May 8, 1956 W. H. JOHNSON 2,744,704

BASE MOUNTINGS FOR ANTENNA MASTS

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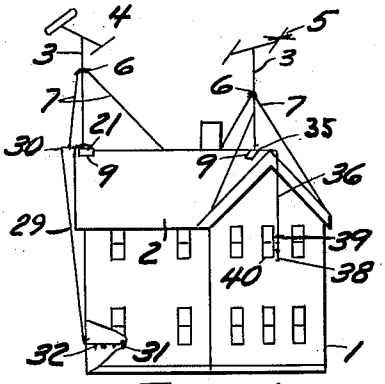


FIG. 1

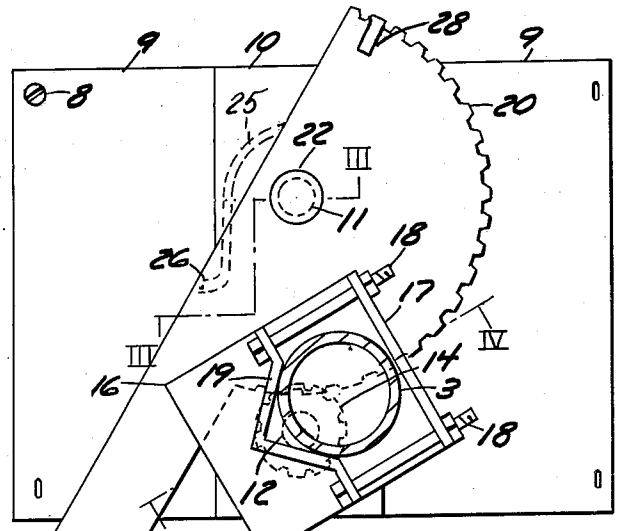


FIG. 2

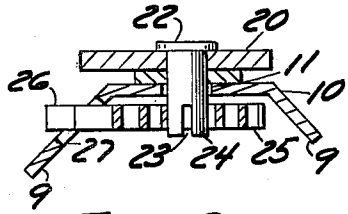
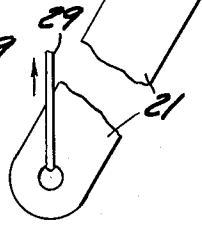


