

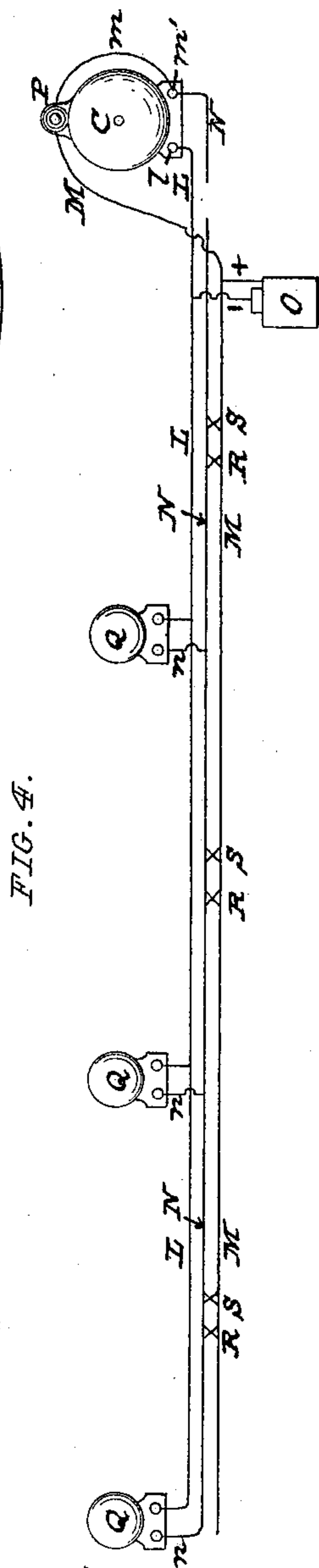
