

Feb. 12, 1935.

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1,990,545

ATTACHMENT FOR ROAD MARKING MACHINES

Filed June 9, 1930

2 Sheets-Sheet 1

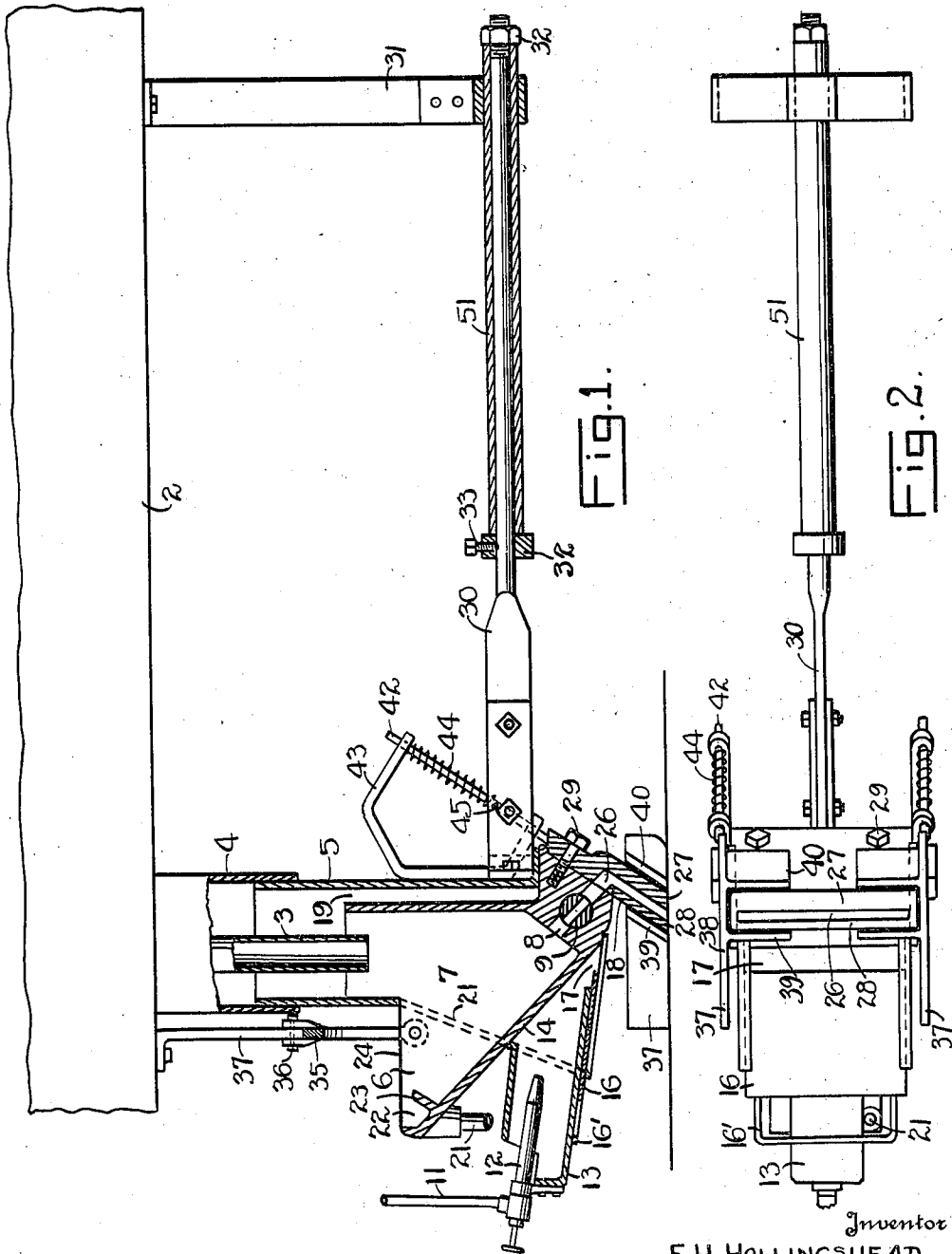


Fig. 1.

Fig. 2.

