July 9, 1929. R. H. FERRAIOLI 1,720,322

MAST SUPPORT

Filed May 15, 1925

Fig. 1

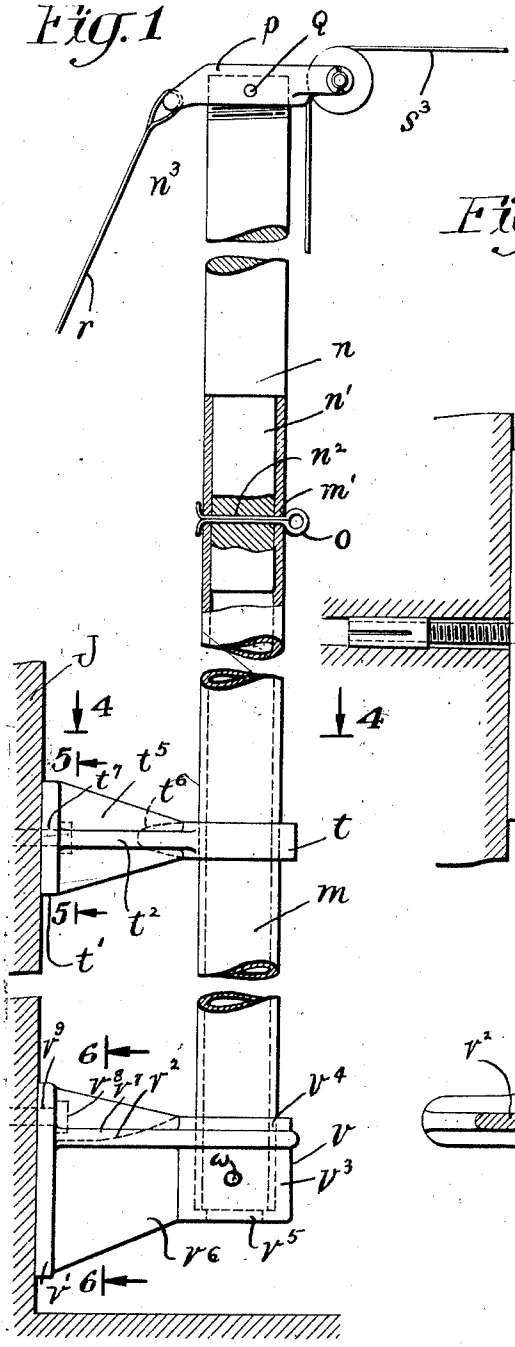


Fig. 3.

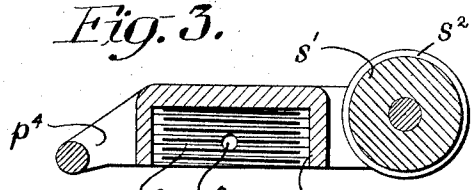


Fig. 2.

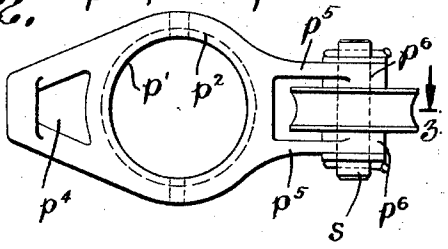


Fig. 4.

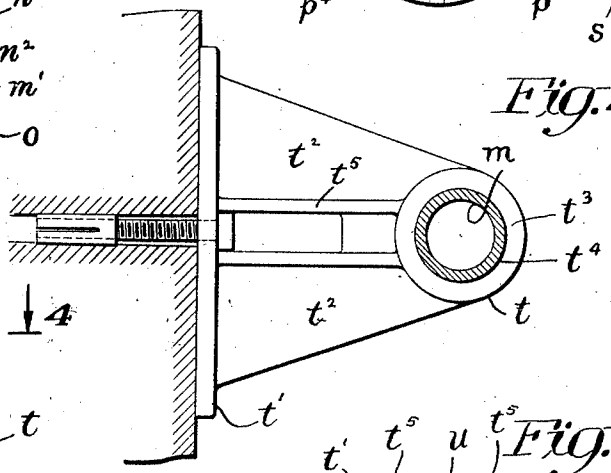


Fig. 5.

