

July 9, 1929.

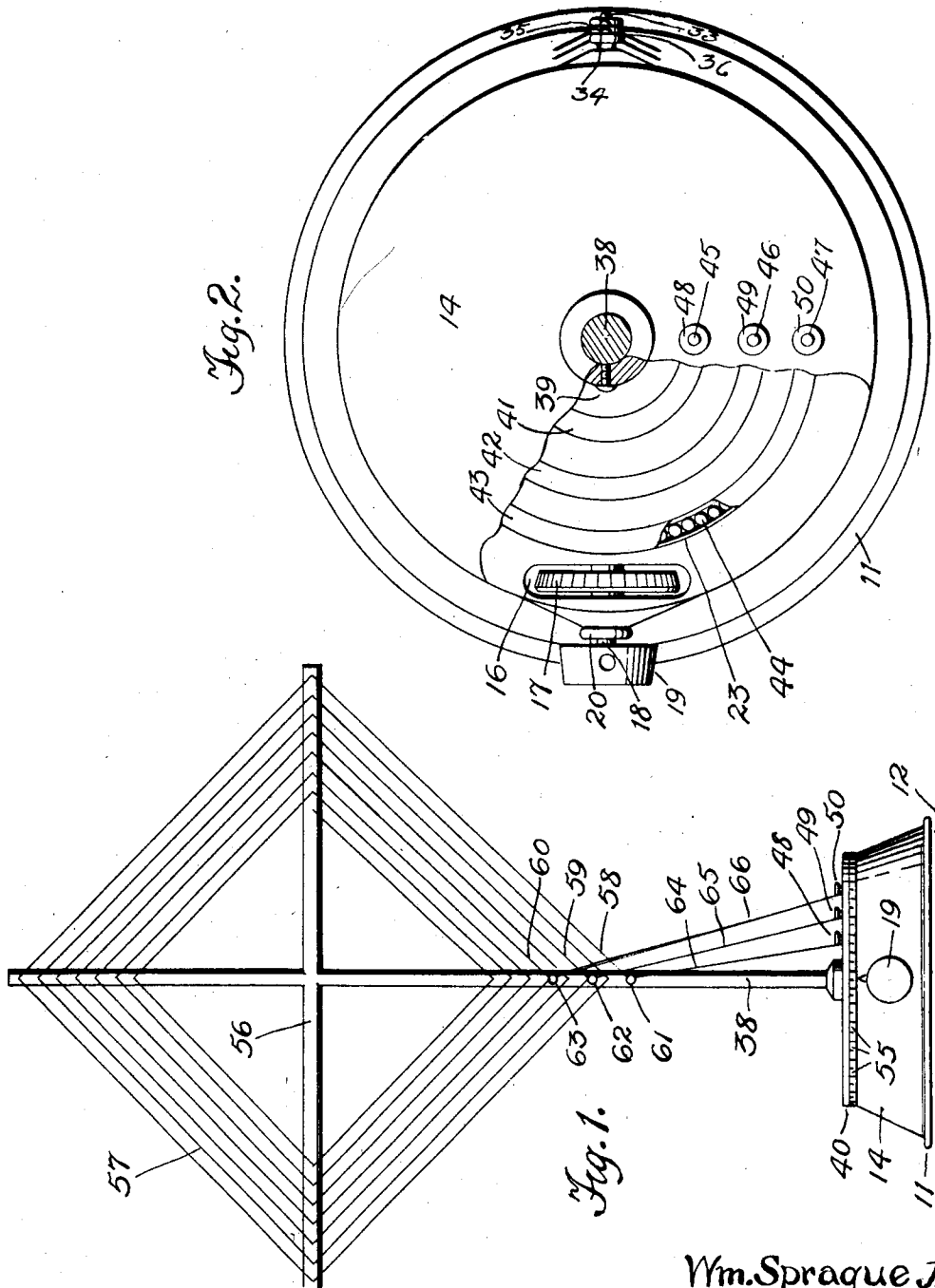
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1,720,154

LOOP ANTENNA MOUNTING

Filed May 14, 1926

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

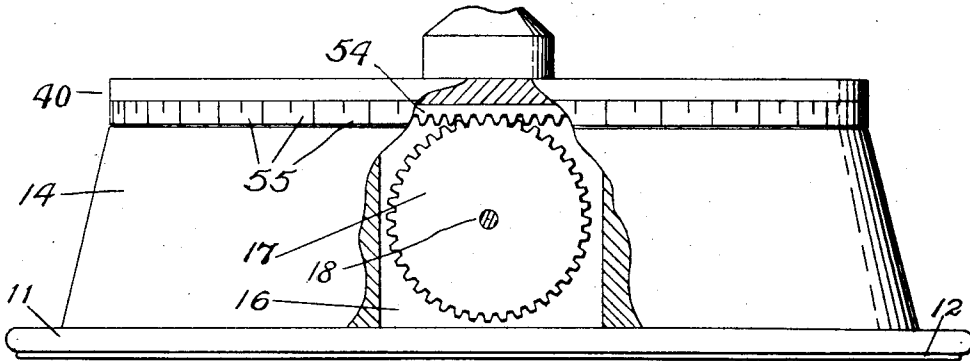


Fig. 4.

