

No. 697,619.

Patented Apr. 15, 1902.

G. A. GREEN.  
TELEGRAPH SOUNDER.

(Application filed Apr. 15, 1901.)

(No Model.)

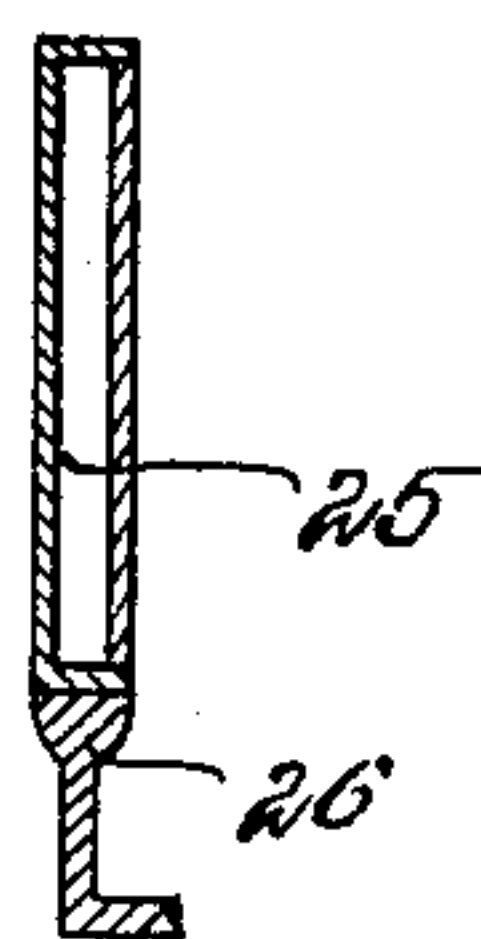
