June 27, 1967 R. C. RUSH 3,327,437

ANTENNA SUPPORT

Filed Aug. 18, 1964

FIG. 1

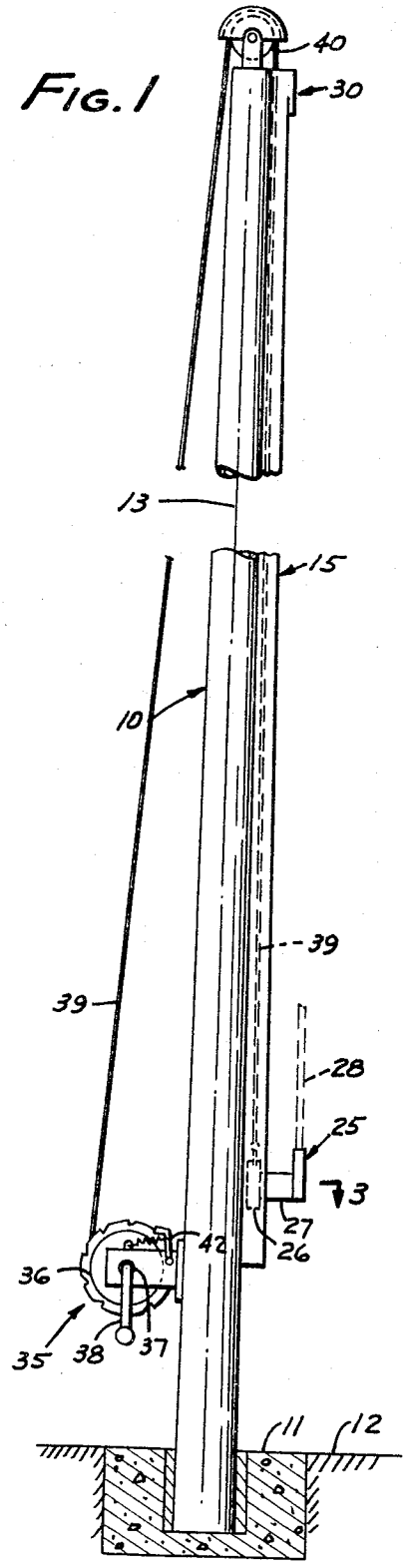


FIG. 2

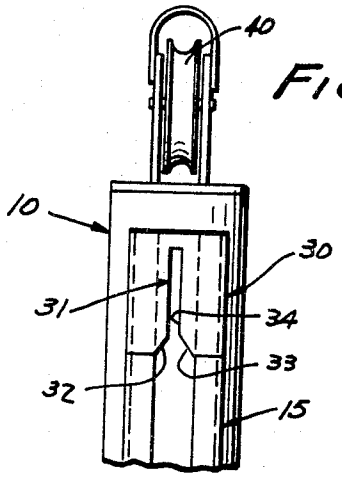


FIG. 3

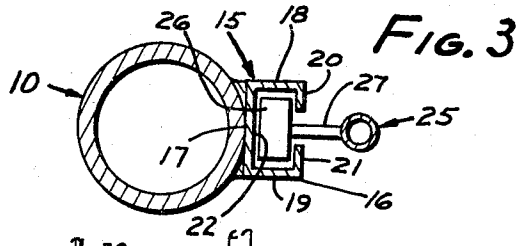
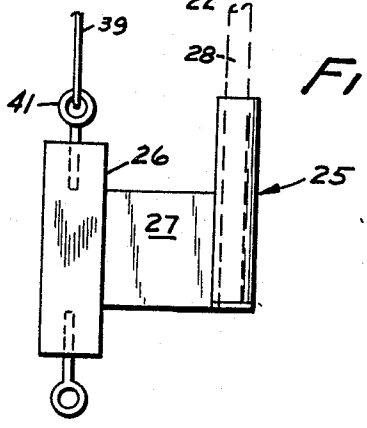


FIG. 4



INVENTOR.
ROBERT C. RUSH

BY Angus & Mon

ATTORNEYS.

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ANTENNA SUPPORT

Robert C. Rush, 1615 S. White, Pomona, Calif. 91766

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5 Claims. (Cl. 52—122)

This invention relates to a mast for an elevable antenna.

Amateur radio operators and others who utilize antenna of fairly large surface area, at substantial heights, are aware of the damage which can be done to their installations by high winds. Because of the necessity accurately to align the antenna, and because of their weight and size, it is customary to erect these devices permanently in their final established position, sometimes utilizing guy wires or other supporting means to hold the antenna in one place or, when the antenna is directionally adjustable, to provide very strong lateral support for the vertical trunnion. These techniques leave the antenna exposed to the full force of the elements, without any means for lowering it during periods of high winds and the like.

It is an object of this invention to provide a rugged mast which is resistant to wind forces, together with means for raising and lowering the antenna so that when it is raised it is held firmly and in accurate alignment, and so that it may readily be lowered when necessary to protect it from the elements, or to make repairs thereon.