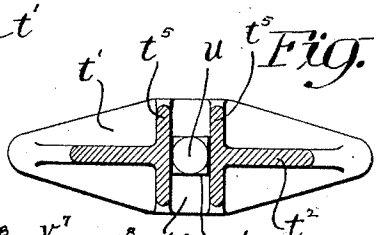
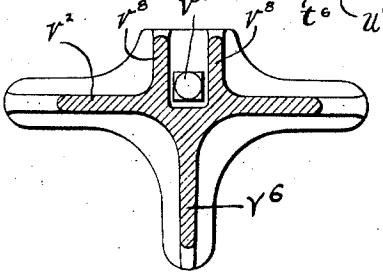


Fig. 6.



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UNITED STATES PATENT OFFICE.

RAMO H. FERRAIOLI, OF NEW YORK, N. Y.

MAST SUPPORT.

Application filed May 15, 1925. Serial No. 30,550.

This invention relates to masts adapted for use in connection with the antenna of radio receiving and sending apparatus. The invention has particular reference to masts capable of installation upon the roofs of buildings for attachment or mounting upon chimneys, pent-houses and parapet walls. At the present time such masts are generally formed of wood or pipe of a character most conveniently at hand to the user and the manner of securing the same in place varies considerably with the skill of the one erecting it. The owners of buildings and particularly the owners of apartment houses whose tenants are desirous of installing radio receiving or sending apparatus are continually suffering from the unskilled efforts of their tenants in installing the masts on the roofs of the buildings to chimneys and the like which results frequently in the destruction of the roofs with consequent leaks therein as well as a generally unsightly job which detracts from the appearance of the building.

It is an object of the present invention to provide a mast which is readily formed with a minimum number of operations, of standard material, and which can be readily installed in place by one having little skill in the use of tools and without damage to the roof or other supporting means. Accordingly the mast is formed of metal tubing and metal supports for the same which may be readily secured to the roof or wall of the building by simple operations.

The invention also has for one of its objects a mast which is adjustable in height and capable of being readily taken down into a plurality of relatively short sections and telescoped whereby space may be saved in storage of equipment.

The invention further resides in the fittings adapted to be associated with the mast whereby its installation is facilitated. For instance, brackets are provided which are adapted to receive the mast and be secured as against a parapet wall in a manner which is within the skill of the most inexperienced. To this end the brackets are formed as castings and each bracket is adapted to be secured to a wall or chimney by a single screw or expansion bolt, or the like advantage being taken of the construction of the bracket to facilitate the insertion of the screw or bolt within the wall.

The invention also resides in the particular construction and configuration of the individual elements going to make up the device as a whole as will be more apparent from the following detailed description of the accompanying drawings illustrating preferred embodiments of the mast and of the supporting means therefor. In the drawings:

Figure 1 represents a mast adapted to be secured to the roof, wall or chimney or the like by means of specially formed brackets.

Figure 2 is a view looking from below and showing the cap such as is applied to the mast illustrated in Figure 1.

Figure 3 is a view in vertical section taken in the plane indicated by the line 3—3 in Figure 2 and looking in the direction of the arrows.

Figure 4 is a view, looking from above, of one of the brackets (the upper one) disclosed in Figure 1 taken along the line 4—4 in Figure 1 and looking in the direction of the arrows.

Figure 5 is a transverse vertical section of the bracket illustrated in Figure 4 taken along the line 5—5 in Figure 1 and looking in the direction of the arrows.

Figure 6 is a transverse vertical view of the lower bracket illustrated in Figure 1 taken along the line 6—6 in that Figure and looking in the direction of the arrows.

The mast is formed of a base section m and an upper section n. Base section m may be a length of pipe such as galvanized iron pipe. Section n may be formed as a solid rod. The lower portion of section n may be turned down as at n' to a diameter just sufficient to enter the upper end of base section m and enter for a sufficient distance therein to provide adequate support. If desired sections m and n may be drilled as at m', n^2, respectively, to receive a pin such as the cotter pin o. By so constructing the sections m and n with what may be termed the slip joint illustrated at n' a very thin mast may be used which will have adequate strength. For instance, the section m may be formed with three-quarter inch pipe while the upper section may be either three-quarter inch in diameter or one half inch. A mast of this smaller diameter mounted upon the roof of a tall building will be practically invisible to the eye of an observer from the ground.

