

W. J. MURRAY.  
ELECTRIC BELL.  
APPLICATION FILED SEPT. 3, 1907.

924,180.

Patented June 8, 1909.

Fig. 2.

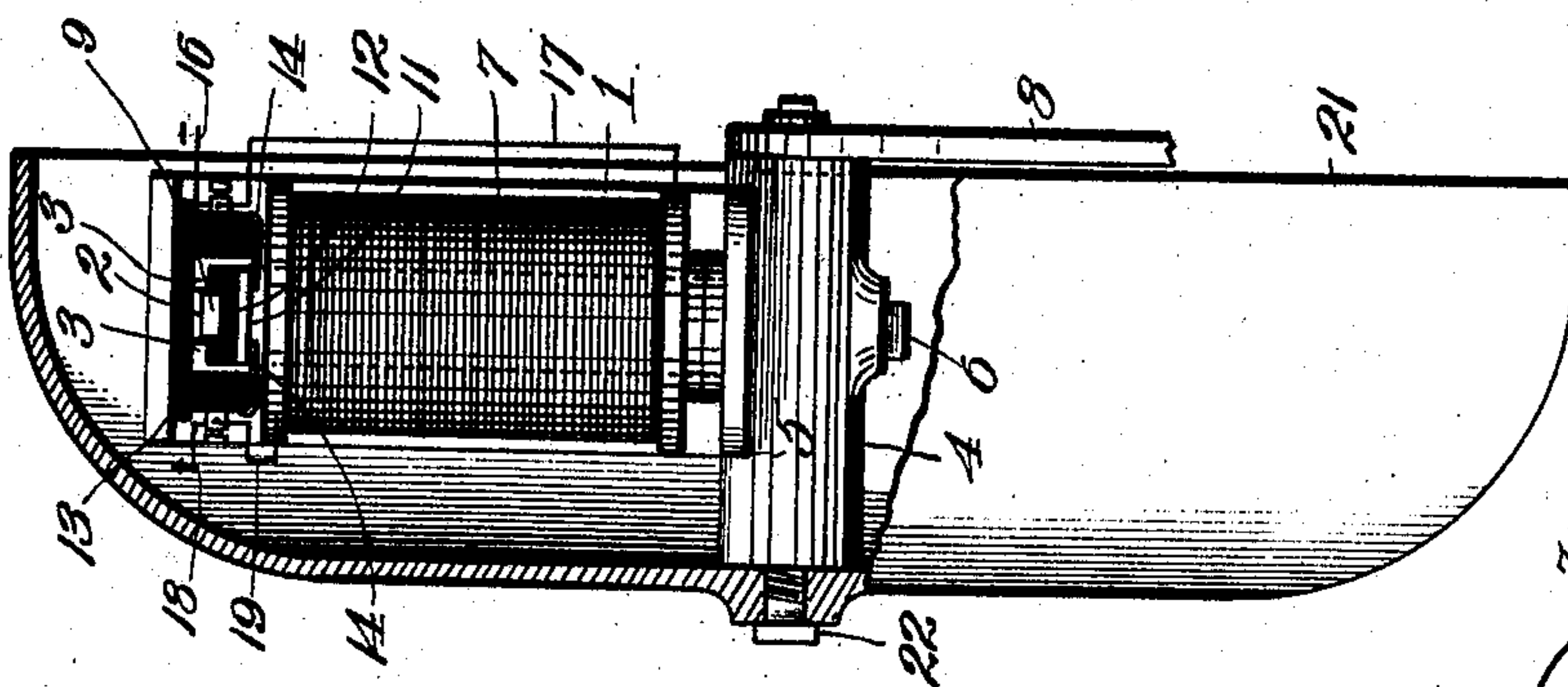


Fig. 1.

