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A. J. CHRISTOPHER

COMBINATION TELEGRAPH INSTRUMENT

Filed May 14, 1920

Fig. 1.

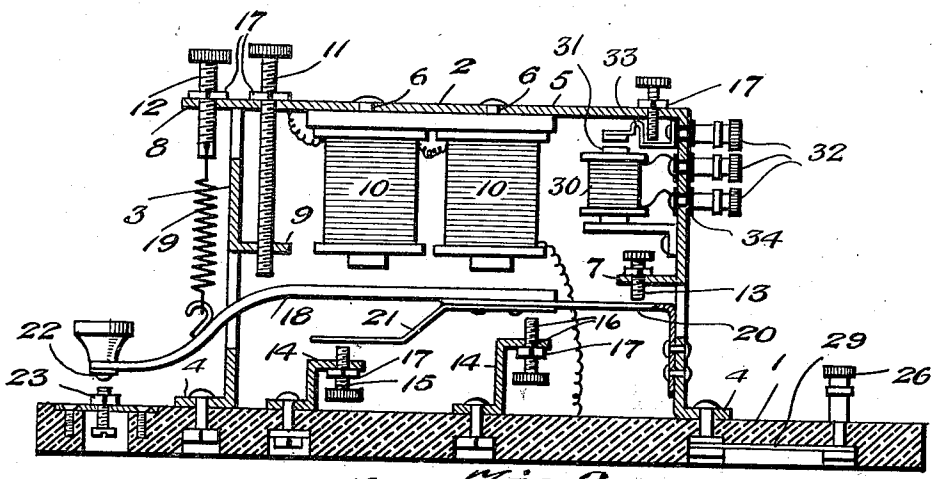


Fig. 2.

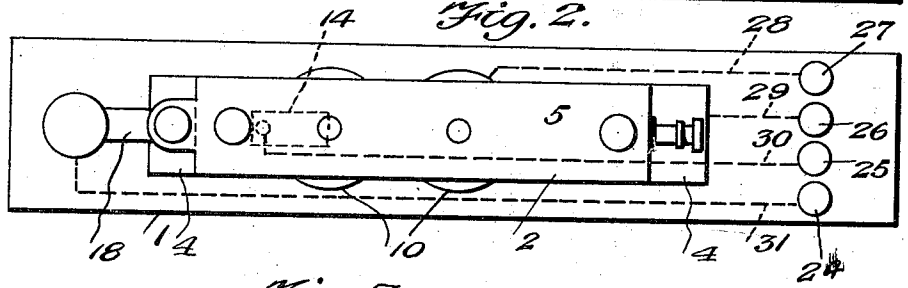
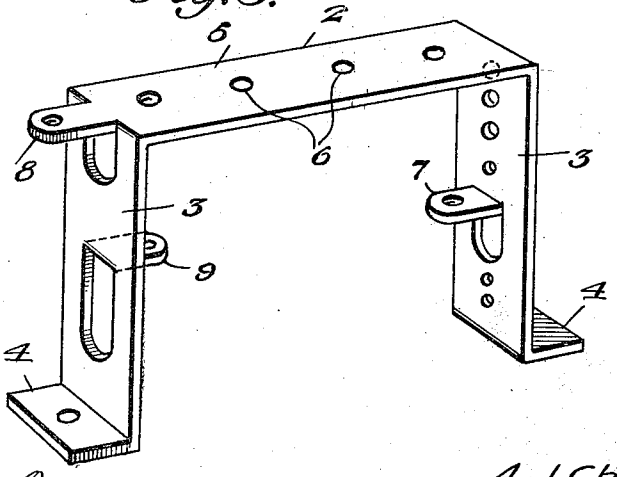


Fig. 3.



Fred Ackman Jr.

Thos. E. Tompkins

WITNESSES.

A. J. Christopher

INVENTOR

BY Victor J. Evans

ATTORNEY

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UNITED STATES PATENT OFFICE.

