July 13, 1954 H. D. HOLT 2,683,615

TELEVISION MAST JOINT

Filed April 22, 1952

Fig. 1

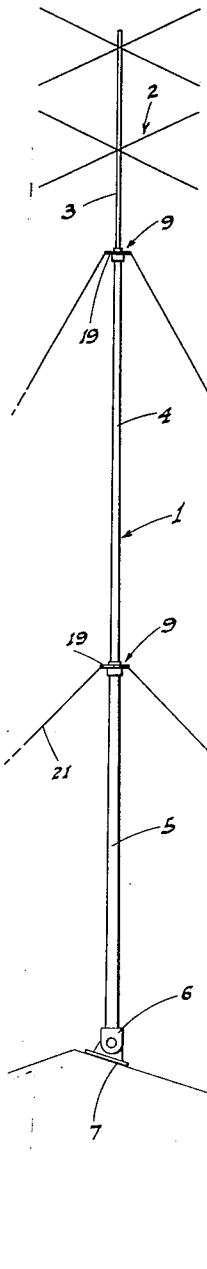


Fig. 2

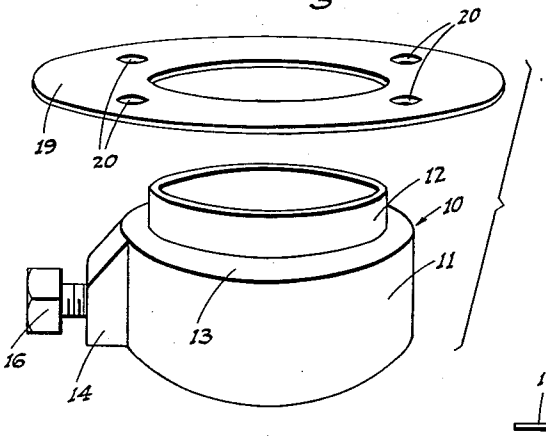


Fig. 3

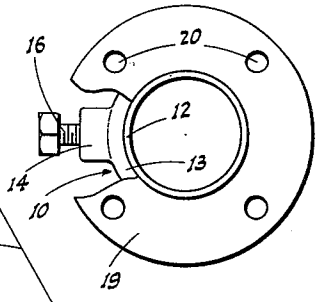
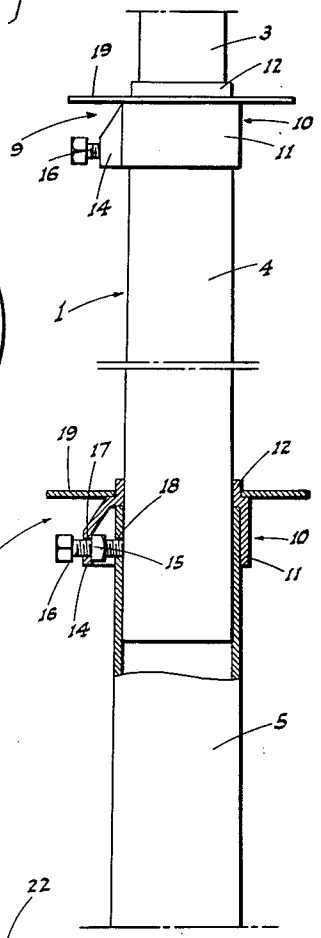


Fig. 4



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TELEVISION MAST JOINT

Herman D. Holt, Ceres, Calif.

Application April 22, 1952, Serial No. 283,571

1 Claim. (Cl. 287—58)

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This invention relates in general to improvements in a television mast of the type which includes a plurality of telescopic mast sections, of metal pipe, initially substantially fully engaged one within the other for shipment, transport to the point of use, and initial erection.

After such initial erection, the sections of the mast are manually run up, progressively from the uppermost one downward, and as so run up each section is locked to the next lowermost section to prevent retraction.

To guide each mast section within the next lower one, without substantial lateral loose play occasioned by the difference in diameters which exists, it has been the practice to swage or flange in the upper end of each section to form a reduced-diameter guide for the next uppermost section; this practice being undesirable as it required undue handling of the mast sections, and special tools, to work the metal thereof.

It is therefore the major object of this invention to provide a novel reduction collar adapted for cooperation between the upper end of each mast section and the adjacent portion of the next uppermost mast section; the reduction collar engaging about the latter in close guiding relation. In this manner the metal pipe mast sections need only be straight-cut to length, and no metal forming on the ends thereof is required; thus effecting a substantial saving in time, labor, and expense.

Another important object of this invention is to provide a reduction collar, as above, which includes—in novel assembly—a guy wire connector ring; the latter being rotatably supported by the collar to aid in initial installation of the mast, and to permit of subsequent turning thereof for directional adjustment of the antenna.

A further object of the invention is to provide a reduction collar and guy wire connector ring combination, for the purpose described, which may be stamped—readily and economically—from sheet metal, and thereafter easily manually assembled with the telescopic sections of a mast.

It is also an object of the invention to provide a reduction collar and guy wire connector ring combination which is simple in design and thus capable of ready and economical manufacture.

A separate object is to provide a reduction collar, for the purpose described, which additionally embodies a novel clamp to lock the adjacent mast sections together when extended.

