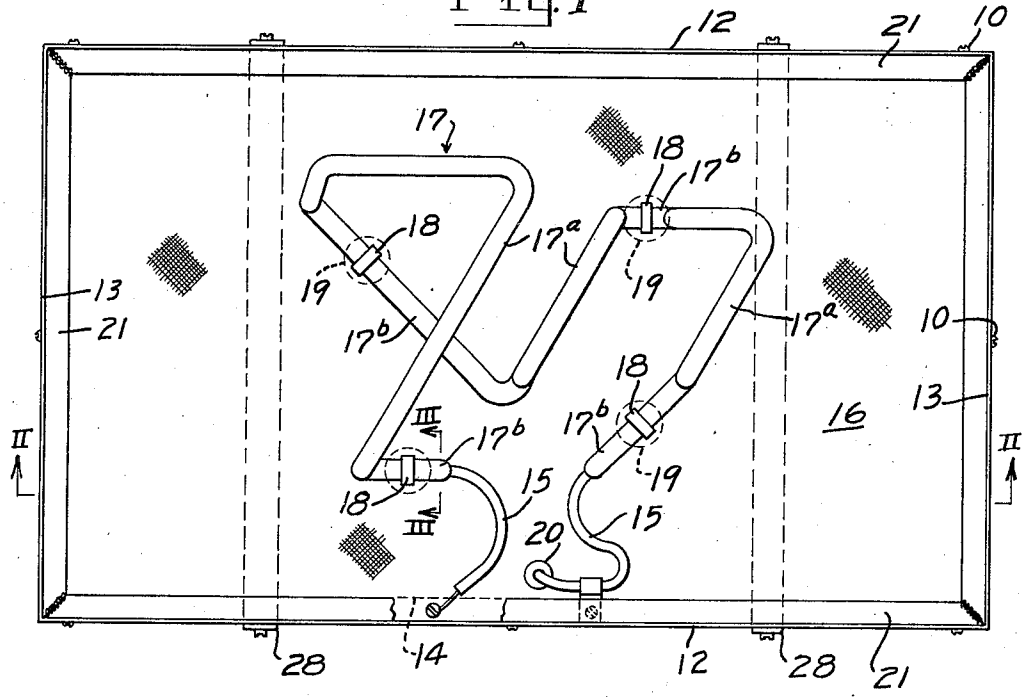
Jan. 13, 1942. W. H. LIVINGSTON ET AL 2,269,675