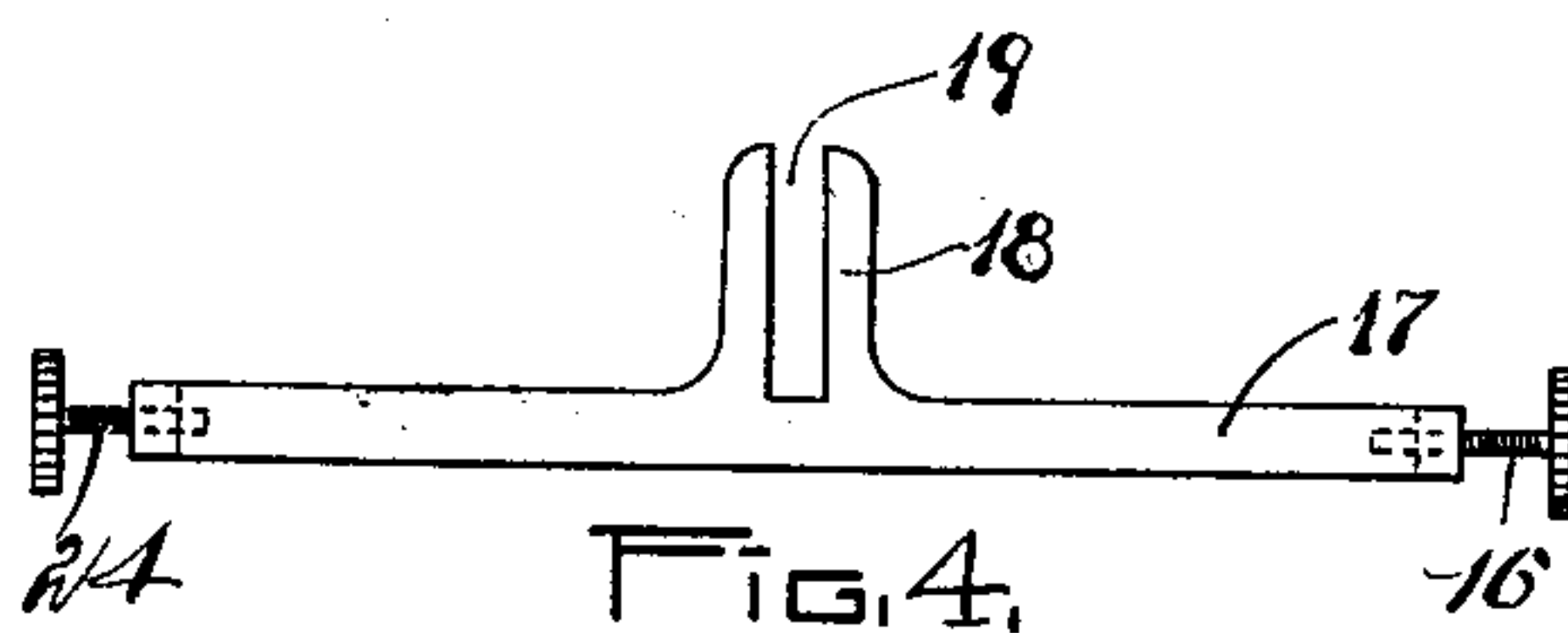
