Nov. 30, 1926. 1,608,993

C. PFANSTIEHL ET AL

MOUNTING FOR VARIABLE INDUCTANCE

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Fig. 1.

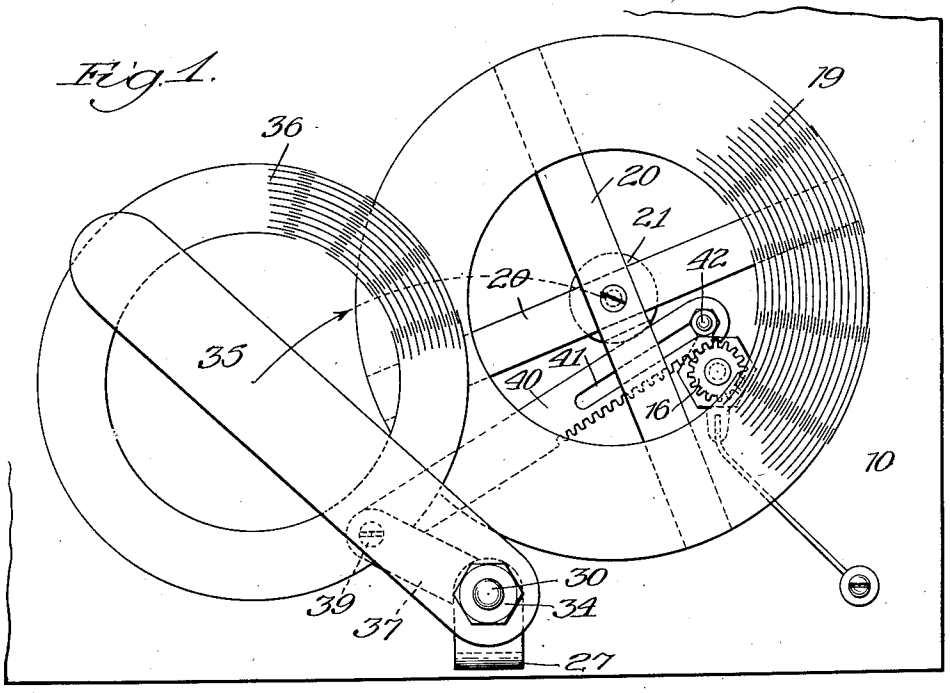


Fig. 2.

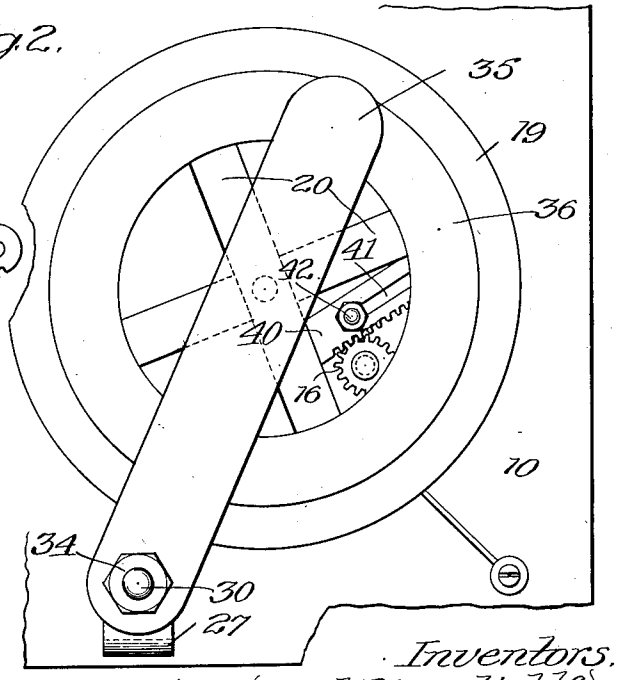
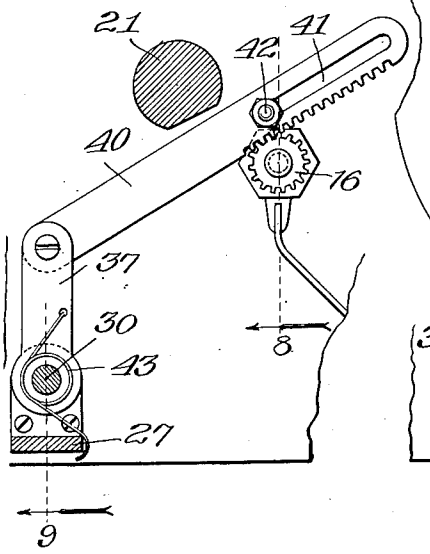


Fig. 3.



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Fig. 6.

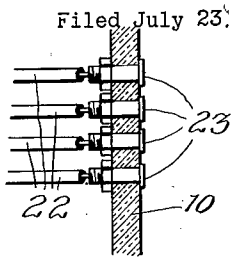


Fig. 4.

