

Oct. 28, 1941.

T. F. KOLTS

2,260,461

TRAFFIC GUIDE

Filed Feb. 6, 1939

2 Sheets-Sheet 1

10 *Fig. 1.*

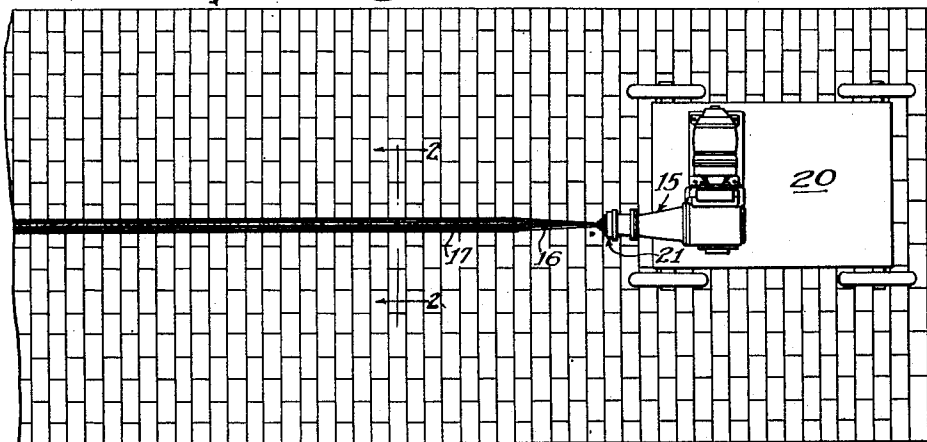


Fig. 2.

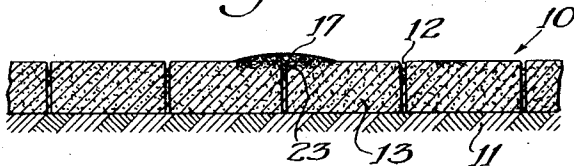


Fig. 3.

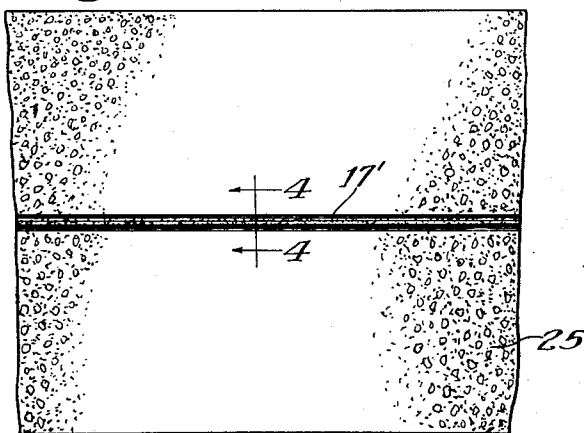


Fig. 4.

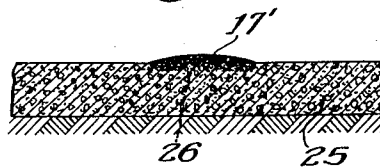
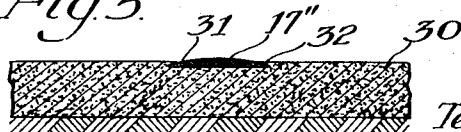


Fig. 5.



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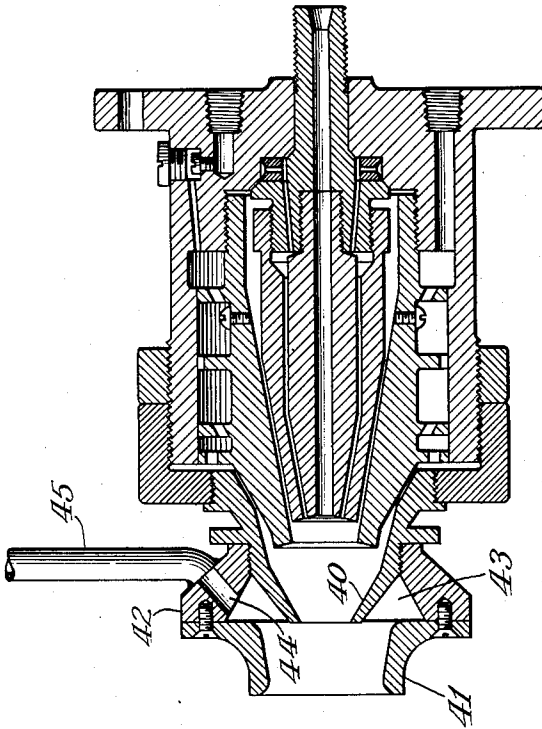
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2 Sheets-Sheet 2

Fig. 6.



