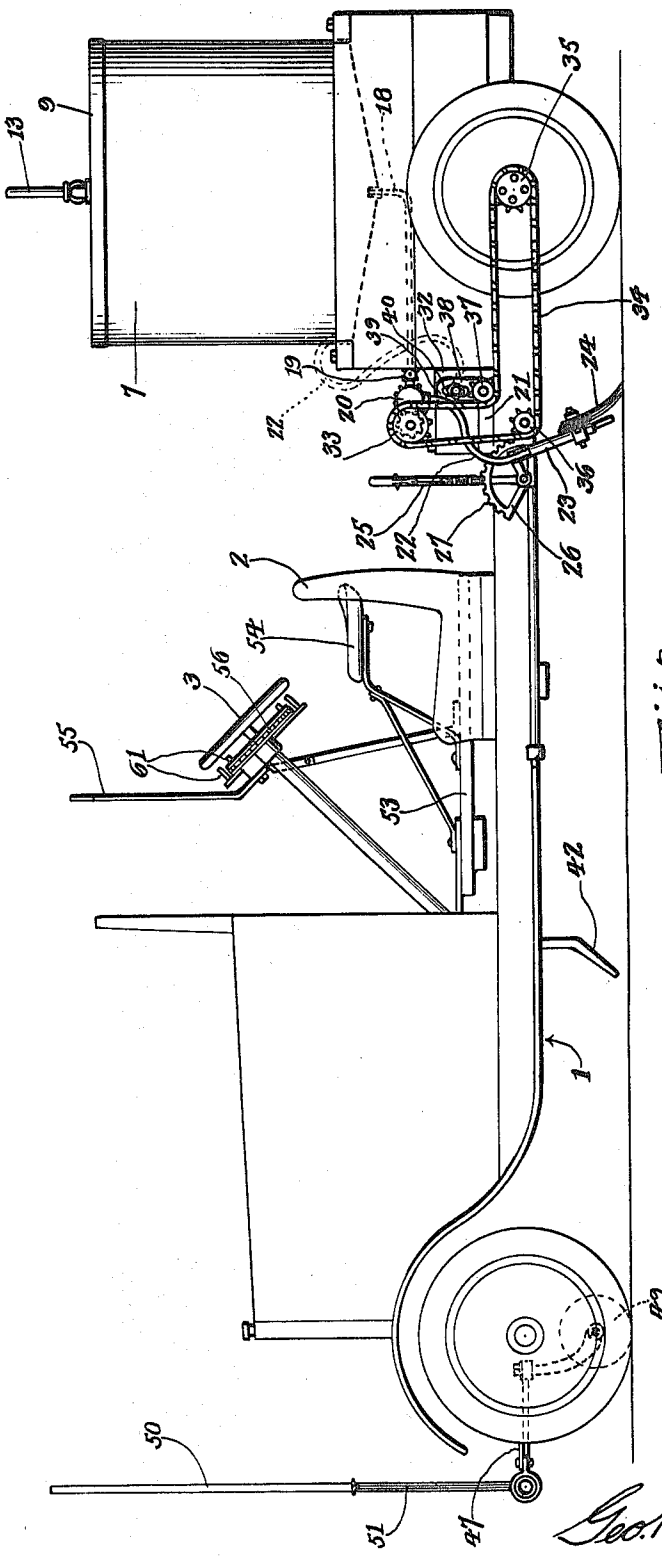



Fig. 2.

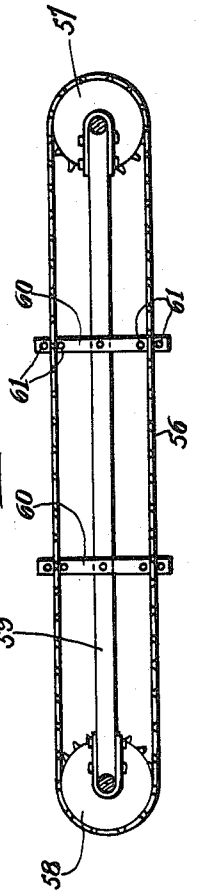



Fig. 3.

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Fig. 4.

