July 10, 1962 A. F. BATTAGLIA 3,043,039

SCINTILLATING SIGN

Filed Sept. 30, 1959 2 Sheets-Sheet 1

Fig. 1.

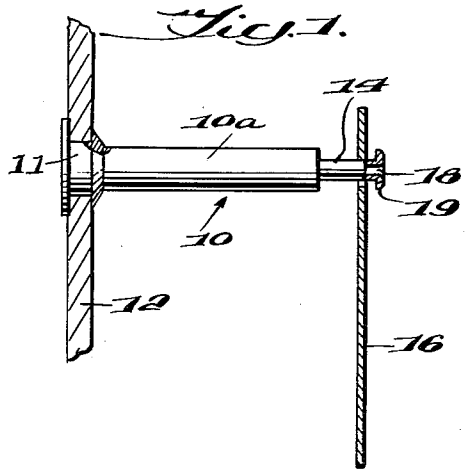


Fig. 2.

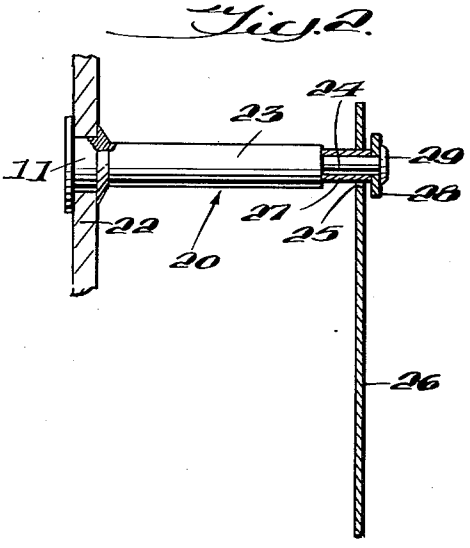


Fig. 3.

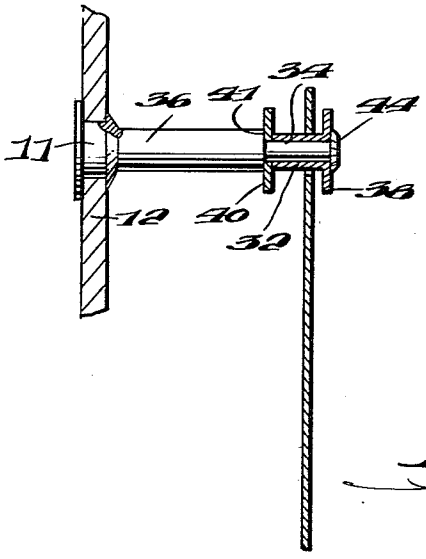


Fig. 4.

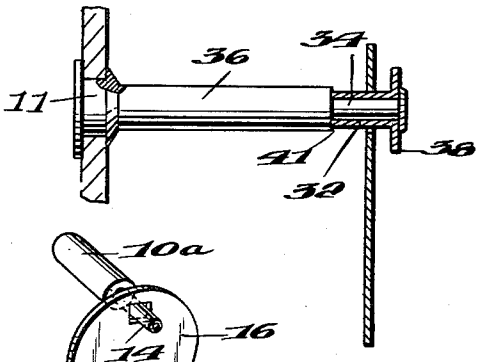


Fig. 5.

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July 10, 1962 A. F. BATTAGLIA 3,043,039

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Filed Sept. 30, 1959 2 Sheets-Sheet 2

