

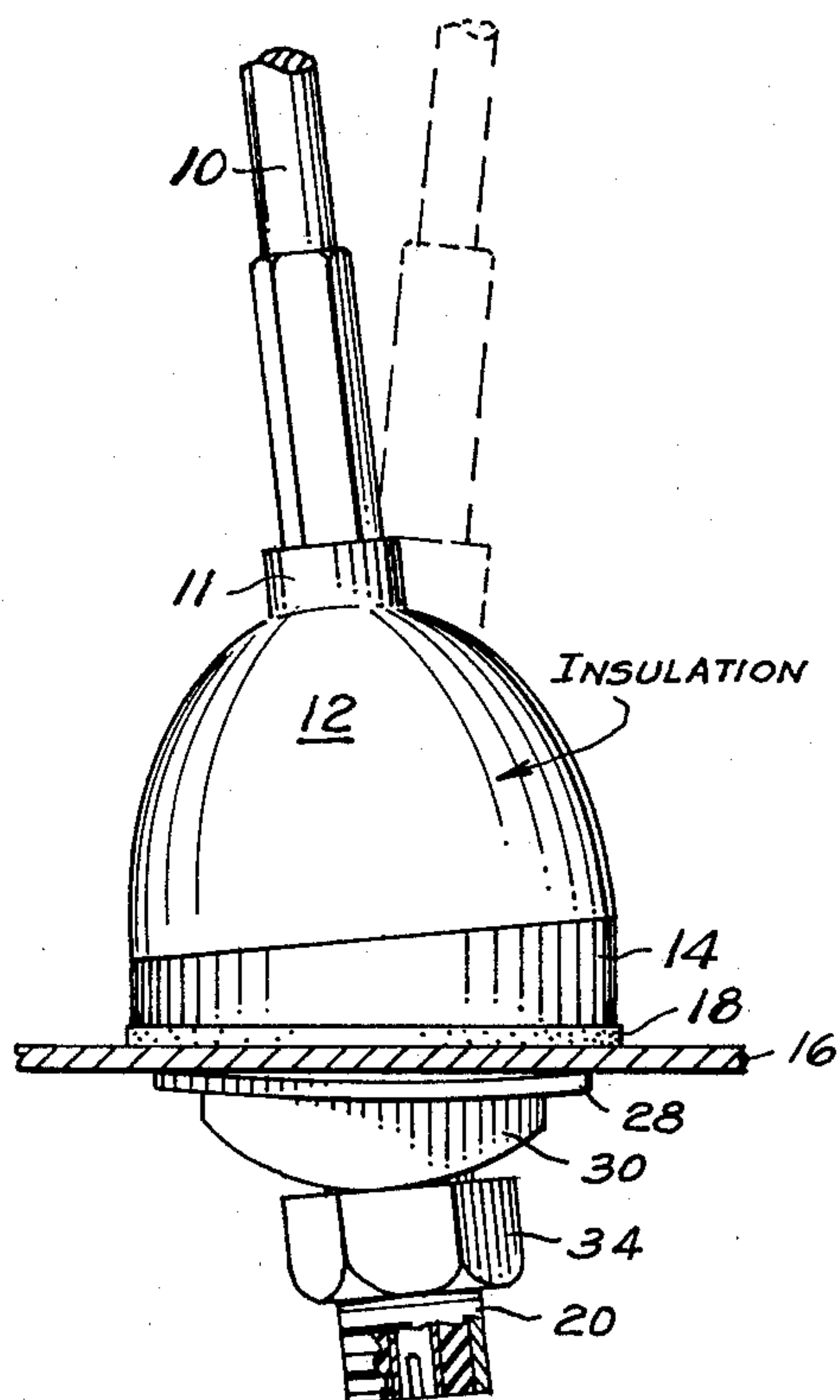
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S. E. GOLDSTEIN