ILLUMINATED SIGN FOR VEHICLES

Filed July 18, 1940

Fig. 1



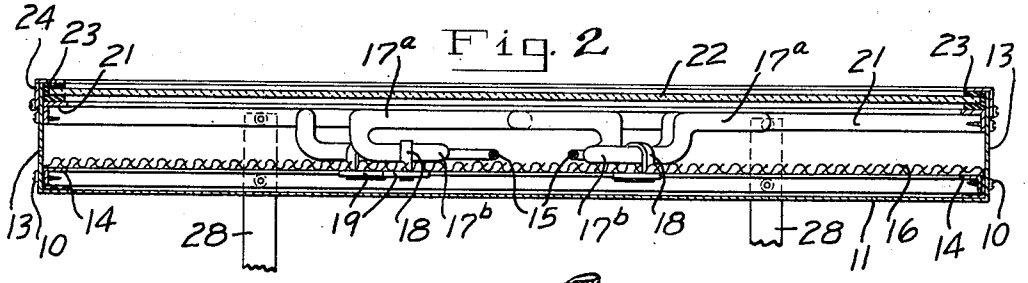


Fig. 2

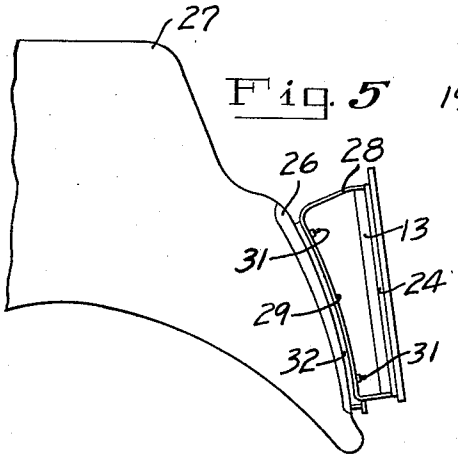


Fig. 5

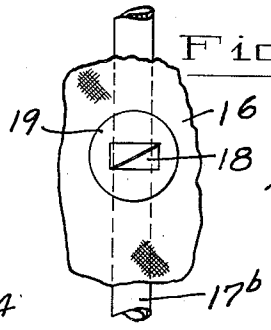


Fig. 4

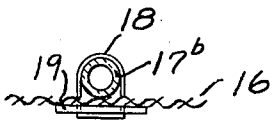


Fig. 3

INVENTORS
WILLIAM H. LIVINGSTON
BY JAMES H. HUGHENS
Johnston & Jenning ATTORNEYS

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ILLUMINATED SIGN FOR VEHICLES

William H. Livingston and James H. Hughens, Birmingham, Ala., assignors to Preston Y. Whitman, Birmingham, Ala.

Application July 18, 1940, Serial No. 346,178

6 Claims. (Cl. 40—130)

Our invention relates to illuminated signs, and is more particularly concerned with signs having neon or like tubing adapted for mounting on taxicabs, trucks and other vehicles for advertising purposes.

More particularly, our invention relates to certain improvements in the mounting for the delicate neon tubing whereby the tubing will be protected from shocks due both to normal operation of the vehicle and the shocks which are imposed upon the sign due to its being mounted on the baggage compartment door at the rear of a taxicab.

In Letters Patent No. 2,192,712, issued to William H. Livingston, there is described and claimed a very efficient illuminated sign embodying a mounting for neon tubing comprising rubber blocks secured to a backing board and having the tubing mounted for vibration on the outer ends thereof. While the structure disclosed in this patent has been found to be satisfactory in every respect, we have devised a more simple, effective and economical mounting for neon or other illuminating tubing, which is very durable and sturdy and at the same time affords greater protection to the tubing from shocks than does the mounting in the above mentioned patent, and which makes possible a more complete display of the tubing.

In its broadest aspect, our invention contemplates an illuminated sign comprising an open frame having flexible material stretched tautly thereon with means to secure the neon tubing centrally of the frame to that part of the flexible material which is left free to vibrate, thereby insuring a stout yet flexible support for the delicate tubing.

Our invention further contemplates the provision of an illuminated sign comprising a box-like frame with a glass cover and having secured marginally therein two centrally open frames, one of which carries the flexible material on which is mounted the neon tubing and the other of which carries a marginal yieldable support for the glass.

Our invention further contemplates the provision of means to mount the neon tubing so that the part thereof forming the display will be free of any obstructions which mar the appearance of the sign.

Our invention further contemplates the provision of an illuminated sign which shall be extremely light, thereby reducing the inertia of the sign and hence the amount of shock imposed on the tubing.

Our invention further contemplates the provision of extremely simple yet very effective means to clamp the neon tubing to the flexible support.

Briefly, our invention comprises a box-like frame having mounted therein, in superimposed relation, two open frames formed of light angles or other shapes. Over the open frame adjacent the back of the sign we stretch a piece of flexible material such as cloth to form a support for the tubing and secure it marginally to the frame so that the central portion of the support is free to vibrate. On this support we mount the illuminating tubing by means of clips passed around the parts thereof adjacent the support and then through the support. On the frame adjacent the front of the sign, that is, that side of the sign at which an observer looks, is carried a glass cover for the box-like frame having a marginal rubber support adapted to yieldably support the cover so as to protect it against shocks.