FIG. 3



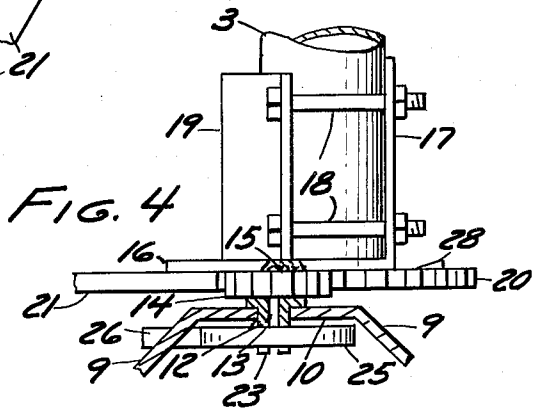


FIG. 4

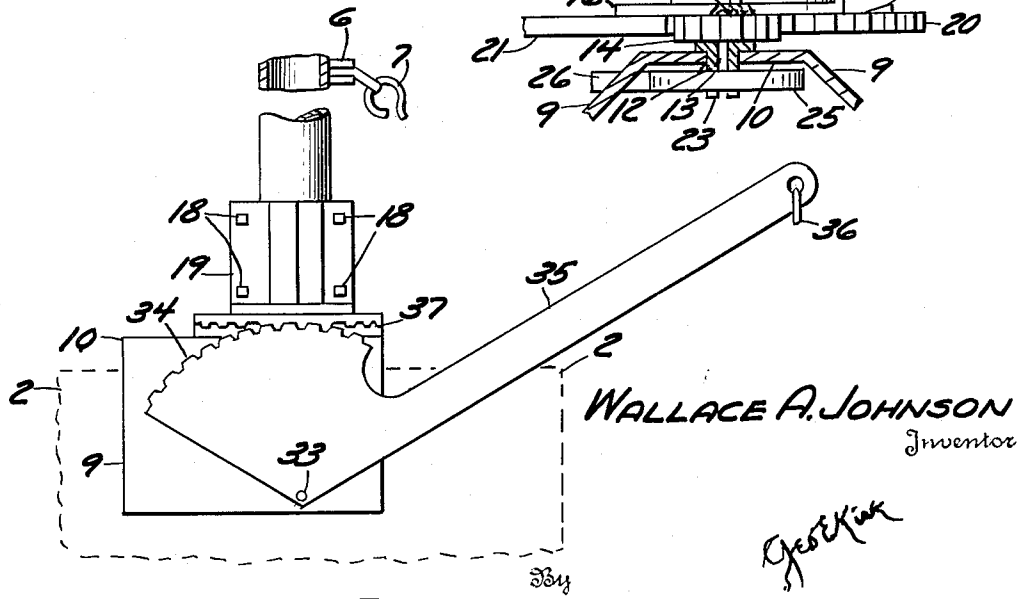


FIG. 5

WALLACE A. JOHNSON
Inventor

By

Attorney

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BASE MOUNTINGS FOR ANTENNA MASTS

Wallace H. Johnson, Toledo, Ohio

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1 Claim. (Cl. 248—45)

This invention relates to base anchorage for uprights, more particularly as guy-supported upwardly from the base, even to the extent of the upright being readily angularly seatable or turnable.

This invention has utility when incorporated in bases or directional support mountings for masts, such as for the erection of antenna on roof gables of buildings, with angular range for selection of radio broadcast beams and channels.

Referring to the drawings:

Fig. 1 is a partially diagrammatic showing of the employment of different types of bases according to the invention;

Fig. 2 is a plan view, on an enlarged scale, with parts broken away, of a base or mounting in which the turning of the mast mounted thereon is by a horizontal swingable arm.

Fig. 3 is a sectional view in the region of the line III—III of Fig. 2, showing the torsion spring recovery element and the pivot for the actuating lever arm;

Fig. 4 is a section on the line IV—IV of Fig. 2, showing the clamp connection of the mast to the toothed element or pinion bearing seated in the roof mounting or base of the embodiment shown at the left of Fig. 1; and

Fig. 5 is a side view of the mounting provided with an actuator lever swingable in a vertical plane, being the disclosure at the right in Fig. 1; while Fig. 2 is of the embodiment at the left in Fig. 1.

A dwelling **1** is shown provided with a roof **2**. Upwardly therefrom extend masts **3** carrying antenna **4**, **5**. From swivels **6** on the masts **3** and spaced upwardly from the roof **2**, extend guy wires **7**, stabilizing the upward extent of the masts.

Screws **8** anchor to the roof **2** flare sides **9** diverging from flat top region **10** of the roof gable saddle or base. Centrally of the width of the region **10** and spaced apart therealong are bearings **11**, **12**. A trunnion or boss **13** coaxial with a pinion gear **14** is adapted to register in the bearing **12**. A weld **15** anchors the pinion **14** centrally to the under side of a plate **16** having integral therewith a riser flange **17** forming one side for a clamp, with the upper side of the plate **16** forming a rest or support for the mast **3**. Bolts **18** adjust a V-plate or clamp element **19** in opposition to the flange **17** in firmly assembling the mast **3** on the mount. This assembly for the mast in connection with the guys may complete the mounting, in which the trunnion or boss **13** locates the plate **16**, and thru the clamp the mast **3**, in proper upstanding position as to the roof engaging saddle or mounting **9**, **10**. The weight of the mast **3** is taken by the bearing **12**, and provides the connection and disconnection of the mast to the roof mounting or saddle **9**, **10**.

For angular rotation and angularity locking of the mast by remote control to effect nicety for selection or direction for reception, in the bearing **11** may be of a toothed or gear segment **20** having an arm or lever extension **21**. The segment **20** is of sufficient radius as to the pinion **14** and the spacing of the bearings **11**, **12**, for proper meshing of the pinion **14** with the segment **20**.