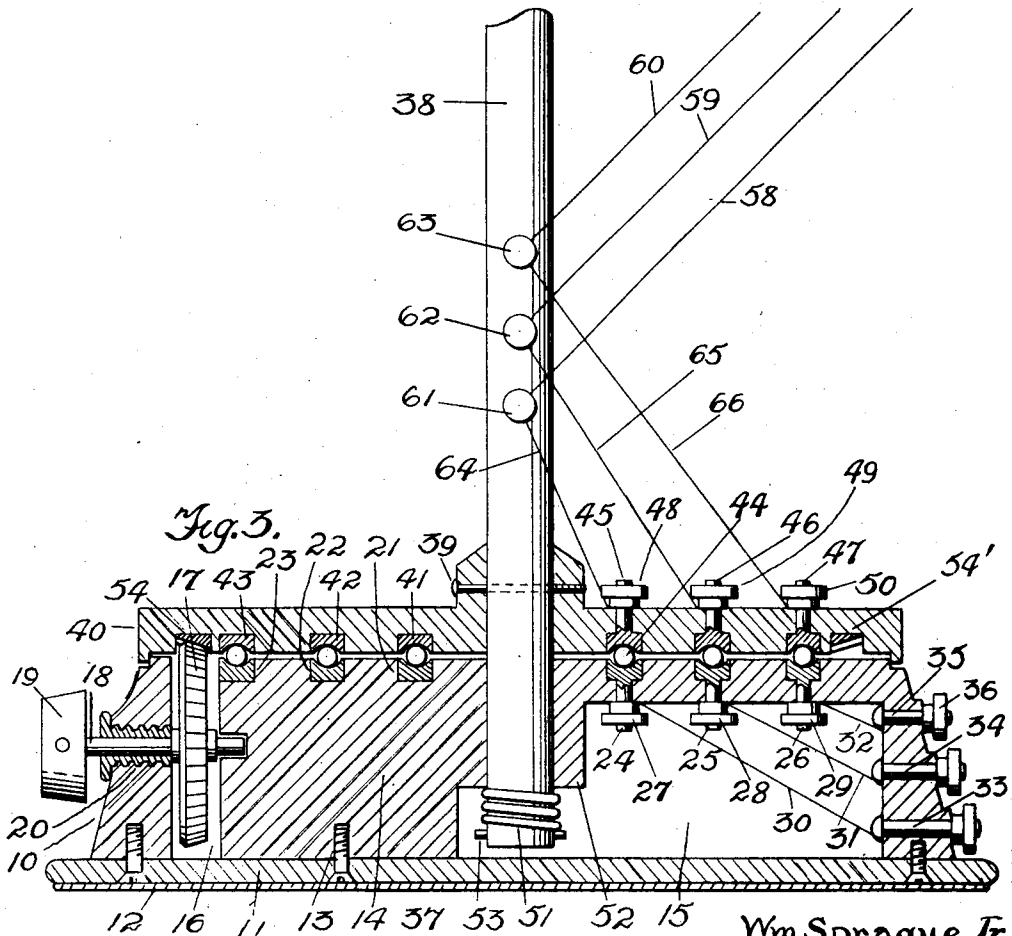


Fig. 5.

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LOOP-ANTENNA MOUNTING.

Application filed May 14, 1926. Serial No. 109,120.

This invention relates to radio apparatus, particularly to loop antennae, and has for its object the provision of a novel mounting for a loop antenna whereby the loop may be rotatably mounted with respect to its base and turned to any desired extent without any danger whatsoever of twisting the wires or tap which are taken off from the loop and which come out to certain binding posts or other suitable terminal elements.

An important object is the provision of a loop antenna mounting provided with knob operated means whereby a very delicate adjustment of the position of the loop may be attained so as to obtain the proper directional effect as is customary when loop antennae are used.

An additional object, and a more specific one, is the provision of a loop antenna and mounting therefor embodying a relatively stationary base member carrying contact elements with which cooperate other contact elements carried by a relatively rotatable member, the latter mentioned elements being connected with the tap taken off from the coil of wire forming or constituting the loop, the arrangement and construction being such that there is always a positive connection without it being necessary to have loose wires or "pig-tails" as may be provided in connection with some types of apparatus for an equivalent purpose.

An additional object is the provision of an apparatus or structure of this character which will be comparatively simple and inexpensive in manufacture, easy to set up and use, positive in action, efficient and durable in service, and a general improvement in the art.

With the above and other objects and advantages in view, the invention consists in the novel construction and arrangement and combination of elements to be hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which:

Figure 1 is an elevation of a loop antenna constructed in accordance with my invention.

Figure 2 is a plan view with the loop itself omitted, parts being broken away to disclose the structure.

Figure 3 is a vertical longitudinal section through the base portion showing a fragment of the standard which carries the loop, and

Figure 4 is an enlarged side elevation with parts broken away and in section, to illustrate the operating means.

