

No. 824,397.

PATENTED JUNE 26, 1906.

W. F. WORD.
ELECTRIC GONG.
APPLICATION FILED MAR. 8, 1905.

Fig. 1.

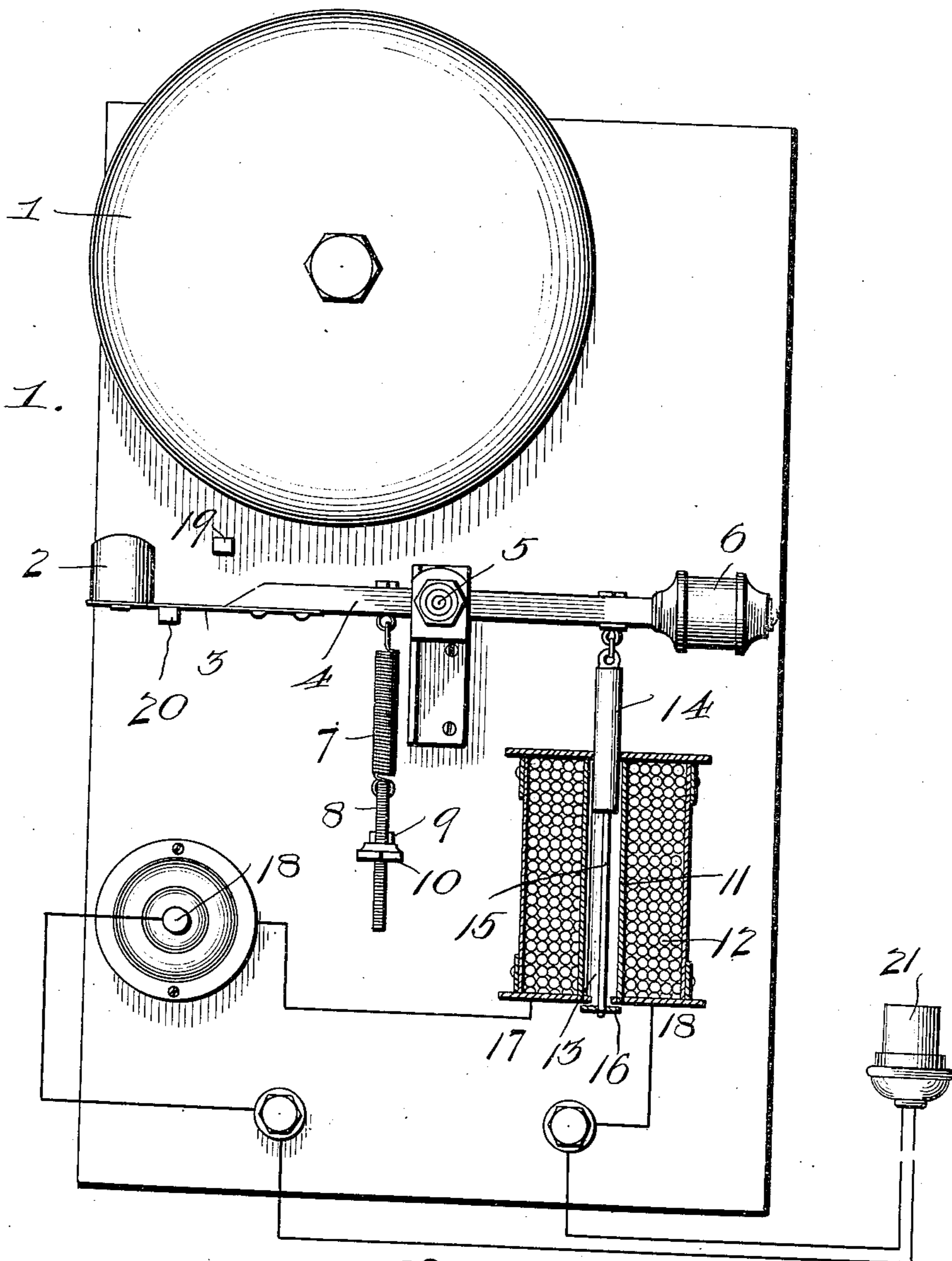
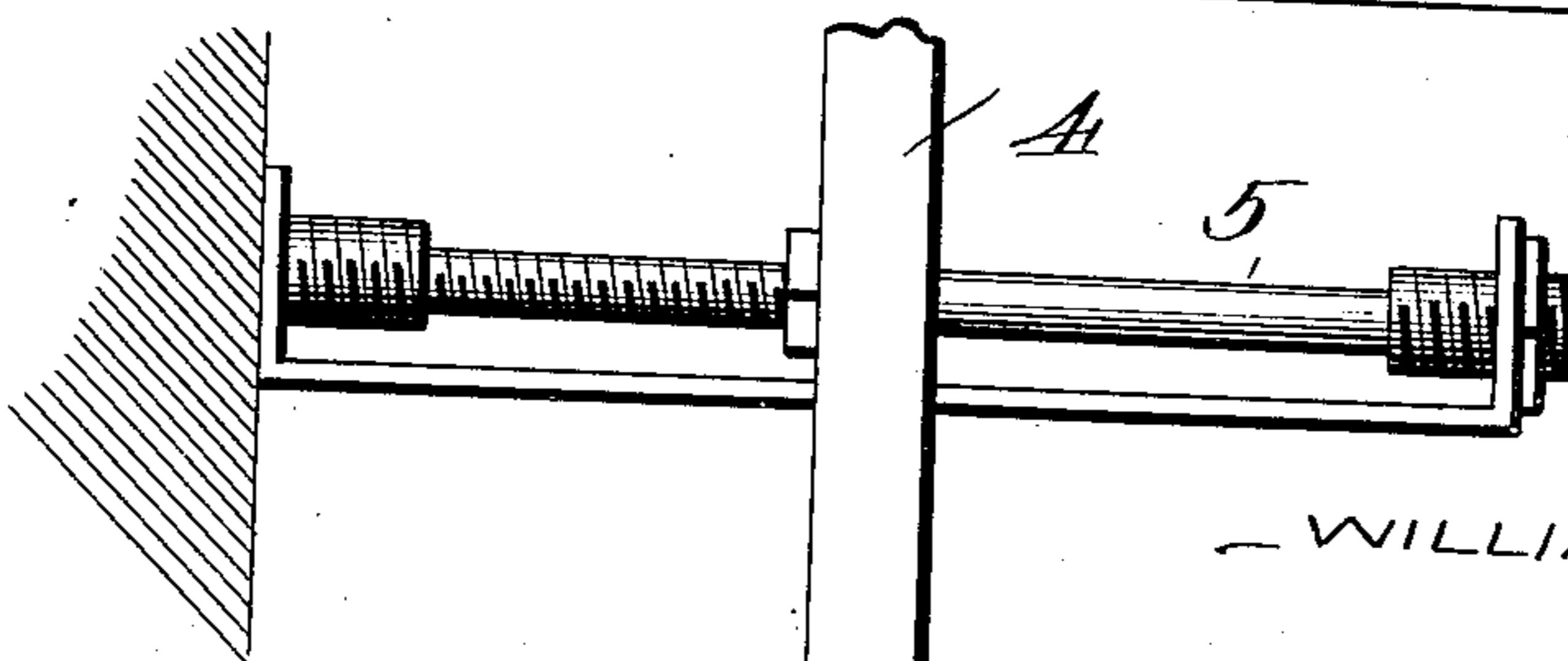


