July 12, 1938. J. L. GILMORE 2,123,414

ANTENNA BRACKET AND ANTENNA

Filed Feb. 9, 1937

Fig. 1.

Fig. 2.

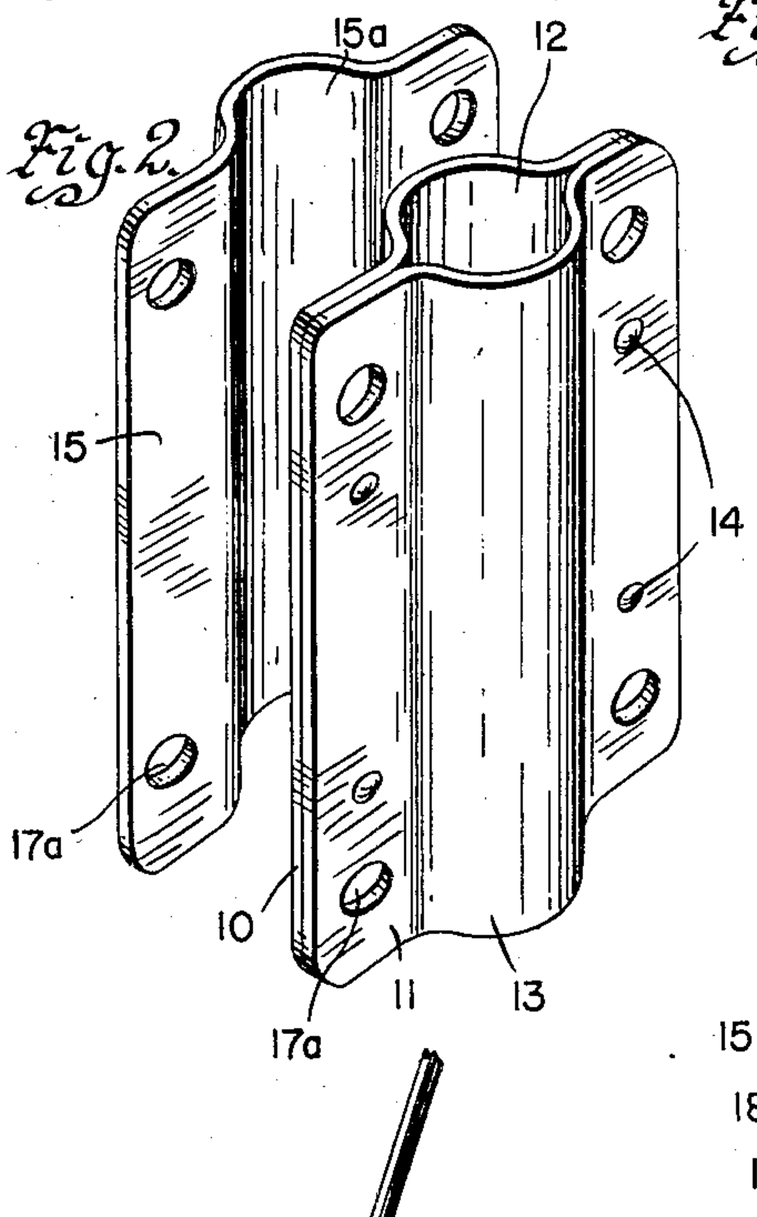


Fig. 3.

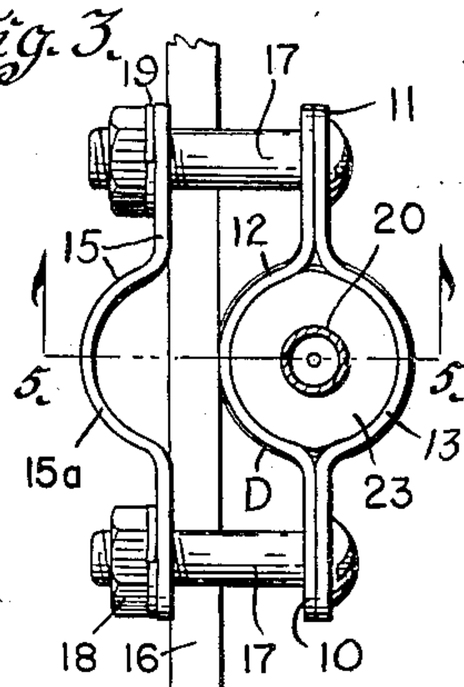


Fig. 4.

