

D. C. HORNER.

BELL.

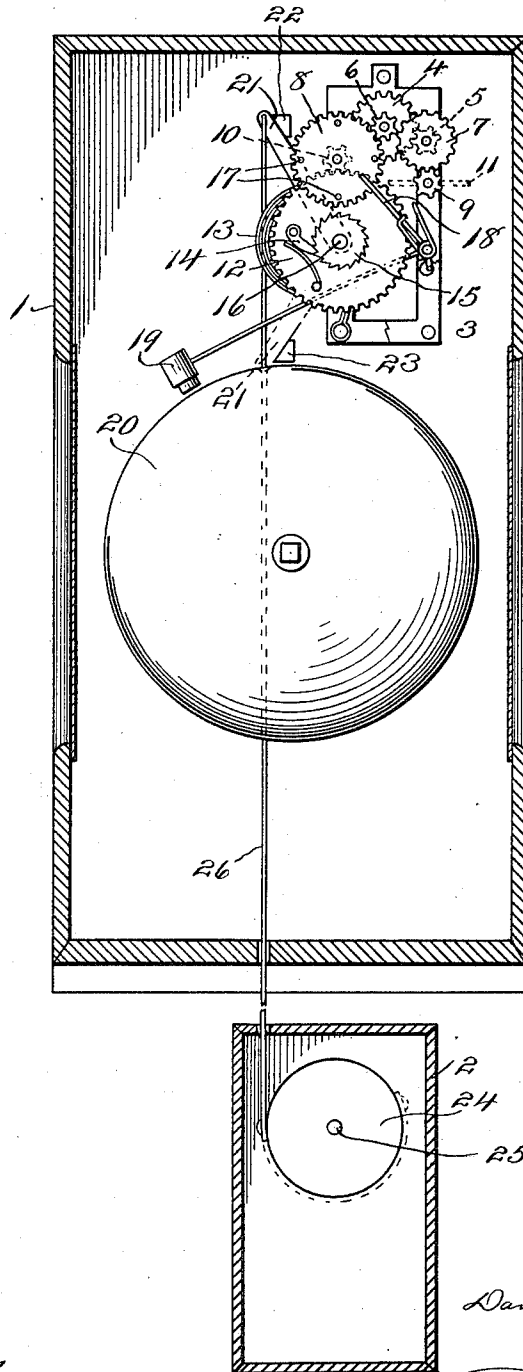
APPLICATION FILED JUNE 1, 1911.

Patented July 2, 1912.

2 SHEETS-SHEET 1.

1,031,002.

Fig. 1.



Witnesses

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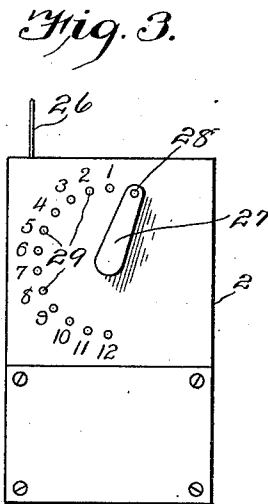
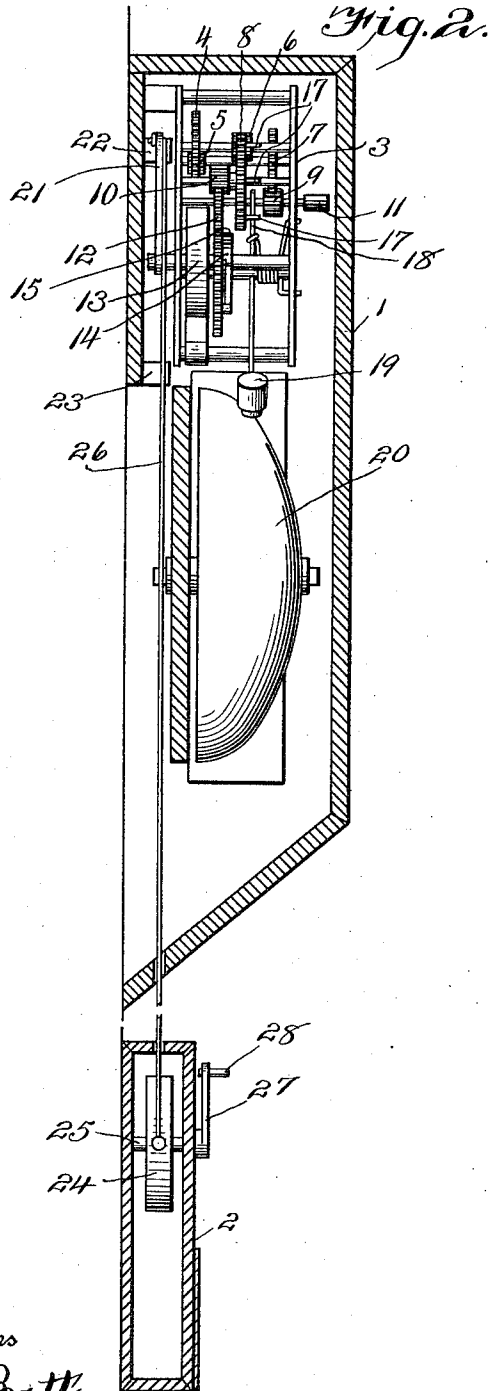
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2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

