H. P. DONLE.

WAVE METER.

APPLICATION FILED DEC. 15, 1917.

1,305,202. Patented May 27, 1919.

Fig. 1.

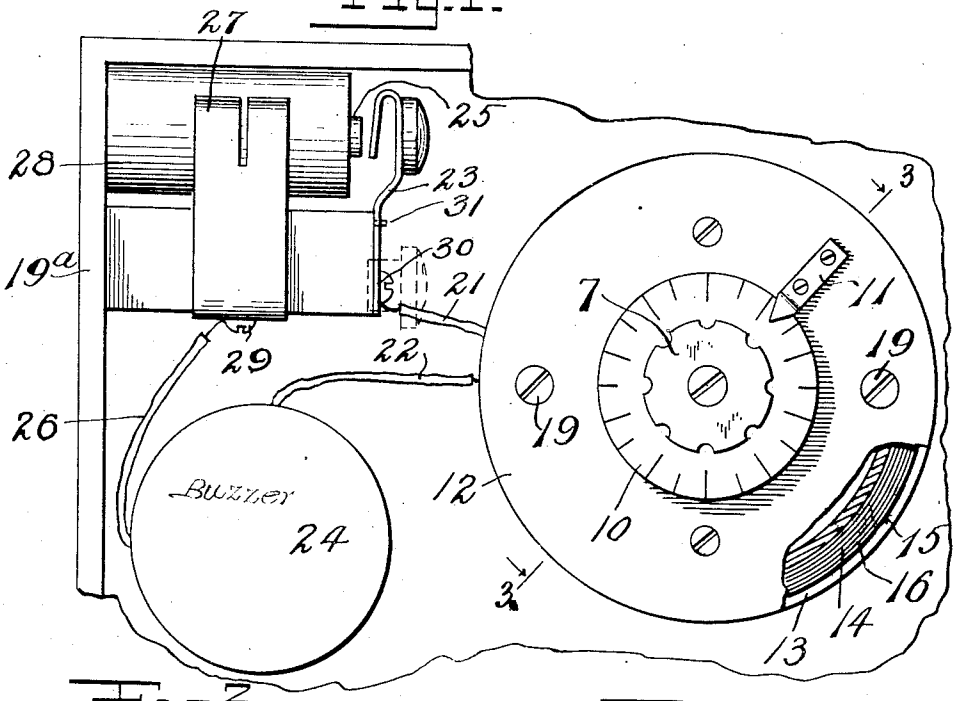



Fig. 3.

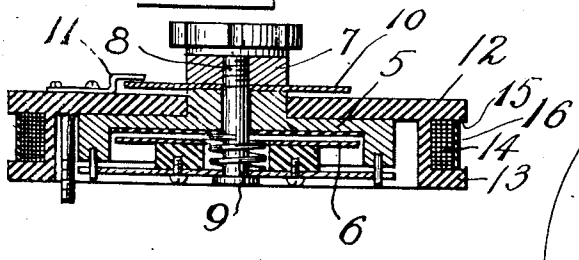



Fig. 2.

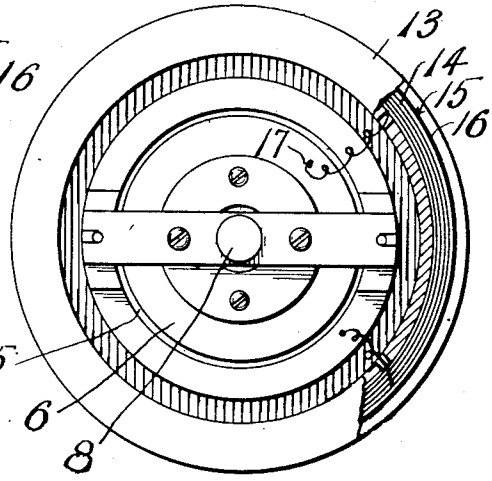
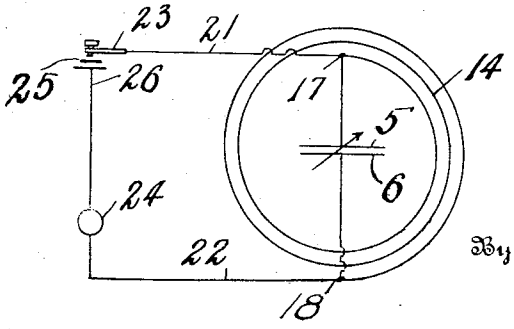



Fig. 4.




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# UNITED STATES PATENT OFFICE.

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## WAVE-METER.

1,305,202. Specification of Letters Patent. Patented May 27, 1919.