Fig. 2.



Witnesses

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ELECTRIC GONG.

No. 824,397.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM F. WORD, a citizen of the United States, residing at Helena, in the county of Lewis and Clark and State of Montana, have invented new and useful Improvements in Electric Gongs, of which the following is a specification.

This invention relates to single-stroke signal-gongs of that character designed to be operated by the single phase of an alternating current of electricity.

One of the objects of the invention is to provide a reliable signal-gong for use in mine-hoists for giving signals to smelters or for use at any place where a direct current is not available or where a battery is not convenient or is expensive.

Another object is to provide a device of this character which shall be simple and durable in construction, reliable and efficient in operation, and which may be produced and operated at small cost.

These and other objects are attained by means of the construction illustrated in the accompanying drawings, in which—

Figure 1 is a diagrammatic and partial sectional view of a device embodying my invention, and Fig. 2 represents a detail view of adjusting means for the lever.

Referring to the drawings for a more particular description of the invention, the numeral 1 designates a gong which may be of any suitable size and may be supported in any convenient place within hearing of the engineer or other person to whom signals are to be given. A hammer-head 2 is formed on or secured to a spring-arm 3, and the opposite end of the spring-arm is secured to a lever 4. This lever 4 may be of wood or iron and is pivoted at 5 to any suitable support. At the end of this lever a suitable counterweight 6 is attached. A spiral spring 7 is connected to the under side of the lever 4, and the opposite end of the spring 7 is connected to a screw 8, which passes through a screw-eye 9, secured to the support, and a nut 10 is fitted to the screw 8 for giving the required tension to the spring 7 to properly poise or counterbalance the lever 4. A spool 11, wound with insulated wire 12, has a central longitudinal opening 13. A soft-iron core 14 is flexibly suspended from the lever 4 and hangs within the opening 13. A rod 15, of non-magnetic material, is secured to the lower end of the core 14, and at its lower end said rod is provided with a nut or stop

washer 16, which is preferably made of non-magnetic material and serves to prevent the outward movement of the core 14 beyond the required point. The terminal ends 17 and 18 of the wire 12 are led from the spool 11 to a push-button 18, located at any suitable point where the signals are to be given. Stops 19 and 20 are secured to the support for the gong 1 at suitable points to limit the vibrating action of the spring-arms 3. A suitable connection 21 is provided for attachment to an electric-light fixture.

The operation of the device may be described as follows: When the connection 21 is connected to an electric-light fixture, the apparatus is in condition for use. The push-button 18 being depressed, the coil 12 is magnetized and the solenoid 14 is drawn inward into the magnetized spool and the lever 4 is actuated, the hammer-head 2 striking the gong 1 with considerable force. The spring-arm 3 in its upward movement strikes the stop 19, located in the path of said spring-arm 3, thus causing the spring to bend in, permitting the hammer to contact with the gong 1 and furnish the desired signal. The said spring then recoils and moves out of the field of vibration of the gong 1. A stop 20 is located below the spring-arm 3, adjacent to the hammer 2, said stop serving to deaden the vibratory action of said spring-arm. Should the pressure on the button 18 be continued, the alterations of the current would not cause the gong to be struck again, owing to the fact that the stop 19 will hold the hammer-head 2 away from the gong and the solenoid will be held depressed in the magnetized spool 11. This effect would be the same whether a direct or an alternating current were used in connection with the device. However, the device is particularly designed for use with an alternating system, and owing to the fact that the lever 4 may be adjusted to an accurate condition of counterpoise relative to the stops 19, 20, and 16 the gong will strike but once for each depression of the push-button 18. Thus signals of different meaning and import may be indicated by depressing the button one or more times.

It will be obvious that the device may be adjusted to any desired position.

Various changes in form and proportions may be resorted to without departing from the spirit of my invention. Hence I do not wish to be restricted to the exact details enumerated.

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

1. In a single-stroke gong, a counterbal-
5 anced pivoted arm carrying a spring-ham-
mer, a spring supporting said hammer, and
secured to said pivoted arm, a stop adapted
to contact with the spring in its upward
movement causing the spring to continue its
10 upward movement and furnish the desired
signal, a stop below the spring and adjacent
to the hammer to deaden the vibratory ac-
tion of said spring, and a solenoid to actuate
the hammer, substantially as described.
- 15 2. A device of the character described,
comprising a gong, a pivoted hammer, a
spring portion supporting said hammer, a
stop located in the path of said spring por-
tion, and at a distance from the gong so as to
20 require the spring to bend in striking the
gong, a stop below the spring adapted to con-
tact therewith and adjacent to the hammer,
said stop serving to deaden the vibratory ac-
tion of said spring.
- 25 3. In a device of the character described, a
counterbalanced pivoted arm, a gong, a ham-
mer-head carried by a thin spring-plate, said
plate being secured to the pivoted arm, stops
at the opposite sides of the said spring-plate,
30 means for laterally adjusting the pivoted

arm, a flexibly-suspended core for actuating
the hammer, and means substantially as de-
scribed for limiting the movement of the core
with respect to the hollow electromagnet.

4. In a device of the character described, a 35
gong, a counterbalanced pivoted arm, a
spring secured to one end of said arm stops
located in the path of the spring, a hammer
on said spring, a hollow electromagnet, a
soft-metal core flexibly suspended from the 40
pivoted arm and extending into the hollow
magnet, a non-magnetic rod extending from
the soft-metal core into said magnet and pro-
vided with a non-magnetic washer at its
lower end, and means for energizing the mag- 45
net and actuating the hammer, substantially
as described.

5. In an electric gong, a pivoted arm,
means for laterally adjusting said pivoted
arm a gong, a spring secured to the end of 50
said arm, a hammer secured to said spring,
a stop in the path of movement of said spring
to throw the hammer away from said gong
after contact therewith, and serving to in-
sure contact with the gong when said spring 55
strikes said stop.

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Witnesses:

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