May 20, 1969 V. S. PENOTE 3,445,129

SUPPORT FOR TRENCH GUARD RAIL

Filed Dec. 12, 1966 Sheet 1 of 2

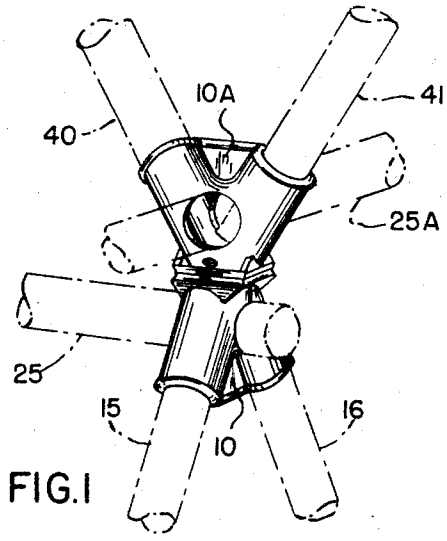



FIG.1

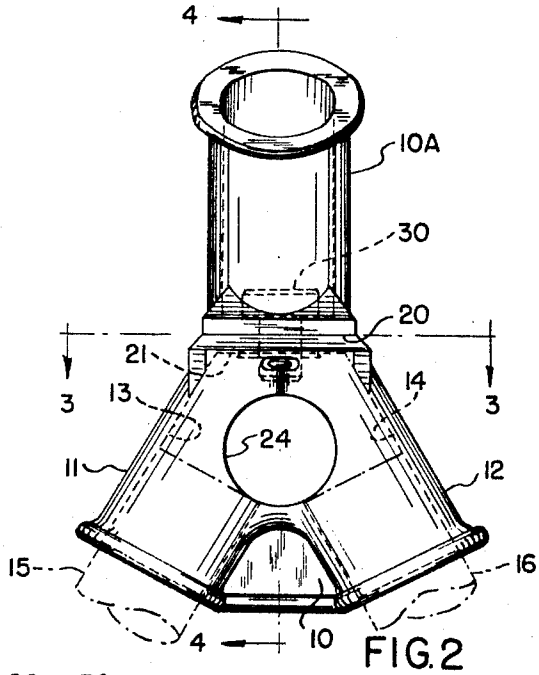



FIG.2

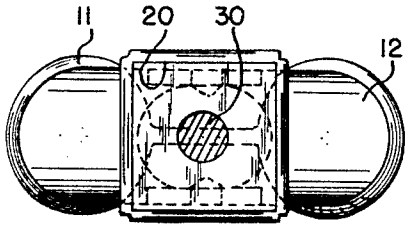



FIG.3

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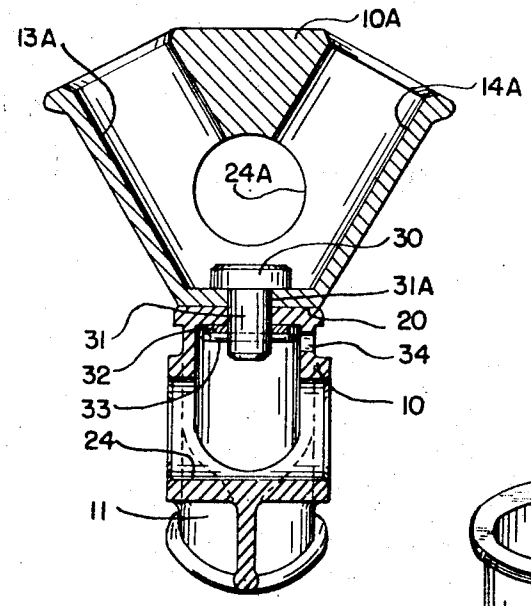