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UNITED STATES PATENT OFFICE

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TRAFFIC GUIDE

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Application February 6, 1939, Serial No. 254,813

3 Claims. (Cl. 94—1.5)

This invention relates to traffic guides and the method of producing the same, and more particularly to stripes and kindred markers which are placed on pavement surfaces or on bridge and culvert abutments and structures and the like along streets and roadways to indicate the division lines between traffic lanes and the presence of structures obstructing traffic and the like.

It has been recognized that traffic control stripes must or should be of a color which contrasts with the color of the pavement surface on which they appear, and to attain this it has been customary to apply such stripes by the use of various types of paint, of colors such as red, orange, white or black as conditions or preference has dictated. While stripes so produced have been widely used for many years they have not been entirely satisfactory and many practical difficulties have been encountered due, for example, to the slow drying characteristics of the paints that have been used which has required that painted stripes be protected for a considerable period after application thereof to pavement surfaces. When such protection fails, cross traffic tends to pick and spread the paint and this results in an indistinct and improper stripe. In addition, the paint coating, even when properly dried, is reduced in thickness and often wore away by the carrying away of the paint on vehicle wheels and thereby the expected use for life of the stripes has been materially reduced. Furthermore, the surface texture of painted stripes is such that there is a marked tendency not only to accumulate dirt, dust and other foreign matter but also to retain such matter permanently, thereby causing the desired characteristic of distinctness to be lost quite rapidly.

Other attempts to produce satisfactory traffic stripes have involved the use of tar or asphalt but such attempts have not produced satisfactory results due to wide variation in the hardness of the material which caused cracking in the winter, and another characteristic of such stripes has been undesirable spreading and material loss thereof by reason of the softening of such stripes in warm weather.

In view of the foregoing, an important object of the present invention is to overcome the foregoing and kindred difficulties and to provide a novel and improved traffic stripe and a method of applying the same, and an object ancillary to the foregoing is to provide a novel traffic stripe that will be self-protecting after the application thereof to pavement surfaces and which will be cleaned and polished by vehicle traffic so as to

maintain maximum color contrast throughout its entire useful life.

It has been customary heretofore to mark bridge and culvert abutments and other structures in and along roadways so as to indicate the presence thereof, and this has been done by painting stripes of contrasting colors thereon and also by fastening to such structures devices containing light reflective means. However, where paint was relied upon, this has tended to become obliterated by reason of the weathering thereof and where light reflective devices fastened to such structures have been used these devices have sometimes been removed either accidentally or otherwise and sometimes they have been damaged so as to be rendered wholly useless for the purpose intended.

Thus in view of the foregoing, still another important object of this invention is to afford a permanent marking on bridge and culvert abutments and supports and other structures in and along streets and roadways to indicate the presence thereof, and an object related to the foregoing is to afford a permanent light reflective arrangement on such structures so that when the lights of vehicle traffic strike such like reflective surfaces, the presence of the structures on which the light reflective surfaces are provided will be indicated.

An object related to the foregoing is to enable light reflective surfaces to be produced either on structures in and along roadways which are dangerous to traffic and also to enable such surfaces to be employed as traffic stripes to afford divisions between traffic lanes and the like.

Still more specific objects of the invention are to produce traffic guiding stripes and the like and indicating means on structures in and along streets and roadways by applying a continuous coating of metal; to incorporate light reflective particles in such metallic surfaces; and to apply metal and light reflective particles to such surfaces in a novel manner.

