

Jan. 29, 1935.

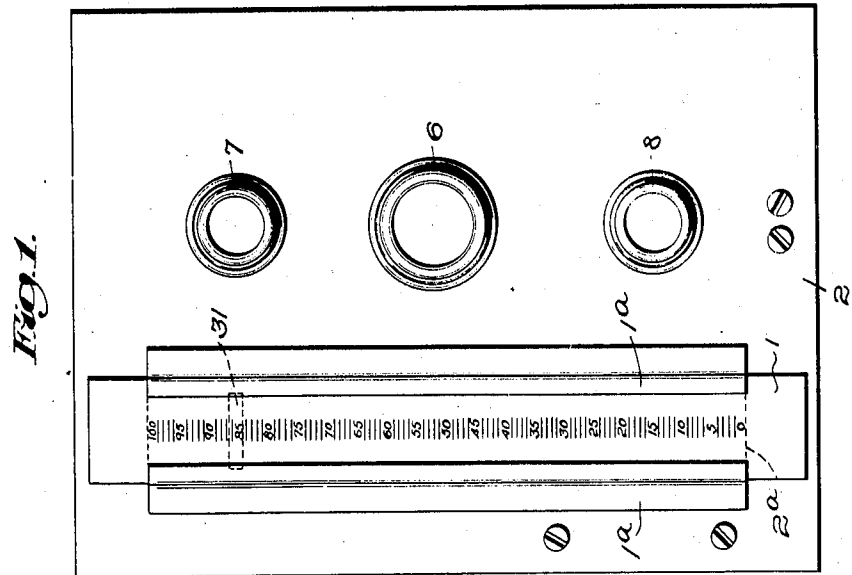
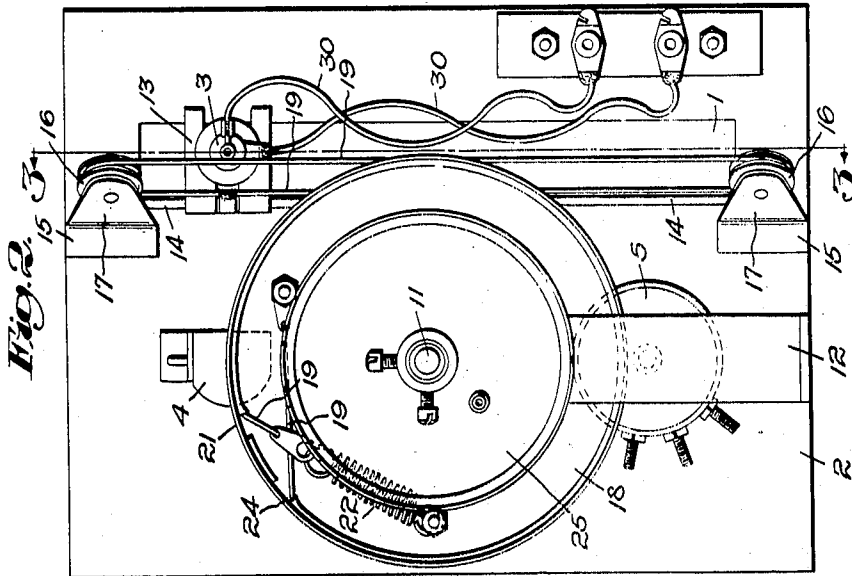
J. MILLEN