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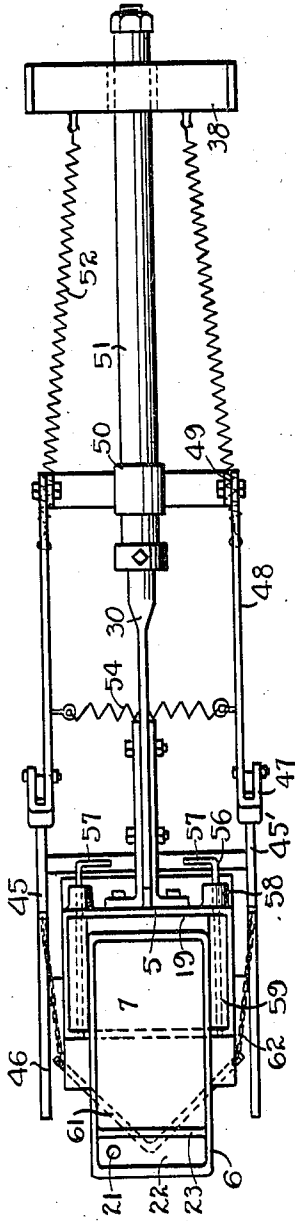


Fig. 3.

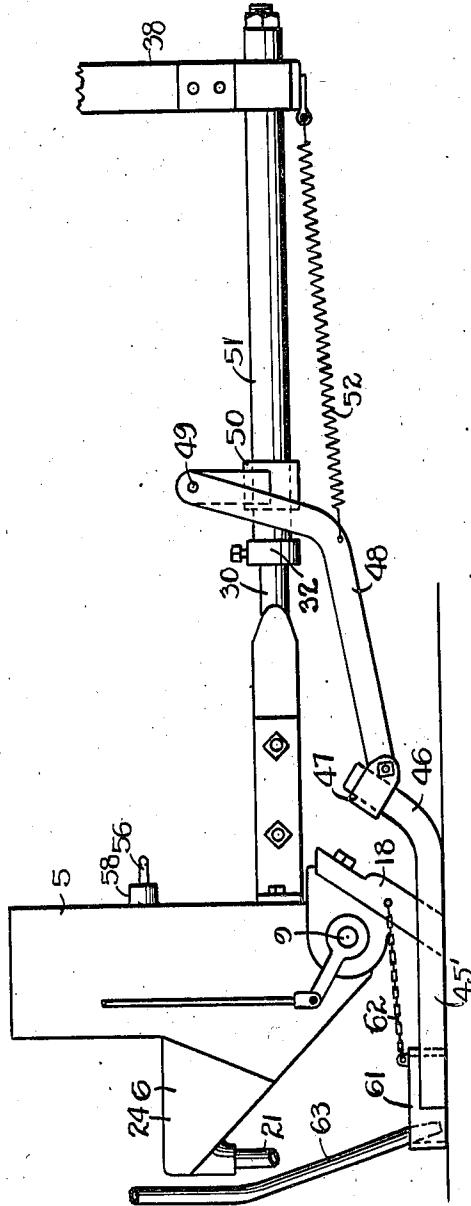


Fig. 4.

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UNITED STATES PATENT OFFICE

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ATTACHMENT FOR ROAD MARKING
MACHINES

Everett H. Hollingshead, Dayton, Tex.

Application June 9, 1930, Serial No. 459,890

9 Claims. (Cl. 91-43)

The invention relates to an improvement in the distributing mechanism of line-marking machines and is particularly adapted for association with machines which are power-driven or drawn along the road at considerable speed.

The invention is in the nature of an improvement over my prior Patent No. 1,726,832, granted to me on September 3, 1929, and my prior copending application Serial No. 369,026, filed June 7, 1929.

It is one of the objects of the invention to provide a distributing mechanism which is adapted for adjustment and which will be of such construction that it will distribute the marking material evenly and of a uniform width under varying road conditions.

Another object of the invention is to provide a distributor nozzle having adjustments thereon so that heat may be applied to any portion thereof.

Another object of the invention is to provide a guard shoe at the side of the distributor nozzle so that the marking material will be retained in proper position and prevented from coming in contact with the road except within the desired width.

