

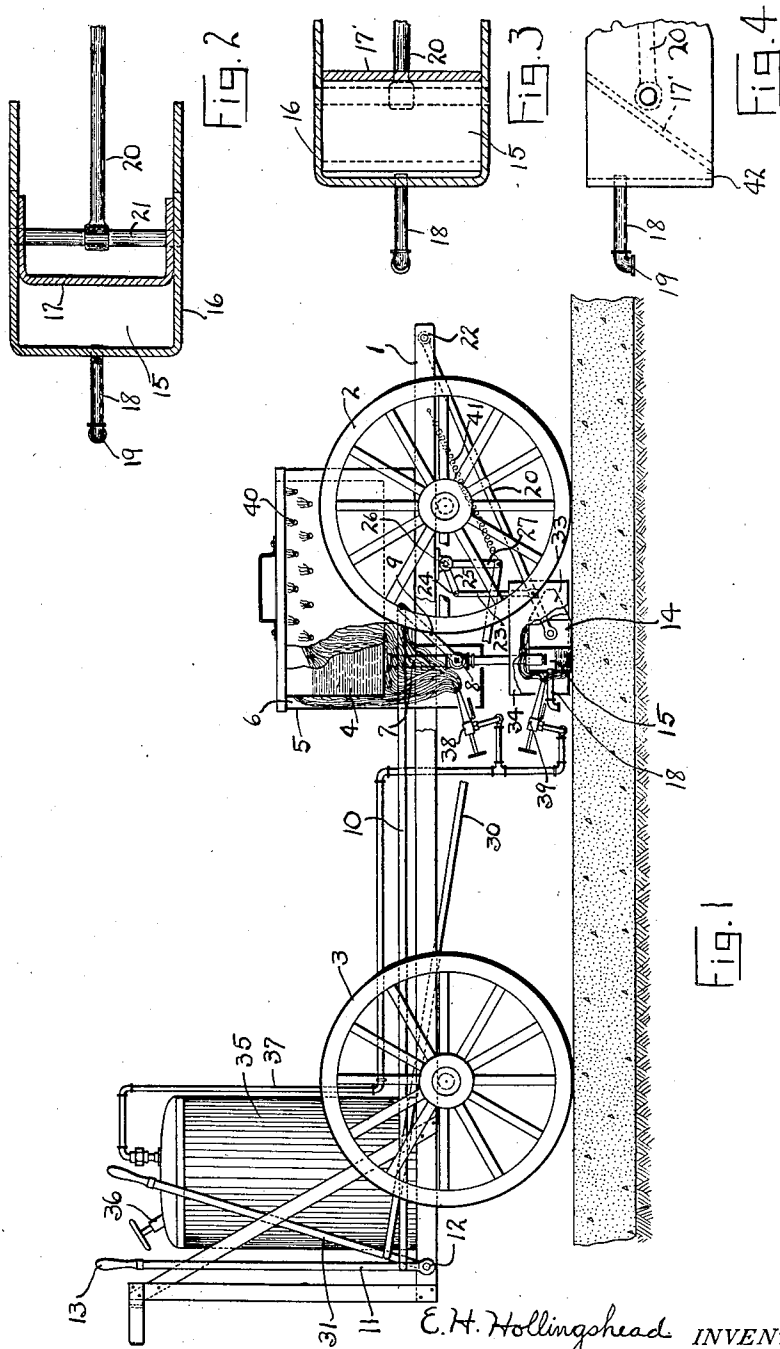
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LINE MARKER

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UNITED STATES PATENT OFFICE.

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LINE MARKER.

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My invention relates to means for marking lines and is adapted particularly for use on highways, streets and the like, although it is adapted for other purposes, as will be obvi-
5 from the specification which follows.

It is an object of the invention to provide a means for marking a line upon roadways, particularly for placing a center line along the middle of the highway to separate the
10 lines of traffic on the road. It may also be used for marking off parking areas along streets, or for other similar purposes.