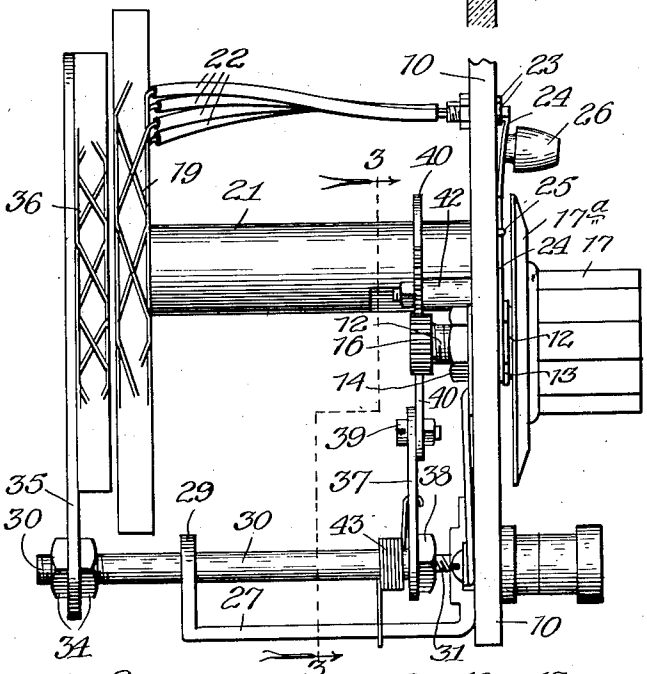


Fig. 5.

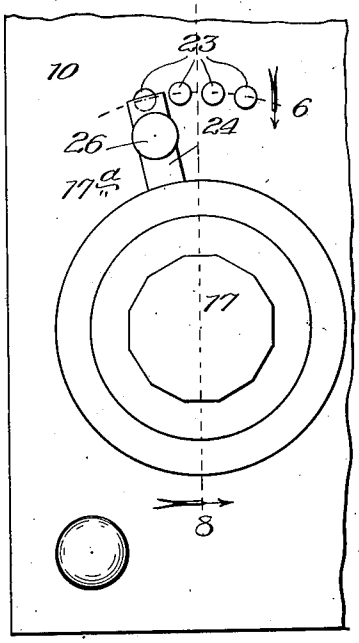


Fig. 8.

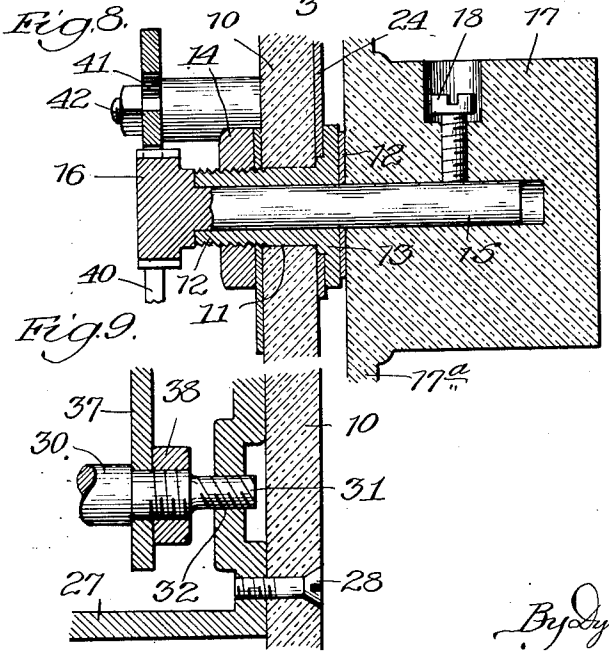


Fig. 7.

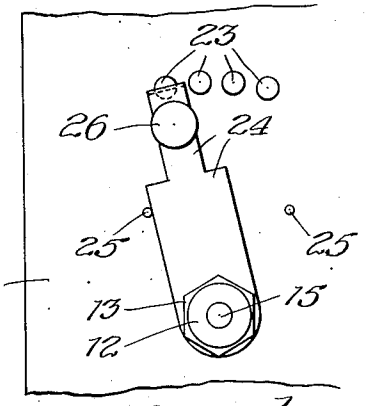


Fig. 9.

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Patented Nov. 30, 1926. 1,608,993

UNITED STATES PATENT OFFICE.

CARL PFANSTIEHL AND WILLIAM OSCAR BELL, OF HIGHLAND PARK, ILLINOIS, ASSIGNORS TO PFANSTIEHL RADIO SERVICE COMPANY, A CORPORATION OF ILLINOIS.

MOUNTING FOR VARIABLE INDUCTANCE.

Application filed July 23, 1923. Serial No. 653,176.

Th's invention relates to mountings for variable inductances such as variocouplers and the like which are used in radio receiving sets.

The primary object of the invention is to provide means for obtaining a nice adjustment between inductance coils.

Another object is to provide neat compact means for adjusting variable inductances which may readily be used upon the panels of radio receiving sets.

