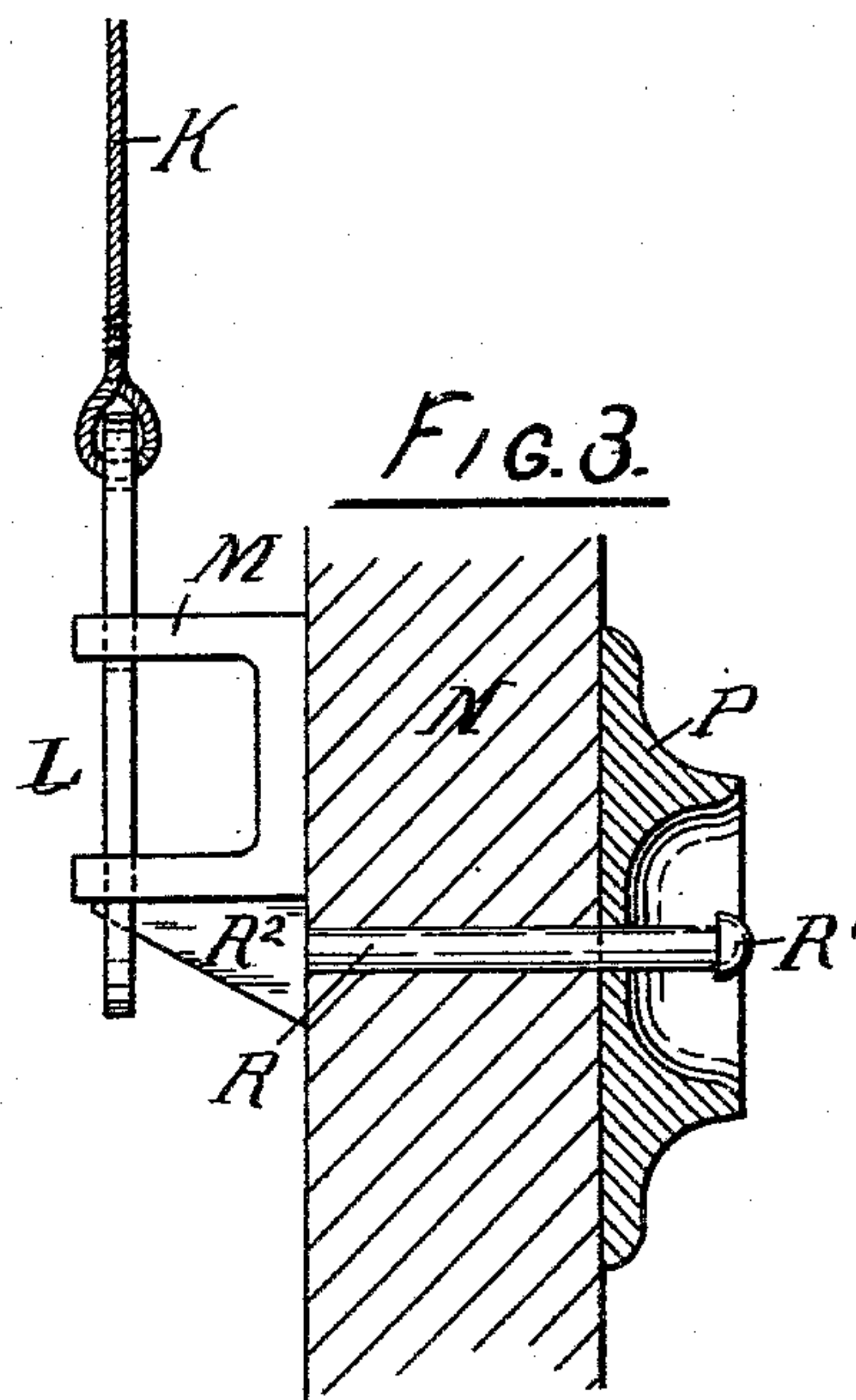