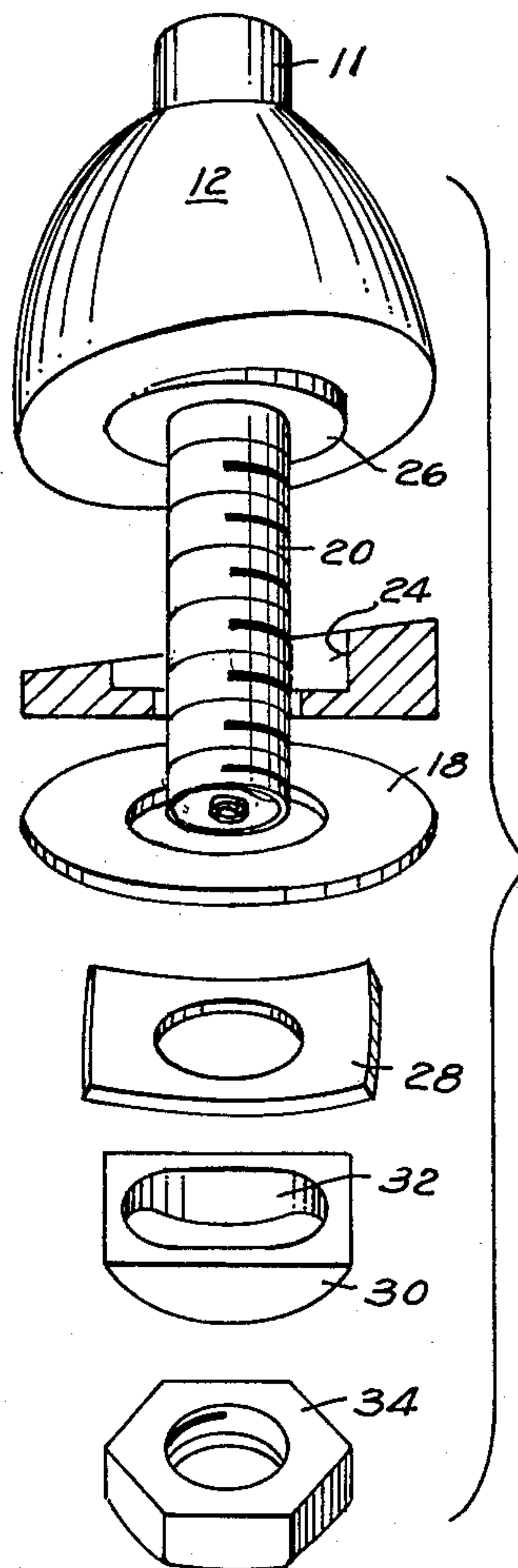
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ANGULARLY ADAPTIVE ROD ANTENNA MOUNT

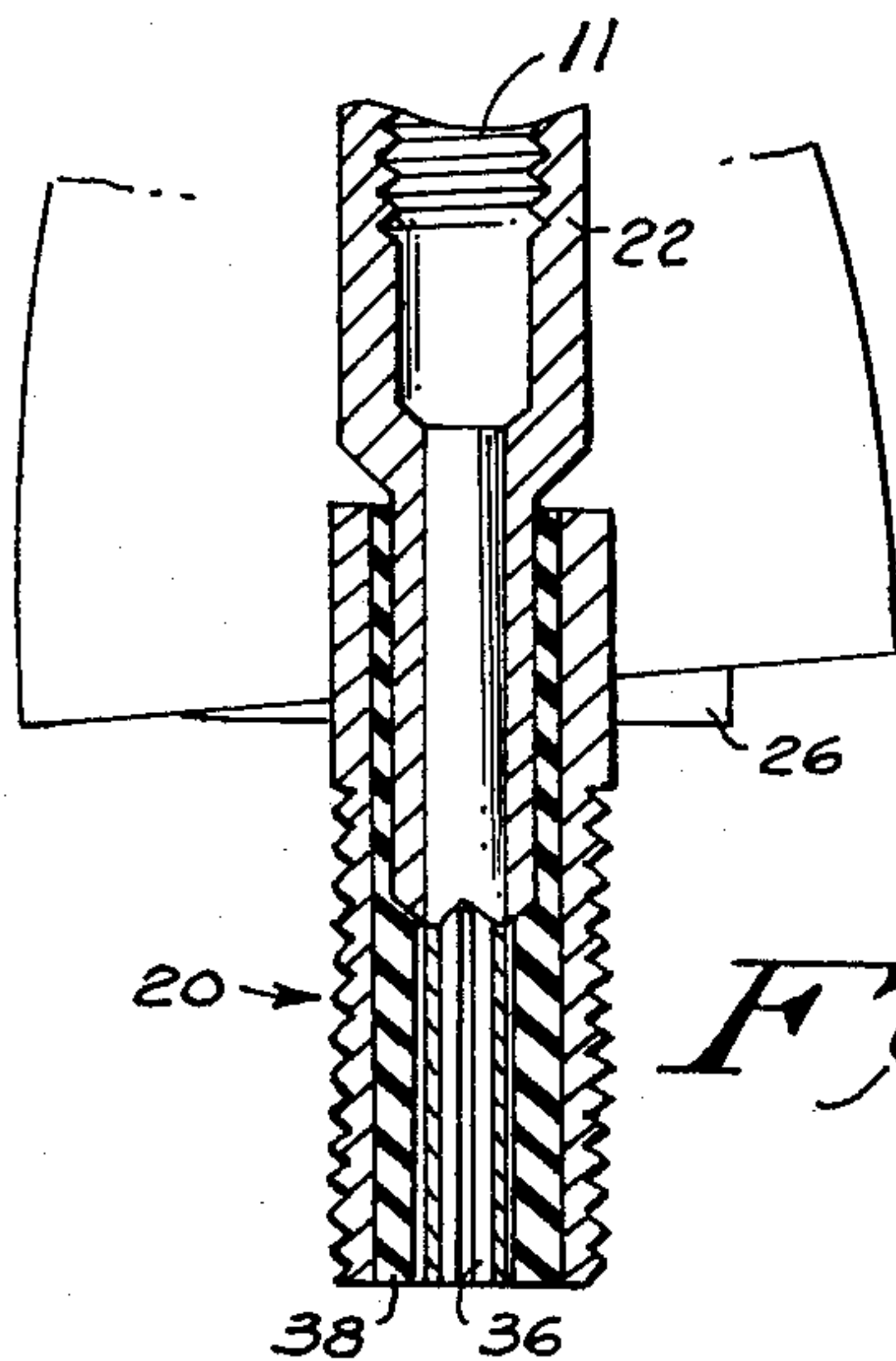
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*Fig. 1*