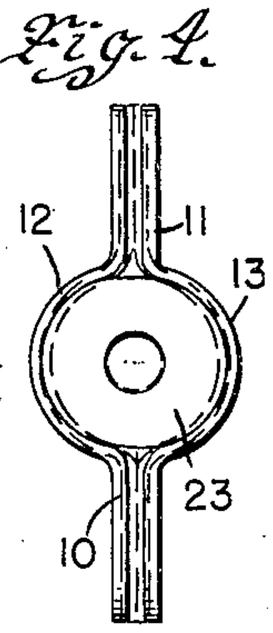


Fig. 5.

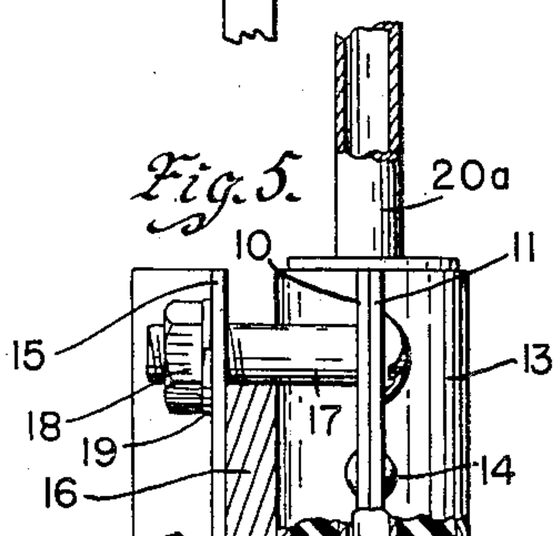


Fig. 6.

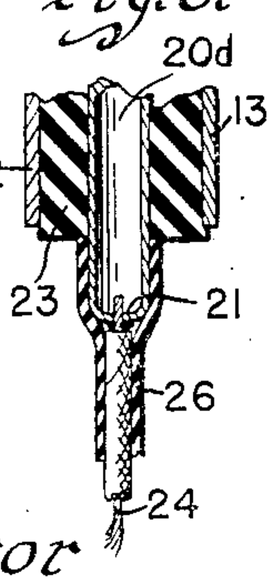


Fig. 7.

