

[54] SURVEY MONUMENTS OF FRANGIBLE SECTIONS

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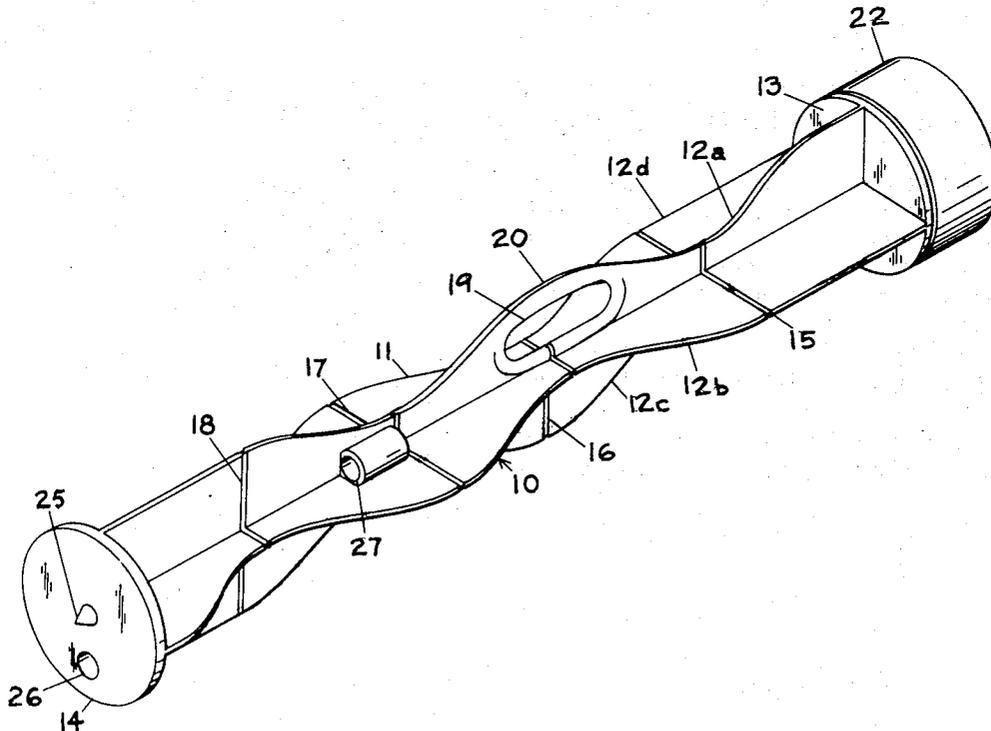
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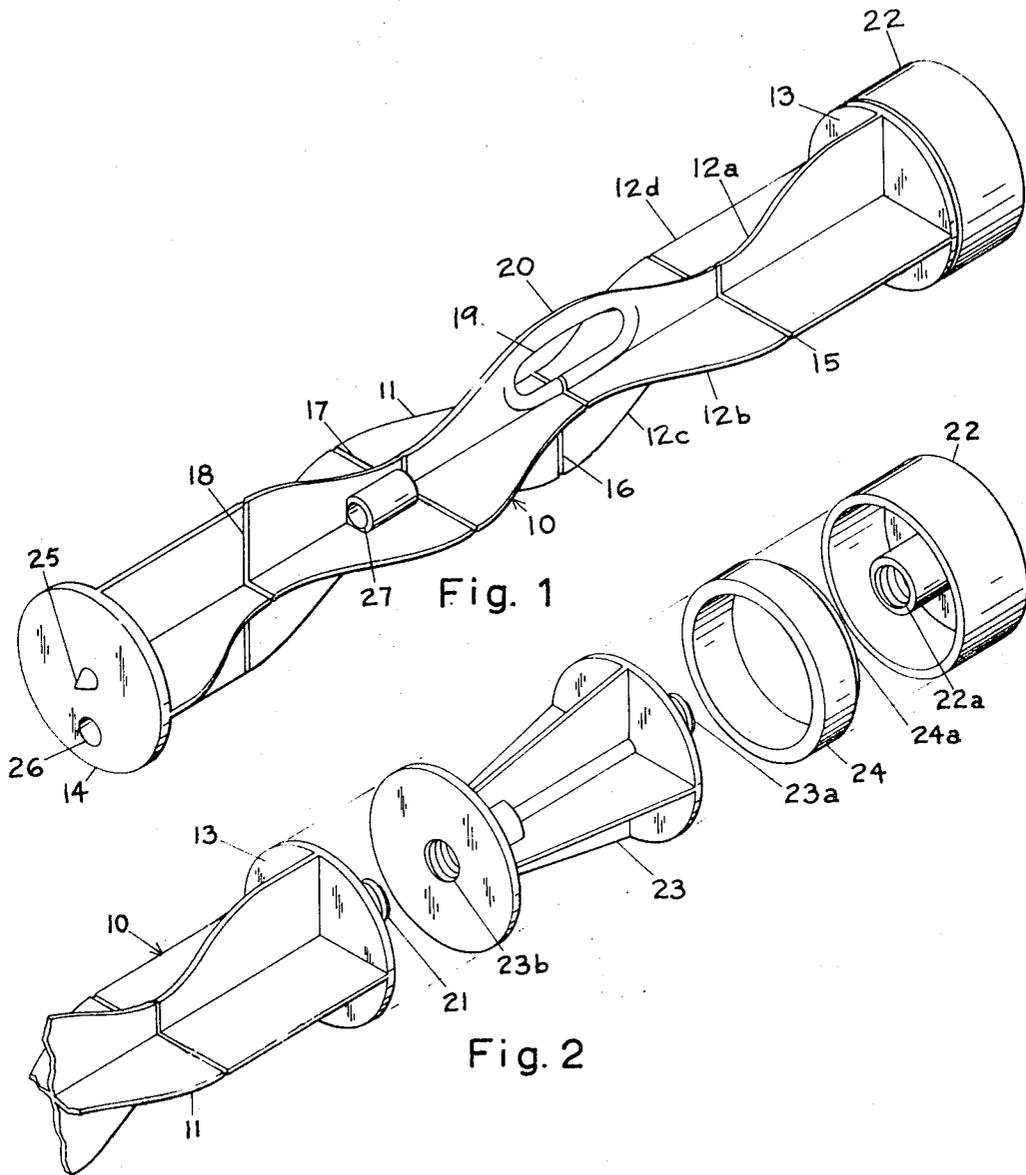
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[57] **ABSTRACT**