A still further object of the invention is to provide guard shoes at the side of the distributing nozzle which are spring-pressed and will be retained in engagement with the road surface irrespective of the degree of tilting of the distributing nozzle.

Another object of the invention is to provide a form of guard mechanism which will trail the distributor nozzle and insure a uniform width of marking at all times.

A still further object of the invention is to provide an attachment for the distributor nozzle that either paint or heated materials may be distributed from the same mechanism.

Other and further objects of the invention will be readily apparent to those skilled in the art when the following description is considered in connection with the accompanying drawings wherein

Fig. 1 is a sectional view showing one form of attachment suspended from a road-marking machine.

Fig. 2 is a bottom plan view of the invention shown in Fig. 1.

Fig. 3 is a top plan view of the invention but with several modifications attached thereto.

Fig. 4 is a side elevation of the structure shown in Fig. 3.

On modern highways it is very desirable to have a line of division adjacent the center of the road

in order that vehicles traveling in opposite directions will be guided in their travel and remain on the right side of the road. It is also desirable on city streets to provide certain markings to indicate the direction of travel of traffic as well as parking areas and for other purposes. It is with the idea in mind of providing a machine which is capable of making such marks that I have devised the present attachment. It may be connected to machines of the type which I have disclosed in my prior patent and co-pending application above referred to or it may be attached to any other type of vehicle.

The invention will be best understood by having reference to Fig. 1 where the reference character 2 represents the frame or body of a vehicle and is preferably a tank or container which is used to store the marking material while it is being used. This tank is provided with a pipe 4, which extends downwardly therefrom. A sleeve 5 is adapted to telescope within this pipe 4 and extends downwardly for engagement with the distributing head or mechanism 6. This head is provided with a chamber 7, which is adapted to receive a quantity of marking material from the discharge spout 3. Below the chamber is the outlet 8, which is controlled by means of the valve 9. This valve is somewhat similar to the valve disclosed in my prior co-pending application but is located in a somewhat different position. In order that the marking material in the chamber 7 may be maintained in heated condition, which is particularly desirable when asphalt is used, I have provided a burner 12, which receives fuel from the pipe 11, and is mounted on the housing 13. This burner is arranged so that the heat therefrom will impinge upon the lower side 14 of the head 6. The housing 13 is provided with a sliding gate 16, which is adapted to close the opening 17 therein. This gate when withdrawn, as shown in Figs. 1 and 2, allows the heat from the burner 12 to pass through the opening 17 and impinge against the shoe 18. In this manner the shoe may be heated prior to using of the marking apparatus and will prevent clogging or sticking of the marking materials in the shoe. After the shoe has been heated, however, the gate 16 may be moved forward by means of a handle 16' so that the opening 17 will be completely closed and the heat of the head will tend to maintain the shoe in heated condition. This plate may, however, be arranged in any adjusted position so that the shoe 18 will be maintained in the desired heated condition, depending upon weather conditions and the type of material which is being distributed. The forward

portion and sides of the head 6 are encased by the sleeve 5 so that a space 19 is provided between them.

When the gate 16 is closed the heat from the burner 12 then passes around on each side of the head 6, which is closed on the rearward side by the sleeve partition 21. The heat then passes around into the area 19 and upwardly into the pipe 4 to enter around the marking material container which is inside of the tank 2. With this construction all of the heat is obtained from the combustion of the fuel at the nozzle 12 and a very efficient operation is obtained. The marking material in the chamber 7 and the nozzle 18 is maintained in a heated condition at all times. The head 6 also carries the overflow pipe 21 which extends downwardly from the face 14. This pipe connects with a trough 22, which is separated from the main portion of the chamber 7 by the flange 23. The top of the chamber 7 is open rearwardly from the end partition 21 so that the operator, from his position on the vehicle, may view the quantity of marking material, which is present in the shoe, and control the same as it passes from the pipe 3 into the chamber and through the valve 8 onto the road surface. The flange 23 controls the level at which the material will flow and is slightly below the upper edge 24 of the head. In this manner the material will overflow through the pipe 21 and drop onto the marked line on the road and will not overflow the sides 24. With this construction there will be no broadening of the road mark when the chamber 7 overflows as the excess material will merely fall onto the mark which has already been made.