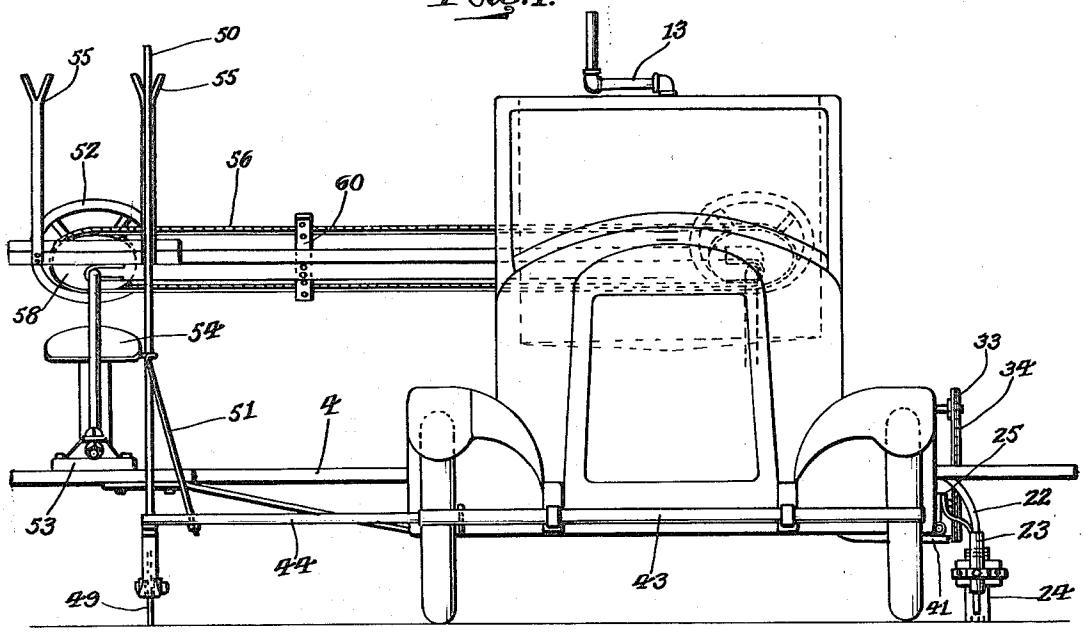



Fig. 5.

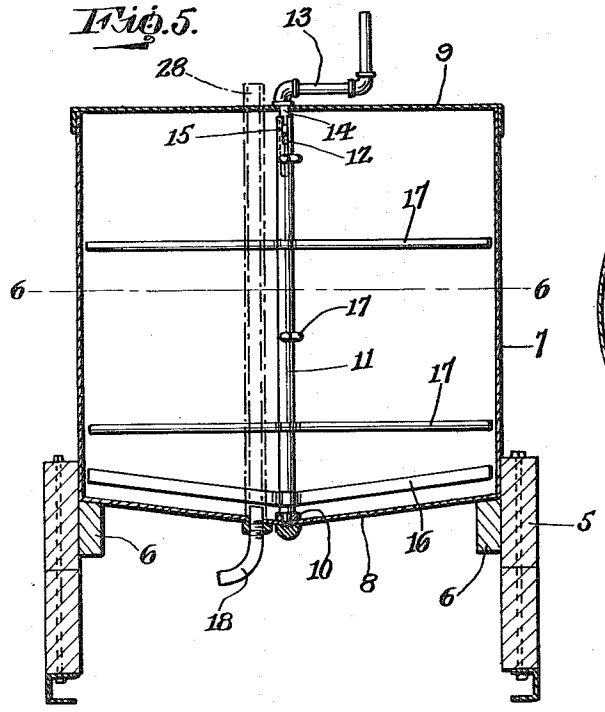
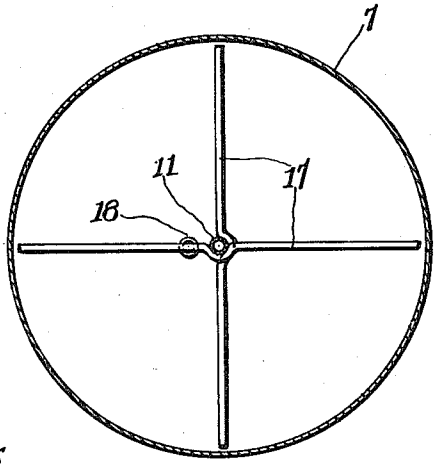



Fig. 6.




