July 1, 1941. W. KIMMICH ET AL 2,247,758

MESSENGER CALL BOX

Original Filed May 22, 1936 2 Sheets-Sheet 1

Fig. 2

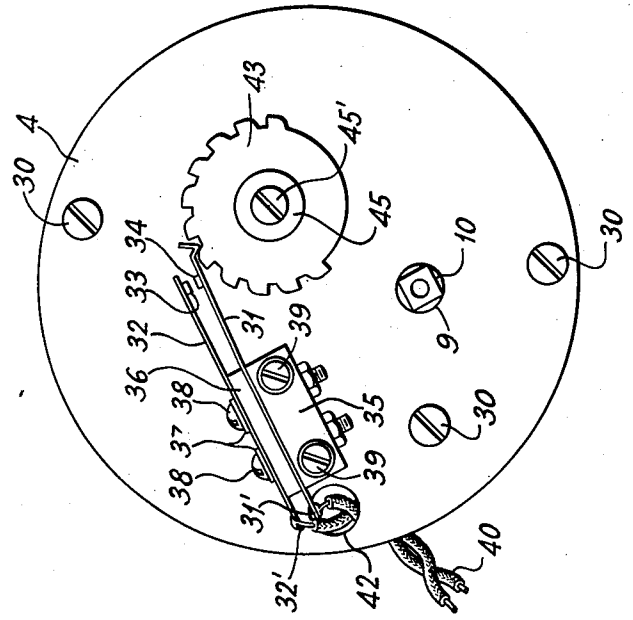

Fig. 1

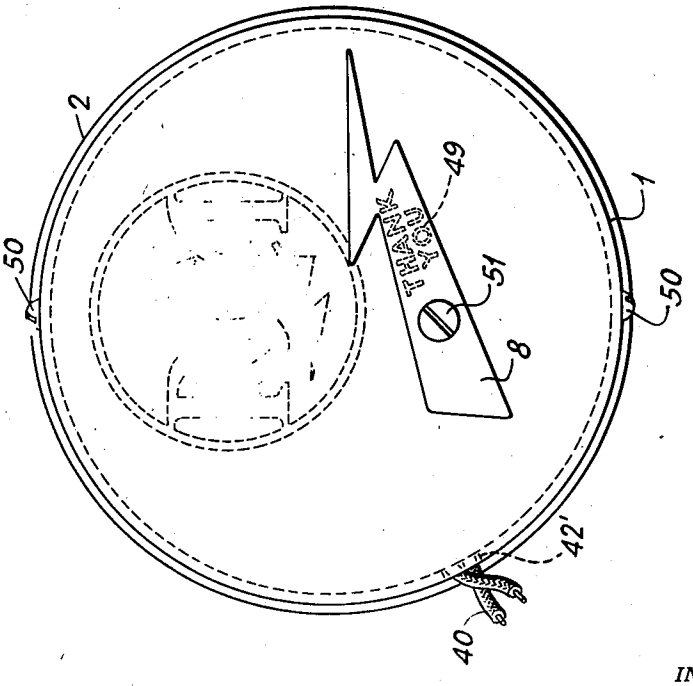

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Fig. 4

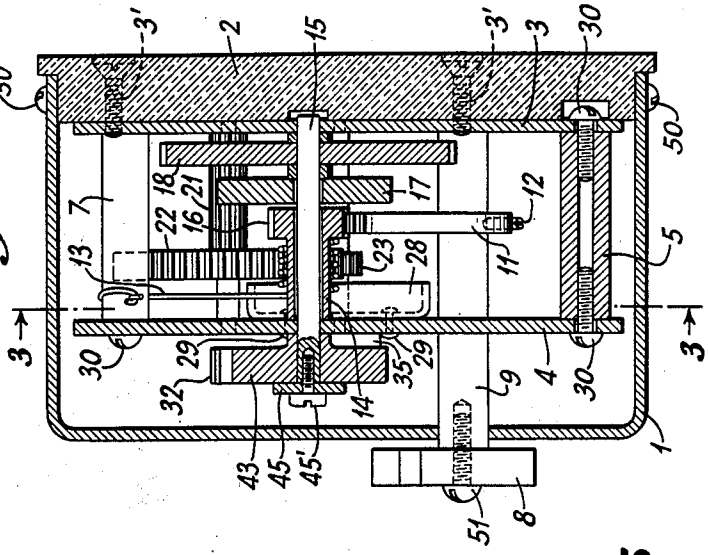


Fig. 5

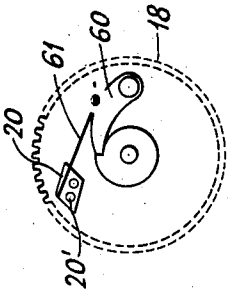
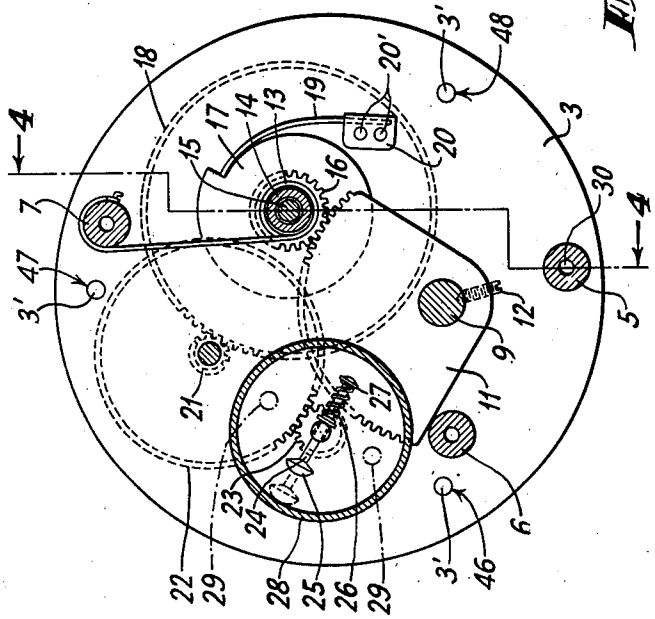


Fig. 3



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Patented July 1, 1941

2,247,758

UNITED STATES PATENT OFFICE

2,247,758

MESSENGER CALL BOX

William Kimmich, Flushing, and Herman Schnoor, New York, N. Y., assignors to Radio Corporation of America, a corporation of Delaware

Original application May 22, 1936, Serial No. 81,176. Divided and this application November 5, 1938, Serial No. 238,948

2 Claims. (Cl. 177—378)

This invention relates to a new and novel messenger call box or signal transmitter of the code wheel type employed to call a messenger from a central telegraph operating office to that of a client.

This application is a division of my copending application Serial No. 81,176, filed May 22, 1936, and has claims directed to the display legend made visible upon rotation of the operating handle as will be described in detail later.

An object of this invention is to simplify and improve messenger call boxes, also to reduce the manufacturing costs of the same.

Another object of this invention is to provide a substantial and reliable messenger call box which is capable of continuous use with a minimum amount of servicing.