Our invention further comprises the novel details of construction and arrangement of parts which in their preferred embodiments only are illustrated in the accompanying drawing which form a part of this specification, and in which:

Fig. 1 is a front view of our improved sign with the glass cover and hold-down frame therefor removed;

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

Fig. 3 is an enlarged detail sectional view taken on the line III—III of Fig. 1, and illustrating the preferred type of clamp means for securing the neon tubing to its flexible support;

Fig. 4 is a bottom view of Fig. 3; and

Fig. 5 is a side view on a reduced scale showing our improved sign mounted on the baggage compartment door at the rear of a car.

Referring to the drawing, we show our improved sign as comprising a box-like frame having a back 11, top and bottom sides 12 and ends 13. Inwardly of the structure near the back thereof we mount a marginal open frame 14 formed of light weight angles and adapted to fit snugly within the inner dimensions of the box-like frame and to be secured to the sides and ends thereof by means of self threading screws 10. Stretched tautly over this frame 14 is a support for illuminating tubing formed of flexible material 16, such as cloth. The support 16 is preferably cloth of the quality and weight generally used to cover the wings and fuselages of airplanes, but obviously it may be made of any other material having like flexibility and strength. When using cloth we preferably secure it to the frame 14 by gluing it thereto with "dope," such as is used to coat the fabric applied to airplanes. The

whole surface of the cloth 16 is then coated with "dope" and it will readily be understood that this has the effect of causing the cloth to draw tautly about the frame 14, thus forming a very durable but extremely flexible mounting for the illuminating tubing.

Mounted on the tubing support 16 is the glass illuminating tubing 17 which may be of the usual neon or other type. One conductor 15 for supplying current to the tubing is passed through a grommet 20 in the flexible support 16 and thence out the back of the sign to any suitable source of current, not shown. The other conductor 15 is grounded to the frame 14, thus serving to complete the electrical circuit for the tubing in the manner well understood.

It will be noted that the tubing shown in the drawing is laid out to form the numerals 717 but this is by way of illustration only as our invention applies equally as well to any desired indicia, be they numerals, letters, or ornamental designs. It will also be noted that the method of forming tubing into indicia is to bend it so that the parts forming the actual lettering or numerals lie in front of those parts whose function it is to simply connect the letters or numerals. We preferably secure the tubing 17 to the flexible support 16 by means of clips 18 passed around the rear or connecting parts 17*b* of the tubing. This method of mounting leaves the front or display parts 17*a* of the tubing unobstructed and hence does not break the outline of the indicia formed thereby.

Secured to the back side of the flexible support 16, as by gluing, are reinforcing washers 19 through which the clips 18 pass and against which they are bent to hold the tubing in place. These washers serve to prevent the clips from tearing out through the thin flexible support 16.

Secured to the inner walls of the box-like frame near the front thereof is another open frame 21 similar to 14 which is adapted to carry a transparent cover for the sign, such as a sheet of glass 22. Around the edges of the sheet of glass and resting on the frame 21, we place a channel-shaped rubber cushion 23 which is adapted to yieldably support the glass cover to better protect it against shocks. A hold-down frame 24 serves to keep the glass and its marginal mounting 23 in place.

In Fig. 5 we show our improved sign mounted on the baggage compartment door 26 of a taxi 27. The sign is provided with two brackets 28 which are slightly curved as at 29 to conform to the curvature of the door 26. Bolts 31 are passed through the brackets 28 and the door 26 to secure the sign to the door.

Because of the frequent and hurried opening and closing of the baggage compartment door 26, which it will be understood is hinged at its top, signs secured thereto receive a tremendous amount of shock. We have found it advantageous, therefore, to interpose between the door and the curved portion 29 of each of the bracket arms 28 a strip 32 of vibration absorbing material such as rubber. These strips serve to absorb some of the shock imposed on the sign and also make it unnecessary to accurately bend the brackets to the exact curvature of the door 26.