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Patented Sept. 26, 1933 1,928,551

# UNITED STATES PATENT OFFICE

1,928,551

## ROAD STRIPING MACHINE

John Houston Ball, Abilene, Tex.

Application September 12, 1931
Serial No. 562,560

5 Claims. (Cl. 91—39)

This invention relates to a road striping machine.

Among the objects of the invention are to provide a road striping machine in which the flow of paint may be regulated in accordance with the width of the stripe which it is desired to paint; to eliminate variations in the flow of paint due to changes in temperature, slope of the road and the like, thereby conserving paint and insuring an even supply of paint; to provide means for stirring the paint before the same is discharged; to provide a novel take-off means for operating a pump to force paint through a discharge conduit; to provide means for readily cleaning the paint discharging means; to provide a remote steering mechanism by means of which the machine may be guided from a point at the side of the road, or in line with the stripe to be made as desired; to provide means for cleaning the surface to be painted in advance of the discharge of paint thereon; and to attain the foregoing ends in a machine which is of sturdy, simple and inexpensive construction and capable of efficient operation over long periods of time.

With the foregoing and other objects in view, the invention consists of such parts and combination of parts as set forth in the appended claims.

In the accompanying drawings in which like numerals are employed to designate like parts throughout the several views:

Figure 1 is a top plan of a machine in accordance with this invention.

Figure 2 is a side elevation thereof.

Figure 3 is a detail view of the means connected with the steering post to enable the machine to be guided from the side of the road.

Figure 4 is a front elevation of the machine.

Figure 5 is an enlarged vertical section through the supply tank and supporting means therefor.

Figure 6 is a section taken on the line 6—6 of Figure 5.

Referring to the drawings in detail, the numeral 1 indicates a motor vehicle chassis which may be of any well known construction having a driver's seat 2 adjacent the steering wheel 3 and mounted on an elongated platform 4 extending transversely of the chassis frame and projecting from both sides of the latter. Mounted on the rear end of the vehicle frame is a rectangular support 5 of hollow construction provided on its inner face with oppositely disposed cleats 6 which support a paint supplying tank 7 extending into and projecting above the support 5.

The tank 7 preferably is of cylindrical construction having a conical bottom 8 and a removable cover 9. Journaled in a bearing 10 at the center of the bottom 8 is a vertically disposed hollow rod 11 formed at its upper end with oppositely disposed slots 12. Rotatably mounted on the cover 9 is a crank 13 which has a portion 14 extending through the cover and into the rod 11, such portion being provided with laterally projecting lugs 15 which extend into the slots 12. Rigidly secured to the rod 11 is an angular blade 16 which extends in parallel relation to the bottom 8 in spaced relation to the latter. Rigidly secured to the rod 11, above the blade 16, are a plurality of blades 17 which preferably extend in parallel relation to the cover 9. The rod 11, crank 13, and blades 16 and 17 constitute a paddle by means of which the contents of the tank 7 may be conveniently stirred.

Extending through the bottom 8, adjacent the bearing 10, is a discharge pipe 18, the inlet end of which extends well above the bottom 8. The pipe 18 is provided with a valve 19 and is connected with a pump 20 mounted on a suitable support 21 carried by the vehicle frame. Also connected with the pump 20 is a flexible conduit 22 which extends through a sleeve 23 located at one side of the vehicle frame. The discharge end of the conduit 22 is disposed adjacent and forwardly of a brush 24 carried by the sleeve 23. The brush 24 may be of any suitable construction, but preferably will be of the type disclosed in my copending application filed Sept. 12, 1931, Serial No. 562,561. The sleeve 23 is rigidly connected with a crank lever 25 which is pivotally mounted on a quadrant 26 having teeth 27 for engagement with the latching means of the lever 25. By adjusting the lever 25 with respect to the quadrant 26, the brush 24 may be raised or lowered as desired.

In order that the discharge pipe 18, pump 20, and flexible conduit 22 may be readily cleaned while the tank 7 is filled or partially filled, a removable pipe 28 is provided for extension through the cover 9 to snugly fit over the inlet end of the discharge pipe 18. Obviously when the pipe 28 is in position with respect to the discharge pipe 18, the interior of the tank 7 is closed to the discharge pipe 18. With the pipe 28 in position, gasoline, kerosene or the like may be poured through the same to flush and clean the discharge pipe 18, pump 20 and conduit 22. After the cleansing operation, the pipe 28 is removed, but first the valve 19 is closed unless it is desired to

immediately continue the operation of the machine.