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RADIO AND LIKE APPARATUS

Filed Jan. 27, 1931

2 Sheets--Sheet 1



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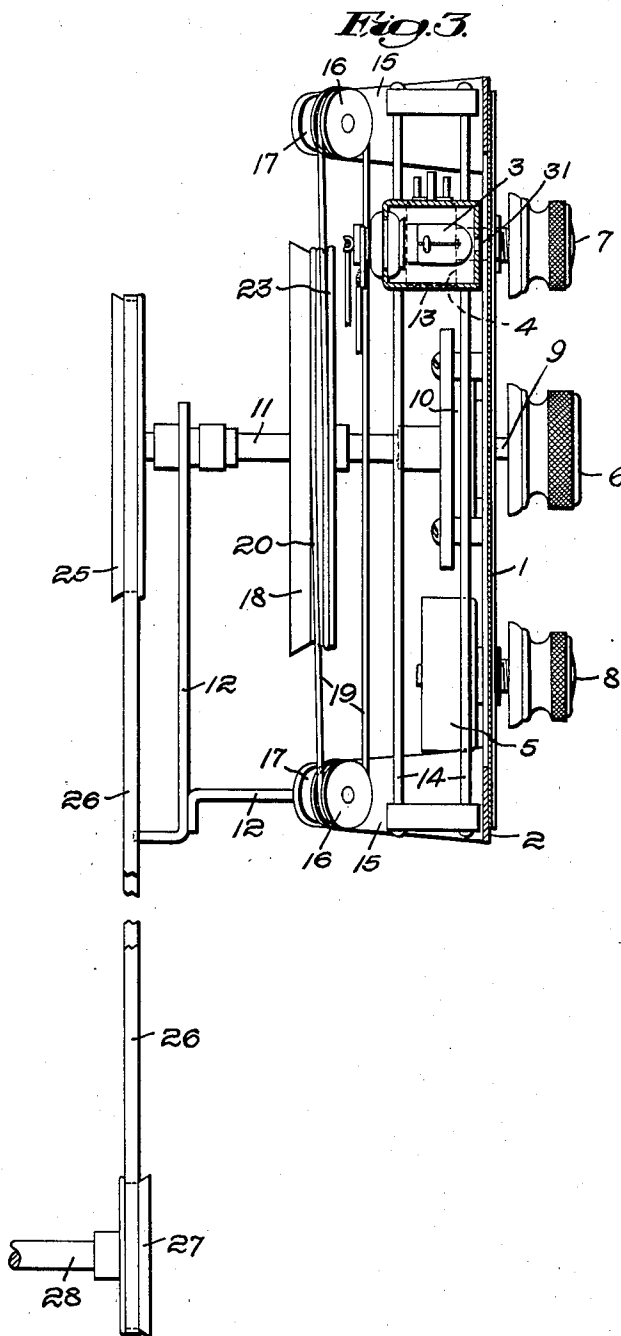
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# UNITED STATES PATENT OFFICE

1,989,490

## RADIO AND LIKE APPARATUS

James Millen, Malden, Mass.

Application January 27, 1931, Serial No. 511,601

4 Claims. (Cl. 116—124.1)

My invention aims to provide improvements in radio and like apparatus.

In the drawings which illustrate a preferred embodiment of my invention:—

Figure 1 is a front elevation of a dial mechanism as used in connection with a remote control device;

Fig. 2 is a rear elevation of the device shown in Fig. 1; and

Fig. 3 is a section taken on the line 3—3 of Fig. 2.

Referring to the particular embodiment of my invention shown by the drawings, I have illustrated a dial mechanism which in the device illustrated comprises a remote control mechanism, although it is to be understood that the mechanism may be used otherwise and the remote control mechanism is not limited to the particular dial mechanism shown.

The novel dial structure which forms a part of my invention includes a scale 1 which in this particular instance is shown as flat and being opaque except for the numbers and the scale lines which are translucent. The scale 1 is mounted in a vertical manner as by the angle pieces 1<sup>a</sup> on a plate 2 to cover an opening 2<sup>a</sup> therethrough, and an electric light 3, for illumination of the scale markings, is mounted for longitudinal movement behind the plate 2 and scale 1, as shown in Fig. 3. The plate 2 is adapted to be mounted behind a suitable panel (not shown).

In the device illustrated all of the parts of the remote control device are supported by the plate 2 and those parts include the dial means, hereinafter more fully described, an electric switch 4 (Fig. 2) and a volume control 5, and any other suitable parts for operation of the set at a point remote from the set. The dial means is operated by a knob 6 (Fig. 1), the switch 4 by a knob 7 and the volume control 5 by a knob 8, all of which are located in front of the plate 2 and each of which is connected by a shaft (Fig. 3) to its respective means to be operated by rotation of the shaft. Therefore, when my entire device is used as a remote control for a radio set, the plate 2 may be conveniently located in a small space, such, for instance, as may be provided in the upper part of a desk, cabinet, or the like, and the radio set may be located in an out-of-the-way part of the desk or at any convenient point remote from the place where the set is to be operated. Therefore, the operating means for a radio set may be conveniently located while the set itself may be located in a

space not readily or easily accessible. It will, of course, be understood that the switch 4 and volume control 5 are each connected by suitable wiring to the radio set.

The dial structure, aside from the scale 1 and lamp 3, includes means for operation of the radio set. The operating means comprises a shaft 9 extending from the knob 6 (Fig. 3) through the plate 2 and is connected to one part of a vernier mechanism 10 (Fig. 3). Another shaft 11 is connected, at one end, to the other part of the vernier mechanism 10 and is supported at the other end by a bracket means 12 attached to the plate 2.

Any suitable vernier mechanism may be used, but I have shown and used a mechanism like that more fully illustrated and described in the United States Letters Patent to William A. Ready No. 1,744,675, issued January 21, 1930.

Any suitable mechanism may be employed to move the light 3 longitudinally relative to the scale 1. I have provided a hood 13 in which the light is removably mounted and the hood is slidably mounted upon two parallel rods 14—14 (Figs. 2 and 3) supported by brackets 15—15 attached to the plate 2. The free end of each bracket 15 is bent at an angle and has a pulley 16 mounted upon the bent portion 17.