ANTHONY J. CHRISTOPHER, OF BALDWINSVILLE, NEW YORK.

COMBINATION TELEGRAPH INSTRUMENT.

Application filed May 14, 1920. Serial No. 381,389.

To all whom it may concern:

Be it known that I, ANTHONY J. CHRISTOPHER, citizen of the United States, residing at Baldwinsville, in the county of Onondaga and State of New York, have invented new and useful Improvements in Combination Telegraph Instruments, of which the following is a specification.

The object of my present invention is the provision in a simple and compact and otherwise advantageous construction, of an instrument susceptible of use either as a telegraph key, a telegraph sounder, a code-learning instrument, a ticker or interrupter, a detector tester, a buzzer, a bell, or for intercommunication.

To the attainment of the foregoing, the invention consists in the improvement as hereinafter described and definitely claimed.

In the accompanying drawings, hereby made a part hereof:

Figure 1 is a vertical longitudinal section of my novel combination telegraph instrument.

Figure 2 is a plan view of the same.

Figure 3 is a detail perspective of a portion of the instrument frame.

Similar numerals of reference designate corresponding parts in all of the views of the drawings.

Among other elements my novel combination instrument comprises a base 1 of appropriate non-conducting material, and a conductive frame 2 superimposed upon and fixed with respect to the base. In the preferred embodiment of my invention, the frame 2 is of the construction best shown in Figure 3—i. e., it comprises uprights 3 having base flanges 4 for attachment to the base 1, and a longitudinal intermediate portion 5; the intermediate portion 5 being apertured at 6, and one of the uprights 3 having a tongue 7 struck therefrom, while the other upright 3 has struck therefrom two reversely arranged tongues 8 and 9. Two of the apertures 6 in the intermediate portion 5 are for the attachment of electro-magnets 10, and the remaining aperture in the intermediate portion is for the reception of a long adjusting screw 11 which also extends through an aperture in the tongue 9. The tongue 8 is also apertured to receive an adjusting screw 12, and the tongue 7 is similarly apertured to receive an adjusting screw 13.

Superimposed upon and fixed to the base 1 between the uprights 3 of the frame 2 are brackets 14 in which are carried adjusting screws 15 and 16. At this point I would have it understood that all of the adjusting screws alluded to are equipped with lock nuts, each lock nut being designated 17.

Interposed between the magnets 10, on the one hand, and the screws 15 and 16 on the other, is an armature lever 18 between which and the adjusting screw 12 a spring 19 is arranged as shown. The said armature lever 18 is connected through a spring strip 20 with one frame upright 3, and the said strip 20 is opposed to the screws 13 and 16, as illustrated. Said armature lever 18 is equipped at 21 with a spring strip in opposed relation to the screw 15, and at 22 the armature lever is provided with a contact for cooperation with a stationary contact 23 on the base 1.

As shown in Figure 2, the base 1 is provided with a transverse series of binding posts which are designated 24, 25, 26 and 27, respectively. The binding post 27 is connected through the wire 28 with the electro-magnets 10, the binding post 26 is connected through a plate 29 and a bolt, Figure 1, with the frame 2, the binding post 25 is connected through wire 30 with the bracket 14 of the screw 15, and the binding post 24 is connected through wire 31 with the stationary contact 23.

To use the instrument as a telegraph key connections are made to posts 26 and 23 and the lever 18 adjusted so that a pressure upon the knob will force the lever down causing the contact 22 to touch contact 23 and close the circuit. After pressure is removed the spring 19 will pull up the lever 18 thus separating the contacts and opening the circuit.

To use the instrument as a telegraph sounder the post 26 and frame 2 are connected to a line or key and battery. When the circuit is closed at the key the electro magnets 10 attract the lever or armature 18 and draw it up until it strikes the screw 11. After the circuit is opened at the key, the magnets release the armature, which, by the action of the spring 20 is forced to strike contact 23, and comes to rest until the circuit is again closed.