FIG. 4

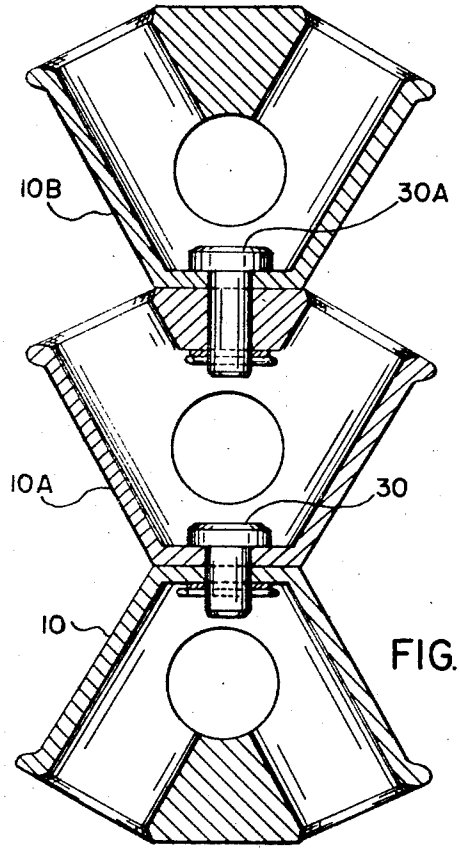



FIG. 6

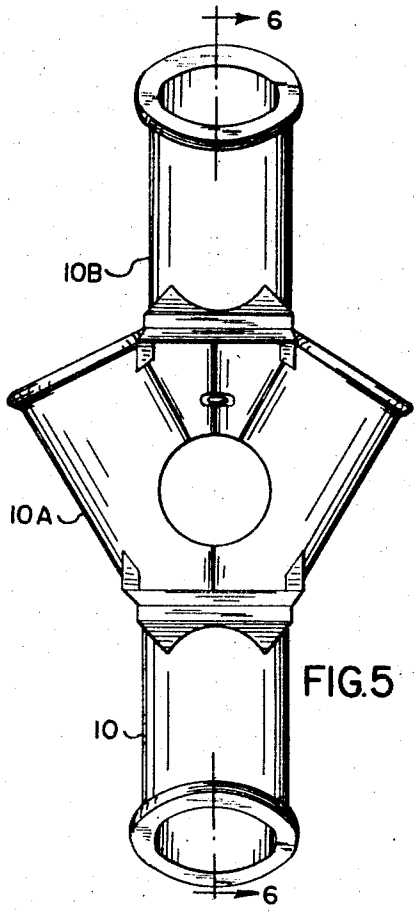



FIG. 5

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# SUPPORT FOR TRENCH GUARD RAIL

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U.S. Cl. 287—51 3 Claims

## ABSTRACT OF THE DISCLOSURE

The invention comprises a portable device for supporting each end of a trench guard rail so as to eliminate the need of any fastening means for the supporting legs and for completing the rail assembly, thus enabling the unit to be quickly assembled for use and disasembled for storage purposes. The invention also contemplates the provision of a rail supporting device which is so constructed that one device may be superimposed upon another and swivelly connected thereto, so as to enable adjacent rails to be positioned in different horizontal directions in conformance with the shape of the trench or other opening to be guarded.

### *Background of the invention*

Heretofore, guard rails used for indicating an opening in a roadway, such as a manhole opening or a trench, have necessitated heavy and cumbersome equipment, usually in the form of a board for the rail and clamping devices for connecting the rail to supporting legs. Such apparatus has been expensive and has necessitated considerable time for assembly and disassembly as well as an exorbitant amount of space for storage. In the case of a guard for manhole openings it has been the practice to employ three guard rails but, due to the fact that each rail has been supported independently of the others, it has been necessary to provide supporting legs at each end of each rail, with the result that the complete assembly has required too much space, thereby restricting a roadway and interfering with the workmen who are engaged in construction or repair work within and about the opening.

### *Summary of the invention*

The present invention provide a rail supporting device by means of which the rails and supporting legs can be assembled and disassembled without the need for clamping devices. Additionally, the assembly occupies less space when in use, and may be readily stored in a smaller space than that heretofore required. The invention is carried out by utilizing a one-piece supporting device, which is provided with downwardly extending sockets for receiving the upper ends of poles, which act as diverging supporting legs, and which has a horizontally extending aperture through which a pole may be inserted. One such device is positioned at each end of the pole which then functions as the guard rail. The invention also contemplates the surmounting of one or more supporting devices similar to the first mentioned device and swivelly connecting them together, so as to enable one supporting assembly to be utilized for holding a plurality of rails which extend in different horizontal directions.

### *Brief description of the drawings*

In the drawings, FIG. 1 is a perspective view of a supporting assembly embodying the present invention;

FIG. 2 is a side view of the assembly shown in FIG. 1;

FIG. 3 is a section taken on a plane indicated by the line 3—3 in FIG. 2;

FIG. 4 is a section taken on a plane indicated by the line 4—4 in FIG. 2;



FIG. 5 is a side elevation of a modified form of assembly;

FIG. 6 is a vertical section taken on a plan indicated by the line 6—6 in FIG. 5, but with the intermediate unit turned through an angle of 90° from that shown in FIG. 5.

### *Description of the preferred embodiments*

In FIGS. 1 to 4, there is shown a rail supporting device which comprises a one-piece body which may be formed of any suitable material, but preferably a thermoplastic material, having resilient properties, such as polyvinyl chloride. The body has a pair of diverging tubular members **11** and **12** which form downwardly opening sockets **13** and **14** into which supporting poles **15** and **16** which act as legs for the rail may be inserted. The legs preferably have a tight fit in the respective sockets and are thus held in place by frictional contact. The upper portions of the tubular members **11** and **12** terminate in a flat surface **20** which lies in a generally horizontal plane when the device is in use. Additionally, the sockets **13** and **14** merge at their upper ends where they are joined by a flat surface **21** which extends parallel to the surface **20**, and forms a top wall for the sockets. If desired, the sockets may be slightly tapered so as to grip the legs and limit the extent of their inward movement.

