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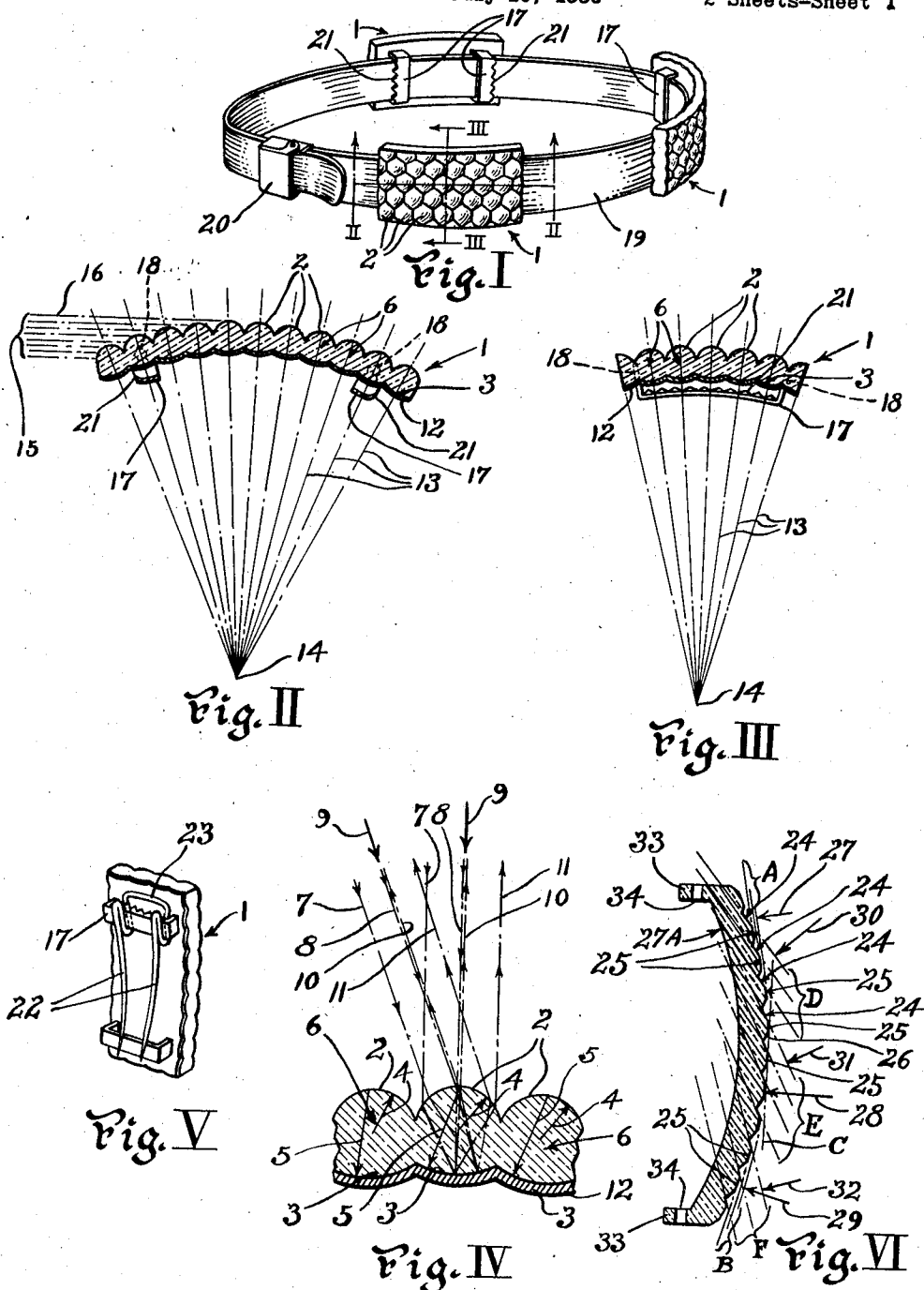
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2,199,996