An elevable-antenna assembly according to this invention includes a mast adapted to be fixed in the ground so as to project upwardly therefrom, track means extending generally along the axis of the mast, rider means adapted to ride the track means, alignment means at the top of the track means for holding the antenna in fixed alignment, and actuator means for raising and lowering the rider means. The rider means carry the antenna itself.

The above and other features of this invention will be fully understood from the following detailed description in which:

FIG. 1 is a side elevation of the presently preferred embodiment of the invention;

FIG. 2 is a right-hand side elevation of the top portion of FIG. 1;

FIG. 3 is a cross-section taken at line 3—3 of FIG 1; and

FIG. 4 is a side elevation of a portion of FIG. 1.

In FIG. 1 there is shown a mast **10** fixed in a foundation **11** in the ground **12**. The mast has an axis **13** which is vertically aligned and permanently installed. Mounted to the mast, and extending generally axially therealong is a track means **15** which preferably comprises a C-channel **16**. This channel has a bight **17** which is welded or otherwise fixed to the mast, a pair of arms **18, 19** and a pair of overhanging flanges **20, 21**. The C-channel thereby forms an internal track **22** for a rider means **25** the pair of arms form a slit between them which has a dimension of width.

The rider means comprises a block **26** having outer dimensions somewhat less than those of the track but making a reasonable close sliding fit. A support arm **27** extends outwardly through a gap between flanges **20** and **21** there to support an antenna **28**.

Alignment means **30** (FIG. 2) is formed at the top of the track means and includes a plate having a tapered slot **31** adapted to receive support **27**. Guide surfaces **32, 33** guide support **27** into the narrow portion **34** of slot **31**, the width of portion **34** being substantially equal to the thickness of support **27**. The vertical dimension of support **27** is preferably at least as great as portion **34** is long. The support is held tightly in the alignment means when the rider means is at the top of the track means by the engagement of alignment means and support.

Actuator means **35** includes a reel **36** mounted to a journal **37** near the bottom of the mast. A crank **38** is fixed to the reel so that turning the crank turns the reel. A cable or rope **39** is wound on the reel and extends upwardly over a pulley **40** at the top of the mast and then downwardly, where it connects to an eye **41** that is attached to block **26**. The rope passes inside the track **22** so that an axial, vertical, pull is exerted on the support by the rope.

The operation of this device should be evident from the foregoing. When the mast is to be raised, the reel is turned counterclockwise in FIG. 1 which pulls the block, support, and antenna upwardly until support **27** enters tapered slot **31**. Pawl assembly **42** holds the reel in an adjusted position.

When the antenna is to be lowered, the pawl assembly is released, and rope is paid off the reel so that the antenna, the block, and the support lower themselves of their own weight, thereby leaving exposed to the elements only the mast itself.

The foregoing describes a simple and a straightforward antenna mast assembly which is adapted to make the antenna itself easily accessible for repair and maintenance, and which can lower it swiftly in the event of inclement weather. The track means and rider means shown are examples of simple constructions which are suitable for the purpose. However, it will be understood that different types of riders and tracks may readily be provided all of which however have the feature in common that the antenna and its support are guided up and down the mast to raise and lower the same. At every point, the antenna is held to the mast; it never moves laterally away.

This invention is not to be limited by the embodiment shown in the drawings and described in the description which is given by way of example and not of limitation but only in accordance with the scope of the appended claims.

I claim:

1. An antenna support comprising: a mast having an axis; track means comprising a C-channel attached to and extending axially and continuously along the mast, said C-channel including a pair of spaced-apart arms forming a slit therebetween; rider means mounted to and adapted to travel along the track means, said rider means being disposed inside the channel and having a larger lateral dimension than the width of said slit so as to be retained therein; alignment means attached to the mast at an elevation above at least a portion of the track means and disposed contiguous thereto, said alignment means including an open-ended slot continuous with said slit, said slot having a dimension of width; a rigid support rigidly mounted to the rider means adapted to support an antenna, said alignment means being adapted to receive the rider, with the support projecting through and beyond the slot, the rigid support having a dimension of width less than that of the slit and substantially equal to that of the slot, said support thereby being adapted to be rigidly held against rotation relative to said axis by engagement with the alignment means when at the same axial elevation; and actuator means for raising and lowering the rider means.

2. An antenna support according to claim 1 in which the said slot increases in width as it approaches the track means.

3. An antenna support according to claim 1 in which the actuator means comprises a reel and a flexible cable, the reel being attached to the mast and the cable being attached to the reel and to the rider means.

4. An antenna support according to claim 1 in which a pulley is placed at the top of the mast.

5. An antenna support according to claim 4 in which the actuator means comprises a reel and a flexible cable,

the reel being attached to the mast and the cable being attached to the reel and to the rider means.

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FRANK L. ABBOTT, *Primary Examiner.*

R. S. VERMUT, *Assistant Examiner.*