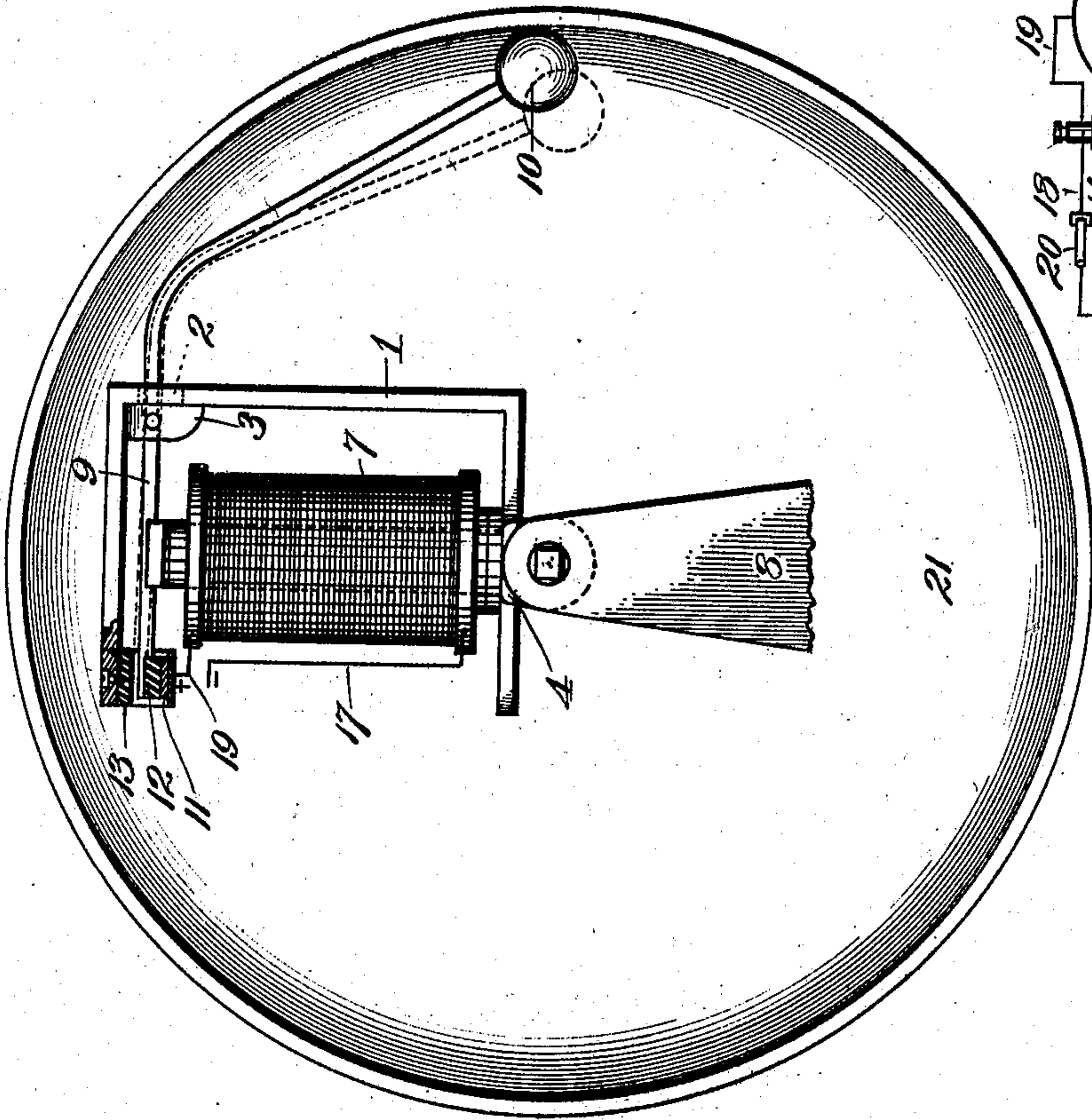
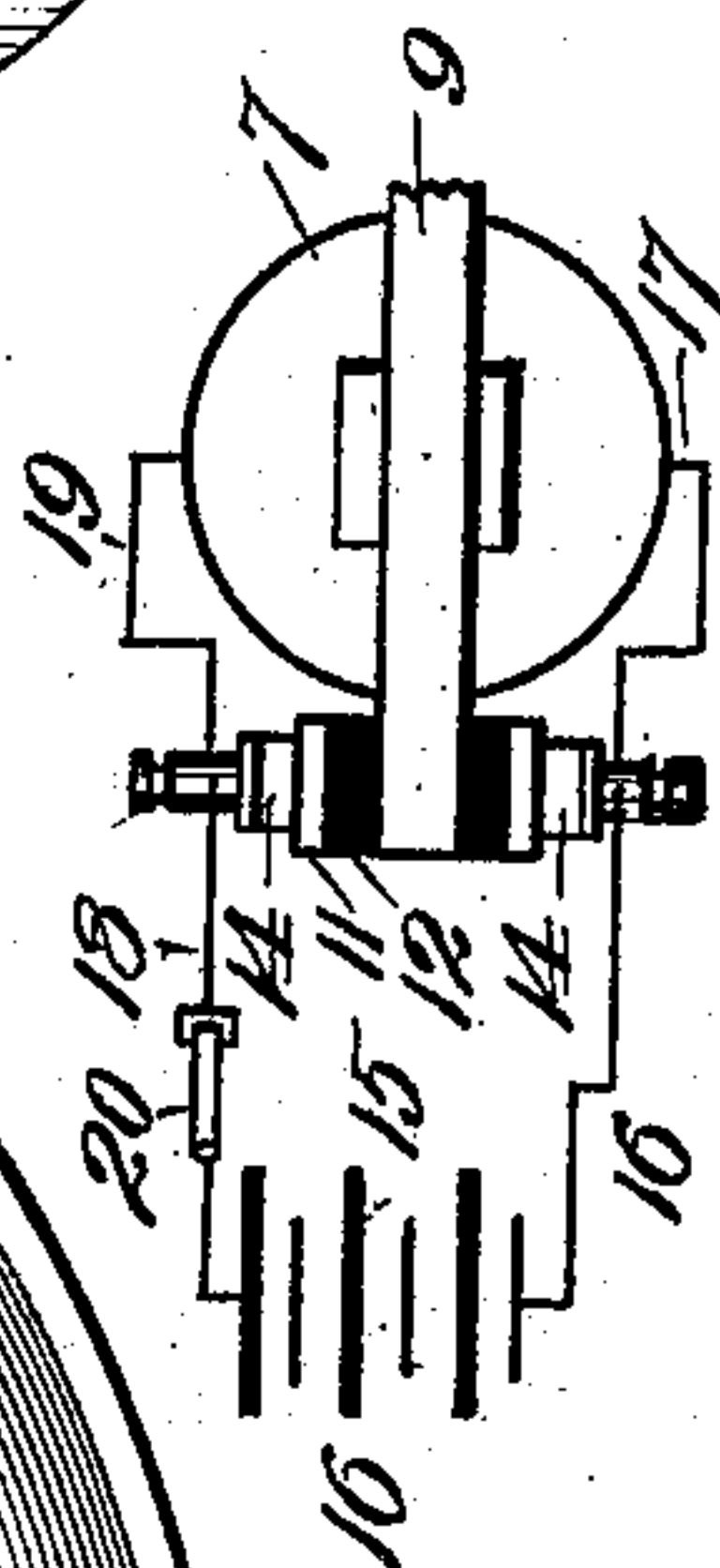