SAFETY SIGNALING MEANS

Filed July 10, 1936

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

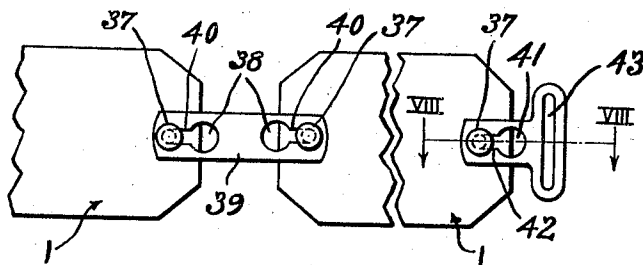


Fig. VII

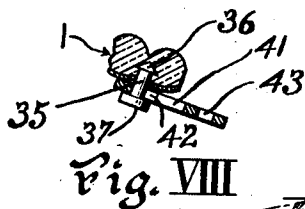


Fig. VIII

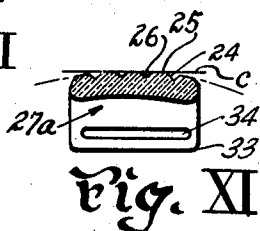


Fig. XI

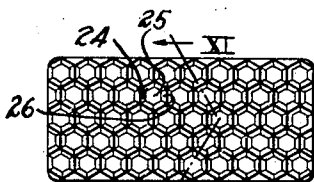


Fig. X

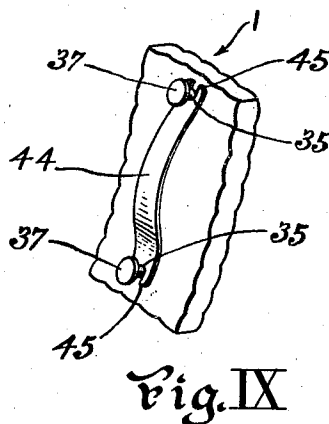


Fig. IX

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SAFETY SIGNALING MEANS

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3 Claims. (Cl. 88—82)

This invention relates to safety signaling means.

One of the principal objects of the invention is to provide an ingenious safety signaling accessory constructed to be worn by persons who are subjected to the dangers and hazards of vehicular traffic accidents of all descriptions, although it is specifically constructed for use by pedestrians walking along streets or highways at night, or by traffic officers or others employed on highways, streets, etc.

Another object of the invention is to provide reflective means which will produce substantially absolute reflection of light entering the reflective means from different angles.

Another object is to provide reflective means formed in such a manner that they may be utilized with various different types of attachments or supports.

Other objects and advantages of the invention will become apparent from the following description taken in connection with the accompanying drawings. It will be seen that many changes may be made in the details of construction, and arrangement of parts shown and described without departing from the spirit of the invention as expressed in the accompanying claims. It is, therefore, to be understood that the invention is not to be limited to the specific details, and arrangements shown and described, as the preferred forms only have been given by way of illustration.

Referring to the drawings:

Fig. I is a perspective view of one form of the invention showing the reflective means attached to a resilient band;

Fig. II is a sectional view taken on line II—II of Fig. I;

Fig. III is a sectional view taken on line III—III of Fig. I;

Fig. IV is a fragmentary diagrammatic view illustrating the function of the reflective means shown in Figures I to III inclusive;

Fig. V is a perspective view of a modified form of the invention;

Fig. VI is a sectional view similar to Fig. II illustrating another modified form of the invention;

Fig. VII is a partial plan view of another modified form of the invention;

Fig. VIII is a sectional view taken on line VIII—VIII of Fig. VII;

Fig. IX is a perspective view of another modified form of the invention.

Fig. X is a face view of the reflective means illustrated in Fig. VI; and

Fig. XI is a sectional view taken as on line XI—XI of Fig. X.

Referring more particularly to the drawings illustrating the invention, wherein like characters of reference denote like parts throughout the several views, the reflective members 1, as shown in Figs. I to IV inclusive, are formed preferably of vitreous material.

It is to be understood that the reflective members formed of such vitreous materials may be made to any color desired, such as red, green, yellow, etc.