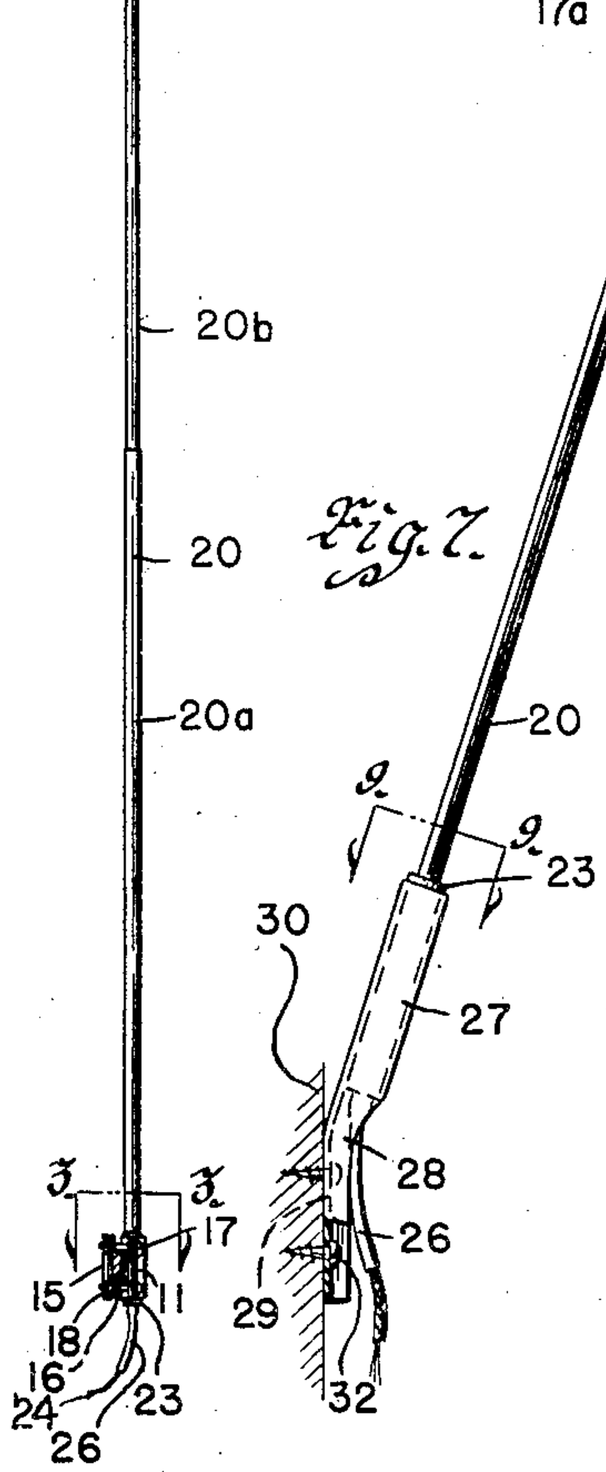


Fig. 8.

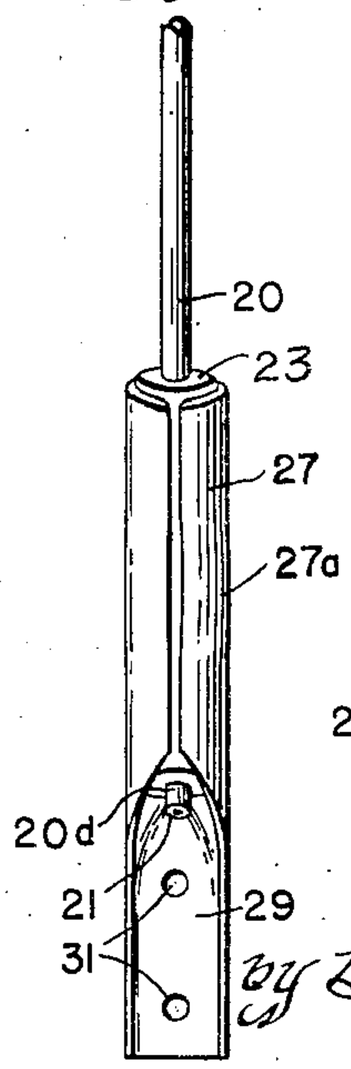
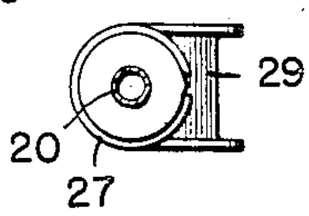


Fig. 9.



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UNITED STATES PATENT OFFICE

2,123,414

ANTENNA BRACKET AND ANTENNA

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Application February 9, 1937, Serial No. 124,842

3 Claims. (Cl. 250—33)

The object of my present invention is to provide a novel and efficient type of bracket for supporting staff antennas.

It is my purpose to provide the combination of a staff antenna and a means for holding the antenna comprising a resilient insulating sleeve preferably of substantial thickness, and a clamp or bracket for locking the sleeve on the antenna and adapted to be mounted on some sort of support.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my antenna bracket and antenna, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawing, in which:

Figure 1 is a side elevation of a staff antenna and means for supporting the same of the kind particularly adapted to be mounted on a bumper bar, such a bar being shown in section.

Figure 2 is a perspective view of the bracket with the bolts and nuts omitted.

Figure 3 is a detail, sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a top or plan view of part of the clamp, illustrating the manner in which the sleeve of insulation is compressed between clamp members.

Figure 5 is an enlarged, side elevation of the clamp and associated elements, parts being broken away and parts being shown in section, the sleeve which covers up the joint between the staff member antenna and the conducting wire being shown in its position just before final assembly.