A light-weight extendable survey monument. The metal-alloy monument standard is made up of a plurality of integral undulating webs connecting top and base flanges and having a carrying handle formed in one of the webs. The webs have vertically spaced transverse lines of weakness formed therein. The monument has one or more permanent magnets, at least one which is positioned below the lowermost line of weakness. A cap is received on a threaded stud extending from the top end of the standard. Extension elements are provided for placement between the cap and standard for spacing the cap in extended relation on the standard. The base has a depending centering point.

2 Claims, 2 Drawing Figures





SURVEY MONUMENTS OF FRANGIBLE SECTIONS

BACKGROUND OF THE INVENTION

This invention relates to survey monuments and more particularly to a light-weight extendable magnetic monument.

In the past survey monuments have generally been made entirely of heavy cast-iron or they comprised a brass or other type metal plate set in a pre-cast concrete column. These monuments are unnecessarily heavy and cumbersome.

In more recent years, monuments have been provided with break-way features which allow the monument to be severed rather than moved when struck with a plow, tractor or the like without substantially disorienting the lower portion of the monument. This greatly facilitates re-setting of the landmark.

In view of the need for occasionally raising a monument such as when resurfacing or rebuilding a roadway, monuments with lock-on extensions have been developed, however, they are not believed to have met with substantial acceptance because of various design shortcomings.

SUMMARY OF THE INVENTION

This invention comprises a unique survey monument with a combination of improved features. The monument basically is cast of a strong, yet relatively light-weight aluminum-alloy.

The elongate standard of the monument is comprised of a plurality of longitudinally extending radially disposed integral webs connecting top and base flanges. The unique web formations have undulating widths which in combination with vertically spaced transverse lines of weakness provide predetermined break-off points to insure an undisturbed base in case of impact with the upper portion.

A number of inert magnets are imbedded in the monument for instrument location. At least one of the magnets is positioned below the lowermost line of weakness to facilitate instrument location of the base if the monument is broken off. These magnets are permanent and will not lose their potency regardless of soil conditions.