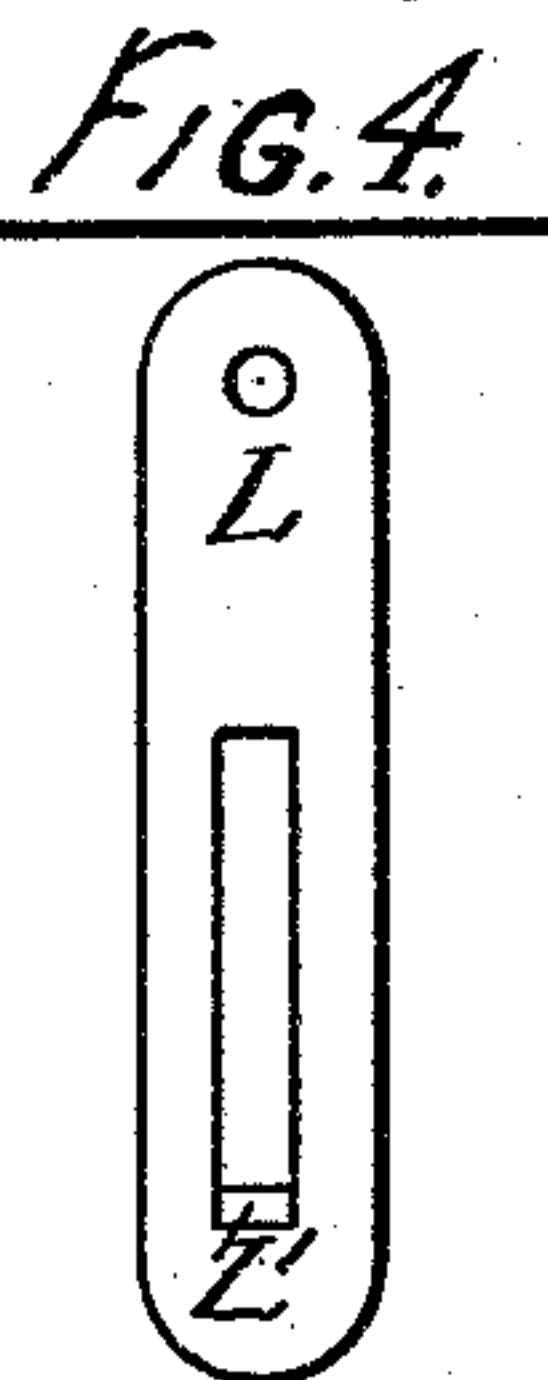
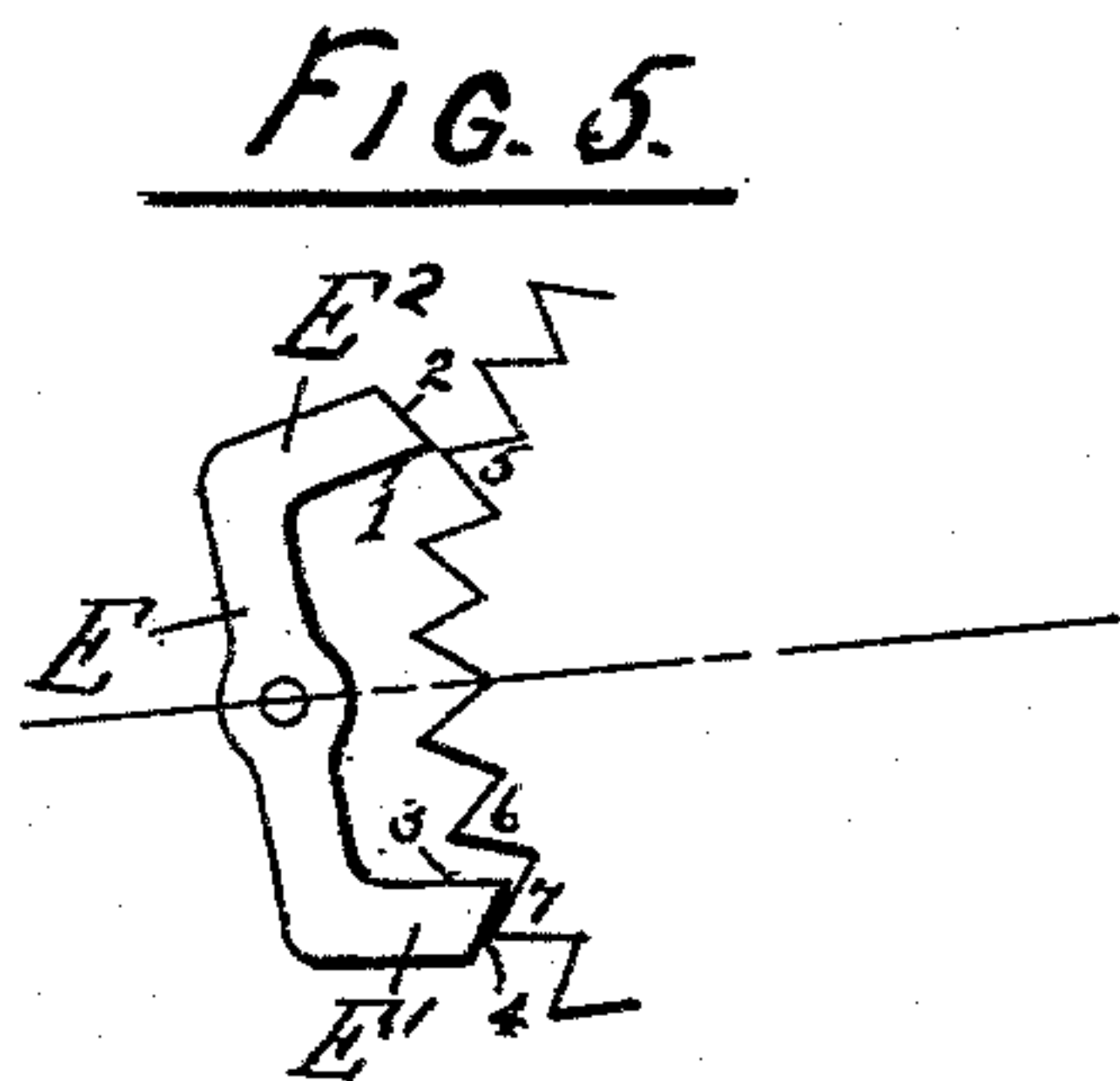
