May 10, 1960 R. K. ANDRÉ 2,936,368

RADIO

Filed March 2, 1959

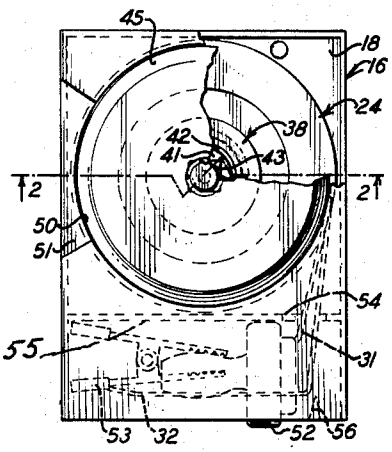


Fig. 1

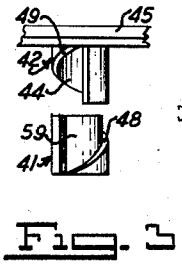


Fig. 3

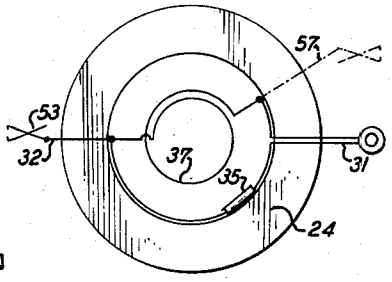


Fig. 5

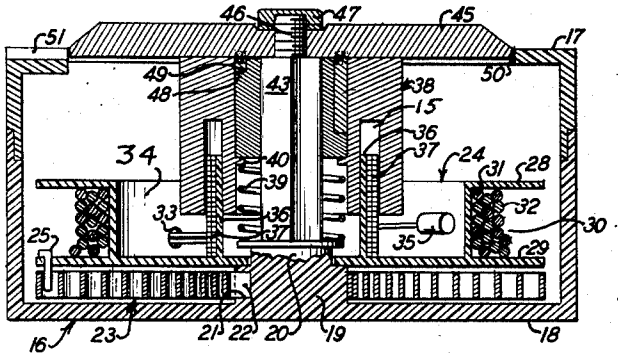


Fig. 2

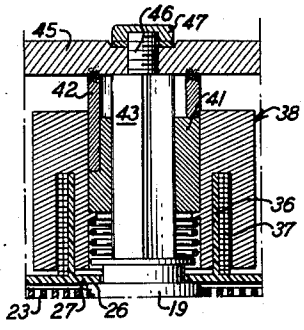


Fig. 4

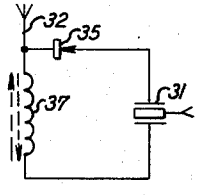


Fig. 6

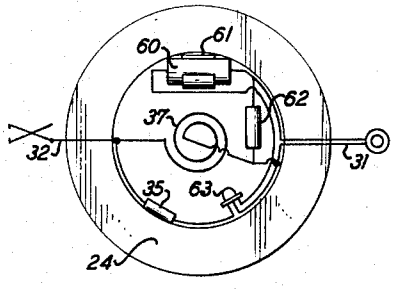


Fig. 7

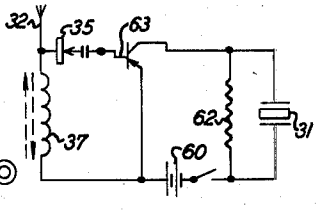


Fig. 8

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RADIO

Robert K. André, Miami, Fla.

Application March 2, 1959, Serial No. 796,472

6 Claims. (Cl. 250—14)

My invention relates to radiant energy devices and, more particularly, to transmitting and/or receiving radios.

The radiant energy device or radio of my invention comprises a rotatable means which supports or carries a radio means. A flexible electrical lead is connected at one end to the radio means and the other end thereof is free for use as an electrical conduit for electrical energy.

In the embodiment of my invention shown, the rotatable means is in the form of a spool and the lead is coiled around the spool. When in use, the lead is pulled outwardly to the desired length, causing the spool and the radio mounted thereon to rotate. When not in use, the lead is coiled back on the spool. Suitable resilient means, such as a coiled spring, enables automatic recoiling.

To enable selective tuning of the radio, means is mounted on the housing for varying the relative position of a tuning slug and the coil of the radio.

Further objects and features of my invention will appear from the detailed description following hereinafter and, more particularly, from an explanation of my invention with reference to the drawing in which:

Figure 1 is a top view of my invention with a portion cut-away to show the general arrangement of parts, certain parts being shown in phantom;

Figure 2 is a side cross-sectional view taken on line 2—2 of Figure 1 with the tuning slug in its outermost position;

Figure 3 is a side view of the cam elements which enable tuning of the radio;

Figure 4 is a view of the central upper portion of Figure 2 with the tuning slug moved inwardly to its innermost position;

Figure 5 is a schematic view showing the electrical elements of the radio mounted on a spool;

Figure 6 is a circuit drawing of the radio of Figure 5;

Figure 7 is a schematic view showing the electrical elements of a transistor-type radio mounted on a spool; and

Figure 8 is a circuit drawing of the radio of Figure 7.

Referring now to Figures 1–4, it will be seen that my invention comprises a rotatable means or spool **24** rotatably mounted on means generally indicated by numeral **16** which provides a mounting and housing for the spool **24**. The housing has a top **17**, bottom **18** and a centrally positioned spindle **19** on which the operating elements are mounted. The spindle **19** has a bottom portion **20** with a slot **21** therein for holding engagement with the inner bent end **22** of coil spring **23**. The outer end portion of the spring is rigidly connected to spool **24** by pin **25**.