Other and further objects and features of the present invention will be apparent from the following description wherein reference is made to the accompanying drawings in which—

Fig. 1 is a plan view of a street or highway pavement of brick to which a traffic stripe produced in accordance with the present invention is being applied, and also showing one manner in which such a stripe may be applied to such a pavement;

Fig. 2 is a sectional view taken substantially on the line 2—2 on Fig. 1;

Fig. 3 is a plan view of a concrete pavement having a traffic stripe of the present invention applied thereto;

Fig. 4 is a sectional view taken substantially on the line 4-4 on Fig. 3;

Fig. 5 is a sectional view, similar to Fig. 4, showing the application of a traffic stripe to an asphalt or bituminous pavement; and

Fig. 6 is a longitudinal sectional view illustrating one form of apparatus that may be employed for applying traffic stripes to pavements or the like.

In accordance with the present invention the desired stripe is formed from metal applied to the pavement surface, the metal being chosen with regard to color contrast with the pavement surface, and being applied while in a molten state so as to become thoroughly bonded with the pavement surface. In Figs. 1 and 2 of the drawings there is illustrated a section of brick pavement 10 which, between the individual bricks 11, has vertical spaced interstices 12 which, in normal practice, are filled with a cement mixture 13 such as grout, a fine sand, or an asphalt or bituminous filler which is heated and poured therein after placement of the layer of brick 11.

While the present invention contemplates other modes and apparatus for applying the molten metal to the pavement surface, there is shown in Fig. 1 a spray mechanism 15 whereby a thin jet of molten metal is sprayed as at 16 toward the pavement surface so as to be deposited thereon in a thin, continuous ribbon-like form to produce a traffic stripe 17 embodying the invention. The spray mechanism 15 is preferably mounted on a wheeled vehicle 20 with the nozzle 21 of the spray mechanism directed longitudinally rearwardly of the vehicle, and the vehicle 20 is moved at a slow, uniform speed along the desired path of the traffic stripe which is being formed. The speed of movement of the vehicle 20 is varied in accordance with the metal used, the temperature thereof, the thickness of metal to be applied, and perhaps other variable factors.

It will be noted that the filling 13 between the bricks usually wears down to form grooves of varying depths in the surface of the pavement, as indicated in Fig. 2, and that where this filler is formed from a cement mixture there will be a large number of recesses or interstices (not specifically shown) formed in the filler 13 due to bubbles, or wear; and that even in the top surfaces of the bricks 11, similar small openings, interstices or cracks are invariably found. The present invention makes use of these inherent imperfections in the pavement surface, since the molten metal enters these interstices and forms a thorough and efficient bond with the pavement surface. This bonding action is facilitated when the molten metal is sprayed under pressure onto the pavement surface. Such a pressure application of the metal may be attained with a spraying apparatus such as that illustrated in Fig. 1, which is constructed as shown in the Bleakley Patent No. 2,092,150, issued September 7, 1937.

When the filler 13 is of a bituminous character the heat of the applied metal causes the metal to penetrate the filler and form transverse bottom fins (not shown) extending into the transverse spaces between the bricks, as well as longitudinal fins 23 (Fig. 2); and these fins interlock with the inherent interstices in the brick as well as with the bituminous filler material due to uneven melting of that material. Similar fins are

formed in varying degrees for all types of filler materials, the extent of such fins being determined by the worn shape of the upper edge of the filler 13.

Because of the molten character of the material of the stripe 17 as it is applied, there is very little danger that motorists will drive across it or otherwise disturb its desired even form, and since the metal cools and hardens quickly, it is necessary to protect but a very short length of the applied stripe 17. The molten metal, of course, tends to assume an evenly crowned upper surface as shown in Fig. 2, although the degree or amount of crowning may be widely varied, and is herein shown with an exaggerated crown.

In Figs. 3 and 4 the invention is illustrated as applied to a concrete pavement 25, and in this instance the metallic stripe 17' forms a continuous bond as indicated at 26 in Fig. 4, where the molten metal penetrates the interstices and minute recesses which are inherent in the pavement surface.

In Fig. 5 there is illustrated the application of the present invention to form a metallic traffic stripe 17'' on the surface of a bituminous pavement 30 of macadam asphaltic concrete or sheet asphalt. When the molten spray of metal is applied to such a pavement there is a melting of the asphalt so that the stripe 17'' is, in effect, set in a recess 31 in the pavement surface, and the asphalt may in some instances flow over the edges of the metallic stripe 17'', as indicated at 32. While the lower face of the stripe 17'' has been shown, in Fig. 5, as being flat or even, there are, in practice, numerous irregularities formed therein due to the pressure of aggregate in the pavement, or due to uneven melting of the asphalt, so that a varied and securely interlocked bond is formed between the metal stripe 17'' and the pavement 30.