When it is desired to use the instrument as a code-learning instrument, a battery is connected to posts 27 and 25 and the screws 23, 15 and 17 adjusted so that the spring

contact 21 touches screw 15 just before contacts 22 and 23 come together. During the time that the key is pressed the part of the armature beneath the magnets is caused to vibrate and emits a buzzing sound as long as the key is depressed.

To use the device as a ticker or interrupter the posts 25 and 27 are connected to a battery and a switch. This makes the device work like a buzzer. Screw 23 is adjusted so that the vibrating armature 18 makes contact with it at every alternation, thus a current entering through posts 26 and 24 is interrupted at the contact points 22 and 23.

A battery may be connected to posts 27 and 25 to make the instrument work like a buzzer, and a wire from post 25 utilized to carry electrical impulse to a detector to be tested.

To operate the instrument as a buzzer, a battery and switch are connected to posts 27 and 25. Contacts 21 and 15 are then made to touch each other and the device will perform like an ordinary buzzer.

To use the instrument as a bell it is operated like a buzzer, while the knob is removed and a bell is attached to the base in position to be struck by the lever 18.

To use the device as a relay the coil is connected to a telegraph or other line and the contacts 32 (top) and 26 are connected with a local circuit.

To use the device as a decoherer, operate the device as a buzzer and place the coherer tube in position to be struck by the armature lever 18 while it is in operation.

The electromagnet and relay coils may be used as resistance and choke coils, connections being made to posts 32 and 27 and 26.

Two of the instruments for intercommunication work, with and without use of relays.

When deemed expedient the frame 2 may be also equipped with a relay magnet 30, contacts 31, leads 32 and a contact spring 33, as well as insulating washers 34.

Having described my invention, what I claim and desire to secure by Letters Patent, is:

1. The herein described combination telegraph instrument comprising a base, a frame superimposed upon and fixed to the base and having end uprights and an intermediate upper portion between the uprights and also having an inwardly directed apertured tongue struck from one of the uprights and reversely arranged apertured tongues struck from the other upright, adjusting screws in two of the said tongues, an adjusting screw bearing in the intermediate portion of the frame and also in the remaining tongue, an electro-magnet carried by and disposed under the intermediate portion of the frame, an armature lever disposed and movable under the electro-magnet and two of the adjusting screws and connected through a spring to the remaining adjusting screw, a spring strip connecting the armature lever and one end upright of the frame, a spring strip carried by and spaced from the armature lever, adjusting screws disposed under and adapted to cooperate with said strips, a stationary contact carried by the base and opposed to the contact of the armature lever, and binding posts arranged in transverse series on the base and electrically connected with the magnet, the frame, the adjusting screw opposed to the strip that is carried by and spaced from the armature lever, and the stationary contact, respectively.

2. A combination telegraph instrument comprising a base, a frame, a magnet carried by the frame, a series of three upper adjusting screws mounted in the frame, an armature lever connected through a spring strip to the frame and having a spring strip spaced from it, adjusting screws carried by the base and opposed to said spring strips, a stationary contact carried by the base and opposed to the contact of the armature lever, a spring interposed between the armature lever and one of the adjusting screws on the frame, and a binding post carried by the base and electrically connected with the frame, the adjusting screw opposed to the spring strip that is spaced from the armature lever, the electro-magnet, and the contact on the base.

3. A combination telegraph instrument comprising a base, a frame, a magnet carried by the frame, a series of three upper adjusting screws mounted in the frame, an armature lever connected through a spring strip to the frame and having a spring strip spaced from it, adjusting screws carried by the base and opposed to said spring strips, a stationary contact carried by the base and opposed to the contact of the armature lever, a spring interposed between the armature lever and one of the adjusting screws on the frame, and a binding post carried by the base and electrically connected with the frame, the adjusting screw opposed to the spring strip that is spaced from the armature lever, the electro-magnet, and the contact on the base; the armature lever being provided with a detachably connected knob, for the purpose set forth.

In testimony whereof I affix my signature.

ANTHONY J. CHRISTOPHER.