Mounted upon the upper end of section n is a cap member p illustrated in detail

on a larger scale in Figures 2 and 3. The cap member is formed on its lower side with a cylindrical recess p' of a diameter just sufficient to receive the end of section n. The walls of the recess may be threaded as at p^2 to provide for a screw connection between a similarly threaded end n^3 of section n. In instances where the upper end of section n is not threaded the cap may be provided with an aperture p^3 to receive a pin q adapted to pass through a registering aperture in the section n and thus secure the cap thereto. Cap p may be provided upon one side thereof with an aperture p^4 for the reception of a guy wire r. Diametrically opposite aperture p^4 the cap may be provided with a bifurcated portion having arms p^5 formed at their ends with bearings p^6 for a pin s upon which may turn a roller or wheel s' having a peripheral groove s^2 for the reception of a cable s^3 to which is secured the antenna.

A modified bracket according to the present invention is illustrated at t. This bracket is formed with a broad flat base portion t' of any convenient configuration and a transverse web portion t^2 formed at its outer end with a cylindrical bearing t^3 formed with a cylindrical aperture t^4 for the reception of the mast section, say m. Centrally of the bracket there are formed substantially parallel, vertically disposed webs t^5. These webs separate a space t^6 passing completely through the bracket as shown clearly in Figure 5. Centrally of the base section a and opening into the space t^6 there is formed an aperture t^7 for the reception of a bolt u. Bolt u is formed with a square head u' of a diameter sufficient to fit within the space t^6 without turning.

In the installation of the bracket it is proposed to provide a star punch, for instance, with which the single aperture necessary may be drilled in the wall J. The aperture t^7 is located preferably in the transverse medium plane of the bracket. Bolt u which preferably takes the form of an expansion bolt which is already inserted in the aperture t^7 is then inserted in the hole in the wall and threaded therewithin by turning the square head u' by means of the bracket which thus takes the place of a wrench. The star punch or any other convenient tool may be passed through the aperture t^4 to serve as a handle for the bracket when used as a wrench. The turning of the bracket may be continued until the bolt u is forced home.

The lower bracket v is also adapted to be secured to a wall by a single screw as indicated in Figure 1. This bracket is formed with a base portion v' and a transversely disposed web v^2 formed at its outer end with a bearing v^3 provided with a cylindrical recess v^4 for the reception of the end of the section m. The bottom of the recess v^4 may be closed or provided with an aperture v^5 of less diameter than the diameter of the recess v^4 in order to provide a support for the mast section m while at the same time providing for the escape of any liquid which might be entrapped therein. The bracket is re-enforced below the web v^2 by means of a centrally disposed web v^6. Above the web u^2 a space v^7 is formed by means of parallel webs v^8 in the base portion v' and opening into the space v^7 is an aperture v^9 for the passage of a bolt similar to the bolt through t^7. It will be apparent that the method of securing the bracket to a wall j is similar to the method of securing the bracket t, that is, the bracket may be used as the wrench for screwing the expansion bolt home. In this instance, the aperture v^9 is disposed above the transverse medium plane of the bracket. A pin w may also secure the mast in bracket v.

It will be apparent that a mast and brackets therefore have been provided which is capable of installation upon the roofs of buildings by affixing to chimneys, parapet walls or pent houses without the requirement of skill and with the simplest of tools. It is easily manufactured at a minimum expense; can be taken down and reduced in size for shipment and storage and when in place is not only sightly but of small diameter as to be practically invisible from a comparatively short distance. By means of the present invention the masts may be secured to opposed parapet walls of an apartmetn house whereby the full length of the roof is availed of for the aerial and while being easily removable is nevertheless securely installed in the interest of safety. The mast is fireproof and durable. The modified brackets according to the present invention are particularly applicable to the situation in hand since it is only necessary to line up two holes in the wall one immediately below the other which, experience has shown, is much more easily accomplished by one unskilled in the use of tools than where a plurality of laterally spaced holes are necessary.

Various modifications may be made in the form and configuration of the component elements of the device according to the present invention and their interchanging is possible without departing from the spirit and scope of the invention.

What I claim is:

As an article of manufacture, a support for a mast comprising, in combination, securing means having a head formed with parallel plane sides, and an integral bracket formed with a mast receiving portion, a transversely elongated base portion provided with an aperture for the reception of the securing means, substantially parallel

webs extending between the mast receiving portion and the base upon opposite sides, respectively, of the aperture and defining, therebetween, a receiving space for the head of the securing means, the webs co-operating with the sides of the head whereby the bracket may serve as a wrench to insert the securing means in a wall during the attachment and removal of the bracket to the wall and webs extending between the mast receiving portion and the base upon opposite sides, respectively, of the first named webs and substantially normal thereto.

This specification signed this 4th day of May A. D. 1925.

RAMO H. FERRAIOLI.