An annular bearing ledge **26** is formed at the top of the bottom portion **20** for bearing engagement with the inner peripheral hub portion **27** of spool **24**. Radial flanges **28** and **29** form an annular outer peripheral groove **30** for housing a coiled speaker or earphone lead **31** and, if desired, a coiled antenna or ground lead **32**. Each lead passes through opening **33** in the bottom wall

34 of the groove **30** and is electrically connected to its proper radio element as will be described. The crystal or detector **35** of the radio is attached to the inner face of groove wall **34** by any suitable means, such as glue.

An axial bearing wall **36** of a dielectric material extends from the hub portion **27** and the coil **37** of the radio is mounted thereon in a rigid manner.

A tuning slug **38**, preferably of powdered iron, is mounted for reciprocating movement into proximity with and away from the coil **37**. In the embodiment shown, the slug **38** is a cylinder having an annular groove **15** in one end which receives and houses the coil **37** and wall **36** as the slug moves toward hub portion **27** of spool **24**. Coil spring **39** provides a spring means for biasing the slug away from the coil **37**; one end of the spring being seated on the bottom portion **20** of the spindle **19**, the other on an internal ledge **40** of the slug **38**.

Controlled tuning actuation of the slug **38** is accomplished by means for causing relative movement of the slug and coil. In the embodiment shown (Figure 3) a pair of cams **41** and **42** are mounted on the spindle **19** and within the slug **38**, their outer axial surfaces providing a bearing for the slug. The outer post **43** of spindle **19** extending from the bottom portion **20** thereof is other than round in cross section and preferably square as shown so that the actuatable cam **41** which has a mating internal axial hole can reciprocate on the spindle **19** but cannot rotate thereon. Actuatable cam **41** engages internal ledge **40** of slug **38** to cause inward movement thereof against the bias of spring **39**. Actuator cam **42** has an internal hole **44** sufficiently large to enable rotation on the square post **43**, the outer edge of cam **42** being rigidly affixed to a dial disc **45** as by welding, the dial disc **45** being rotatably mounted on a reduced cross section axle end **46** of spindle **19**. A nut **47** threaded on the axle end **46** retains the dial disc **45** in place for tuning rotation.

The cams **41** and **42** have mating spiral cam surfaces **48** and **49**, respectively, on their outer surfaces which coact to cause movement. Figure 2 shows the cams in closely united condition with the slug **38** at its outermost position; Figure 4 shows the cams in extended condition with the slug **38** at its innermost position.

The top **17** of the housing **16** has a circular opening **50** and a finger depression **51** for enabling adjustment of the dial disc **45**. Suitable station identification can be added to the face of the dial disc and cover.

An earphone **52** (shown in phantom Figure 1) is attached to the outer end of lead **31**; an antenna or ground clamp **53** (shown in phantom Figure 1) is attached to the outer end of lead **32**. The earphone and clamp are housed in wedged condition in an open end of the housing as shown in Figure 1. The leads **31** and **32** pass through an opening **54** in the inner housing wall **55**; a V-shaped notch **56** provides a catch for the leads when withdrawn to prevent rewinding by coil spring **23**.

Figure 5 shows in schematic view the mounting and arrangement of the elements of the radio on spool **24**; Figure 6 shows a circuit diagram of the arrangement. In these figures, the detector or crystal is **35**, the coil is **37**, the antenna or ground is **32** and the speaker or earphone (crystal or magnetic) is **31**. If both antenna and ground are desired, a ground **57**, shown in dotted lines in Figure 5, may be added.

Figure 7 shows in schematic view the mounting of the elements of a transistor radio on spool **24**; Figure 8 shows a circuit diagram of the arrangement.

A battery **60** is held in a clip **61** which is glued to the internal wall of the spool. A resistor **62** is glued to the spool and electrically connected to the battery **60**, the coil **37**, and a transistor **63**. The other parts are

similar to those previously discussed and carry similar numerals.

Many variations in the electrical radio system may be made within the scope of my invention. The circuit and schematic disclosures made herein are suggestive of other systems which can be used.

While the invention has been described in terms of certain embodiments and examples, these are to be considered as illustrative rather than limiting and it is desired to cover all modifications and further embodiments that fall within the spirit and scope of the appended claims.

I claim:

1. A radio comprising a rotatable means, means for rotatably mounting said rotatable means, radio means mounted on said rotatable means, a flexible electrical lead connected at one end to said radio, said lead being removably wound on said rotatable means, the other end of said lead being free to enable unwinding of said lead to provide an extendible electrical conduit for electrical energy.

2. A radio comprising a rotatable spool means, housing means for rotatably mounting said spool means, radio means mounted on said spool means, a flexible electrical lead connected at one end to said radio, said lead being removably wound on said spool means, the other end of said lead being free to enable unwinding of said lead

to provide an extendible electrical conduit for electrical energy.

3. A radio in accordance with claim 2 and wherein said radio means includes a coil and a detector, and wherein a second flexible electrical lead is paired with the aforementioned lead.

4. A radio comprising a rotatable spool means, housing means for rotatably mounting said spool means, said spool means having an annular groove in its outer periphery, radio means mounted on said spool means, a flexible electrical lead connected at one end to said radio and coiled in said annular groove, said housing means having a lead opening, the other end of said lead extending out through said lead opening to provide an extendible electrical conduit for electrical energy, said radio means including a detector, a coil, and a tuning slug, means mounted on said housing for relatively moving said coil and tuning slug toward and away from each other.

5. A radio as defined in claim 4 and including a coil spring means interconnecting said housing means with said spool means to provide for automatic rewinding of a withdrawn lead.

6. A radio as defined in claim 5 and including a second flexible electrical lead paired with the aforementioned lead.

No references cited.