Fig. 3.



Witnesses:

Frank Banister  
H. C. Rodgers.

Inventor:

W. J. Murray.

By George H. Thompson, Atty.



# UNITED STATES PATENT OFFICE.

WILLIAM J. MURRAY, OF LEAVENWORTH, KANSAS, ASSIGNOR OF ONE-TWENTIETH TO  
HERBERT W. WOLCOTT, OF LEAVENWORTH, KANSAS.

## ELECTRIC BELL.

No. 924,180.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed September 3, 1907. Serial No. 391,012.

*To all whom it may concern:*

Be it known that I, WILLIAM J. MURRAY, a citizen of the United States, residing at Leavenworth, in the county of Leavenworth and State of Kansas, have invented certain new and useful Improvements in Electric Bells, of which the following is a specification.

This invention relates to electric bells, and my object is to produce a device of this character which will operate efficiently and reliably with any current and voltage.

A further object is to produce an electric bell and means whereby the completion of the circuit in which the bell is located shall result in an automatic flow of the current through different paths alternately to effect vibratory action of the bell-clapper without breaking the circuit at any time and consequently without producing a spark—irrespective of the electro-motive force of the current.

A still further object is to produce a device of this character to operate in a circuit which includes an electromagnet having an armature for effecting the short-circuiting of the current each time it is attracted and for breaking such short circuit the instant the armature is demagnetized.