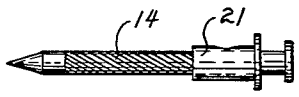


Fig. 6

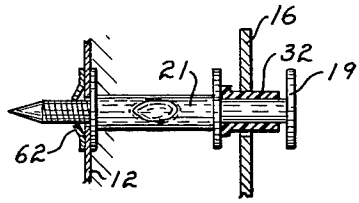


Fig. 6A

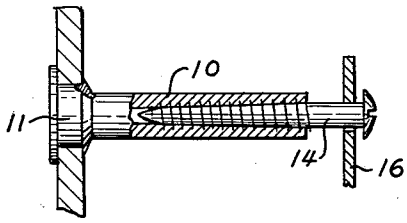


Fig. 7

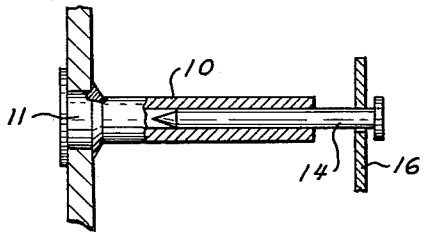


Fig. 8

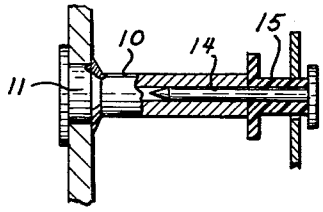


Fig. 8A

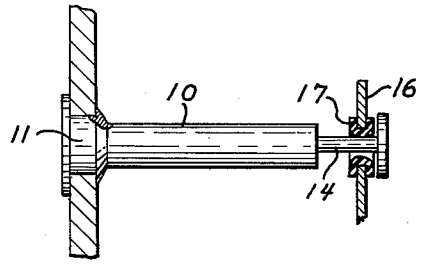


Fig. 9

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United States Patent Office 3,043,039 Patented July 10, 1962

3,043,039

SCINTILLATING SIGN

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Filed Sept. 30, 1959, Ser. No. 843,503
3 Claims. (Cl. 40—138)

The present invention relates to improvements in scintillating sign assemblies, and more particularly has reference to an improved light-reflecting sign having discreet assemblies, one of which is an improved rivet having a tenon portion, and the other is a conventional reflecting disc having an aperture near the periphery thereof for mounting upon the tenon of the rivet. When the assemblies are in mounted relation, they are found to provide a vibration and scintillating effect that has no friction between the tenon and the disc. The end of the tenon includes an opening having its sides curled back providing for a restraining action and holding the disc on the tenon.

This application is a continuation-in-part of my copending application Serial No. 583,124, filed May 7, 1956, and now Patent Number 2,912,778, and is also a continuation-in-part of my application Serial No. 707,758, filed January 8, 1958, now Patent Number 2,969,606.

The prior art of scintillating signs include disc elements mounted on strip members as shown by Brazilian Patent No. 66,764 to Vicchines et Steche, Ltda., and quite similarly shown and disclosed in U.S. patent to Touche 2,795,070.

There are shown in the prior art, such as the disclosure in the Italian Patent 539,247, filed in the name of Nosenghi, such scintillating signs that are constructed of a rivet having elements or spangles mounted thereon to form a display device. It has been found that the spangles will ride the rivet until they are in contact with the mounting surface. In applicant's improvement it is, therefore, desirable in order to hold the spangle away from the mounting panel surface, and it has been found that a new type of rivet arranged to be positioned in the rigid panel and having an annular staking shoulder on the body thereof, has advantages over the prior art.

In one embodiment of the invention the outer end of the tenon has a cup-shaped opening provided so that it may be curled out and provide a restrainer for holding the disc on the tenon.

It has been found in the prior art that the disc and rivet when subjected to heavy winds or high winds, the discs blow off of the rivets and the spangles on the scintillating assembly fail to function. This may be because the aperture in the disc becomes larger due to friction and then slips off of the rivet which has a fastener or restrainer at the distal end of the tenon.

It is an object of the invention to provide an improved scintillating sign of a light weight metal or plastic.

It is a further object of the invention to provide an improved scintillating sign of simple construction that provides long life and all-weather use.

A further object of the present invention is to use a Teflon or nylon bushing so that there is a reduction in parts used in constructing a scintillating sign.

It is a further object of the invention to provide scintillating sign elements on a plastic panel, said sign elements having component parts and of the same material, whether it be plastic of the organic type, or a metal such as aluminum and the like.

It is a furtther object of the invention to provide a scintillating sign of a driving member and a flanged sleeve through which the driving member extends.