*Fig. 2*



*Fig. 3*



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**ANGULARLY ADAPTIVE ROD ANTENNA MOUNT**  
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4 Claims. (Cl. 174-153)

This invention pertains to radio antennas, and particularly to a mounting device by which the angle of orientation of a rod-like radio antenna can be selected with reference to the inclination of the supporting surface. More specifically, the invention provides a universally adjustable mount adapted for use as the feed-through device for rod antennas supported by the sheet metal panels of automobiles, aircraft or similar vehicles.

It is often desirable for vehicular antennas of the rod, fishpole or buggy-whip type to be mounted upon a relatively flat section of the vehicle panel or body. Quite often, the preferred mounting location involves a panel portion which is tilted or inclined at an angle which is unsuitable in view of the desired direction of the antenna or other considerations. The invention solves this problem by a simple and compact universal mounting which enables the antenna to be applied to the body panel in any reasonably satisfactory location, the ultimate direction angle of the antenna as so mounted being universally adjustable within limits at the time of installation.

Antenna mounts of the ball-and-socket type, or equivalent, have heretofore been utilized to accomplish this kind of directional adjustment. They are relatively complex, expensive and unattractive appearance, and have other objections such as being relatively fragile and requiring continual re-tightening of several parts to avoid loss or damage.

Briefly stated, the present invention satisfies its stated objections by means of a mounting base which is easily secured to a mounting or support panel by a threaded stud extending through a single hole in the panel. The external part of the mount (the part which is visible outside the vehicle) is formed of two cylindrically-symmetrical parts whose mating face occupies a plane inclined to the axis of the mounting stud. Thus, by relatively rotating said mating parts, the inclination of the antenna-receiving socket can be smoothly adjusted through a considerable range of directions in a conical variation. The mounting stud, which is integral with respect to one of the said parts, can also be rotated about its own axis so that the ultimate direction of the antenna relative to the body panel can be selected throughout a complete range of azimuths, or through a desired range in any particular plane; e.g., in the fore-and-aft, up-or-down or left-and-right directions. One of the mating parts is preferably formed of insulating material, thus serving also the function of a stand-off insulator, and may be shaped and colored so as to present an attractive streamlined appearance.

A preferred constructional form of the invention is shown in the appended drawings by way of example, and not of limitation. In the drawings:

FIG. 1 is a view in elevation of the mounting device as applied to a tilted auto body panel portion.

FIG. 2 is an exploded perspective view, with parts in section, of the parts of the mounting arrangement.