This invention is an improvement over the invention of P. J. Barnes, application Ser. No. 69,470, filed March 18, 1936 and which application has been abandoned. The principal driving mechanism is substantially the same, except for the location of the spring tension member and its application being that of rotation instead of straight elongation. Also, the general assembly of the component parts are located within a circular casing.

A feature of this invention is the general efficient arrangement of the apparatus within a suitable container to provide a neat appearing device which has located on the front portion thereof a legend of courtesy appearing only when the apparatus is actuated and a call made to the central office.

The call box of this invention is briefly a self-contained hand-wound clockwork mechanism which transmits electrical impulses from a code wheel. The clockwork mechanism consists of a spring-driven compound gear train which is retarded by a centrifugal governor. The code wheel is fastened to one of the gear shafts and arranged to open and close contact elements.

This invention will be more completely understood by referring to the accompanying drawings, in which:

Fig. 1 is a plan view of the improved call box;

Fig. 2 is a plan view of the call box with the cover removed;

Fig. 3 is a sectional view of Figs. 1 and 2, the section being taken on line 3—3 of Fig. 4;

Fig. 4 is a sectional view of Figs. 1, 2 and 3, the section being taken on line 4—4 of Fig. 3; while

Fig. 5 is a detail of a modification in the ratchet wheel arrangement.