Fixed with the segment **20** is a pivot stem **22** (see Fig. 3) in the bearing **11**. The stem **22** protrudes to the underside of the saddle top region **10** and there has a slot **23** in which end **24** of a spiral torsion spring **25** is engaged. The spring **25** has wraps about the stem **22** with an end **26** at a port **27** in the saddle flare side **9**. As shown in Fig. 2, there is thus a counterclockwise turning or recover as normal for the segment **20** (see dotted line showing in Fig. 2). The lever **21** serves as a stop for limiting this free turning of the segment as to the pinion **14**, as the lever **21** rides against the pinion **14**. In the event of reverse pulling or swinging of the lever **21**, there is an offset tooth region **28** to ride against the junction of the flange **17** with the plate **16**, thus providing an angular limit stop in this direction for the segment **20**.

A flexible line **29** from the free end of the lever **21** desirably extends in a horizontal direction along the roof gable over a guide roller **30** (Fig. 1) and thence down, say to enter the dwelling thru an opening in a window sash, for an end knob **31** to be pulled to a selected stop **32**, thereby providing holding of the segment at the selected turn position for the mast **3**. This holding is against the pull of the torsion spring **25**. The strain from this spring is sufficient to hold the mast **3** from angular vibration.

In this set-up, it is to be noted that the plate **16** provides weather-shield for the mesh register of the segment **20** with the pinion **14**. Furthermore, the turning location for actuation is directly at the bearing **12**, thereby being unaffected by wind strains, because directly at the base mounting. Accordingly there is no binding or locking to preclude shifting of the mast at any time to effect the radio beam setting. The torsion spring **25** eliminates any play or looseness.

In another embodiment the mounting **9**, **10**, instead of having the bearing **11**, is shown with a bearing **33** (Fig. 5) near the lower edge of a flare side **9**, there to pivotally mount a segment gear **34** with a lever arm **35** therefrom to a pull line **36**. The teeth of the segment **34** are in mesh with a crown toothed or gear element **37**, in lieu of the normally lesser diameter pinion **14**. There is weathershed protection here as to the meshing assembly, for the element **37** is in overhang relation as to the in-mesh region of the segment **34**.

The swinging of the arm **35** is in a vertical plane. With the location thereof to extend outward from the gable end of the roof **2**, the pull line **36** may have its end **38** engage different catches **39** (see Fig. 1) in proximity to a window **40**. There is thus a simplified installation, in which the sole building connections are of the guys **7** and the base flares **9**.

It is to be noted that the amount of rotation range turning extent for the mast is considerably in excess of the normally used adjustment range. Thus the lever arm **21**, or **35**, may be located in an advantageous pull direction. Supplementally, the mean sought-for direction for the antenna may be selected by merely lifting the mast and then dropping the boss or trunnion **13** from the toothed element **14**, or **37**, into the bearing **12**. As the mast load comes down on this resetting for the mast, there follows directly the meshing assembly of the teeth of the angularity actuator means in the desired mean direction for beam reception. These are features, not only of simplicity for initial installation, but enabling ready adjustability to meet changed operating conditions. The moving parts are a minimum. There is adequate factor of strength and safety in the

employment of few parts of light weight. Operation is easy in the gear ratios selected.

What is claimed and it is desired to secure by Letters Patent is:

A rotatable mounting for the mast of a directional antenna, comprising: a stationary base having a horizontal flat portion, two spaced bearing apertures in said base, a thrust bearing mounted in one of said apertures in said flat portion, a horizontal plate having a trunnion extending from its lower side and journaled in said thrust bearing, a gear mounted on said trunnion fixed to said plate, a clamp for the end of a mast mounted on the upper side of said plate, a sector gear journaled in the other bearing aperture in said base meshing with said gear on said trunnion, a lever fixed to said sector gear for rotating it through part of a circle to rotate said plate, coiled spring means acting between said sector gear and said base for normally urging said plate

to an extreme position, and means connected to said lever from a remote point for operating said lever to rotate said plate.

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