We preferably form the sides, ends and back, the open frames 14 and 21, and the hold-down frame 24 of aluminum so as to reduce the weight of the sign as much as possible. We have found that by the use of this material and the particular disposition of the several parts as shown in the drawing, our sign is both light and durable. For example, where the sign referred to in the above patent to William H. Livingston weighs about 38 lbs., a sign of the same size made in accordance with our present invention weighs only 22 lbs. The importance of this weight reduction will be readily appreciated when it is understood that the parts of the taxicab on which these signs are usually mounted is of relatively thin metal and will not carry excessive weight. Furthermore, the lighter the sign, the less inertia it will have and hence the less strain will be put on the delicate neon tubing when shocks are imposed.

In practice, we have found that our improved sign provides ample protection for the delicate glass illuminating tubing. When a shock comes on the sign the flexible support 16, being secured at its edges only, vibrates freely, carrying the tubing with it and thus preventing any direct shocking of the tubing. Because of the high gloss which may be given fabric by treating with "dope," much better reflection of light is obtained by the use of this form of support for the tubing than any of which we are aware.

While we have shown our invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications, without departing from the spirit thereof, and we desire, therefore, that only such limitations shall be placed thereupon as are imposed by the prior art or as are specifically set forth in the appended claims.

What we claim is:

1. In an illuminated sign having a box-like frame, a glass cover therefor, and illuminating tubing, the combination of a tautly stretched sheet of cloth within the frame forming a support for the illuminating tubing, means to fixedly secure the marginal edges of the cloth to the frame with its central portion left free to vibrate, and means to mount the illuminating tubing directly on the freely vibratable portion of the cloth.

2. An illuminated sign comprising a box-like frame, a transparent cover yieldably mounted as a closure for the frame, illuminating tubing, an open framework adapted to fit within the box-like frame, a cloth support for the illuminating tubing stretched tightly over said framework, and means to mount the tubing on the cloth cover inwardly of the open framework.

3. An illuminated sign for vehicles comprising a box frame having at least one open side, a marginal frame within the box spaced from the open side, a fabric support drawn tautly over said marginal frame and secured thereto, the portion of said support inwardly of the marginal frame being free for vibration, illuminating tubing secured to the support inwardly of the marginal frame, a second marginal frame within the box frame near the open side thereof, a transparent cover for the box frame yieldably mounted on said second frame to serve as a closure for the open side, and means to secure the sign to a vehicle.

4. In an illuminated sign having a box-like frame with sides, ends, back and an open front, a transparent cover mounted adjacent the front of the frame and acting as a closure therefor, and illuminating tubing behind the transparent cover, the combination of a tautly stretched sheet of cloth within the frame adjacent the

back thereof, means to fixedly secure the marginal edges of the sheet of cloth to the sides and ends of the frame to leave the central portion thereof free to vibrate, and means to secure the illuminating tubing directly to the cloth in position to vibrate therewith responsive to shocks imposed on the sign.

5. An illuminated sign comprising a box-like frame, a transparent cover therefor, a marginally extending frame fitting snugly within the box-like frame, a support for illuminating tubing formed of cloth and stretched tightly over said marginally extending frame, the central portion of said support being free to vibrate, illuminating tubing having portions forming advertising indicia and other portions connecting the advertising indicia, and clips passing through said cloth at its central portion and around the connecting portions of said tubing.

6. An illuminated sign for vehicles, comprising a box frame having sides, ends and a back, a frame formed of angles secured to the inside walls of the box with one leg parallel to the sides of the box and the other leg spaced from the back and normal to said sides, illuminating tubing, a freely flexible support for said tubing fastened to said frame and spaced from said back, means to secure the tubing to said support, a second frame similar to the first mentioned frame secured to the inner walls of the box near the front thereof, a glass panel adapted to serve as a closure for the front of the box frame yieldably supported by said second frame, means to hold the glass in place, and means to mount the sign on the vehicle.

WILLIAM H. LIVINGSTON.
JAMES H. HUGHENS.