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BELL.

1,031,002.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, DAVID C. HORNER, a citizen of the United States, residing at St. Johnsbury, in the county of Caledonia and State of Vermont, have invented certain new and useful Improvements in Bells; 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 to improvements in bells, more especially the gong-type, and is designed for special use, as in the assembling place of a fraternal body, for indicating or producing a given number of separate sounds or strikes.

The invention has for its object to provide a device for sounding a bell a predetermined number of times, the mechanism of which is practically noiseless.

A further object of the invention is to facilitate the winding operation, doing away with the use of the ordinary key for that purpose and effecting such winding operation in a continuous manner, and which winding is confined to predetermined limits, as is also the relaxation of the tensioning spring.

A still further object of the invention is to readily control or predetermine the number of strokes or sounds it may be desired to cause the bell to produce.

Also a further object of the invention is to carry out the aforesaid ends in a simple, inexpensive and effective manner.

The invention consists of certain instrumentalities and features substantially as hereinafter fully disclosed and defined by the appended claims.

In the accompanying drawings, illustrating the preferred embodiment of my invention, wherein various changes may be made as relates to details of the construction and arrangement of the parts without departing from the spirit of the invention—Figure 1 is a view in front elevation of the invention, the inclosing casings therefor being in vertical section. Fig. 2 is a side or edge elevation thereof, the inclosing casings also being in vertical section. Fig. 3 is a detached front view showing more especially

the setting or controlling means for the winding mechanism.

In carrying out this invention I provide suitable inclosures or casings 1 and 2 within which is mounted the operating mechanism, said casings being secured in place for convenient operation and relatively to each other preferably as shown in the drawings.

A clock-like system of gearing 3 is arranged in the casing or housing 1 and includes a shaft 16 driven by a spring 13 carried on said shaft. Loosely mounted on the shaft 16 is a spur gear wheel 12 which carries on its face a spring held pawl 14 in engagement with a ratchet wheel 15 fastened to the shaft 16 and rotatable therewith. Said spur gear wheel 12 meshes with a pinion 10 which operates a spur gear wheel 8, said spur gear wheel 8 meshing with a pinion 6 operating a spur gear wheel 4, said spur gear wheel 4 meshing with a pinion 5 operating a spur gear wheel 7 which in turn meshes with a pinion 9 operating a governor 11.

The pinion 8 is provided with four lateral studs 17 arranged at intervals apart thereon of ninety degrees, which studs are adapted to engage the hammer-carrying arm 18, the hammer designated 19 engaging the gong 20 arranged in the casing 1. This casing, with its contained mechanism, is arranged preferably, or as usual, upon a wall, near the ceiling, or at a transom for the advantageous transmission of the sound.

A winding lever 21 is applied to the spring-carrying shaft 16 so as to provide for turning said shaft for putting the spring 13 under tension by actuating said lever; stops 22 and 23; secured to the casing, being so arranged as to limit the maximum movement of said lever in either direction as will be readily appreciated.

A disk or wheel 24, whose shaft 25 is suitably hung in the casing or inclosure 2, has connection with the winding lever 21 by suitable flexible means 26 as a cable, strap or line connected at its ends to the outer end of said lever and to the perimetric edge of said disk or wheel, respectively, as clearly disclosed in Figs. 1 and 2, said wheel or disk being readily actuated by a handle or crank 27 fitted upon one end of the shaft 25. Said handle or crank carries in its outer end a pin 28 slidable or movable therein for registration and engagement with any one

of a number or plurality of apertures or sockets 29 produced in suitable arcuate outline in the front portion of the casing 2, said apertures ranging, say from 1 to 12 and numbered accordingly as disclosed.