The reflective members 1, as shown in Figs. I to IV inclusive, are preferably provided with a plurality of curved surfaces 2 formed on one face of said members and a plurality of curved surfaces 3 formed on the opposite or rear faces of said members.

Referring more particularly to Fig. IV, wherein an enlarged fragmentary view of said reflective surfaces is shown, it will be noted that the radii of curvature 4 of the surfaces 2 are half of the radii of curvature 5 of the surfaces 3, with the index of refraction of the vitreous material being approximately 1.5.

The object of forming the surfaces to such a radius of curvature is to provide a plurality of reflective units 6 so constructed that when light rays 7 and 8 coming from directions indicated by the arrows 9, enter the unit 6, they will be reflected back in substantially the same direction, as indicated by the arrows 10 and 11, regardless of at what angle they enter the said unit 6.

The front surfaces 2 of the units 6 are focused on the rear surfaces 3, which surfaces are provided with a coating 12 of silver, aluminum, or other means to form mirror surfaces. The said mirror surfaces 3 are so curved, according to the index of refraction of the material used, as to focus the light rays from the front surfaces 2 back on themselves so that they will follow the same path that the said rays followed when entering the units 6. This is illustrated diagrammatically by the various dot and dash lines 13 to 11 inclusive in Fig. IV. The various units 6, as shown in Figs. II and III, are arranged with their axes 13 radial about a given center of curvature 14. The object of this arrangement is to provide an increased area of reflection 15 when the light rays 16 enter the reflective members from the sides of the reflector. This is illustrated diagrammatically in Fig. II.

The reflective members 1 are provided with strips of metal or other suitable material 17 anchored at their opposite ends 18 in the material

from which the said reflective members are formed. The strips 17 are adapted to form loops or keepers through which the arm band 19 may be threaded as shown in Fig. I. The arm band 19 may be formed of elastic or other resilient material, leather, canvas, etc., and may or may not be provided with a clasp or buckle 20, as desired, depending, of course, upon the material used for the band.

To aid in retaining the reflective members in desired adjusted position on the arm band 19 the said strips 17 are provided with an intumed toothed edge 21. During use these edges 21 are adapted to grip the material of the arm band 19 and hold the respective members 1 in adjusted position.

In Fig. V there is shown a modified form of attachment which comprises a pair of spaced pin-like members 22 having a head 23 bent to such shape as to form a clamp attachment to one of the members 17. The pin members 22 and head 23 are formed integrally from a bar or wire of resilient material bent into the shape desired.

In Figs. VI, X and XI there is shown a modified form of the invention wherein the reflective member is provided on its outer face with a plurality of angled light reflecting facets 24, 25, and 26, arranged at different angular relations to each other. The inner face 27A is provided with a continuous spherical surface, preferably having a coating of silver, aluminum, gold, or similar means thereon to provide a mirrored surface.

It will be noted that the front facets 25 are formed in groups A, B, and C, lying at different angular relations with each other. The facets of group A are formed in substantially parallel relation with each other, and adapted to reflect light rays coming from the direction indicated by the arrow 27 back on themselves towards their source of origin so that they will be visible to anyone stationed in the path of said reflected rays. By providing a plurality of facets 25 having their surfaces parallel as indicated by the group A, a relatively large reflective field is provided in the plane of said facets.

The central group having its facets 25 lying in the plane indicated by the line C, is adapted to reflect light rays coming from the direction indicated by the arrow 28 back along the same path. The group B, having all its facets 25 arranged in planes substantially parallel with each other, is adapted to reflect light rays coming from the direction indicated by the arrow 29 back along the same path.

The facets 25 of each of the groups A, B, and C are, therefore, all cooperative to reflect the light rays impinging thereon from directions normal to the planes of said facets back along their path of origin and thereby provide increased reflective means at the differently disposed angular relations of said groups.

The surfaces 24 formed to one side of the front surfaces 25 are also separated into different groups D, E, and F, each of which has its surfaces formed in substantially parallel relation with each other and lying in planes arranged at different angular relations.