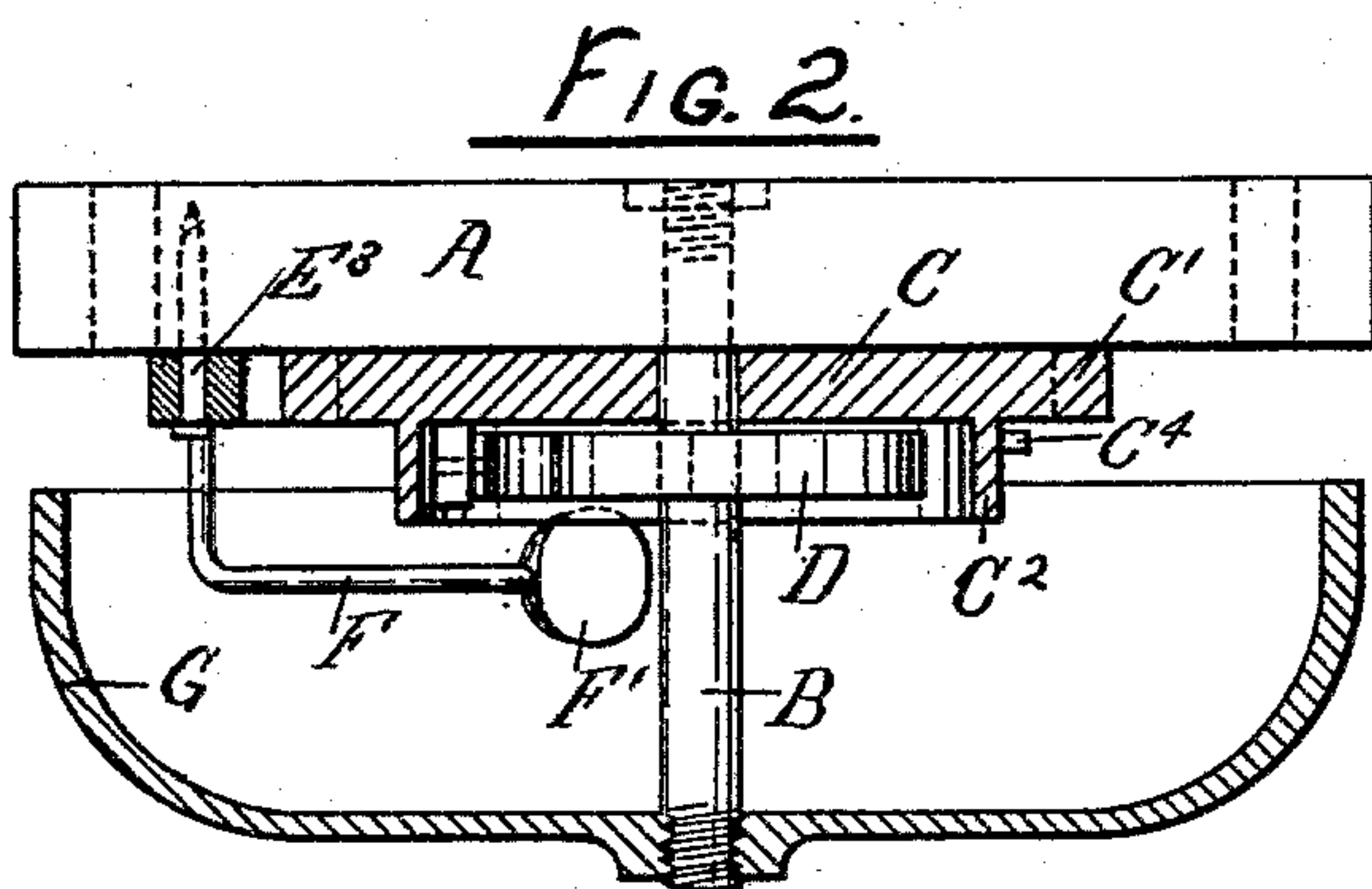