A further object of the invention is to provide a grommet of nylon or other durable plastic material, which fits around the opening in the disc so that wear is minimized due to the substantial decrease in the coefficient of friction which otherwise avails.

A further object of the invention is to provide a driving member having a threaded shank portion, an annular or spiral scalloped surface, or the like, forming an integral unit for suspending the scintillating disc.

A still further object of the invention is to provide a disc having an opening that may be either round, square or rectangular.

A yet further object of the invention is to provide a new hollow tubular staking rivet, being pre-drilled through a longitudinal portion into which is inserted under force, a nail or driving member having a serrated or annular threaded, or spirally threaded shank portion and a wide head portion. The staking rivet may, more simply be a tapered or tubular sleeve within which a nail having a smooth shank portion may be fitted.

It is a further object of the invention to provide a scintillating sign having several parts and provide a reduction in the coefficient of friction between the moving parts of the sign.

Perhaps the outstanding advantage of the new scintillating sign resides in the feature of having a substantially permanent scintillating sign that may be subjected to all types of out-door weather conditions.

One aspect of the present invention contemplates a resilient sleeve that may have a slit along the length thereof, and a driving means that is fitted into the resilient sleeve so that it grips the driving means and is formed substantially integrally onto the driving means.

A complete understanding of my invention may be had from the following description of particular embodiments of the invention. In the description, reference is made to the accompanying drawings of which:

FIG. 1 is a side view of a staking shoulder member used in one embodiment of the invention;

FIG. 2 is a side view of a portion of a scintillating sign in which a plastic sleeve is fitted over a tenon of a staking shoulder rivet;

FIGS. 3 and 4 show a side view of a scintillating sign using a flanged bushing for supporting a scintillating disc in accordance with the present invention;

FIG. 5 shows a perspective view of an element of a scintillating sign in accordance with an embodiment of the present invention;

FIGS. 6 and 6*a* show a flanged eyelet or sleeve having a portion of the tubular section being crimped over a nail;

FIG. 7 shows a cross-sectional view of a driving member having an annularly ribbed section or spiral section engaging a sleeve of a tubular staking rivet having an opening for the driving member in accordance with a preferred embodiment of the invention;

FIGS. 8 and 8*a* show a cross sectional view of a nail having a smooth shank portion for engaging a sleeve, as a modified arrangement of FIG. 7; and

FIG. 9 shows a cross-sectional view of a disc and mounting therefor, in accordance with a modified arrangement of the present invention.

Referring now to FIG. 1 there is shown a staking shoulder sleeve member or rigid post **10** of metal or plastic that may be mounted upon a backing sheet **12** of metal, plastic or Masonite material. The rigid post will be referred to hereinafter generally as a rivet. On the distal end of the rivet **10** is a round plastic or metallic tenon **14** over which is fitted a scintillating spangle or disc **16** of aluminum or like material, and that may be comparably small of ½ inch, ¾ inch or 1 inch diameter. The sleeve member or rivet and the tenon may be formed as a unit into a scintillating sign mounting or construction. The term "integral" is used in its normal sense to mean that the parts thereof are

essential to completeness, that the mounting is composed of constituent parts making a whole or a composite unit, and that nothing lacks to form its completeness. The distal end of the tenon is adapted to have a cup-shaped opening **18** that is adaptable for curling and thereby forming a restrainer **19** for holding the disc on the tenon. Under condition of wind effects, the coefficient of friction of the metal disc engaging the metallic tenon is substantially small due to the smallness of the disc, the lightness of the material of which the disc is made, and the point-to-point contact provided by the round tenon in a square opening of the disc.

On the other end of the rivet **10** is a base section **11** which secures or mounts the rivet **10** upon the backing sheet **12**.

The shoulder between a staking portion **10***a* of the rivet **10** and the body or tenon **14** of the rivet prevents the disc from sliding back on the rivet toward the backing sheet or base member **12**, and maintains a fixed space between the shoulder of the rivet and the distal end thereof.

