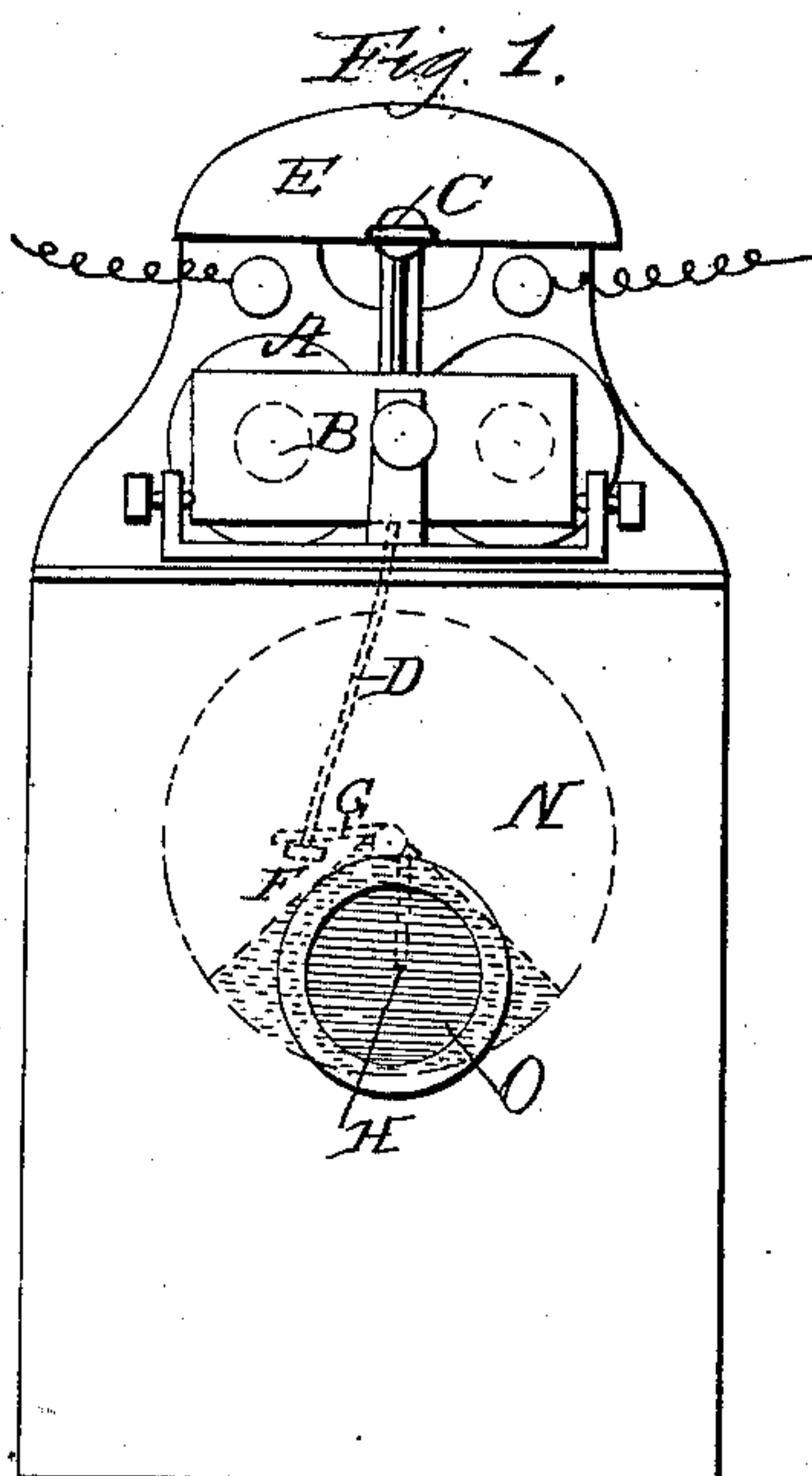