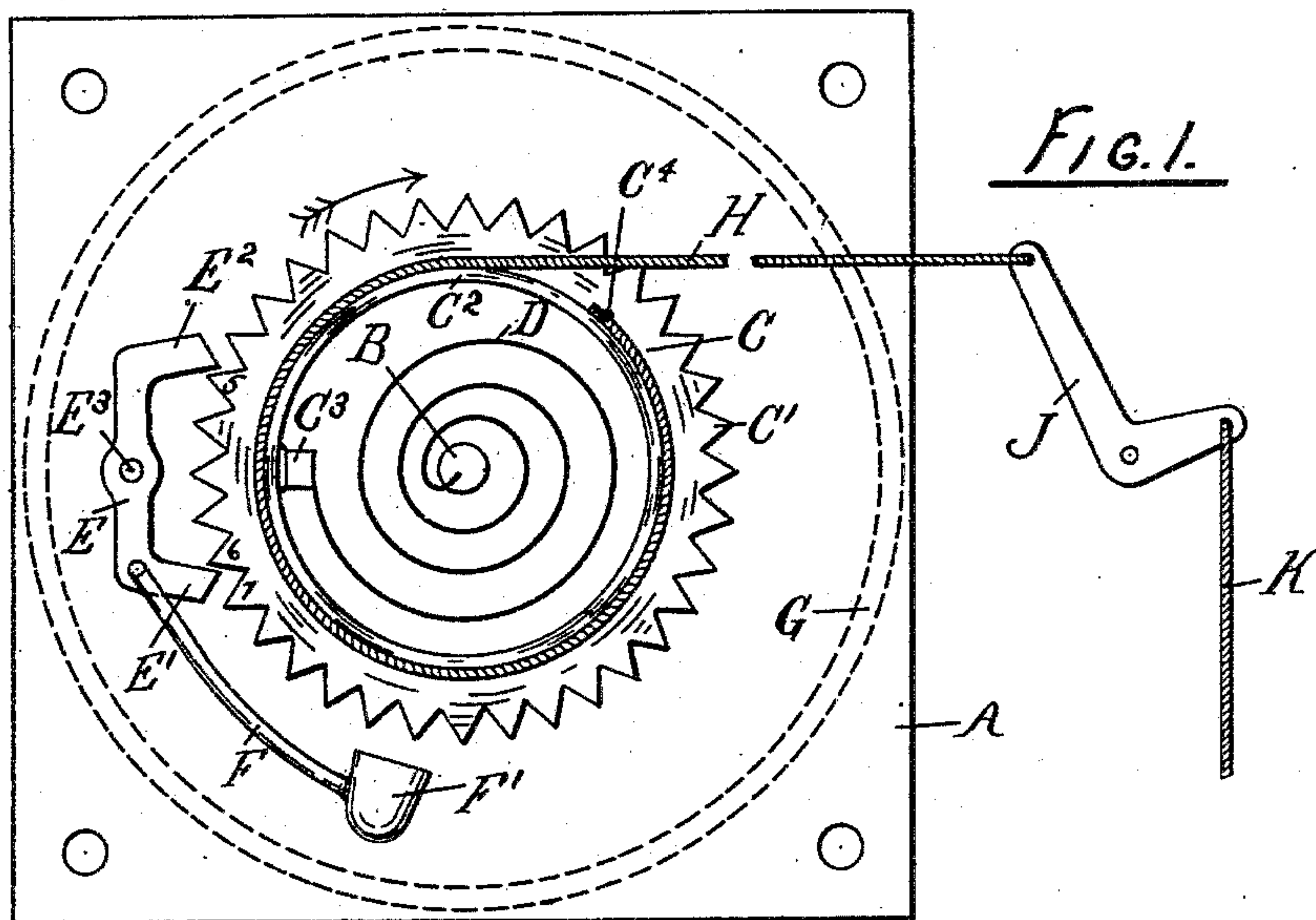