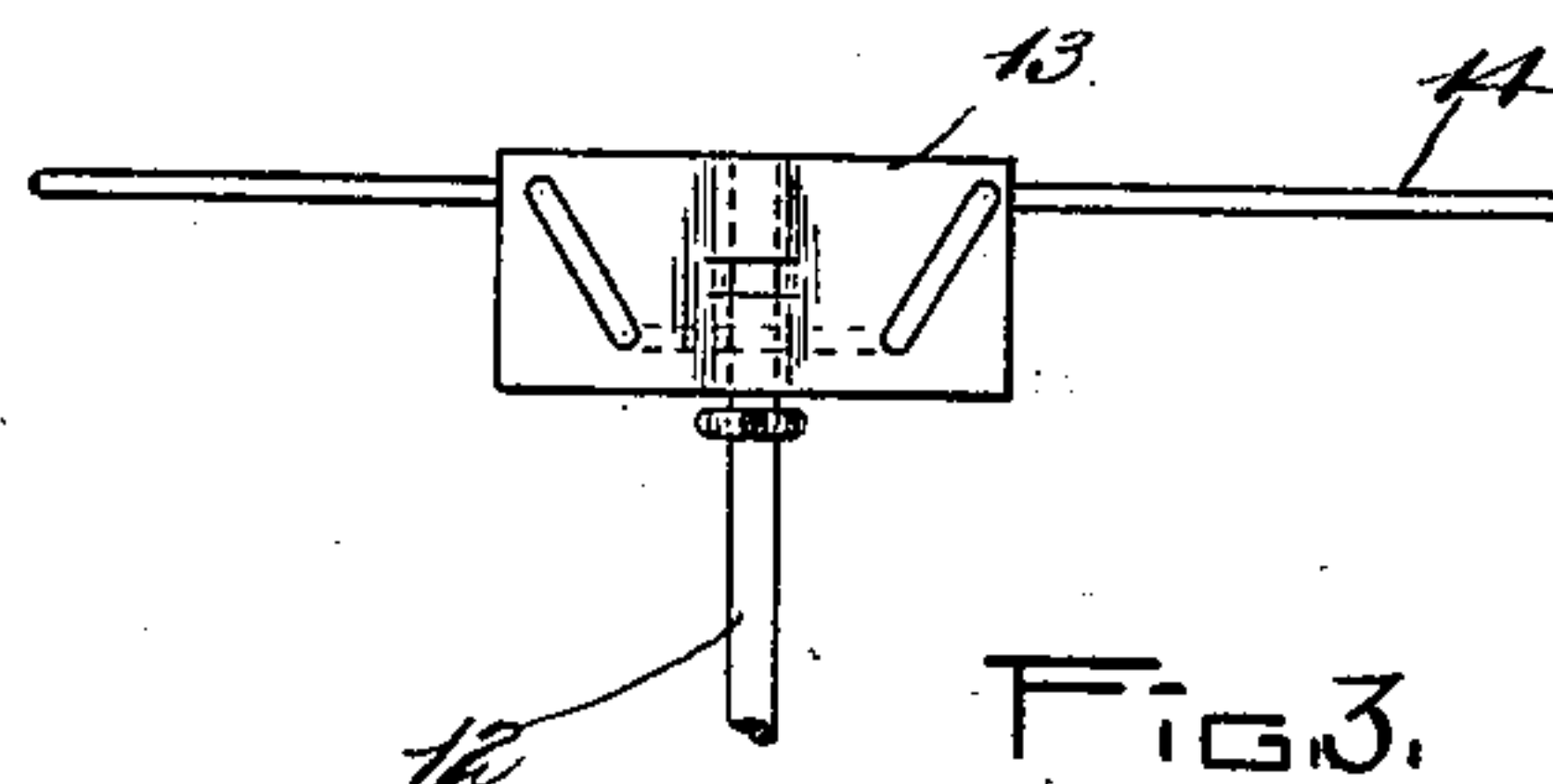
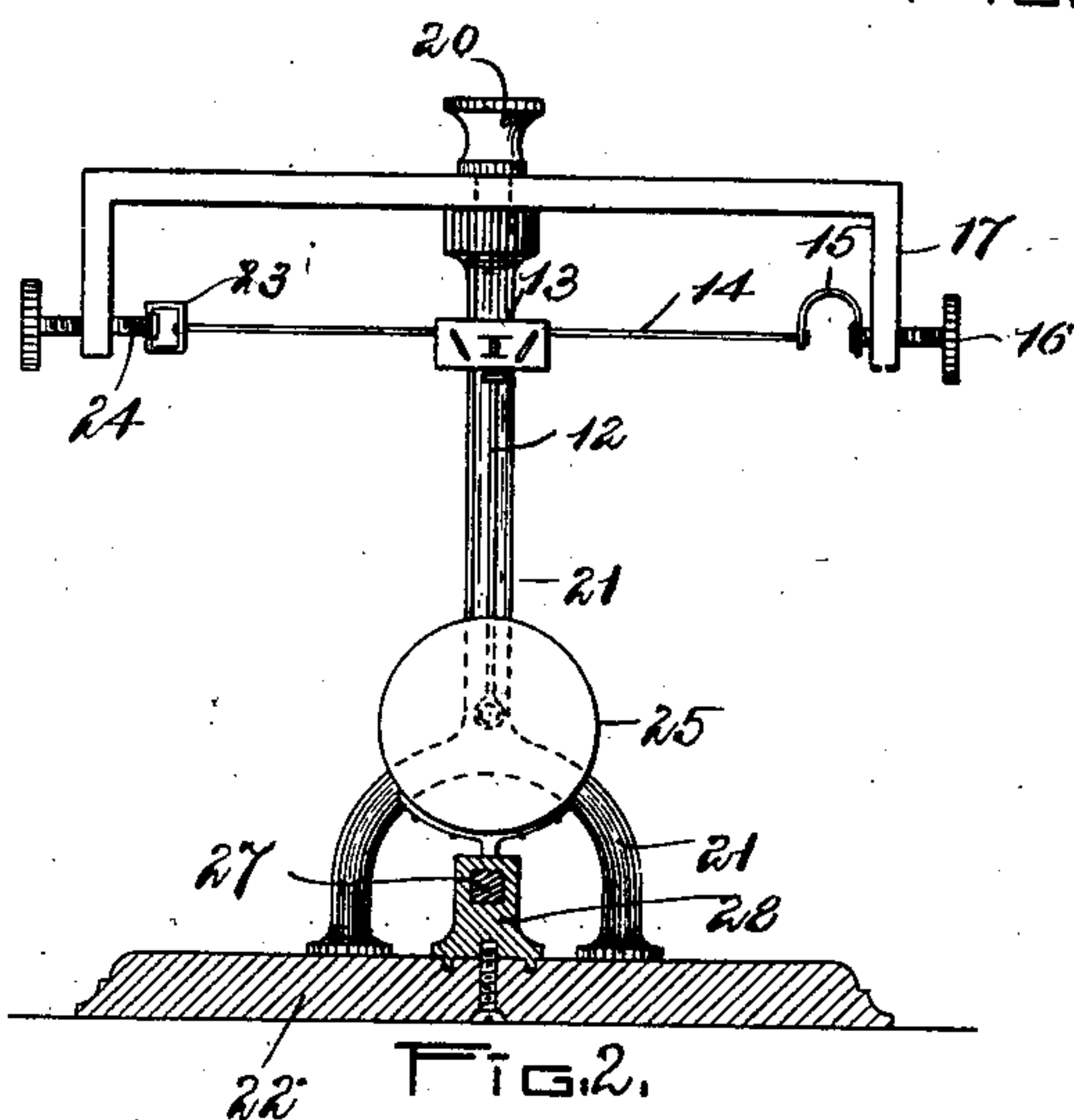