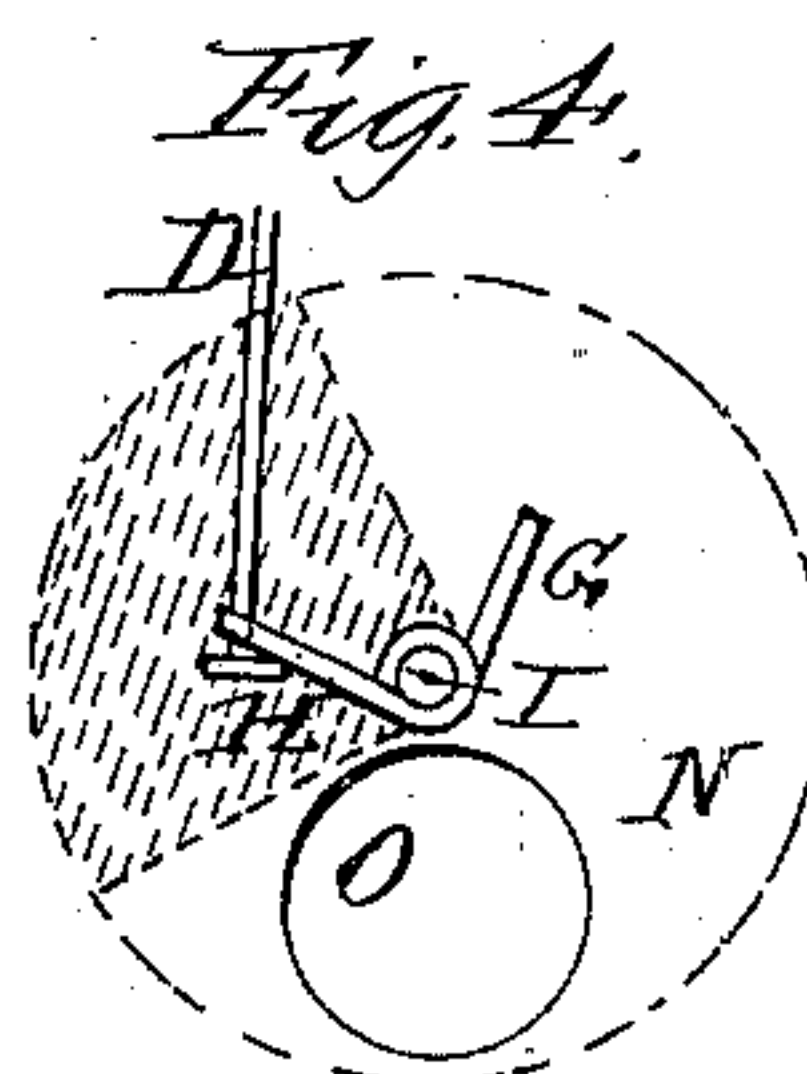
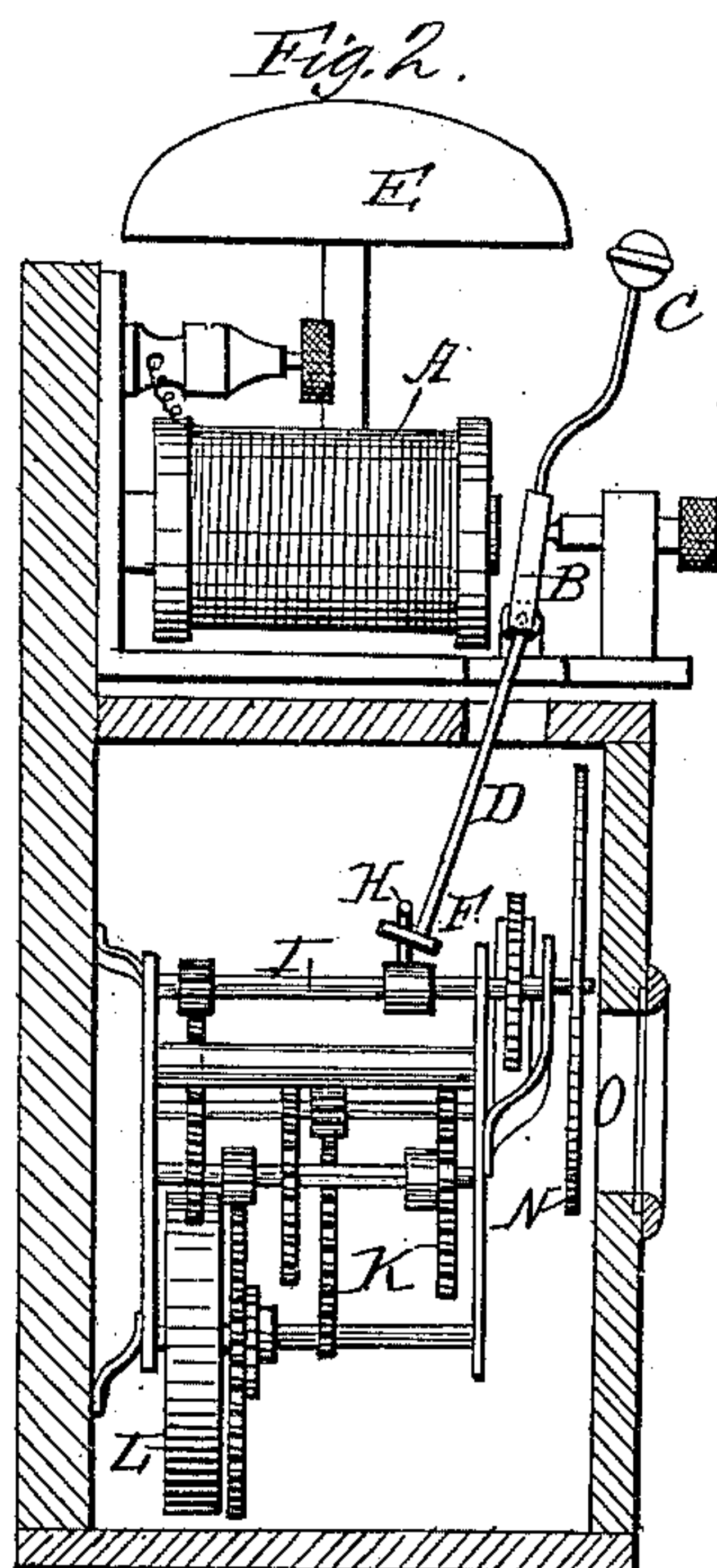