Figure 6 is a vertical, sectional view of the lower portion of part of the clamp and associated elements of Figure 5, showing the sleeve in place at the joint or point of connection between the conductor and the staff member of the antenna.

Figure 7 is a side elevation of another staff antenna, having a different form of bracket.

Figure 8 is a front elevation of the bracket and parts shown in Figure 7.

Figure 9 is a detail, sectional view taken on the line 9—9 of Figure 7.

In Figures 1 to 6, I have illustrated a staff type of antenna with one form of bracket, while in Figures 7 to 9, I have shown the same staff antenna with another form of bracket. I have used the two forms of bracket to illustrate the fact that several types of brackets may be used and to emphasize the certain common features which they may have.

I will first describe the device as illustrated in Figures 1 to 6, where I have shown a bracket intended to be used for mounting the antenna on the bumper bar of an automobile.

I have shown in Figure 2 the parts of the bracket (except the bolts and nuts). The bracket now under consideration comprises a pair of plates 10 and 11. These are ordinary flat plates. Approximately midway between its side edges, each of the plates 10 and 11 has a channel-shaped portion 12 and 13 respectively, pressed out, so that when the plates are placed together the portions 12 and 13 form substantially a cylinder.

The plates 10 and 11 may be fastened together in any way. I have shown them connected here by rivets 14.

I use with the plates 10 and 11 a plate 15, which is substantially similar to the plate 10.

I preferably mount the bracket now under consideration on a bar 16 of an automobile bumper, by placing the plate 10 on one side and the plate 15 on the other side of the bar 16 and fastening the plates together by means of bolts 17 and nuts 18 with suitable lock washers 19 if desired. The plate 15 has a rib 15*a* to reinforce it against undesired bending when the nuts 18 are tightened on the bolts 17.

I provide a staff 20 forming part of an antenna which may have the sections 20*a*, 20*b*, and 20*c*, detachably telescopically connected. The section 20*a*, for example, is formed of a tubular member. Telescoped on the lower end of the member 20*a* is a member 20*d*, the lower end of which is partially closed as at 21.

The cross sectional area of the end 20*d* is about the same as the cross sectional area of the section 20*a* and at the place where the two members telescope, the end of 20*d* is enlarged slightly as at 22 to receive the end of 20*a*. This leaves a slight enlargement at the joint, which will again be referred to.

It is desirable that the antenna staff should be insulated from the clamp by which it is supported.

I have tried various means but have found that a rather thick rubber sleeve 23 is satisfactory, practically and commercially. A thin rubber sleeve is not so good for the purpose.

I have therefore mounted on the lower end of the antenna staff, the insulation sleeve 23, preferably made of rubber. It fits snugly on the lower end of the staff and the lower end of the

staff preferably projects below the sleeve 23 slightly.

The purpose of having the antenna staff project below the sleeve 23 is to make it more convenient to solder the conductor to such lower end in the process of manufacturing the antenna.

In assembling the parts, the thick rubber sleeve 23 is slipped onto the lower end of the staff and is then placed between the two portions 12 and 13 of the clamp plates 10 and 11.

The parts are so proportioned that when the sleeve 23 is snugly gripped between the channel-shaped parts 12 and 13 of the plates 10 and 11, the plates do not quite fit together. Their position, somewhat exaggerated, is illustrated in full lines in Figure 4. The plates are then gripped tightly together to compress the sleeve 23 and the rivets 14 are inserted.

It will be understood that the clamp is of somewhat resilient material so as to take care of the slight bulge that occurs at D on account of the enlargement in the staff at 22.

It will also be seen that on account of that enlargement and the very tight grip, which will occur in the region of that enlargement and the tendency of the sleeve 23 to form a corresponding bulge, and the tendency of the clamp members to have a slight bulge at that point, there is a very fine clamping action which holds the sleeve 23 in the clamp members and holds the staff from sliding in the rubber sleeve.

The wire 24 of an insulated conductor is fastened to the lower end of the portion 20*d* by solder 25.