Referring now in detail to the drawings, the entire device is completely enclosed by a metallic cover 1, which is mounted upon an insulating base member 2. The compound gear train is mounted between and/or upon a lower plate 3 and an upper plate 4. Plates 3 and 4 are held apart from each other by spacers 5, 6 and 7. Two of these spacers, namely 5 and 6, serve also the dual purpose of acting as stop members. Insulating base 2 is fastened to plate 3 by a plurality of flat head screws 3'. A windup arm 8 fashioned out to be representative of a flash of lightning is fastened to a shaft 9 and keyed on by means of a spiral end portion 10. A sector gear 11 is secured to shaft 9 by any suitable means, such as a pin or screw 12. Energy to operate the gear train mechanism is provided by a helical windup spring 13. This spring surrounds a sleeve member 14, which is free to rotate on the keying or code wheel shaft 15. Secured to sleeve 14 is a spur gear 16 and a single tooth ratchet cam 17, both of which are also free to rotate on shaft 15. Through the medium of a spring pawl 19 engaging the step on the single tooth ratchet cam 17, a spur gear 18 is driven when spring 13 is wound up and knob 8 is released. One end of spring 13 is fastened around spacer 7 and the other is firmly secured to sleeve 14. Securely fastened to code wheel shaft 15 is the spur gear 18 which has provided thereon one end of the ratchet spring or pawl 19, the latter being secured to gear 18 by angle 20 and rivets 20'. A pinion 21 has secured thereto a second spur gear 22, which engages and drives a second pinion 23. On this pinion there is located the governor mechanism which comprises a shaft 24, weight 25, spring 26 and washer 27. Friction is obtained by weight 25 engaging the inner periphery of the governor brake drum 28, brake drum 28 being secured to the underside of the upper plate 4 by rivets 29. Plates 3 and 4 are secured to spacers 5, 6 and 7 by means of a plurality of screws 30. Upon the upper portion of plate 4 there is provided a pair of contact springs 31 and 32 having contact points 33 and 34. Contact springs 31 and 32 are insulatedly secured to plate 4 by means of a block 35, insulating spacer 36, bushings 37 and screws 38, electrical contact being made to the springs by soldering at the extended portion 31' and 32' to a pair of leads 40. Leads 40 are brought through an aperture 42 in upper plate 4 and lower plate 3, and are carried out through a groove (not shown) in the lower portion of the insulating base 2. The cover 1 is cut away for leads 40 at a point 42'. The contact spring as-

sembly is fastened to the upper plate 4 by two screws 39. A code wheel 43 is securely keyed to shaft 15 by means of a key 44 and locked in firm position thereon by a washer 45 and set screw 45'. The lower and upper plates 3 and 4 respectively are provided with apertures 46, 47 and 48 located approximately 120° apart, through which a screw driver can pass for fastening the call box to a wall by any suitable screws, not shown. The operating knob 8 is relatively long and narrow and is shaped to represent a lightning flash. Directly below knob 38 in its inoperative position there is located a legend of courtesy 49, such as "Thank you" shown dotted on the cover 1 of Fig. 1. Cover 1 is secured to base 2 by means of a plurality of screws 50. Also, knob 8 is secured to shaft 9 by means of screw 51.

The modified ratchet wheel arrangement shown in Fig. 5 comprises a pawl 60, made preferably of cold rolled steel or any other suitable hard metal. A spring 61 bears against the back of pawl 60 and is secured to gear 18 by angle 20 and rivets 20'. This modification is desirable when call boxes are subjected to frequent use, as it prevents destruction of spring 19.

The operation of the call box is as follows: When the knob 8 is turned in a clockwise direction, it in turn moves the quadrant 11 in a clockwise direction until it is brought to a stop at spacer 5. The helical tension spring 13 is thereby wound around sleeve 14 one complete turn and in so doing, ratchet 17 is also moved one turn until the single tooth engages spring pawl 19. Now, if knob 8 is released, the energy stored up in spring 13 will cause ratchet 17 through the medium of spring pawl 19 to rotate spur gear 18 in a clockwise direction which also rotates pinion 21 and spur gear 22 in an anti-clockwise direction. The second pinion 23, to which the governor is fastened, rotates in a clockwise direction, the speed being controlled by member 25 expanding due to centrifugal force against the inner portion of brake drum member 28, the centrifugal force exerting pressure in the form of friction against member 28 and the train of gears will then rotate with a substantial uniform motion. The gear ratio is such that for each windup or motion of knob 8, one revolution is obtained on the keying wheel shaft 15. The cam action caused by the teeth-like code members on the outer periphery of code wheel 43 closes the normally opened contacts 33 and 34 on the contact springs 31 and 32 which are connected to a recording instrument through a source of electrical supply, thus transmitting to the central operating office the code impulses thereby transmitted.

While only one form of call box is hereby described, it is distinctly understood that this invention is not to be limited to the one shown, but is capable of other modifications and should only be limited by such limitations as are clearly imposed on the appended claims.

What is claimed is:

1. A messenger call box comprising a casing, call mechanism within said casing having means extending through the casing for operating said call mechanism, a legend of courtesy fixed to said casing, an operating member attached to said means normally covering said legend of courtesy and movable to uncover the legend when the call mechanism is set in position to operate.

2. A messenger call box comprising a casing, call mechanism within said casing having means extending through the casing for operating said call mechanism, a legend of courtesy integral with said casing, an operating member attached to said means normally covering said legend of courtesy and movable to uncover the legend when the call mechanism is set in position to operate.

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