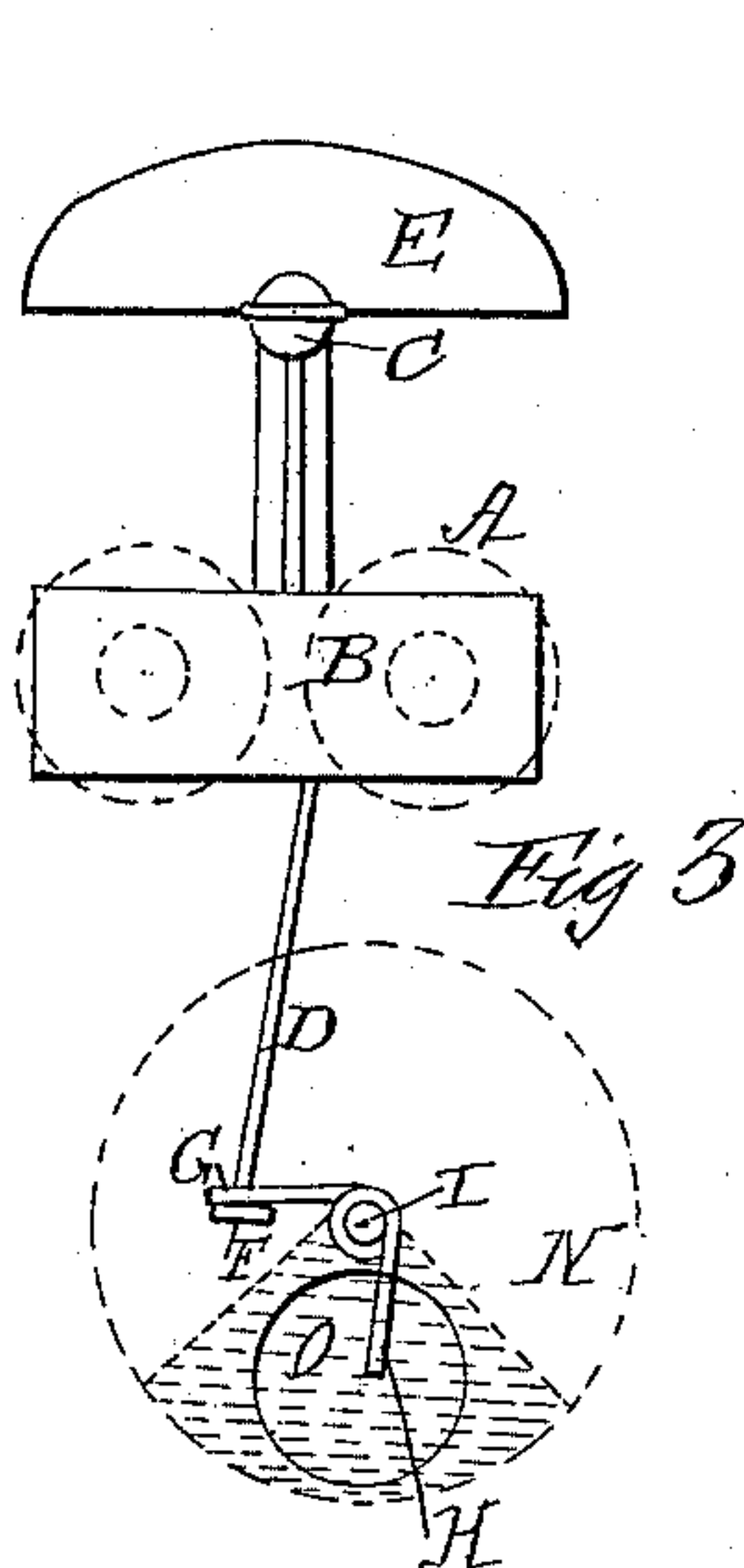