It is possible that the staking portion **10***a* of the rivet may be formed from a tubular or tapered resilient sleeve member (not shown) of plastic material, including a metallic material, wherein the resilient sleeve member may have a slit extending along the length of the sleeve member from one end to the other in a manner shown in the above cited Patent 2,912,778. The tapered sleeve member has an opening therethrough being large at one end and small at the other. A rivet, or driving means such as a nail for forming the metallic tenon **14** of plastic or metal, extends in length longer than the resilient sleeve member and is driven into the resilient sleeve member forming the staking portion **10***a*. The diameter of the driving means forming the tenon **14** is substantially the same as, or slightly larger than, the diameter of the opening of the sleeve member. The driving means may have an enlarged base, or an enlarged head or retainer **19** of greater diameter than the opening in the metallic disc. While extending the driving means through the opening of the resilient sleeve member, the resilient sleeve member tends to grip the driving means to provide a secure fit therebetween. The resilient sleeve member tends to become united with the driving means, and an area or length of the driving means provides a tenon portion of the driving means on which is mounted or has been mounted a scintillating disc.

The resilient sleeve member is assisted in securing or gripping the driving means by providing an annular or spiral threaded shank portion on the driving means as it engages the sleeve member. Further the shank portion may merely possess a serrated characteristic to achieve the same purpose. These features are shown in FIGS. 6 and 7. FIG. 8 shows that the tubular staking rivet **10** may be pre-drilled to provide a hollow portion along a longitudinal section thereof, into which is inserted under compulsion, a drive member or nail having a smooth shank of a diameter substantially equal to the diameter of the hollow portion.

The embodiment of FIG. 7 illustrates that a screw forming the tenon **14** may be inserted within a hollow portion of a sleeve or staking rivet **10**. As further illustrated in FIG. 8*a*, a nylon bushing **15** may be slipped over the nail prior to its being assembled as shown. The embodiments of FIGS. 7 and 8 do not exclude the possibility of using or inserting a bushing over the screw or nail prior to assembly thereof.

There is shown in FIG. 9 a nylon or other appropriate plastic material forming a grommet **17** which is used to line the edge of the opening of the disc, preferably where the opening is circular. The use of grommet is found to reduce substantially the wear of the edges of the disc contacting the rivet or nail forming the tenon or body **14**, and the nylon material, having a reduced coefficient of friction, prevents excessive wear of the discs.

Of course, it is apparent that the grommet, and the opening in the disc may be of circular, square, or rectangular cross-section, or the like.

An embodiment of the invention having reduced coefficient of friction between the moving metallic disc and the stationary tenon portion of a rivet is shown in the embodiment of the invention shown in FIG. 2. FIG. 2 shows a staking shoulder rivet **20** mounted on a backing sheet or base member **22** of a metallic, plastic or Masonite material or the like having a staking portion **23** and a tenon portion **24**. A Teflon, nylon or other plastic material constructed in the form of a sleeve **27** is inserted over the tenon of the rivet. This is necessary where the aluminum scintillating discs **26** are of 1 inch, 1¼, 1½ or 2 inches or more in diameter. The use of the sleeve is found to reduce substantially the coefficient of friction to a substantially nil value over that compared with a metallic disc against a metallic tenon. It is found that even where a round tenon is inserted in a square opening in the disc, continued friction due to continual scintillating of the discs is found to wear the opening **25** into a round opening and eventually into a substantially large round opening that allows a large gust of wind to blow the disc off of the tenon. It is found that placing the Teflon or nylon sleeve on the tenon that all substantial friction is absent or reduced, and that the insertion of a metal or nylon washer **28** or the distal end of the tenon provides a restrainer or holder to keep the scintillating disc **26** on the tenon portion of the rivet.

After the metal or nylon washer **28** is inserted over the distal end of the tenon, the cup-shaped portion **29** of the distal end of the rivet is curled outward to hold the washer securely onto the tenon portion of the rivet.

It has been found that this assembly will withstand extensive conditions of heavy or high winds without any noticeable or substantial deterioration between the moving and stationary parts.