Still another object of the invention is to provide a practical and reliable reduction collar and guy wire connector ring combination, and one

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which will be exceedingly effective for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claim.

In the drawings:

Fig. 1 is a somewhat diagrammatic elevation of a mast, for a television antenna, embodying the present invention.

Fig. 2 is an enlarged exploded view of the reduction collar and guy wire connector ring, detached.

Fig. 3 is a top plan view, partly broken out, of the reduction collar and guy wire connector ring combination as assembled for use but before placement on the mast.

Fig. 4 is an enlarged fragmentary elevation of the mast, foreshortened, showing two of the devices as in use; one of said devices being in section.

Referring now more particularly to the characters of reference on the drawings, the invention is adapted for use in connection with a tubular telescopic mast, indicated generally at 1; such mast including, on the top section, a television antenna 2.

The top section of the mast is indicated at 3, an intermediate section at 4, and a bottom section at 5; it being understood that for greater length more than one intermediate section may be employed.

The mast as initially assembled, shipped, transported to the place of use, and erected has the sections 3, 4, and 5 substantially wholly telescoped within each other. In this condition the mast is initially erected, being engaged at its lower end in a socket 6 attached by a roof plate 7 to the roof 8 of a building.

Thereafter, the sections 3 and 4 are run up and locked in an extended position in the manner as will hereinafter appear.

As the stepped-down diameter of the successive pipe sections from the lowermost upwardly are such that loose play, laterally, could occur between the telescopic sections unless means were provided to prevent such play, the present invention contemplates the following for such purpose:

Between the upper end of the mast section 5 and the mast section 4, and between the upper end of the latter and the mast section 3, there is provided—as shown in Fig. 1—a reduction collar and guy wire connector ring combination, indicated generally at 9.

As the devices 12 are identical, a description of one will suffice for both.

Each device 9—as shown in detail in Figs. 2–4 inclusive—comprises a reduction collar, indicated generally at 10, which reduction collar includes a lower portion 11 of a diameter to fit tightly on the upper end of the lowermost mast section, and an upper portion 12 adapted to snugly but relatively slidably engage about the adjacent part of the next uppermost mast section; the upper portion 12 thus being of substantially reduced-diameter relative to the lower portion 11, which defines an intermediate annular shoulder 13. Such intermediate annular shoulder 13 serves, internally of the collar, as a stop for the upper end of the lowermost section.

With each reduction collar 10 constructed as above, adjacent mast sections are maintained in relatively slidable relation, but are prevented from having undue lateral tilting or loose play.

When the sections 3 and 4 are run up to an extended position, as in Fig. 1, with the reduction collars 10 in place thereon, said sections are locked or clamped together by the following novel means embodied in connection with each such collar:

The lower portion 11 of each reduction collar 10 is formed, at one point in the circumference thereof, with a laterally outwardly deformed pocket 14 having straight parallel sides, and a square nut 15 is disposed in snug-fitting—and thus non-turnable—relation in the pocket 14. As the pocket 14 is open at the bottom, the nut 15 can be readily inserted therein. A headed set screw 16 extends through an opening 17 in the outer wall of the pocket 14, threads through the nut 15, and thence continues inwardly through an opening 18 in the upper end portion of the mast section on which the reduction collar seats. By tightening the set screw 16 it is run inwardly into forceful engagement with the telescopic lower portion of the next uppermost section, whereby the mast sections when extended are effectively maintained in such relative positions.

Heretofore it has been the practice to employ a separate clamp, but with the present invention, embodying the mast section clamp in the reduction collar 10, as above described, the structure is not only simplified, but is more economical to manufacture, and may be used with greater convenience.

A guy wire connector ring 19 surrounds the upper portion 12 of the reduction collar 10, seating rotatably on the shoulder 13.

Each ring 19 is formed with circumferentially spaced holes 20 which permit of the connection of the guy wires 21 to said ring; the guy wires thence extending outwardly and downwardly to anchor points 22.

As it is necessary to directionally adjust the

television antenna 2, which is accomplished by rotating the entire mast assembly in the socket 6, it is requisite that each reduction collar 10 be rotatable in the corresponding ring 19, and with the described arrangement such relative turning motion can occur without binding.

With reduction collars 10 used between the mast sections in the manner described, such mast sections can be straight-cut at the ends; i. e. without any metal forming thereon, which makes possible a substantial saving in the cost of manufacture of the mast. Additionally, the reduction collars 10 each provide a very effective mount not only for the related connector ring 19 but also for the corresponding mast section clamping means, including the screw receiving nut 15 retained in the pocket 14.

From the foregoing description it will be readily seen that there has been produced such a device as substantially fulfills the objects of the invention, as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claim.

Having thus described the invention, the following is claimed as new and useful, and upon which Letters Patent are desired:

In a mast which includes a pair of tubular mast sections, the upper section freely telescoping into the lower section, a reduction collar having an upper portion closely embracing the upper section directly above the lower section and a lower portion closely embracing the upper end portion of the lower mast section, an outwardly projecting pocket formed in one side of the lower collar portion and open to the bottom thereof, a radial-axis nut removably disposed in said pocket in non-turnable relation, and a set screw projecting through the outer face of the pocket and threaded through the nut; the lower mast section having an opening alined with the screw through which the latter passes into holding engagement with the telescoped portion of the upper mast section.

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