It is a further object to provide a device of this character which will be capable of hand-
15 ling hot liquids, such as asphalt to be used for marking purposes, and which will be self-feeding so that the operation of the device may be continuous. It is another object to provide a delivery shoe which is adapted to
20 deliver a thin stream of the marking material, such as asphalt or paint, and which may be moved at a uniform pace along the highway so as to deliver a smooth coating of the marking material on the road surface.

The invention consists in the particular construction and arrangement of the parts whereby the marking material may be deliv-
25 ered continuously and uniformly in a predetermined line without difficulty.

Referring to the drawing herewith, Fig. 1
30 is a side elevation of a device showing my invention employed thereon, certain parts being broken away for clearness. The pavement being marked by the device is shown in
35 vertical section. Fig. 2 is a transverse section through the upper portion of a marking shoe employed with my device. Fig. 3 is a similar horizontal section through a slightly different embodiment of the marking shoe; and Fig. 4 is a broken side elevation of the
40 shoe shown in Fig. 3.

The principal use for my device will be found in marking lines upon highways and particularly the center line thereon, and my
45 device as shown in the drawing is equipped particularly for that use, that is, it has a magazine for the marking liquid arranged to deliver the liquid to the delivery shoe and means to maintain the temperature of the
50 liquid during its delivery. I have provided a small truck having side frame members 1 with wheels 2 at the forward end and 3 at the rearward end, whereby the frame may be moved readily along the highway.

This frame serves to support the magazine
55 which is intended to contain a sufficient amount of the marking liquid, preferably asphalt, to mark a considerable portion of the highway. This magazine comprises a tank 4 which is supported within the outer housing
60 5, the outer housing being spaced somewhat from the tank to allow a heating chamber 6 between the housing and the tank. The housing is supported directly upon the side mem-
65 bers 1 of the truck. The tank is of any desirable sheet metal and has an outlet pipe, indicated at 7, toward the rearward side of the tank through which the marking liquid may
70 be fed downwardly to a delivery shoe, indicated generally at 14.

The control of the liquid being fed down-
wardly through the pipe 7 is accomplished through a valve 8 in said pipe. Said valve
75 has an operating lever 9 extending upwardly and forwardly and is connected by a rod or link 10 to a hand operated lever 11. The lever 11 is pivoted at its lower end 12 to the
80 frame member 1 and extends upwardly within reach of the operator and has a handle 13 thereon for easy manipulation. It will thus be possible while the operator is pushing the
85 truck forwardly along the highway to control the amount of marking liquid delivered to the roadway through the operation of this lever.

The liquid passing through the delivery
85 tube 7 to the shoe 14 delivers the liquid into a forward chamber 15 in said shoe. The shoe comprises a U-shaped wall of sheet metal 16,
90 shown best in Fig. 2. The chamber is open at its upper and lower ends but is closed toward the forward side by a wall 17, which is of sheet metal, and secured to the inner sides
95 of the wall 16, as will be seen in Fig. 2. The chamber 15 has an overflow pipe 18 thereon on the rearward side, said pipe having an elbow 19 thereon to allow the overflow to drain
100 directly upon the central portion of the mark formed by the shoe. There is a supporting rod 20 connected centrally with the transverse shaft 21 through the shoe and this rod when
105 the device is mounted in connection with a truck, as shown, is extended forwardly and the forward end is connected to a rod 22 through the side members 1 of the truck.

The raising and lowering of the shoe is accomplished through a link 23 connected to the rod 20 adjacent the forward end of the

shoe. It is extended upwardly and connected at 24 to an arm 25 of a bell crank lever pivoted at 26 on the frame, the other arm 27 of said lever extending downwardly and connected with the rod or link 30 which is connected with a hand operated lever 31 at the rearward side of the frame and within reach of the operator. It will be seen from Fig. 1 that the operator may raise the shoe by moving the lever 31 rearwardly.

The forward end of the wall 16 of the shoe is tapered to a blunt point, as shown at 33 in Fig. 1. This allows the shoe to be raised by contact with irregularities in the roadway in an obvious manner. The shoe point is mounted when asphalt is used, within a housing 34, which is preferably of sheet metal, and is open on the lower side to allow the shoe to project therethrough, and on the forward side to allow the exit of the burnt gases from the heating apparatus.