An embodiment of the invention showing a Teflon, nylon or other plastic material forming a bushing **32** may be inserted over or on the tenon portion **34** of a rivet or sleeve **36**, as shown in FIGS. 3 and 4. The bushing **32** has a flanged extension **38** so that it would appear that the bushing is essentially the same thing as a sleeve and washer made into a single piece. The bushing **32** is used as an integral element in lieu of a sleeve and washer shown in FIG. 2.

FIG. 6*a* shows a nail **60** with a telescopic eyelet **21** having its tubular portion being crimped so that it is substantially secured onto the nail. A nylon flanged bushing **32** may or may not be provided to maintain the disc **16** in place, since the telescopic eyelet similarly serves to provide a means whereby the disc **16** is held in place. The nail **60** can be inserted in a hole in a backing sheet **12**. The hole may be pre-drilled. A lock nut **62**, or a similar type device such as a Tinnerman nut, etc., is held in place to the opposite side of the sheet from the telescopic eyelet by the locking action provided by the lock nut **62**. A flange portion **64** of the eyelet in contact with the sheet **12** prevents the nail **60** from shaking loose, and tends to hold the nail firmly secured to the backing sheet. These eyelets are either crimped, welded, or otherwise adhered in place by an appropriate adhesive for holding the eyelet in a fixed position.

It is within the purview of the invention to include an additional washer **40** as shown in FIG. 3 that abuts against the shoulder **41**, being placed upon the tenon portion **34** of the rivet prior to the bushing **32**. This distal end of the rivet **36** is shown as a cupped or hollow portion that is extended to provide a retaining element **44** and thereby hold the bushing on the tenon portion of the rivet.

One method of assembling the parts of the scintillating sign after the rivet has been mounted upon a backing sheet **12**, is to position the bushing into the hole of the moving disc. Then the bushing is slipped over the

tenon of the rivet and pushed into place. Now the moving disc is already secured onto the rivet. The cup-shaped opening in the distal end of the rivet is then coined over to form the restraining element 44. The coining of the opening in the distal end of the rivet may be accomplished by a punch or any other similar tool. The opening in the distal end of the rivet may be accomplished by a simple process of boring. The punch simply spreads out the portion of the rivet forming a cup for forming the restraining element 44.

The improved advantages of the new scintillating spangles is found to be that, with the nylon or Teflon bushing or sleeve and washer, the scintillating spangles in the form of a sign is found to last for years because the coefficient of friction is substantially nil.

The invention therefore provides a basis of prolonged increased animation of a moving disc as a scintillating sign on a mounted rivet. This is due in part to the structure of the rivet and the supporting portion of the moving disc having the opening for carrying the disc. The tenon portion of the rivet is circular in cross-section. The opening in the disc may be rectangular or square. The orientation of the rectangular opening provides that the disc is mounted on a single side of the rectangle or square formed by the opening, and the disc is therefore not mounted from two adjacent sides of the square forming a corner thereof. The combination of a round tenon portion in a rectangular opening provides point-to-point contact between the disc and the tenon portion so that the sensitivity of the disc to vibrations or wind movements is increased. While there is movement between the disc and the tenon portion, all friction caused or resulting by the movement is found to be substantially reduced by using the Teflon or nylon sleeve or bushing.

Preferred embodiments of the invention have been described together with the advantages thereof. It should be understood that the specific apparatus herein illustrated and described is intended to be representative only, as many changes may be made therein without departing from the clear teachings of the invention. Accordingly, reference should be made to the following claims in determining the full scope of the invention.

What is claimed is:

1. A scintillating sign comprising a base member, a rigid post having an axial bore of limited extent, said post extending through and projecting beyond the base member and secured thereto, a scintillating element having an aperture adjacent to its perimeter, said scintillating element having a drive member passed through the aperture of said scintillating element and having a head of greater area than the aperture of said scintillating element, said drive member being provided with a body portion inserted in the bore of the rigid post of such length that when the body portion is so inserted the head is spaced from the post whereby said scintillating member is freely held on the body portion of said drive member.

2. A scintillating sign as claimed in claim 1 in which the drive member has a smooth periphery.

3. A scintillating sign as claimed in claim 1 in which the drive member is an annularly ribbed element.

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