The monument cap is threaded onto the top of the standard. A threaded extension element and an extension ring are provided for disposition between the cap and standard for maintaining the cap in raised relation on the standard.

Further objects, features and advantages of my invention will be apparent from the following detailed description taken in conjunction with the accompanying drawings showing a preferred embodiment of the invention for exemplification.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an isometric view of a survey monument embodying my invention.

FIG. 2 is a fragmentary exploded isometric view of the survey monument of FIG. 1 with extension units provided.

DESCRIPTION OF A PREFERRED EMBODIMENT

Referring now more particularly to the drawings wherein like numerals refer to like parts in both views, the survey monument is generally referred to by numeral 10 in FIGS. 1 and 2.

The monument has an elongate standard 11 comprising a plurality (four shown) of longitudinally extending integrally formed webs 12a-12d connecting transverse top and base flanges 13 and 14. The four webs shown are radially disposed 90° apart about the longitudinal axis of the standard. Each web extends the length of the standard to the end flanges and has an undulating shaped outer edge. The undulations of each web are disposed in alternating phase relation with the undulations of each of its two adjacent webs. That is, where one web such as 12a is widest, the adjacent webs 12b and 12d radially dispose at 90° to either side are narrowest in width. This feature in conjunction with vertically spaced transverse lines of weakness 15-18 formed in the webs provides predetermined break-off or shear areas which allow the standard to be severed in case of impact to the upper portion to insure an undisturbed base.

As shown in FIG. 1, one of the webs, 12a, has an opening 19 formed therein to provide a handle portion 20 for carrying the monument.

As shown in FIG. 2, the top flange 13 has a threaded stud 21 extending upwardly therefrom. The monument has a hollow cap 22 having a threaded female portion 22a adapted to be received on the threaded stud of the standard. An extension element 23 is provided with an upper threaded male portion 23a adapted to be received in the threaded female portion 22a of the cap 22 and a threaded female portion 23b adapted to receive the threaded stud 21 for securing the monument cap in extended relation on the standard.

As further shown in FIG. 2, an extension ring 24 is also provided for positioning between the monument cap and standard for spacing the cap in extended relation on the standard. The extension ring 24 has a flange 24a formed on the upper edge thereof adapted to be received in the cap to center the extension ring with respect to the cap.

The extension element 23 and extension ring 24 may be used in conjunction with each other as shown in FIG. 2, or each can be used without the other, depending upon the height adjustment desired.

While only one height extension element 23 and one height extension ring 24 are shown, it is understood that different sizes may be provided. The only limitation as to the height of the extension ring is that it must be small enough to allow the female portion 22a of the monument cap to be engaged on a threaded male portion for securing the cap either to an extension element such as 23 or directly to the standard.

The base flange of the standard has a depending centering point 25 formed on the bottom thereof as shown in FIG. 1 to permit exact centering at the time of installation.

The standard, cap, and extension members are made of a light-weight metal-alloy generally identified as ASTM No. 319 aluminum-alloy. Since this alloy is substantially non-magnetic, to facilitate instrument location of the monument, a number (two shown) of inert permanent magnets 26 and 27 are imbedded or otherwise secured to the monument standard as depicted in

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FIG. 1. At least one of the magnets is disposed below the lowermost line of weakness 18 to facilitate instrument location if the top of the monument is broken off anywhere above the lowermost line of weakness. In addition, a magnet (not shown) is provided in the monument cap.

It is understood that the invention is not confined to the particular construction and arrangement of parts herein illustrated and described, but embraces all such modified forms thereof as come within the scope of the following claims.

I claim:

1. A light-weight aluminum-alloy survey monument comprising:

- a. an elongate standard having,
 - 1. top and base flanges disposed substantially transverse to the longitudinal axis of the standard,
 - 2. a plurality of longitudinally extending radially

disposed integral webs connecting said top and base flanges, each of said webs being continuous between said top and base flanges and having an undulating shaped outer edge, the undulations of each web being in alternating phase relation with the undulations of each next adjacent web, and

3. a plurality of vertically spaced lines of weakness formed in said webs,

b. a cap attached at the top of said standard, and

c. at least one permanent magnet affixed to said standard.

2. The light-weight aluminum-alloy survey monument as specified in claim 1 having an opening formed in one of said webs near the mid-portion of said standard providing a handle portion on said standard intermediate its ends.

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