With these general objects in view, the invention consists in certain novel and peculiar features of construction and organization as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawing, in which—

Figure 1, is a side view of an electric bell embodying my invention, a part being in section. Fig. 2, is an edge view of the same with the bell broken away. Fig. 3, is a diagrammatic view.

In the said drawings, 1 indicates a suitable frame having a slot 2 and ears 3 at opposite sides of the slot.

4 is a cross piece having a groove 5 to receive one arm of the frame and a screw-bolt 6 whereby said frame and an electromagnet 7 are clamped to the cross-piece, the latter being carried by any suitable support as shown at 8.

Extending through the slot 2 and pivoted to ears 3 is an armature 9 equipped with a clapper 10 at one end and at the other end with a contact plate 11, an insulating plate 12 being preferably interposed between the contact plate and the armature.

13 is an insulating plate secured to the frame and disposed at the opposite side of the armature from the contact plate, by preference, so as to limit the movement of the armature from the magnet, and secured to said plate 13 is a pair of contacts 14 in the path of said contact plate and adapted to be engaged by the same when the armature is attracted by the magnet, it being preferred that said contact plates 14 shall be resilient but that they shall not yield sufficiently to let the armature come into contact with and possibly freeze to the magnet.

15 indicates a source of electric current supply, shown in this instance as a battery, 16 is a conductor leading therefrom to one of the plates 14—one end of the magnet coil being also connected by conductor 17 to said plate. 18 is a conductor connecting the battery with the other contact plate 14 and to said contact the other end of the magnet coil is connected by conductor 19.

20 indicates a suitable make-and-break device for the circuit.

21 is a gong which preferably surrounds the frame and clapper and is secured by bolt 22 or otherwise to one end of the cross piece 4.

As arranged the weight of the clapper holds the armature yieldingly retracted from the magnet and hence with contact plate 11 withdrawn from contacts 14 so that the instant the circuit is completed the magnet is energized and attracts its armature and therefore causes the clapper to strike the gong. At the same time the contact plate 11 engages contacts 14 and shunts the current through the shorter path constituted by said contacts and contact plate so as to demagnetize the magnet and permit the armature to swing back to its original position. In the return movement of the armature it breaks the short circuit and at the same instant and without any break in the circuit the magnet becomes reenergized and reattracts the armature with the result before mentioned. It will thus be seen that as long as the circuit is completed there is a constant vibratory action of the armature and that because of the quick shunting of the circuit back and forth there is no chance for the coil to be burned out. It is therefore obvious that a bell of this character can be used in the lamp circuit of a trolley car, as a crossing bell for interurban and trunk lines or in a door bell circuit. The device will work



without regard to its position, that is whether arranged with the magnet upright, as shown, or with it inverted or arranged horizontally, and it is to be understood that by dispensing with the bell and clapper, the device forms a perfectly operating buzzer.

From the above description it will be apparent that I have produced an electric bell possessing the features of advantage enumerated as desirable and I wish it to be understood that I do not desire to be restricted to the exact details of construction shown and described as obvious modifications will suggest themselves to one skilled in the art.

15 Having thus described the invention what I claim as new and desire to secure by Letters Patent, is:—

The combination of a suitable support, a cross piece carried thereby, a gong secured to  
20 and inclosing the cross piece, a frame carried by the cross piece, an electro-magnet carried by the frame, an armature overlying the magnet and pivoted to the frame at one side of the magnet and terminating at the same

side of the magnet in a clapper withdrawn 25  
by gravity from contact with the gong and holding the armature yieldingly withdrawn from the magnet, an insulating plate secured to the frame above the opposite end of the armature, a pair of contacts secured to said 30  
insulating plate and underlying and normally spaced from the armature at the opposite side of the same from its pivotal point, a contact carried by and insulated from said 35  
end of the armature and adapted when the latter is attracted by the magnet to electrically connect said pair of contacts, a source of electric current supply, conductors in circuit therewith and with said pair of contacts and the magnet, and a make-and-break 40  
device in circuit with one of said conductors.

In testimony whereof I affix my signature, in the presence of two witnesses.

WILLIAM J. MURRAY.

Witnesses:

HERBERT W. WOLCOTT.  
HARRY W. EDBRY.