FIG. 3 is a detailed partial sectional view thereof.

FIG. 1 of the drawings shows a typical application of the invention, a portion of the rodlike or buggy-whip antenna being indicated by numeral reference 10. The usual threaded extremity of this antenna is received in a threaded socket 11 of a first portion 12 of the antenna mount, here shown as of generally beehive shape and formed of a tough and durable insulating plastic material.

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Portion 12 rests upon a ring or collar 14, which is urged against the body panel 16 or against a resilient weather seal washer 18.

The outer surface of collar 14 is preferably shaped as a continuation of the profile of portion 10, but the common mating plane between these portions lies at an angle of about 15 degrees to their common axis of symmetry. By selecting the relative rotational placement of the parts 12 and 14 about that axis, a considerable range of adjustment angles is provided as indicated in dotted lines. Since, as has been stated, the beehive portion 12 is integrally bonded to the mounting stud 20, the ultimate direction of the selected angulation is readily determined by the azimuthal orientation of the mounting stud relative to the vehicle body or the like.

A preferred construction of the device is illustrated in detail in FIG. 2 of the drawings, in which the same reference numerals are used for the parts already described. The beehive portion 12 is preferably molded about the threaded metallic mounting stud 20 so as to be in effect integral therewith. Portion 12 also contains the internally threaded insert 11, so that the body of insulator 12 serves to insulate the antenna 10 from the metallic panel of the vehicle. Ring 14 is formed with a socket 24 which smoothly fits a boss 26 on the end of insulator 12, to maintain these parts in alignment through all their angular orientations. A mounting hole is provided in the vehicle panel 16.

A back-up plate 28 surrounds the stud 20 beneath the body panel, to distribute the mounting stress over a larger area. A rocker 30 is also apertured by an elongated slot 32, which rocker has an arcuate or transversely rounded profile, allowing the securing nut 34 to pull up firmly regardless of the angulation of stud 20 with respect to the body panel 16.

Stud 20 is preferably hollow, and constitutes at its lower end a coaxial fitting of known form. For example, it may include a split metallic pin socket 36 supported from the shell of the stud by a cylindrical insulating piece 38. The socket 36 may conveniently be an integral extension of the internally threaded antenna receiving socket piece 22 already described. Since the shell of stud 20 will ordinarily be in contact with the vehicle body panel at the back-up plate 28, electrical connection both to the antenna 10 and to the vehicle body can be made by connecting the usual male pin coaxial fitting in the known manner to the free end of stud 20.

It will be obvious from the foregoing that by loosely assembling the parts upon the body panel in the order described, the ultimate orientation of the antenna direction can be selected by experiment or trial; both the angle of insulator 12 (and stud 20) relative to the body panel, and the angulation adjustment of ring or collar 14 relative to the insulator 12, can be varied as desired.

While the invention has been described herein in considerable detail as to the exemplary embodiment, various changes will occur to those skilled in the art. It is intended to include within the scope of the invention all such changes as fall within terms and meaning of the appended claims.

What is claimed is:

1. An angularly adjustable antenna mount comprising,
  - (a) a dome-shaped body of insulating material having its lateral profile symmetrical about a central axis of said body,
  - (b) an annular collar whose lateral wall defines a smoothly configured continuation of the profile of said body,
  - (c) said body and said collar having a common congruent face lying in a plane slightly inclined to a plane perpendicular to said axis for relative rotational adjustment of said body and said collar about said



- axis without substantially interrupting the continuity of their lateral surfaces,
- (d) a conductive antenna-receiving socket carried by said body at the apex of its dome-shaped body,
- (e) a mounting stud carried by said body and extending from its base through said collar, and
- (f) means cooperating with said stud for clamping said mount upon a support and simultaneously securing said body and said collar in a selected relative orientation;
- (g) said dome-shaped body being integrally molded about said mounting stud and forming with said stud and said socket a single functionally integral one-piece component, with said stud and said socket electrically insulated from one another while being ruggedly secured in axially aligned relationship.
2. An antenna mount in accordance with claim 1 in

which said mounting stud includes a coaxially disposed connection sleeve connected with said socket.

3. An antenna mount in accordance with claim 2, in which said stud is metallic, and said connection sleeve is insulated therefrom.

4. An antenna mount in accordance with claim 1, in which said mounting stud is externally threaded, and in which said means includes a rocker and a threaded nut on said stud.

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