(No Model.)

D. J. SMITH.  
BELL RINGING APPARATUS.

No. 412,208.

Patented Oct. 1, 1889.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

DAVID J. SMITH, OF READING, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO  
JOHN SCHOENFELD, OF SAME PLACE.

## BELL-RINGING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 412,208, dated October 1, 1889.

Application filed January 7, 1889. Serial No. 295,644. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID J. SMITH, a citizen of the United States, residing at Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Bell-Ringing Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates particularly to apparatus adapted to be operated mechanically by means of a wire or cord. I am aware that heretofore an escape-wheel has been used in such apparatus in connection with a hammer worked by a pivoted anchor having pallets engaging the wheel, like the escapement of a clock. Such an arrangement, however, is only adapted to operate the hammer when the escape-wheel turns in one direction.

The main object of my invention is to provide an apparatus in which the bell or gong will be sounded a number of times in succession both during the inward and outward movement of the operating-handle. This I accomplish by means of a scape-wheel connected to an operating-wire and a retracting-spring and engaging a pivoted anchor with dependent hammer, the teeth of the wheel and the pallets of the anchor being so shaped and arranged that the rotation of the wheel in either direction will oscillate the hammer.

The invention consists, further, in the simple combination of elements and in the operating mechanism, as more clearly set forth in the preferred construction shown and described.

Figure 1 is a full front view of the bell apparatus, the position of the bell or gong being merely indicated by dotted lines. Fig. 2 is an edge view of the same, partly in section. Fig. 3 shows a push-button-operating mechanism, partly in section. Fig. 4 is a front view of the slotted plate L. (Shown in Fig. 3 attached to the end of the operating-wire.) Fig. 5 shows the pivoted anchor in a

different position with regard to the scape-wheel from Fig. 1.