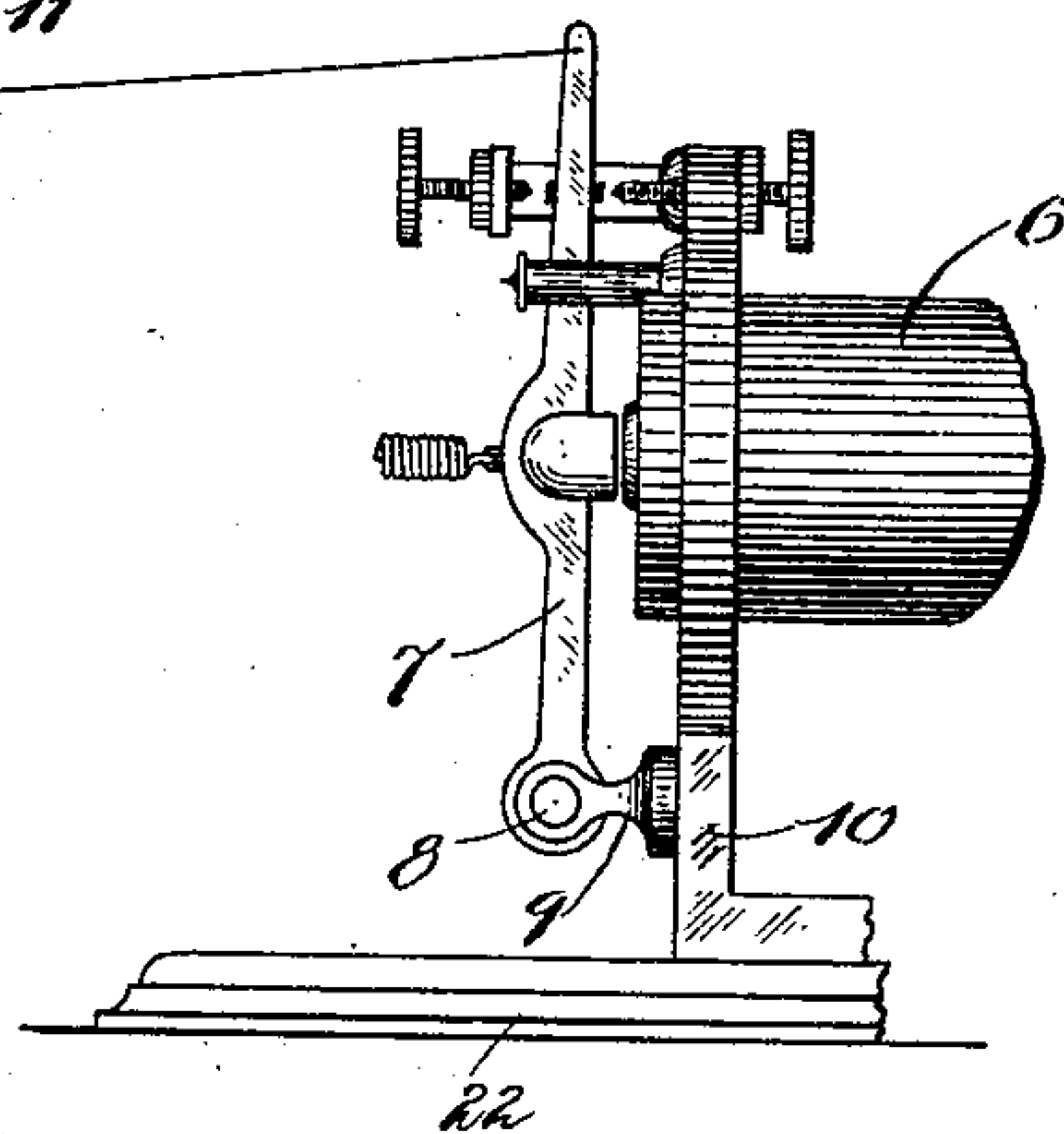
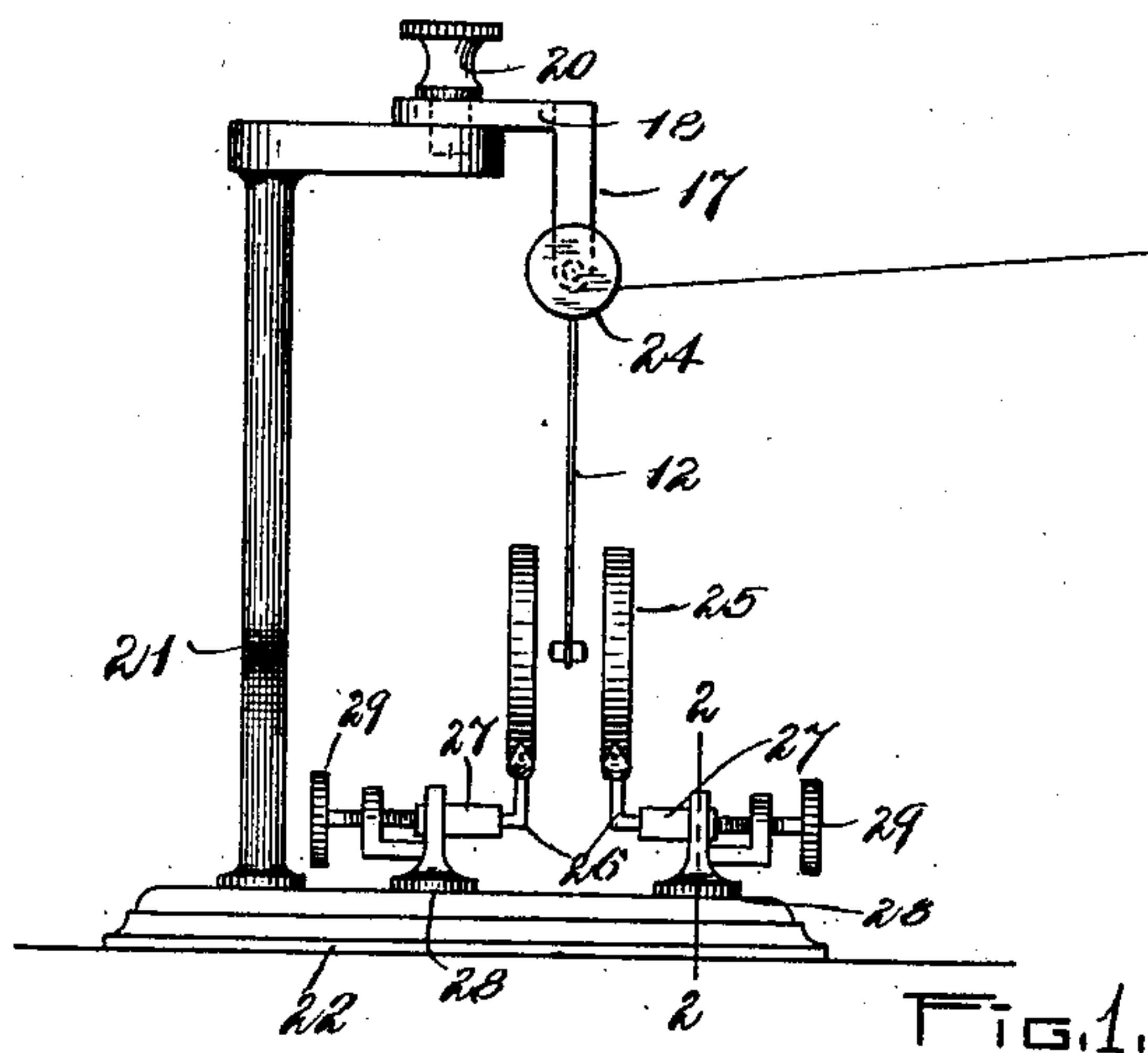