I have found by experiment that the best material for marking roadways is an asphalt tar which hardens quickly at atmospheric temperatures. This material leaves a bright shiny mark along the roadway, which, although it is a deep black reflects the light in such manner that it is visible both by day and by night. In using this material, however, provision is made for preserving it in the liquid state while it is being delivered to the roadway. This is accomplished by means of heaters or by blow torches or otherwise, and I have used an ordinary blow torch such as is employed with liquid hydrocarbons, such as gasoline or kerosene. The fuel is contained within a tank 35 upon the rearward end of the truck. It is equipped with an air pressure pump 36 whereby the liquid within the tank may be kept under sufficient pressure to deliver the fuel to the nozzle of the blow torch at the proper rate. An outlet pipe 37 carries the fuel from the tank to a nozzle 38 below the tank 4 and to a nozzle 39 within the housing 34 of the delivery shoe. The nozzle 38 projects the flames into a lower extension upon the housing 5 so that the flames pass upwardly around the delivery pipe 7 and the tank 4 and outwardly through openings 40 in the side of the housing. The fuel may be delivered to these nozzles and properly regulated so as to maintain the asphalt at the desired temperature. The burner nozzle 39 maintains the temperature within the shoe in the same manner. In this way the asphalt is maintained in a liquid state at all normal atmospheric temperatures.

The asphalt is delivered within the chamber 15 which is open on the lower side so that the asphalt within this chamber rests directly upon the roadway. The shoe is held resiliently against the roadway by means of a spring 41 connected to the lever arm 27 and to the frame 1, as will be seen from Fig. 1.

The asphalt will issue around the lower edge of the wall 16 of the chamber 15 and will deliver a thin layer of the asphalt of the full width of the chamber 15 upon the highway.

Where the roadway is irregular, the delivery shoe may be raised too far from the roadway so that the asphalt will issue in irregular quantities from the shoe. In case this irregular roadway is to be operated upon, I employ a shoe such as is shown in Figs. 3 and 4. In this construction, the forward wall or partition 17' is inclined rearwardly so that there is only a narrow opening or slot, indicated at 42, through which the marking liquid may issue. Under ordinary circumstances, sufficient asphalt will be delivered through this slot to provide the proper marking surfacing, and it will be obvious that this delivery opening will not be influenced materially by the irregularities in the roadway.

In the operation of this device, the truck may be moved along a central line marked upon the highway and may be guided in any desired manner, the particular guiding or steering means not being a part of the invention. The asphalt will be delivered from the marker directly upon the highway, leaving a film of substantial thickness along the line which is to be designated. The raising and lowering of the shoe and the control of the marking liquid are easily handled by the operator. It will be possible with a device thus equipped to increase the speed by which the highway is marked so that the cost and time will be materially lessened.

While asphalt will ordinarily be used in a device thus constructed, it is to be understood that paint or any other similar marking material may be used, and if such liquid or marking material is sufficiently fluid at atmospheric temperatures, no heating apparatus need be used. It is further to be understood that although I have shown a particular form of heater, other types of heaters may be employed in an obvious manner without departing from the spirit of the invention. It is even possible to use my marking shoe independently of the particular vehicle with which it is shown connected. I do not wish to be limited therefore to the particular construction shown further than will come within the scope of the appended claims.

What I claim is:

1. A device of the character described comprising a liquid container, a shoe adapted to slide upon a surface to be marked, an open-bottomed chamber in said shoe, means to force said shoe resiliently downward toward the surface to be marked, and means to discharge paint from said container into said chamber and additional means whereby the overflow from said shoe will be directed upon the marked area.

2. In a road marker, a vehicle, a container

thereon, a shoe below said container, an open-bottomed chamber therein, means adjustably supporting said shoe on said vehicle, means to hold said shoe resiliently downwardly, an outlet pipe from said container adapted to discharge liquid to said chamber, and levers on said vehicle whereby the shoe may be

raised and lowered, and separate means to maintain the container and the shoe in a heated condition.

In testimony whereof I hereunto affix my signature this 9th day of January, A. D. 1928.

EVERETT H. HOLLINGSHEAD.