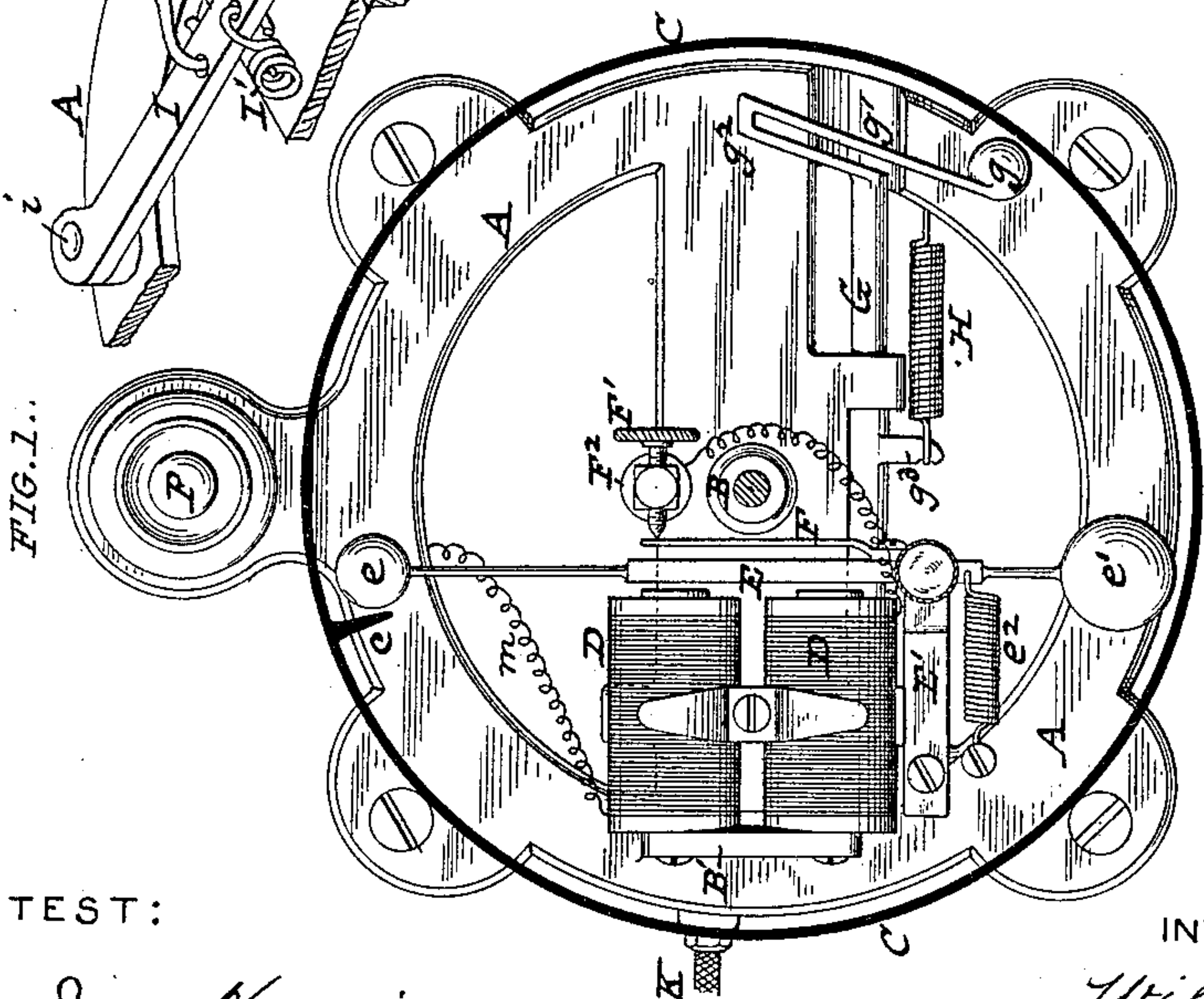
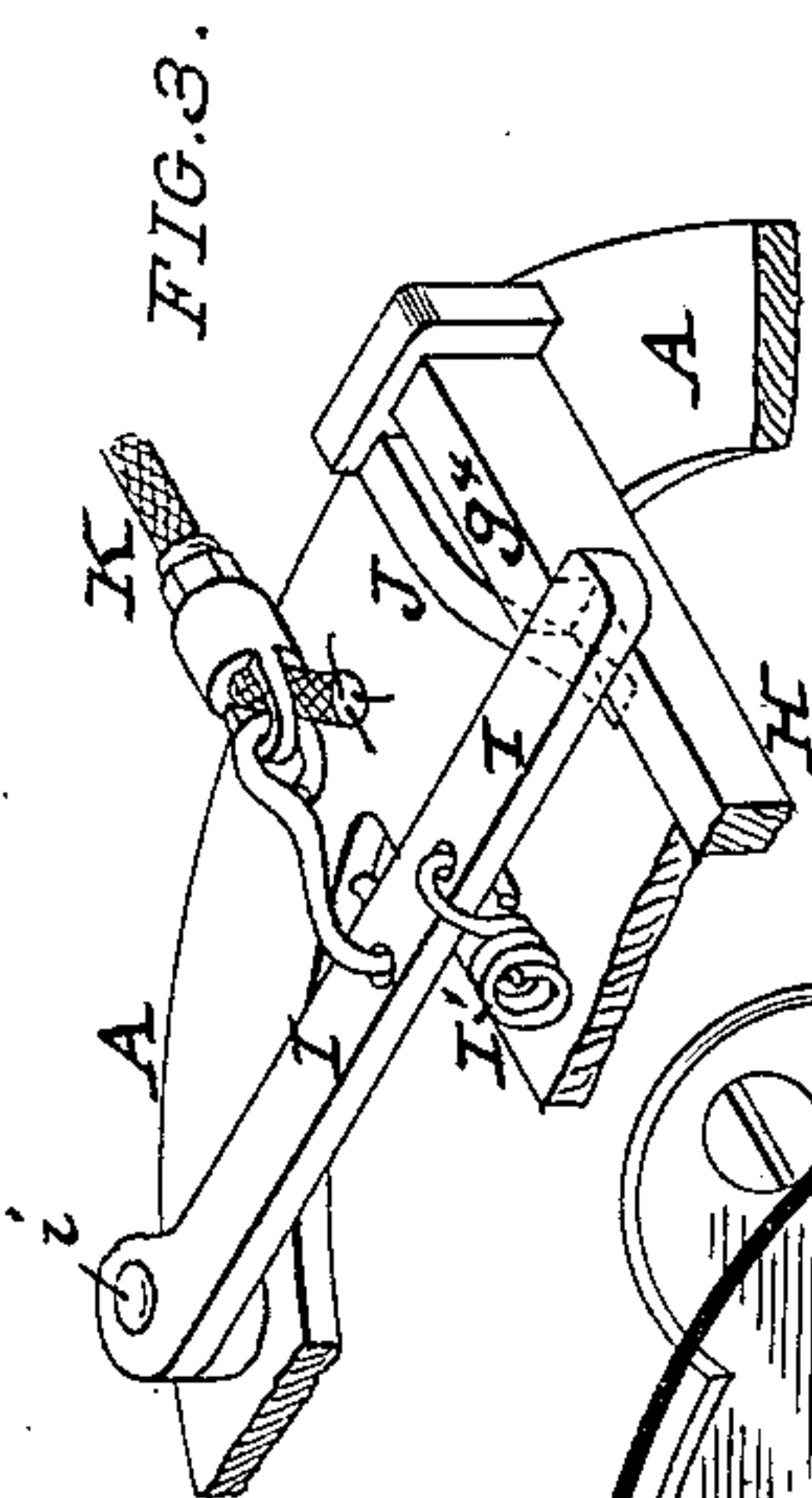