It is important to prevent sharp bends at the point where this soldered joint is provided, and it is also important to insulate the lower projecting end of the member 20*d*. I therefore put a thinner rubber sleeve 26 over the parts at such soldered joint, and fit it up snugly to the sleeve 23. The clamp members 10 and 11 carrying the sleeve 23 and the antenna may then be mounted on an automobile bumper bar 16, as already explained, by gripping the bar between the member 10 and the clamp member 15.

Preferably I mount the antenna on a horizontal bar which is arranged between the upper and lower bolts 17, all as illustrated in Figures 1, 3 and 5.

In Figures 7 to 9 inclusive, I have shown a different form of bracket, which is intended to be mounted on the side of a house or the like. In this form of bracket, there is provided a split tube 27 about half of which is cut away at the lower end as indicated at 28. The portion 28 forms a channel-shaped portion which is bent at an angle to the tube 27 and has its face flattened as indicated at 29 to fit against the wall of a house 30.

Where this type of bracket is used, the sleeve 23 with the lower part of the antenna received therein, as already explained, is inserted rather loosely into this split tube 27 and thereupon the tube is put into a press and gripped tightly around the sleeve 23.

The split tube 27 is of somewhat resilient material and is, of course, bendable, so that when the split sleeve 27 is gripped around the sleeve 23, a slight bulge is left as at 27*a*. Here again, the sleeve 23 will thus be held very tightly in the clamp.

It will thus be seen that I have provided a staff for an antenna, which has the tubular members 20*a* and 20*b* and the bulged portion 22, so that when the resilient rubber or insulation sleeve 23 is installed in place on the lower end of the staff, the bulge tends to hold the staff in place in the sleeve against a relative longitudinal movement. Then when the somewhat resilient clamp member is gripped on the sleeve 23, a corresponding bulge tends to be formed in the clamp member, so that the clamp member and the insulation sleeve and the staff are thus firmly locked together against any relative sliding movement.

The rubber sleeve 23 not only serves as insulation but also affords a mounting for the lower end of the staff that has some give, which is desirable, in any type of staff antenna.

It will, of course, be understood that the clamp plates have suitable holes 30 for bolts, and the member 24 has the holes 31 for screws 32.

It will be observed also that the portion 24 functions to protect in a further way the joint between the conductor 24 and the staff 20.

It is further to be observed that while the sleeve 26 protects the joint between the conductor and the staff as against sharp bends, it also serves as insulation for the lower end of the staff, and its construction is such that it is stretched around the lower end of the staff, so that it will then hold its position against accidental sliding movement. It can be pushed up to snugly engage the lower end of the sleeve 23, so as to leave no exposure of the antenna between the two sleeves, and yet it can be readily slid away lengthwise of the conductor to expose the joint between the conductor and the staff when that is desirable.

I claim as my invention:

1. In a staff antenna structure, a staff tubular in form having a bulge near its lower end, a resilient insulating sleeve on the lower end of the staff around said bulge, a clamp receiving said sleeve and compressing it on the staff with the lower end of the staff projecting from the sleeve, said clamp having means for mounting it on a support, a conductor connected to the lower end of the staff, and a resilient sleeve covering the joint between the conductor and the staff and engaging said first sleeve to leave no exposure of the antenna between the two sleeves.

2. In a staff antenna structure, a staff, a resilient insulating sleeve on the lower end of the staff, a clamp receiving said sleeve and compressing it on the staff, said clamp having means for mounting it on a support, a conductor connected to the lower end of the staff, and a resilient sleeve covering the joint between the conductor and the staff and engaging said first sleeve to leave no exposure of the antenna between the two sleeves.

3. In a staff antenna structure, a staff, a resilient insulating sleeve on the lower end of the staff, a clamp receiving said sleeve and compressing it on the staff with the lower end of the staff projecting from the sleeve, said clamp having means for mounting it on a support, a conductor connected to the lower end of the staff, said conductor being of less diameter than the staff, and a resilient sleeve covering the joint between the conductor and the staff and stretched tightly enough on the staff to prevent accidental removal, and engaging said first sleeve to leave no exposure of the antenna between the two sleeves.

JOHN L. GILMORE.