The marking shoe 18 is of novel construction and has a passage 26 extending therethrough. This shoe may be of any desired thickness but I have shown it sufficient to provide a substantial contact at 27 and 28 with the road surface. This shoe is practically the only part of the device which will be subject to wear during the prolonged period of operation and I have therefore arranged it so that it may be readily detached or replaced, the bolts 29 serving to hold the shoe in position against the lower portion of the head 6. I have found in actual practice that the making of these shoes of ordinary cast iron proves to be satisfactory and they give a considerable amount of service and may be replaced at a small cost. The brace 30 is carried by the bracket 31 and is adjustable horizontally by means of the nut 32 and the set screw 33. The head 6 is adjustable vertically by means of the lever 35 which is pivoted at 36 in the bracket 37. With this construction the shoe may be adjusted horizontally so that the faces 27 and 28 contact the road at the proper angle and, in event the shoe wears off at an angle, adjustment of this brace 30 will serve to set it at the correct angle. The lever 35 may be used to raise or lower the head so that the shoe may be disposed upon the road surface or retracted therefrom when it is in operation. The vertical movement is taken up by the telescoping action between the sleeve 5 and pipe 4. The shoe 18 may be made of other materials than cast iron such as rubber or other compositions.

For certain types of road where the surface is substantially smooth and level the marking device as described above proves very satisfactory. However, in some instances, the road surface is more or less pitted and rough and in many places uneven. Also, in traversing sharp curves where the road is banked, the shoe 18 does not always

fit against the surface of the road due to the inclination of the vehicle or the head 6. It is with the idea in mind of maintaining the mark or line of uniform width and with straight edges that I have provided the guard shoes 37. These shoes may be best seen in the bottom plan view of Fig. 2 and are preferably made of metal having a straight portion 38 and the two flanges 39 and 40, which are spaced apart and inclined at an angle so that they will fit snugly against the forward and rearward sides of the shoe 18. The straight side 38 extends ahead and behind the shoe 18 so that this guard shoe is adapted to slide vertically in the plane of the inclination of the shoe 18. This guard shoe 37 is detachably connected to a rod 42, which extends upwardly therefrom. This rod is adapted to pass through the arm 43, which serves as an upper abutment for a spring 44, which abuts on its lower side against a pin 45, which extends through the rod 42. In this manner the spring 44 tends to maintain the guard shoe 37 against the surface of the road at all times. In event any inclination of the vehicle or the head 6 occurs the shoe 18 may be tilted from its normal position of contact with the road surface so that one side thereof would be raised and allow excess marking material to flow onto the road. The guard shoe 37 will be maintained in contact with the rod by the spring 44 regardless of the tilted position of the shoe 18. In this manner no excess of marking material is allowed to flow from the passage 26 and cause a blot on the road.

It is intended that the guard shoes 37 may be replaced when they are worn by detaching them from the rod 42. The flanges 39 and 40 prevent any excess of material from flowing outwardly to a position near the edge of the line being marked but any accumulation of material will be thrown to the center of the road between the inner ends of the flanges on opposite sides of the shoe. The trailing body portion 38 of this guard shoe tends to pass along the edge of the line being marked and form a perfectly straight edge. It also serves the purpose of spreading any excess of material which should in any manner accumulate on the edge of the line being marked. Fig. 3 shows a construction somewhat similar to that disclosed in Figs. 1 and 2 but the guard shoes 37 have been replaced by another form of guard bar or safety shoe 45'. These shoes comprise a strip or bar of material which is bent at 46 and secured in a clevis 47. This bar 45' has considerable length and is adapted to extend a substantial distance ahead and behind of the shoe 18. A lever 48 is pivoted at 49 on a sleeve 50, which is mounted on the pipe 51 which supports the brace bar 30. A spring 52 which is connected to the bracket 38 serves to maintain the guards or bars in position against the road surface. It should be noted that the spring 52 pulls forward on the arms or levers 48, which tend to bring the bars 45' against the road. These bars 45' serve the same purpose as the guide shoes 37 but are more simple in their construction and merely tend to prevent the spreading of material which is discharged by the shoe 18. An additional spring 54 may also be used between the arms 48 or the bars 45', which tends to draw them together so that they are pressed against the sides of the shoe 18. In this manner any irregularities in the surface of the road will not cause vibration or lateral movement of the bars which would tend to allow spreading of the marking material.