The group D is adapted to receive and reflect light rays coming in the direction indicated by the arrow 30, while the group E is adapted to receive and reflect the light rays coming from the direction indicated by the arrow 31, and the group F is adapted to receive and reflect the light rays coming from the direction indicated by the arrow 32. It will be noted that these directions

are all at different angular relations to each other.

The facets 26 located on the opposite side of the front facets 25 are all separated into groups in a manner similar to the facets 24 and are adapted to receive and reflect light rays coming from the opposite direction in a manner similar to the previously mentioned groups.

It will be noted that by forming the facets into a plurality of selected groups having their faucets lying in planes parallel with each other, the reflective means as a whole will be rendered more visible in the dark.

The reflective means described above is preferably formed with integral attaching means or lugs 33, having slots 34 formed therein through which the arm band 19 may be fitted, or other supporting means may be attached.

In Figs. VII and VIII there is shown another modified form of the invention wherein the reflective members 1 are provided with headed pin members 35 anchored at 36 in the material of said members 1. Each of the pin members 35 is provided with an enlarged head 37 adapted to be placed through the openings 38 formed in connecting links 39 and to overlie the slotted portions 40 formed adjacent the ends of said connecting links. This arrangement provides means for holding the reflectors in assembled aligned relation with each other.

An attachment having an opening 41 therein, similar to the openings 38, and a slot 42 similar to the slot 40, is provided with an enlarged head having a transverse slot 43 therein through which an arm band similar to 19 or other ribbon-like elastic retaining means, may be threaded. This arrangement provides means whereby the ends of the chain-like member formed by the plurality of reflectors 1 and connecting links 39 may be joined.

In Fig. IX there is shown another modified form of the invention wherein an attachment formed of relatively flat resilient material 44, having slotted ends 45, is provided to support the reflective means 1 on an arm band, belt, or other suitable means. In this particular instance the resilient member 44 is adapted to be cupped so that its slotted ends 45 may be resiliently held beneath the heads 37 of the pin members 35, the cupped portion of said resilient means 45 being adapted to form the part through which the arm band or belt-like member is threaded.

From the foregoing description it will be seen that simple, efficient, and economical means have been provided for accomplishing all of the objects and advantages of the invention.

Having described our invention, we claim:

1. In a device of the character described comprising a body portion of homogeneous transparent sheet-like vitreous material having a concave spherical surface on the under side thereof and a convex spherical surface on the front side thereof and having an outline other than circular, said convex surface having a plurality of outwardly projecting integrally related reflective members matted in edge to edge relation with each other throughout the useful area thereof and attaching means having portions extending outwardly of the concave side of said device adjacent opposed ends thereof and in a direction opposite the convex surface and each having an opening therein to which supporting or connecting means may be attached.

2. In a device of the character described comprising a body portion of homogeneous trans-

parent sheet-like vitreous material having a concave spherical surface on the under side thereof and a convex spherical surface on the front side thereof and having an outline other than circular, said convex surface having a plurality of outwardly projecting integrally related reflective members matted in edge to edge relation with each other throughout the useful area thereof and attaching means having portions anchored within the body of said material and portions projecting outwardly to one side thereof to which connecting means may be secured.

3. A reflecting unit comprising a body portion of homogeneous vitreous sheet-like material having a concave spherical surface on its under side and a convex spherical surface on its outer side and having an outline other than circular, a plurality of separate reflective units in edge to edge relation with each other and covering the useful

area of said outer convex surface, said reflecting units being provided with relatively flat facets disposed at different angular relation with each other and being arranged in groups with some of the facets of each group disposed toward the front of said convex surface and others disposed at an angle relative to said front facets, some of the like facets of each group being disposed in different substantially parallel planes with the angularly disposed facets of said groups having meeting edges, said like facets of each group being so arranged as to provide a plurality of separate reflective surfaces facing different directions to simultaneously reflect light impinging thereon from said directions with the front facets of each respective group angled relative to the front facets of the other of said groups.

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