(No Model.)

J. F. KETTELL.
ELECTRIC CALL BELL SIGNAL.

No. 257,342.

Patented May 2, 1882.



Attest:
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UNITED STATES PATENT OFFICE.

JAMES F. KETTELL, OF WORCESTER, MASSACHUSETTS.

ELECTRIC CALL-BELL SIGNAL.

SPECIFICATION forming part of Letters Patent No. 257,342, dated May 2, 1882.

Application filed October 13, 1881. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. KETTELL, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Electric Call-Bell Signals; and I do hereby 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 or figures of reference marked thereon, which form a part of this specification.

My present invention relates to telephones and methods for operating the same.

The object of my invention is to provide a line-in-use signal or a signal by means of which any subscriber may ascertain at a glance, when he may desire to use the line, whether the line at such time is being used by any other subscriber or person on the same circuit.

My invention is designed to be applied to any description of electrical bell in such a manner that the working of the armature thereof, or hammer, or any part of the mechanism which rings the bell, will operate the signal.

To effect these objects my invention consists in the following construction and arrangement of mechanism, which will be fully described, and the points of novelty set forth in the claim.

A special description of such parts of a telephone system as are old and well understood to those skilled in the art will not here be made, except a brief reference to such parts as are directly in relation to the present invention.

Figure 1 of the drawings represents a front elevation of a device to which my invention has been applied. Fig. 2 represents a vertical sectional elevation of a device embodying my invention. Figs. 3 and 4 represent detail views in further illustration of my improvement.

A represents the electro-magnet of a telephone-station, which is employed for ringing the alarm-bell, and with which every station on the line is provided. It is suitably arranged within the circuit. The armature B of this electro-magnet, which carries the striking-hammer C of the bell E, is provided also with a downwardly-projecting arm, D, adapted to vibrate

with said armature. The lower extremity of this arm D is provided with a catch, F, of any suitable shape, and is designed to arrest a series of projecting revolving arms, G H, secured to an arbor, I, of a clock-work, K, driven by a spring, L. To the same arbor I to which the revolving stop-arms G H are keyed is secured a disk, N, on which are printed or otherwise placed divisional surfaces of different colors, words, or other distinguishing-marks.

The whole device, with the exception of the alarm-bell and magnet, is preferably inclosed within a suitable casing, through which is pierced an opening, O, which may be covered by any transparent medium. This opening O I prefer to make large enough to show but a portion of disk N, which is somewhat less than the length of a radius of the disk. In this instance I have provided the disk with two contrasting colors, the darker of which is represented by parallel lines on the disk and approximates an area about one-quarter of the surface thereof. When this darker color appears opposite the opening O it is indicative that the line is in use; and when the lighter color appears it indicates that the line is not in use. Now the arrangement of the arms G H and the vibrating arm D, together with the disposition of the colors or words on disk N, is such that no matter in what position are the various parts two taps of the bell-hammer, or one prolonged one, will always bring the lighter color opposite the opening O, indicating that the line is not in use, and one quick tap following will show the darker or line-in-use signal. It will be understood of course that the striking of the bell-hammer is due to the making and breaking of the electric current.

The speed at which the disk N revolves may be about one revolution in from two to four seconds; but I wish it understood that various rates of speed may be used.

The arms G H are arranged at about right angles to each other. When the catch F of arm D engages arm H the light color shows through the opening O, as seen in Figs. 2 and 4. A single quick tap of the bell will bring the dark color opposite opening O by the armature withdrawing arm D momentarily, allowing arm H to pass and arresting arm G, as seen in Figs. 1 and 3.

I contemplate modifying my invention by providing a disk (similar to disk N) with a weight instead of a clock mechanism, so that
5 unarrested it will revolve to a certain fixed position. It carries an arm or projection in connection with a pivoted tripping-lever, said lever being adapted to be actuated whenever the bell-hammer, armature, or other mechanism of an electric bell may be operated, thereby
10 showing that the bell has been rung.

I have described my invention as applied to telephone-alarm calls, but it is obvious it may be applied to any electric call-bell.

15 Having described my invention, what I claim is—

A clock mechanism, a disk or other visible signal carried thereby, an arm adapted to be operated by the operating mechanism of an electric bell or other alarm, and suitable stops on the clock-work engaging said arm, the whole
20 constructed to act in combination in the manner and for the purpose set forth.

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

JAMES F. KETTEL.

Witnesses:

CHARLES E. SEINFONE,
FRANK T. GOODWIN.