FIG. 5.

WITNESSES:

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by his Attorney

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# UNITED STATES PATENT OFFICE.

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## TELEGRAPH-SOUNDER.

SPECIFICATION forming part of Letters Patent No. 697,619, dated April 15, 1902.

Application filed April 15, 1901. Serial No. 55,846. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE A. GREEN, a subject of the King of Great Britain, residing at Duxbury, in the county of Plymouth and State of Massachusetts, have invented new and useful Improvements in Telegraph-Sounders, of which the following is a specification.

The object of this invention is to provide a sounder operated by mechanical means adapted to be attached to relays employed in systems of telegraphy.

The invention consists in a telegraph-sounder consisting of two sounding-drums, a hammer fast to and suspended from a horizontal wire between said sounding-drums, in combination with a telegraphic relay, an armature-lever in said relay, and a wire or thread joining said armature-lever and said hammer.

The invention still further consists in the combination and arrangement of parts set forth in the following specification, and particularly pointed out in the claims thereof.

Referring to the drawings, Figure 1 is a side elevation of my improved sounder, showing the same attached to a Morse relay. Fig. 2 is a sectional elevation taken on line 2 2, Fig. 1, looking toward the left in said figure. Fig. 3 is an enlarged detail illustrating the method of fastening the hammer to the wire upon which it is suspended. Fig. 4 is a detail plan view of the bracket to which said wire is attached. Fig. 5 is a vertical central section through one of the sounding-drums.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 6 is the electromagnet, and 7 the armature-lever, of an ordinary Morse relay. The lever 7 is pivoted at 8 to a bracket 9, fast to the frame 10 of the relay, and is connected at its upper end by a fine wire or silk thread 11 to a hammer 12. Said hammer 12 has a metal plate 13 fast to the upper end thereof, said plate being attached to a suspension-wire 14. The wire 14 is fast at one end to a U-spring 15, said U-spring being connected to an adjusting-screw 16, screw-threaded into a bracket 17, having an arm 18 thereon provided with a slot 19 to engage the clamp-screw 20, by which it is fastened to the

upright frame 21, fast to the base 22 of the sounder.

At the opposite end of the wire 14 from that to which the spring 15 is attached is a swivel-plate 23, to which said wire is fastened, said swivel-plate being attached to an adjusting-screw 24, screw-threaded in the bracket 17. By turning the adjusting-screws 16 and 24 in the proper direction the tension upon the wire 14 may be increased or diminished, as may be desired, or the hammer adjusted lengthwise of the bracket 17 by turning both of said adjusting-screws in the same direction, the spring 15 compensating for any difference in the length of the wire 14 due to a change in temperature.

The drums 25 25 are formed of sheet metal and are each soldered or riveted to a right-angled holder 26, fast to a slide 27, guided in ways formed in a bracket 28, fast to the base 22 of the sounder. Each of said slides is adjusted to the right or left, carrying the drums 25 thereon, by means of an adjusting-screw 29, so that the drums may be adjusted to a nicety with relation to the hammer 12 and to each other by turning the screws 29 in the proper direction therefor, and the hammer 12 may be adjusted with relation to the drums 25 by means of the clamp-screw 20 and bracket 17.

In Fig. 3 I have shown the shank of the hammer 12 fast to a plate 13, said plate 13 being attached to the wire 14 by passing said wire 14 through holes in said plate 13 and threading the same to said plate by passing from one side to the other thereof, as shown.

It is evident that as the armature-lever 7 is rocked upon its pivot by the use of the relay the hammer 12 will be vibrated backward and forward upon the wire 14, alternately striking the drums 25 and indicating by audible sounds the movements of said armature-lever, the dots and dashes in the Morse alphabet being thus reproduced by the sounder as audible signals, well understood by those skilled in the art.

It will be seen that my improved sounder is very sensitive, simple, and cheap in its construction and may be adjusted to a nicety by means of the different adjustments here-



inbefore described. It will also be seen that by the manner of suspending the hammer 12 very little power is required to actuate said hammer from the armature-lever. It will  
5 also be seen that the hammer 12 is drawn toward the right, Fig. 1, by the electromagnet 6 when the circuit is closed, so as to strike the drum 25 on the right of said hammer, and when the circuit is broken the reaction of the  
10 wire 14 and spring 15 will cause the hammer to swing to the left, Fig. 1, and strike the drum 25 at the left of said hammer.

Having thus described my invention, what I claim, and desire by Letters Patent to secure, is—  
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1. In a telegraph-sounder, two sounding-drums, a horizontal wire, a hammer fast to and suspended from said horizontal wire between said sounding-drums; in combination  
20 with a telegraphic relay, an armature-lever in said relay, and a wire joining said armature-lever and said hammer.

2. In a telegraph-sounder, two sounding-drums, a horizontal wire, a hammer fast to  
25 and suspended from said horizontal wire be-

tween said sounding-drums; in combination with a telegraphic relay, an armature-lever in said relay, a wire joining said armature-lever and said hammer, and means for adjusting said hammer with relation to said armature-lever. 30

3. In a telegraph-sounder, two sounding-drums, a horizontal wire, a hammer fast to and suspended from said horizontal wire between said sounding-drums, and means for  
35 adjusting said drums with relation to said hammer; in combination with a telegraphic relay, an armature-lever in said relay, a wire joining said armature-lever and said hammer, and means for adjusting said hammer with  
40 relation to said drums without changing the location of said armature-lever with relation to the magnets of said relay.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses. 45

GEORGE A. GREEN.

Witnesses:

CHARLES S. GOODING,  
ANNIE J. DAILEY.