The construction of the distributor head in

Figs. 3 and 4 is substantially the same as that of Fig. 1 with the exception of the dampers 56. These dampers are each provided with a handle 57 which rotates in the stud 58. The damper is a flat piece of material 59 which is adapted to close the passage 19 on each side of the head 6 between the sleeve 5. These dampers are used when it is desired to confine a major portion of the heat from the burner 12 about the distributor head 6, chamber 7 and the shoe 18. These dampers are of a common type and when the handle 57 is rotated through 90° the passage is open and closed in the opposite direction. When these dampers are closed there is only the forward portion of the area 19, which allows passage of the heat up into the pipe 4. However, after the head 6 and the material therein has been heated the dampers 57 may be opened and allow any excess heat to pass upwardly and heat the container.

The construction described heretofore is adapted particularly for use where asphalt or tar is used as a marking material and needs to be maintained in a heated condition. It is intended, however, that the device may be used in distributing paint in identically the same manner when the burner 12 is not in use. In some instances, however, where paint is used, it is desirable to prevent the distribution of an excessive amount of paint and to insure that the paint distributed is properly spread upon the surface of the road. In order to accomplish this I have provided a plow 61, which is of V-shape, and is attached to the head or shoe 18 by means of chains or wires 62. This plow is adapted to follow along behind the shoe 18 and draw any excess of paint toward the apex of the V. As this material accumulates in the apex a suction pipe 63 has been provided which draws the accumulated material upwardly and deposits it into the container so that it may be used. The suction on the pipe 63 may be obtained in any desired manner such as by a blower either manually or power-driven. This suction may or may not be used as the operator may reduce the amount of paint being fed when an accumulation occurs. Thus the paint so accumulated will be fed from the plow.

While I have shown and described several modifications of the invention it is intended that they may be all incorporated to lend themselves to the combination in order to obtain a satisfactory and practical working construction. The device disclosed has been manufactured and found to be very efficient and practical for the purposes in view.

What I claim as new is:

1. A distributor head for line marking machines including a body portion having a chamber therein for marking material, a shoe, a burn-

er to heat said body and shoe, and means whereby the heat from said burner may be directed to either said body portion or said shoe.

2. A distributor head for marking machines including a sleeve, a head therein adapted to contain marking material, a burner, said head being spaced from said sleeve whereby a passage is provided to allow circulation of the heat from said burner, a shoe carried by said head, and means to direct the heat from said burner to said shoe, said head or said sleeve.

3. In combination with a line marking machine having a distributor shoe, a guard member on each side of said shoe whereby the marking material will be confined to a stripe of uniform width, said guard members being adjustably mounted so as to contact the road surface regardless of tilting of the distributor shoe, and means on each member embracing said shoe to position said member.

4. In combination a road marking head adapted to distribute a stripe of marking material, guard members mounted adjacent said head and adapted for movement independently thereof, said members being disposed at each side of said head to define the edges of the stripe being made, and including wings to engage the front and rear of said shoe.

5. A distributor head for line markers including a shoe to pass the marking material to the road surface, a plow attached to said head and adapted to trail said shoe whereby the material will be spread on the road surface, and means to remove the excess material accumulating in said plow.

6. In combination with a line marking shoe, a runner disposed on each side thereof, means on said runners engaging the shoe and forming a continuation thereof when the side of the shoe is raised from contact with the surface, and means to press said guide against the surface.

7. In combination with a line marking shoe whereby a stripe is marked on a surface, means bringing to a common point all the excess marking material, and pneumatic means to salvage the accumulations of excess material.

8. A line marking head, a runner disposed on either side thereof to define the area being marked, said runners being pivotally mounted, spring means urging said runners against the surface being marked, and additional spring means holding said runners together and against said head.

9. In a line marking machine a distributor head, a mark defining member at each side of said head, means normally urging said members against the surface being marked, and additional means urging said members toward said head.

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