The means for coupling the remote control unit to the set may be varied as to mechanical structure, but I have shown as one means a mechanism which includes a large pulley 18 secured to the shaft 11. A cord, wire, belt, or the like which I shall term a flexible driving member 19 is passed around the pulleys 16 and has one portion extending from one pulley 16 around the pulley 18 in a groove 20 and then through a slot 21 (Fig. 2) into the pulley where one end is connected to a spring 22 secured directly to the pulley, as shown in Fig. 2. The other end portion of the flexible member 19 passes around the pulley 18 in another groove 23 and through a slot 24 in the edge of the pulley where the end is rigidly attached to the pulley. To that portion of the flexible member 19 which passes from one pulley 16 to the other pulley 16, I have securely attached the hood 13 (Fig. 2) so that as the flexible member 19 moves upwardly or downwardly the hood 13 and light 3 move with it.

Another pulley 25 is attached to the shaft 11 and a chain or belt 26 is passed around that pulley and a corresponding pulley 27 which is attached to the condenser or like shaft 28 (Fig. 3)

of a radio set or the like (not shown) for operation of the set by rotation of the shaft 11.

In Fig. 2, I have shown the light 3 connected to a pair of contact members 29—29 by means of flexible wires 30—30 so that the light may be connected to a source of electric current supply without interfering with the movement thereof behind the scale 1.

The operation of the dial part of the device is as follows:—By turning the knob 6, the shaft 9 will be rotated and this shaft will actuate the vernier mechanism thereby rotating the shaft 11 at a reduced ratio with relation to the rotation of the shaft 9. Since the rotating or tuning part of the radio set is coupled with the shaft 11 by suitable means, such as above described, the shaft 28 (Fig. 3) will be rotated either at the same rate as the shaft 11 or at any differential rate according to the size of the pulleys 25 and 27. It is, of course, desirable to have a visible indication so that the operator may know how he is tuning the radio set and, therefore, the lamp 3, which we will assume is lighted, will illuminate that area of the dial directly in front of a small opening 31 in the hood 13. Since the hood 13 is moved by the flexible means 19 driven by the pulley 18 attached to the shaft any rotation of the shaft 11 will be recorded by the change of the position of the lamp with relation to the scale. Therefore, as the shaft is rotated the hood 13 and lamp 3 will be moved upwardly or downwardly upon the rods, thereby changing the area of illumination cast upon the scale and indicating the degree of rotation of the tuning means of the set.

While I have illustrated and described a preferred embodiment of my invention, I do not wish to be limited thereby, because the scope of my invention is best defined by the following claims:

I claim:

1. A remote control dial mechanism for use in connection with radio and like apparatus comprising a panel means, a scale fixed with relation to said panel means, a light and light-supporting means movable longitudinally with relation to said scale to indicate the movement of a device to which the dial mechanism may be attached, a knob exposed at the front face of said panel

means, a mechanism interposed between the knob and the light-supporting means and operable by manipulation of said knob to move said light and light-supporting means relative to said scale and an element adapted to be connected to the radio or like apparatus whereby said apparatus may be operated by manipulation of said knob and the operation of said apparatus will be indicated on said scale by a movement of the light and light-supporting means.

2. A dial mechanism having, in combination, a fixed scale, a lamp mounted for movement along said scale, a rotatable shaft, gearing means operatively connecting said shaft and lamp for moving the latter at a predetermined rate relative to the rotation of said shaft, gearing for operatively connecting said shaft to an instrument for adjusting the latter at the same relative rate at which said lamp is moved, and a manually operated control member operatively connected to said shaft for rotating it.

3. A dial mechanism having, in combination, a fixed scale, a lamp mounted for movement along said scale, a shield for said lamp operative to cause a spot of illumination on said dial, a rotatable shaft, gearing means operatively connecting said shaft to said lamp and shield for moving them as a unit at a predetermined rate relative to the rotation of said shaft, gearing for operatively connecting said shaft to an instrument for adjusting the latter at the same relative rate at which said lamp and shield are moved, and a manually operated control member operatively connected to said shaft for rotating it.

4. A remote control device having, in combination, a stationary dial, a lamp behind said dial, a support for said lamp for moving it longitudinally of said dial, a shaft, a pulley carried by said shaft, flexible means connecting said pulley and support for causing movement of the latter when said shaft is rotated, means for connecting said shaft to a remote instrument for adjusting the latter at the same relative rate at which said support is moved, and a manually operable rotatable control member operatively connected to said shaft for rotating it.

JAMES MILLEN.