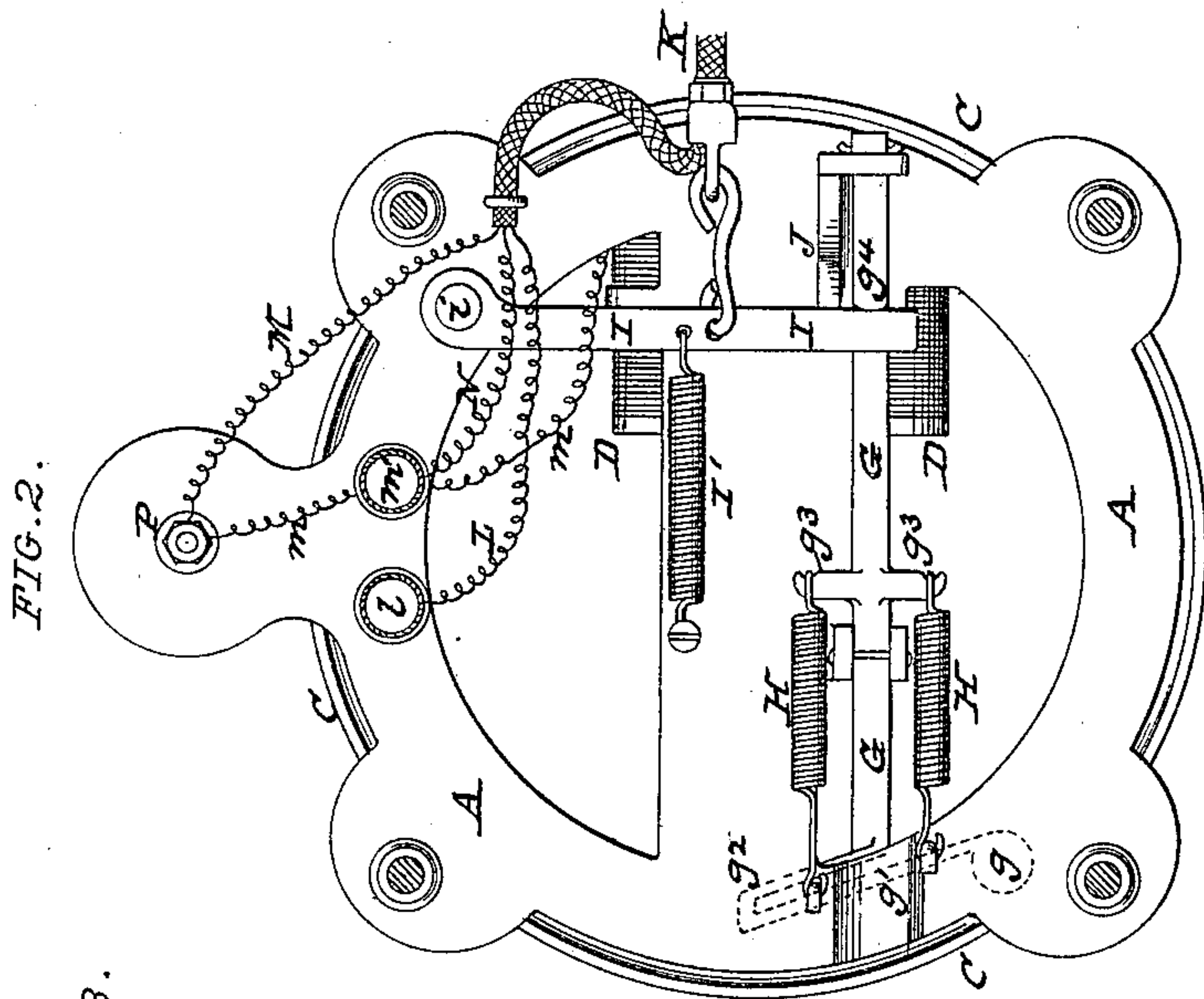
(No Model.)