The post B, which supports the gong G and the scape-wheel C, is secured to a base-plate A, which latter, when the apparatus is in service, is secured in any desired position. The scape-wheel is loose on the arbor B, and has a drum C<sup>2</sup> formed integral with it, from the periphery of which drum projects a pin C<sup>4</sup>, to which the end of the operating-cord H, after being wrapped around the drum, is secured. A coiled spring D has its inner end fixed to the arbor B and its outer end secured to a lug C<sup>3</sup> of the scape-wheel. The teeth C' of the latter are V-shaped, both faces sloping equally.

The anchor E is pivoted to a post E<sup>3</sup> in the base-plate A, and the pallets E' and E<sup>2</sup> are V-shaped to correspond with the space between the teeth of the scape-wheel. The stem F of a hammer is secured to the anchor and terminates in a head F'.

In Fig. 1 the anchor is shown in a central position on its pivoted point. The inner faces of both pallets (marked 1 and 3) when in this position are about parallel with the sloping faces of teeth (marked 5 and 6) on the scape-wheel, and the pallets extend somewhat into the tooth-spaces of the latter. It is evident that if the operating-cord H is pulled, thus turning the scape-wheel in the direction indicated by the arrow, the tooth 5 will come in contact with the face 1 of pallet E<sup>2</sup>, pushing it outward, while pallet E' goes into the space in rear of tooth 6. E' is in turn struck by tooth 7, as shown in Fig. 5, and pushed outward, and thus the anchor and its dependent hammer are oscillated on the pivoted point E<sup>3</sup>, and the head F' strikes the gong every time a tooth passes. In turning the scape-wheel in the direction indicated by the arrow, however, the spring D is wound up, and upon relieving the strain upon the wire H the wheel returns again to its normal position. In so doing the action upon the anchor E and the hammer is exactly the same as before described, so that the gong is sounded as each tooth passes in either direction.

The mechanism shown in Figs. 3 and 4 is



arranged to be operated by a push-button R'. The wire K is a continuation of wire H, being connected to one arm of the bell-crank J. It terminates in a plate L, which moves in a guide M, and a slot L' is engaged by the wedge-shaped end R<sup>2</sup> of the push-bar R. The spring D keeps the operating-wire taut and the beveled end L<sup>2</sup> of the slot against the wedge R<sup>2</sup>, which latter, when pushed inward, turns the scape-wheel C in the direction indicated by the arrow in Fig. 1. On relieving the pressure upon the button R' the spring D pushes it out again, at the same time continuing the sounding of the gong.

I do not confine myself to the preferred construction shown, as the arrangement may be considerably modified without departing from the spirit of my invention.

What I claim is—

1. In a bell-ringing apparatus, the combination, with a scape-wheel and drum connected with an operating-wire and a retracting-spring, of a pivoted anchor E, with dependent hammer, the pallets of said anchor engaging the wheel substantially in the manner described, whereby the movement of said wheel in either direction is adapted to oscillate said hammer, substantially as set forth.

2. In a bell-ring apparatus, the combination, with a scape-wheel and drum connected with an operating-wire and a retracting-

spring and having teeth with equally-sloped working-faces, of a hammer operated by a pivoted anchor having correspondingly-shaped pallets engaging said teeth substantially in the manner described, whereby the movement of said wheel in either direction is adapted to oscillate said hammer, substantially as set forth.

3. In a bell-ringing apparatus, the combination, with the scape-wheel, the drum C<sup>2</sup>, the retracting-spring D, connecting said wheel to its arbor B, and an operating-wire attached to said drum, of a pivoted anchor E, with dependent hammer, and V-shaped pallets E' and E<sup>2</sup>, engaging corresponding teeth in the scape-wheel, substantially as described, all arranged to operate as set forth.

4. In a bell-ringing apparatus, the combination, with a scape-wheel connected with an operating-wire and a retracting-spring, of an operating mechanism consisting of a push-button, with wedge-shaped end R<sup>2</sup> engaging a slotted plate L, connected to said operating-wire and moving in a guide M, all substantially as set forth.

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

DAVID J. SMITH.

Witnesses:

W. G. STEWART,  
ROBERT L. KEITH.