The present invention is not limited to any particular type of metal but it has been found that stripes of aluminum or copper are particularly suitable. Whether the stripe is of aluminum or copper or other metal, it will be more or less light reflective which will render a stripe produced according to this invention particularly useful since it will be readily visible at night when the lights of vehicles traveling along the highways will shine thereon to be reflected therefrom. However, in order to impart positive light reflective properties to a traffic stripe or the like, small particles of a light reflective material such as mica may be applied along with the molten metal, and this may be expeditiously accomplished by associating with the nozzle from which the molten metal is emitted an arrangement which will enable powdered or pulverized flake material to be intermixed with the molten metal prior to application thereof to the surface on which it is being applied.

An apparatus which will enable the foregoing to be accomplished is illustrated in Fig. 6 wherein a spraying apparatus such as that disclosed in the aforesaid Bleakley Patent 2,092,150 is illustrated, this apparatus including a nozzle 40 from which the molten metal is emitted. A discharge nozzle 41 is arranged outwardly of the nozzle 40 so that molten metal emitted from the nozzle 40 passes through the discharge nozzle 41. This discharge nozzle 41 is secured to the nozzle 40 by a coupling 42, and the coupling 42 and the nozzle 40 are preferably so sized and shaped that a chamber 43 is defined about the nozzle 40 and molten metal emitted under pressure from the

nozzle 40 creates a Venturi effect in the chamber 43. Thus by providing an opening 44 in communication with the chamber 43 and through a suitable pipe 45 or the like connecting a source of powdered or pulverized material with the chamber 43, the material will be drawn into the stream of molten metal after it passes from the discharge nozzle 41 to be thoroughly mixed therewith. Preferably, the material employed is mica inasmuch as this will effectively resist temperature of the molten metal and will be light reflective when incorporated in the molten metal and applied to a pavement surface or the like, the small particles of mica in this instance serving as the light reflective means.

While thus far I have described my invention with particular reference to traffic stripes, it will be understood that the surfaces of bridge and culvert abutments and supports and other structures in and along streets and roadways could be coated with a metallic surface, and in this instance the entire surface could be covered or stripes could be applied thereacross much in the same manner as painted stripes are now customarily applied to the surfaces of such structures. Furthermore, it will be understood that when light reflective particles are incorporated in the metal at the time of application thereof to such surfaces a very effective indication of the presence of such structures is afforded, for such light reflective means will be operative not only in daylight but also at night when the lights of vehicles strike against the light reflective particles.

Traffic stripes and coatings on surfaces of structures in and along streets and roadways applied in accordance with the present invention have longer useful life than has heretofore been obtainable which, in part, is due to the greater resistance afforded by the metal to deleterious effects of weather and the like. Moreover, in

those instances where the stripe is applied to a pavement, the passage of wheels of vehicles or the like will tend to have a polishing effect which will maintain the stripe bright and therefore visible at all times. Moreover, stripes and surface coatings applied in accordance with this invention do not accumulate and retain dust, grit and other objectionable matter which further increases the usefulness thereof.

While I have illustrated and described selected embodiments of my invention it is to be understood that these are capable of variation and modification and I therefore do not wish to be limited to the precise details set forth but desire to avail myself of such changes and alterations as fall within the purview of the following claims.

I claim:

1. A method of producing a traffic guide marker comprising projecting onto the surface to be marked a spray of molten metal intimately mixed with small particles of a light reflective material consisting of mica having a higher melting point than that of the molten spray.

2. The method of producing a traffic guide marker comprising forming a spray of molten metal having a melting point lower than that of mica, commingling with said spray small particles of mica and projecting the spray mixture upon the surface to be marked while the metal is still molten to effect intimate bonding of the metal with the irregularities of said surface.

3. A traffic stripe for pavements comprising a mixture formed of small particles of mica mixed with a metal spray in a molten state and bonded to the pavement by flowage of the metal into the surface irregularities of the pavement while still molten, said metal having a melting point lower than that of mica.

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