W. GLASGOW & S. S. STEVENS.

ELECTRIC SIGNALING APPARATUS.

No. 371,445.

Patented Oct. 11, 1887.



ATTEST:

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INVENTORS:

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UNITED STATES PATENT OFFICE.

WILLIAM GLASGOW AND SAMUEL S. STEVENS, OF CHICAGO, ILLINOIS, ASSIGNORS TO THE COMBINED ELECTRIC AND TRIP BELL CORD COMPANY.

ELECTRIC SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 371,445, dated October 11, 1887.

Application filed September 29, 1886. Serial No. 214,890. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM GLASGOW and SAMUEL S. STEVENS, citizens of the United States, and residents of Chicago, in the county of Cook and State of Illinois, have jointly invented certain new and useful Improvements in Electric Train-Signaling Apparatus; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a front elevation of a signal-bell embodying our invention, the rim of the bell being shown in section; Fig. 2, a rear elevation of the same; Fig. 3, a detail perspective view illustrating the tripping mechanism for the mechanically-operated portion of the alarm device, and Fig. 4 a diagram view of the system of electric signaling to which our present improvements are specially applicable.

Similar letters of reference indicate like parts in the several views.

Our invention relates to that class of electric signaling apparatus used upon railway-trains, &c., to communicate signals between the conductor and engineer, and it more especially relates to the form of signaling apparatus embraced in our application for patent, Serial No. 202,588, filed May 18, 1886; and the objects of our present improvements are, first, to provide a simple and efficient means to prevent the jingling of the electric striker or hammer against the bell or gong, due to the jarring motion of the engine upon which it is carried; second, to afford an improved and convenient means, in connection with an electric signal-bell, for transmitting signals from the engineer back through the train of cars, and, third, to supply a simple, cheap, and durable means for automatically tripping or releasing the mechanical striker during its retractile movement to give a sharp signal blow or alarm, such mechanically-operated signal being adapted to be operated in the event of a failure to operate of the electric appliance.

To enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to more particularly

describe its construction and mode of operation.

Referring to the drawings, A represents the metallic supporting base, having a central post or stem, B, for the attachment and support of the bell or gong C, and a rib, B', to which the cores of the electro-magnets D are screwed in metallic contact.

E is the armature of the electro magnet, pivoted in a standard or frame, E', and having at one end a striker or hammer, e, adapted to strike the inner rim of the bell through an inwardly-projecting pin or teat, c, upon the same, and at the other end a counterbalance-weight, e', the action of which is to counterbalance or slightly overbalance the striker e and prevent the constant and disagreeable jingling usual to the ordinary electric bells when carried on moving trains, &c.

F represents the usual spring contact-plate upon the armature, bearing against the point of a temper screw, F', that passes through an insulated binding-post, F², which receives the electric current as it passes off from the electro-magnet D. e² is the spring by which the armature is drawn away from the electro-magnet after it has been attracted by the same.