The body **10** is also provided with an opening or aperture **24** which extends through the walls of the tubular members and forms a passageway for receiving one end of a guard rail indicated at **25** in FIG. 1. The guard rail is shown in the form of a pole which may be of wood or of any other suitable material. It is to be understood that another device **10** is used at the other end of the rail and that the rail can be of any desired length.

It is usually desirable to provide a plurality of guard rails commensurate with the length of the trench or opening to be protected. The present invention contemplates an assembly by means of which such protection may be accomplished. This is attained by utilizing a device, or body **10A** which is formed similarly to and surmounts the body **10** and is connected thereto. Thus, as shown in FIG. 4, the body **10***a* is inverted with respect to the body **10** and is swivelly connected thereto by means of a pin **30** which extends through registering openings **31** and **31A** in the devices **10** and **10A**, respectively. A washer **32** and cotter pin **33** may be used to complete the assembly. Access to the cotter pin may be had through an opening **34** opposite the horizontal position of the cotter pin. When thus assembled the aperture **24A** is in a position to receive one end of a pole **25A** which can then be disposed in any horizontal position with respect to the pole **25**.

It is advisable in connection with the use of guard rails to have a warning flag above the rail, so as to warn the drivers of approaching vehicles in sufficient time to avert a disaster. The present invention utilizes the sockets **13A** and **14A** as receptacles for the poles of warning flags, which are shown by the phantom lines **40** and **41** in FIG. 1. It is to be understood that a similar dual assembly is utilized at the opposite end of the pole **25A** and that any number of such assembles can then be employed for guarding any opening or trench of indeterminate length.

A modification of the invention is shown in FIGS. 5 and 6 wherein three devices **10**, **10A** and **10B** are utilized in surmounting relationship and are swivelly connected together at **30** and **30A**, respectively. Such arrangement is ideally suited for protecting a manhole opening, because the rail which is supported by the intermediate member **10A** can be positioned normal to the flow of traffic, whereas the rails which are supported by the members **10A** an **10B** can be disposed obliquely to the

center rail and can be placed at any suitable angle to protect the workmen. Such arrangement provides a compact structure which utilizes a minimum number of supporting legs, thereby reducing the amount of space required for adequately guarding the opening.

An advantage of the present invention is the fact that the legs and rails can be quickly assembled without the need for any clamping devices or other extraneous fasteners. The assembly has stability when in use, because the upper ends of the legs are firmly gripped by the walls of the sockets. If desired, the ends of the legs may bear against the lower portion of the rail thus distributing the load over a large bearing area against the upper portion of the wall of the rail aperture. When disassembled, the parts may be readily stored in a minimum amount of space.

I claim:

**1.** A portable support device for use in mounting trench guard rails or the like in spaced relation above the ground comprising, a pair of identical one-piece body members detachably mounted together in superposed, inverted relation for selective adjustable rotation with respect to one another, each body member including a generally planar, centrally apertured base portion with a pair of hollow tubular members extending divergently away from one another in a direction away from said base portion and having axes intersect at an acute angle, said pair of tubular members defining a pair of sockets of uniform diameter communicating at one end with one another adjacent their respective base portion to receive and hold a pair of legs inserted in the opposed ends thereof for supporting said device above the ground, each body member having a pair of oppositely disposed coaxial openings the axis of which extends transversely through the tubular members in a plane approximately perpendicular to the plane defined by and substantially bisecting the angle between the intersecting axes of the said tubular members and communicating with said sockets to define a transversely extending passageway to receive and hold therein a rail in generally horizontally supported relation above the ground, the base portions of the body members disposed in confronting engaged relationship with one another in the superposed relation of said body members and the apertures extending through the base portions being in register, and a lockable pin member inserted through said apertures for holding and locking said body members in predetermined vertically rotatable relation with respect to one another in the superposed installed condition of said device with cylinder defined by the peripheries of the said coaxial openings being spaced from the adjacent end of the pin whereby the said rail may be freely inserted or withdrawn from said assembled device.



**2.** A support device in accordance with claim **1**, wherein the leg members abuttingly engage said rail to limit axial movement of said legs inwardly in said socket in the installed position thereof.

**3.** A support device in accordance with claim **1**, wherein the body members of said device are made from a resilient plastic material.


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U.S. Cl. X.R.

52—638, 726; 182—185; 248—188; 256—66; 287—119