Referring more particularly to the drawings, I have shown the device as comprising a relatively stationary portion designated generally by the numeral 10, this portion including a base 11 preferably provided at its underside with a felt or other suitable pad 12 to avoid marring or scarring a table or other support upon which the device may be placed. Mounted upon this base 11 and secured thereto as for example by means of screws 13 or the like is a block-like member 14 formed with recesses 15 and 16, within the latter of which is located a gear 17 carried by a shaft 18 equipped with a knob 19 and journaled through a bushing member 20. Secured upon the block member 14 and preferably let thereinto are rings 21, 22 and 23 arranged concentrically and having their upper surfaces flush with the top of the block member 14 and preferably concaved as indicated to constitute or form ball races. Within the recess 15, are provided depending stems 24, 25 and 26, connected with the respective rings 21, 22 and 23 and carrying binding nuts 27, 28 and 29, with which are connected conductors 30, 31 and 32 which are in turn connected with binding posts 33, 34 and 35 located at the side of the member 14 and carrying suitable binding nuts 36 whereby connections may be made with a radio receiving set.

The block member 14 is formed with a vertical bore 37 within which is rotatably mounted a standard 38 upon which is secured, by any suitable means, such as the bolt 39 or the like, a disk member 40 which extends over and covers the top of the block member 14 and which is provided at its undersurface with a plurality of rings 41, 42 and 43 let or recessed thereinto and arranged above the corresponding rings 21, 22 and 23 respectively, the exposed surfaces of these rings being concaved for the engagement therein or thereon of bearing balls 44 which bear upon the respective rings 21, 22 and 23. This ball bearing structure provides means whereby the disk member 40 may be turned very easily with respect to the base or block member 14, friction being reduced to the minimum. Connected with the respective ring members 41, 42 and 43 are stems 45, 46 and 47 carrying binding nuts 48, 49 and 50.

In order that the member or upright 38 will be held against accidental movement, I have shown it as equipped at its lower end with a coil spring 51 surrounding it and abutting against a shoulder 52 of the block member 14 and against an abutment element such as a pin 53 or the like extending through the lower end of the upright 38.

Recessed into the underside of the disk member 40 is a circular rack 54 with which the gear 17 meshes so that when the handle or knob 19 is turned, to turn the shaft 18, the rotation of the gear 17 will cause rotation of the disk 40 with respect to the base. It is of course apparent that any suitable graduations may be provided on the disk, as shown at 55 so that any desired angular or rotatable adjustment of the disk 40 with respect to the base may be obtained, it being possible to make a record of such indications so as to tune in different stations as the case may be.

The upright 38 of course carries a suitable frame structure 56 upon which is wound wire 57 constituting a loop antenna, and at certain points, this wire is tapped off, the taps 58, 59 and 60 being brought to binding posts 61, 62 and 63 on the upright 38.

Connected with the binding posts 61, 62 and 63 are conductors 64, 65 and 66 which are in turn connected with the stems 45, 46 and 47 by means of the binding posts 48, 49 and 50 respectively.

In the operation of the device, it will be apparent that by turning the knob 19 the disk 40 carrying the loop antenna may be moved bodily with respect to the base member so as to get the desired directional effect as is well known. Obviously, owing to the fact that the conductors or taps on the loop antenna or coil are connected with the binding posts carried by the upright and in view of the fact that these binding posts are connected directly by conductors with the binding posts carried by the disk 40, and owing to the fact that the interengaging and electrically connected rings are provided, it will be quite apparent that proper electrical connections will be maintained at all times, regardless of the position in which the loop antenna may be placed, there being absolutely

no necessity whatsoever for providing any wires which might twist as is the case when they are "pig-tailed" or otherwise arranged. Clearly, the loop antenna may be rotated as many times as desired with respect to the base without there being any twisting action and the electrical connections will be positive and certain at all times. It is really believed that the construction, operation and advantages will be readily apparent to one skilled in the art without further explanation.

While I have shown and described the preferred embodiment of the invention, it should be understood that I reserve the right to make such changes in the form, construction and arrangement of parts as will not depart from the spirit of the invention or the scope of the subjoined claim.

Having thus described the invention, I claim:—

In a radio receiving loop mounting structure, a relatively stationary base of insulating material recessed at its under side, a series of concentric rings carried by the base at the top thereof, terminal elements on said rings located within said recess, other terminal elements located at the side of the base, conductors connecting the respective terminal elements and located within the recess, an upright rotatably mounted thru the base, a disk secured to said upright above the base and having its under side provided with a series of concentric rings located opposite said first named rings, terminal elements connected with the second named concentric rings and projecting above the top of the disk, bearing balls located between the respective first and second named rings and providing the electrical connection and reducing friction during relative rotation of the disk and base, gear mechanism for rotating the disk, the gear mechanism including an operating shaft projecting horizontally beyond the side of the base and equipped with turning means, and a loop carried by the upright and having taps connected with the respective ones of the second named terminal elements.

In testimony whereof I affix my signature.
WILLIAM SPRAGUE, JR.