The mechanical alarm used in connection with the electric alarm above described is as follows:

G is a sliding bar moving in proper guides in the base A, and carrying at its forward end a striker or hammer, g, the stem g' of which has the required elasticity or spring imparted to it by the "return-bend" form made in it, as shown. This construction has the further advantage that the bent portion g² of the stem opposite to the hammer g can be made heavy enough to counterbalance said weight, and thus prevent the tendency of the hammer-bar G to bind laterally in its guides and cause an undue friction in the movement of the parts.

H are springs for drawing the hammer-bar G forward. They are attached at one end to the base A and at the other to the transverse lugs g³ of the hammer-bar, as shown.

I is the operating-lever of the hammer-bar, pivoted at i to the base A, with its free end engaging a lug or offset, g⁴, of the hammer-bar, and adapted to ride upon an inclined lug,

J, on the base, so that as it is drawn backward by the pull-cord K it will be automatically forced upward to release the hammer-bar G, which will then be drawn forward by springs H to sound an alarm.

I' is a spring for drawing the lever I back into engagement with the hammer bar G.

The pull-cord K will be of the construction embraced in our prior application No. 202,588, to wit: An ordinary train bell-cord inclosing a series of three insulated electric conducting-wires having inserted at suitable intervals circuit-making devices which are adapted to give the proper signal to the engineer, either by a pull upon the bell-cord by the conductor or other person, or by the parting of the train of cars, and which is also adapted to enable the engineer to make return-signals to the conductor through signal-bells arranged in the cars and having electric connection with the conducting-wires in the aforesaid pull-cord.

In order to more clearly set forth the operation of the present improvement, we have shown in Fig. 4 of the drawings a diagram view of the electric wires inclosed in the aforesaid pull-cord and the different connections of the same. In this, L is the insulated negative wire, extending from the negative pole of the battery O through the train of cars, and having connection with the negative poles of the electric bells or "buzzers" Q, arranged throughout the train of cars, and also with the negative pole of the electro-magnet D of the signal-bell in the locomotive cab, through the uninsulated binding-post *l*, which communicates through the metal base of the apparatus with the cores of such electro-magnet.

M is the insulated positive wire, extending from the positive pole of the battery O through the train of cars, and having connection with the push-button P, of any suitable and well-known form, arranged upon the frame of the signal-bell in the locomotive cab, and through the wire *m* and insulated binding-post *m'* with the helix of the electro-magnet D, as illustrated in Figs. 1, 2, and 4.

N is a secondary insulated wire accompanying the wires L and M, and acting alternately as a negative or positive conductor, in accordance with the operation of the apparatus. It acts as a negative conductor when a signal is

being communicated to the engineer, either by the conductor pulling on the pull-cord K to complete the circuit through the circuit-closer R, or by the pulling apart of the train, completing the circuit through the circuit-closer S. These circuit-closers are described in detail in our former application No. 202,588.

The aforesaid conductor N acts as a positive wire in communicating a return-signal from the engineer through the signal bells or buzzers Q by having connections with the positive poles of the same through shunt or branch wires *n* of the required capacity to properly operate such bells.

No claim is made in this application for the arrangement of conducting-wires or the mode of signaling above set forth, as such is embodied substantially in our aforesaid application No. 202,588.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, a combined electrical and mechanical signal comprising the magnet D, with its armature, carrying the hammer and counterbalance-weight, and the sliding hammer-bar and operating circuit wires and cord, as set forth.

2. In a signaling apparatus, substantially as described, the combination of the sliding hammer-bar G, having lug or offset *g'*, pivoted operating-lever I, and stationary inclined lug on the supporting-base, substantially as set forth.

3. In a signaling apparatus, substantially as described, the spring hammer-stem *g'* of the sliding bar G, provided with a return-bend, *g''*, forming a counter-balance to the hammer *g*, in the manner and for the purpose set forth.

4. In an electric signaling apparatus, substantially as described, the combination of an electric signaling device, a mechanical signaling device, and a push-button or circuit-closer, P, forming a part of said bell apparatus, the parts being connected and arranged in the manner and for the purpose set forth.

In testimony whereof, witness our hands this 25th day of September, 1886.

WILLIAM GLASGOW.
SAMUEL S. STEVENS.

In presence of—

ROBERT BURNS,
EDWIN S. SKINNER.