It will be apparent that when the device requires winding it is only necessary to suitably actuate the crank or handle 27 which will cause the drum, disk or wheel 24 to wind the line 26 accordingly pulling upon and moving the lever 21 which will have the effect to suitably tension or stress the gear-actuating spring or motor, the winding being controlled by the stop 23 which engages said lever when the limit of winding has been reached, as is apparent. The handle 27, when the operator is through with the winding operation, is released and remains with its pin 28 out of engagement with any other parts, or out of use, but ready at hand when it may become necessary to again perform the winding operation. It will be further noted that when it may be desired to use any desired number of strokes or sounds less than the whole number this may be accomplished by previously engaging the pin 28 with the desired aperture, as indicated by the figures or numbers 29 upon the casing 2, say by inserting it at 11 which may have local significance in connection with the fraternity, and then subsequently withdrawing the pin when the handle will be released allowing the drum to revolve, and the lever, under the action of the spring, to be carried to its destination, and the required number of strokes or sounds to be produced by the hammer upon the bell.

It has been found in actual use that the operating mechanism of this device is practically noiseless which obviates the annoyance attending the use of devices of this character and accordingly suppresses the tendency to unnecessarily engage or call the attention of those near the device during the operation of the same, the sound emitted by the bell or gong being practically the only audible sound which is given out by the device. It is also emphasized that I omit the use of a key such as usually employed in connection with contrivances of this type for stressing or tightening the gear-driving spring, such stressing or tensioning of the spring being effected herein by the use, principally, of a lever and adjunctive parts, while the winding operation, as well as the ringing action of the bell, is readily controlled, and in a simple, direct and effective manner.

Having thus fully described the several parts of my invention what I claim as new and desire to secure by Letters Patent of the United States, is—

1. In a device of the character described the combination with a bell or gong, of a

hammer for striking the same and means for actuating the said hammer, said means including a spring operated mechanism, a lever, a flexible connection between said lever and said spring operated mechanism for tensioning the spring of said mechanism to cause the same to actuate said hammer and means for engaging said winding lever to hold the same at a predetermined point to give to said spring a predetermined tension, and means for releasing said lever to cause said spring operated mechanism to operate and actuate said hammer to sound said bell or gong a predetermined number of times, substantially as described.

2. In a device of the character described the combination with a bell or gong, of a hammer and means for actuating the same to strike or sound said bell or gong, said means including spring actuating mechanism and means for tensioning said spring, means for limiting tensioning of said spring to cause the same to operate said mechanism to actuate the said hammer for the purpose of sounding said bell or gong a predetermined number of times, said means for tensioning said spring including a lever and a flexible connection between said lever and said spring operating mechanism, means for holding said lever at any one of a number of points within the limit of tensioning said spring, and means for releasing said lever to cause the said mechanism to operate said hammer to sound the bell or gong a predetermined number of times.

3. In a device of the character described the combination with a bell or gong, a hammer and actuating means for operating said hammer to strike or sound the said bell or gong, said actuating means comprising a spring, a lever associated with said spring for tensioning the same, means arranged in the path of movement of said lever to limit the maximum movement thereof, a manually operated lever, a connection between said manually operated lever and said first mentioned lever for carrying said first mentioned lever to its maximum limit of movement and means for holding said manually operated lever and said first mentioned lever at its maximum limit of movement or at any predetermined point within the limit of movement of the first mentioned lever and of the manually operated lever to cause said first mentioned lever to wholly or partially tension said spring to cause said spring operated mechanism to actuate said hammer a maximum number of times or less than the maximum number of times, substantially as described and for the purposes set forth.

4. A device of the character described comprising a bell or gong, a hammer mechanism for actuating said hammer to cause the same to strike the said bell or gong, said

mechanism including a spring, means associated with said spring for giving to the spring a maximum tension, manually operated means for moving said spring tensioning means to its maximum limit of movement and means for holding said manually operated means and said spring tensioning means at its maximum limit of movement or at a predetermined point less than the maximum limit of movement to give to said spring a maximum tensioning or less than a maximum tension to cause

said spring to operate said mechanism to actuate said hammer a maximum number of times or less than a maximum number of times, substantially as described and for the purposes set forth. 15

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

DAVID CHAPMAN HORNER.

Witnesses:

ROY N. HOWARD,
W. J. FARR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