The shaft of the pump 20 is provided with a gear 29 which meshes with a gear 30 fixedly mounted on a shaft 31 mounted in suitable bearings 32 carried by the support 21. Mounted on one end of the shaft 31 is a sprocket 33 which is driven by means of a chain 34 from a power take-off sprocket 35 on one of the wheels of the vehicle. The sprocket 33 is located in a considerably higher plane than the sprocket 35, and in order to prevent the chain 34 from becoming tightened or loosened by the spring action of the vehicle, the chain is maintained substantially in a right angular path by means of a pair of idlers 36 and 37. In order that the chain may be readily adjusted or removed, the idler 37 is mounted on a plate 38 formed with a vertical slot 39. Extending through the slot 39 is a bolt 40 which adjustably connects the plate 38 with one of the bearings 32. During any vertical oscillating movement of the vehicle frame owing to the action of its spring, the chain 34 swings around the sprocket 35 as a pivot without appreciably tightening or loosening the chain. When the idler 37 is adjusted in operative position, forward movement of the vehicle operates the pump 20 to discharge paint in front of the brush 24. In order that the paint may be discharged onto a clean surface, the exhaust line 41 of the vehicle is projected from the side of the vehicle frame, and is provided with a flattened discharge nozzle 42 located in alignment with the brush 24, forwardly of the latter.

The vehicle is provided with a special bumper 43 which is of straight cylindrical construction in order that a rod 44 may be telescoped therein. The rod 44 is provided with a plurality of spaced, transverse openings 45 for selective registry with an opening 46 in the bumper 43 in order that a suitable pin may be passed through the aligned openings to adjustably connect the rod 44 with the bumper. Connected with the outer end of the rod 44 is a rearwardly extending arm 47 having swivelly connected therewith a support 48 for a guide wheel 49. Projecting upwardly from the outer end of the rod 44 is a sight rod 50 of relatively light material which is prevented from lateral vibration by means of a brace 51 secured thereto and to the rod 44. In the use of the machine, the rod 44 is adjusted with respect to the bumper 43 in such a manner that with the guide wheel 49 running at the edge of the roadway, the brush 24 will be located at that portion of the roadway that it is desired to paint a stripe.

In order that the machine may be guided from a point substantially in alignment with the guide wheel 49 with respect to the length of the road, an auxiliary steering wheel 52 is provided which is mounted on a base 53 removably connected with the platform 4. The base 53 is provided with a seat 54 and also is provided with a pair of sight members 55 which are spaced one foot apart in order that they may be used selectively, depending upon the width of the road. One of the sight members 55 will be in alignment with the guide wheel 49 and sight rod 50 with respect to the length of the road in order that the guide wheel 49 may be kept at the edge of the road by sighting the rod 50 through the member 55 in alignment therewith. If the edge of the road is perfectly clean and easy to see, it is not necessary to sight the rod 50 through the sight member 55 aligned therewith, but where dirt has collected at the side of the road and the exact width thereof is difficult to determine, the guide wheel may be kept in its proper position by sighting the rod 50 on a point which clearly shows in advance of the machine. The steering wheel 52 is operated from the steering wheel 3 by means of a chain 56 extending around sprockets 57 and 58 on the posts of the steering wheels 3 and 52 respectively. A brace 59 extends between the posts of the steering wheels 3 and 52, and carried by the brace 59 are a plurality of cross braces 60 provided with upstanding pins 61 for guiding the chain 56.

If it is desired to repaint an old stripe, the base 53 is removed from the platform 4 and secured to the opposite end thereof as shown in dotted lines in Figure 1. The rod 54 also is withdrawn from the bumper 43 and inserted into the opposite end of the latter as shown in dotted lines in Figure 1. The guide wheel 49 and support 48 may be removed from the arm 47 when repainting an old stripe, as the vehicle may be guided with greater accuracy by sighting the rod 50 through the sight member 55 aligned therewith. The guiding direction may be more accurately determined in this manner owing to the fact that certain portions of an old stripe will be more clearly visible than other portions thereof, and the rod 50 may be sighted in advance of the vehicle on such portions of the old stripe as show the more clearly. The use of the rod 50 in connection with one of the sight members 55 also enables the operator to accurately guide the machine when repainting an old stripe of the skip type. In the use of the machine, it is guided solely by the occupant of the auxiliary seat 54, and the vehicle is operated, exclusively of the steering, by the occupant of the seat 2.