These and other objects are accomplished by this invention which are fully described in the following specification and shown in the accompanying drawings in which:

Figure 1 is a rear elevation of the invention as applied to two inductance coils, showing the movable coil in position of minimum inductance;

Fig. 2 is the same showing the movable coil in enclosed position in maximum inductive relation;

Fig. 3 is a partial similar view taken on the line 3—3 of Fig. 4;

Fig. 4 is a side elevation of the parts shown in Fig. 2;

Fig. 5 is a partial front view of the panel;

Fig. 6 is a partial section on the line 6 of Fig. 5;

Fig. 7 is a view similar to Fig. 5, but showing the knob and dial removed;

Fig. 8 is a partial enlarged section on the line 8 of Figs. 3 and 5; and

Fig. 9 is a partial section on the line 9 of Fig. 3.

The embodiment illustrated comprises the usual front panel 10 of a suitable insulating material having an opening 11 in which is secured a sleeve 12 having a shoulder 13 at one end and a screw threaded portion on the other which is adapted to receive a nut 14 by which it is secured to the panel. A shaft 15 is journaled in the sleeve 12 and has a pinion 16 on the inner end, the outer end being secured within the knob 17 by means of a set screw 18.

A flat coil 19 which is preferably of the spider web type, has cross bars 20 by which it is secured to a post 21 which in turn is secured to the panel 10. This coil is tapped at intervals and has a series of leads 22 each of which is connected to one of the taps 23 which are placed on the arc of a circle whose center coincides with the center of the shaft 15. A metal switch lever 24 is journaled upon the shoulder 13 as shown in Figs. 7 and 8 and is adapted to selectively engage the taps 23 so as to vary the number of turns in the coil 19 which are in operation at a given time. The lever 24 is provided with stops 25 and an insulating handle 26 as shown in Fig. 7.

A bracket member 27 is secured to the panel 10 by means of screws 28 (Figs. 4 and 9) one end of this bracket having an ear 29 in which a shaft 30 is journaled, the opposite end of the shaft 31 being reduced and screw threaded and screwed into a tapped hole 32 in the ear 33 at the opposite end of the bracket 27.

The outer end of the shaft 30 is threaded and nuts 34 screwed thereon between which is held an arm 35 preferably of insulating material to which is secured a flat coil 36 preferably of the spider web type. A lever 37, is secured to the opposite end of the shaft 30 by means of a nut 38. This lever is hingedly secured by means of a screw 39 to a rack 40, the opposite end of which has a slot 41 which is slidable over a shouldered pin 42 which is carried by the panel 10, adjacent the shaft 15 so that the teeth of the rack 40 engage the pinion 16. A spring 43 surrounding the shaft 30 has one end engaging the lever 37, the other the bracket member 27 so as to take up the slack of the moving parts and render the movable coil 36 more uniformly responsive to movement of the knob 17. From the foregoing it will be understood that as the knob 17 and dial 17^a are moved they will turn the pinion 16 which in turn will move the rack 40, the shaft 30 and the movable coil 36.

Owing to the small pinion 16 and the relatively large lever 37, a large gear reduction is provided so that a relatively large angular movement of the dial 17^a will produce only a small movement of the shaft 30 and coil 36. The operator is thus able to obtain very close tuning between the two flat coils 19 and 36.

The screw threads 31 are preferably made very steep so that as the shaft 30 is turned from the position of minimum inductance as shown in Fig. 1 to the position of maximum inductance as shown in Fig. 2, the plane of the flat coil 36 will approach the plane of the flat coil 19, which still further effects the inductive relation of the coils.

As here illustrated 19 is a primary coil

having a series of taps 23 by which the set may be tuned for different wave lengths. By mounting the switch lever 24 on or near the shaft 15, the operator can readily reach the knob 26 of the switch lever 24 and move it with one finger of the hand which is employed on the knob 17.

While we have shown and described certain embodiments of our invention, it is to be understood that it is capable of many modifications. Changes therefore in the construction and arrangement may be made without departing from the spirit and scope of the invention as disclosed in the appended claims, in which it is our intention to claim all novelty inherent in our invention as broadly as possible in view of the prior art.

We claim:

1. In apparatus of the class described, a fixed flat coil, a movable flat coil mounted on an arm carried by a shaft so that as said shaft is turned, said movable coil will move across the face of the fixed coil at a short distance therefrom, said coils lying in parallel planes, a lever secured to said shaft, a rack hingedly connected to said lever, a pinion meshing with said rack, and a knob for turning said pinion.

2. In apparatus of the class described, a fixed flat coil, a movable flat coil mounted on an arm carried by a shaft so that as said shaft is turned, said movable coil will move across the face of the fixed coil at a short distance therefrom, said coils lying in parallel planes, a lever secured to said shaft, a rack hingedly connected to said lever, a pinion meshing with said rack, a spring for removing the backlash from the gears, and a knob for turning said pinion.

3. In apparatus of the class described, a panel, a flat coil secured thereto, a shaft having a screw-threaded end, a bracket secured to said panel and having two ears, in one of which said shaft is journalled, in the other of which is a tapped hole in which said threaded end is secured, a flat coil carried by said shaft and movable in front of the first mentioned coil, and means for turning said shaft.

4. In apparatus of the class described, a fixed flat coil, a movable flat coil mounted on an arm carried by a shaft so that as said shaft is turned, said movable coil will move across the face of the fixed coil at a short distance therefrom, said coils lying in parallel planes, means for moving said shaft axially as it is turned, and means for turning said shaft to shift the movable coil.

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