Application filed December 15, 1917. Serial No. 207,258.

*To all whom it may concern:*

Be it known that I, HAROLD P. DONLE, a citizen of the United States of America, residing at Meriden, Connecticut, have invented a new and useful Wave-Meter, of which the following is a specification.

This invention relates to so-called "wave meters" for oscillation circuits and the invention has for its objects to provide simple and effective means for generating or setting up oscillations of definite measured wave lengths.

A special object is to make the meter in as compact form as possible so that it may be readily associated with a portable radio set.

Another object is to make the inductance and the capacity of the meter in compact form, occupying but little space and so combined that the two may be handled and treated as a single unit.

Briefly described, the inductance and the capacity are in my invention combined by mounting the capacity within a hollow support and mounting the inductance in the form of a coil wound upon said hollow support. This combined inductance-capacity unit is usually connected with a buzzer and suitable current source such as a dry cell or the like, with a switch connected for making and breaking the circuit.

Another feature of the invention is a special form of switch key arranged to directly engage with one element of the cell or battery furnishing the electromotive force.

Various other features will appear as the specification proceeds and will become apparent from the accompanying drawing wherein I have illustrated the invention embodied in a practical and commercial form.

In said drawing:—

Figure 1, is a plan view of the apparatus with the condenser support shown broken partly away to disclose the mounting of the inductance thereon.

Fig. 2, is a rear view of the combined capacity-inductance unit partly broken away and shown in section.

Fig. 3, is a cross sectional view of the same taken substantially on the plane of the line 3—3 in Fig. 1.

Fig. 4, is a wiring diagram of the apparatus.

The condenser may be of any approved construction and in the illustration comprises a pair of relatively stationary and movable condenser plates 5 and 6 respectively, the latter or movable plate being adjusted with respect to the other plate by means of a handle or finger-hold 7 in the nature of a nut engaged with a screw stem 8 which is connected with the movable plate. A spring 9 interposed between the two plates tends normally to separate the same and a dial 10 is provided on the operating handle with which registers an index or pointer 11.

This condenser is mounted within and supported by a hollow base or support 12, preferably of insulating material, said support having an annular inclosing wall 13 surrounding the condenser and serving also as a support for the inductance coil.

The inductance coil is designated 14 and is shown wound in a groove 15 provided to receive it in the outside of the annular supporting wall 13. After being placed in this groove the coil may be protected by a suitable cover 16 such as a strip of insulating material. The coil is connected across the condenser plates as indicated at 17 and 18.

The combined condenser inductance unit thus provided constitutes a single unit which may be secured in any desired location as by means of screws or fastenings 19 passed through the front of the support 12 at opposite sides of the condenser into a suitable support $19^a$.

In Fig. 4 I have illustrated in a general way the usual method of wiring the apparatus. Here the condenser and inductance, connected at 17 and 18 are shown connected as a unit by wiring 21 and 22 with a spring key switch lever 23 and with a buzzer 24 respectively. The switch key is shown supported so as to engage directly with the central pole 25 of a dry cell and the other side of the battery thus provided is connected by wiring 26 with the other side of the buzzer 24.

In a preferred construction the dry cell is held in place by a spring clamp 27 which directly engages over the casing forming the outer element 28 of the battery, said spring clip having a terminal 29 for the wiring 26. This spring clip thus holds the dry cell engaged in the corner of the box cover $19^a$ or other support and the battery may be released by simply lifting the spring

clamp and sliding the battery endwise from beneath the same. The switch key is shown pivotally supported at 30 so that it may be swung to one side when the dry cell is being thus withdrawn. This key may be locked in its normal operative position overlying the end of the dry cell by means of a locking pin 31 engaging in an opening provided in the key. To turn the key to its battery-releasing position therefore, it is first necessary to force the key outwardly to free it from this locking pin whereupon the key may then be swung on its pivot to stand free of the dry cell.

It will be understood that the impulses passing through the inductance at the break of the buzzer contact cause the circuit of the capacity and inductance to oscillate at a period determined by the value of the capacity. This wave meter being, as above described, in close proximity to the receiving circuit causes weak oscillations to be set up in the latter circuit. In these outfits there is ordinarily furnished a calibration curve enabling one to adjust the capacity for sending out waves of known length. The receiving set would then simply be tuned to receive waves of this desired known length.

I claim:—

In a wave meter, a hollow support having a top portion and a dependent annular wall, said annular wall having an annular groove provided therein to receive an inductance coil, an inductance coil seated in said groove and protected thereby, and a condenser within the hollow support secured beneath the top portion thereof and inclosed by the annular grooved wall aforesaid.

HAROLD P. DONLE.

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