It is to be noted that the operation of the pump 20 assures an even supply of paint at all times regardless of the viscosity of the paint or to the force of gravity of the paint within the tank 7. The proper ratio between the sprocket 35 and gear 29 is determined in advance in order to measure the exact quantity of paint required. This ratio may be varied as desired when painting stripes of different widths, preferably by substituting for the sprocket 33 a similar sprocket having a greater or lesser number of teeth as may be required.

The striping operation may be discontinued at any time merely by removing the chain 34, closing the valve 19, raising the brush 24, and also raising the conduit 22 above the pump 20 as shown in dotted lines in Figure 2. The vehicle then may be driven from the road without any paint being discharged therefrom. As soon as the vehicle is driven from the road, the cleaning pipe 28 should be inserted into the tank 7, the valve 19 opened, and the discharge pipe 18, pump 20 and conduit 22 cleaned as previously described. Upon the completion of the cleaning operation, the pipe 18, pump 20 and conduit 22 may be flooded with a suitable lubricant forced through the pipe 28 to prevent corrosion of the cleaned parts.

While the embodiment of the invention herein illustrated and described is to be considered as a preferred example of the same, it is to be understood that changes in the details of construction may be made, so long as such changes fall within the scope of the appended claims.

I claim:—

1. In a road striping machine, a carrier of the

automotive type including a steering mechanism, a striping mechanism supported by and driven therefrom and striping adjacent one side of the carrier, a support disposed transversely of, mounted on and extended laterally from each side of the carrier intermediate the ends of the latter forwardly of the striping mechanism, a laterally adjustable interchangeable guide for selective connection to the sides of the carrier at the front end thereof and including a guide wheel for traveling upon the road, and an interchangeable combined sighting and auxiliary operating means for the steering mechanism of the vehicle for selective mounting upon the ends of said support and including a shifting connection for operating the steering mechanism of the carrier.

2. In a road striping machine, a mobile carrier of the automotive type, a paint holder supported upon the carrier, a paint applying structure driven from the carrier and including a valve controlled feed line extending upwardly into said holder and having an open upper end positioned below the top of and normally communicating with the interior of the holder, said structure including a flexible discharge line carrying a striping element arranged forwardly of and below said holder, and elevating and lowering means for said element supported upon the carrier and connected to said flexible discharge line.

3. In a road striping machine, a mobile carrier of the automotive type, a paint holder supported upon the carrier, a paint applying structure driven from the carrier and including a valve controlled feed line extending upwardly into said holder and having an open upper end positioned below the top of and normally communicating with the interior of the holder, said structure including a flexible discharge line carrying a striping element arranged forwardly of and below said holder, elevating and lowering means for said element supported upon the carrier and connected to said flexible discharge line, and a removable means extending downwardly into the holder for encompassing the feed line to close the said upper end of the latter to the holder.

4. In a road striping machine, a mobile carrier of the automotive type having its exhaust arranged forwardly of its transverse median, a paint holder arranged upon the rear of the carrier, a paint applying structure supported from the carrier rearwardly of its transverse median and driven from the carrier, said structure including a valve controlled feed line opening at its rear end into the holder below the top thereof and a substantially laterally disposed flexible discharge line carrying a striping element arranged forwardly of and below said holder and adjacent one side of the body of the carrier, and an elevating and lowering means for said element connected to said flexible discharge line below the body of the carrier.

5. In a road striping machine, a carrier of the automotive type, a striping mechanism supported by and driven therefrom and striping adjacent one side thereof, a support disposed transversely of, mounted upon and extended laterally from the other side of the carrier intermediate the ends of the latter forwardly of the striping mechanism, a laterally adjustable guide slidably mounted on the front end of the carrier and including a guide wheel for traveling upon the ground, said guide and front end including coacting means for securing the guide in adjusted position, and a combined slighting and auxiliary operating means for the steering mechanism of the vehicle mounted upon the laterally extended portion of said support and including a shifting connection for operating the steering mechanism of the carrier.

JOHN HOUSTON BALL.