

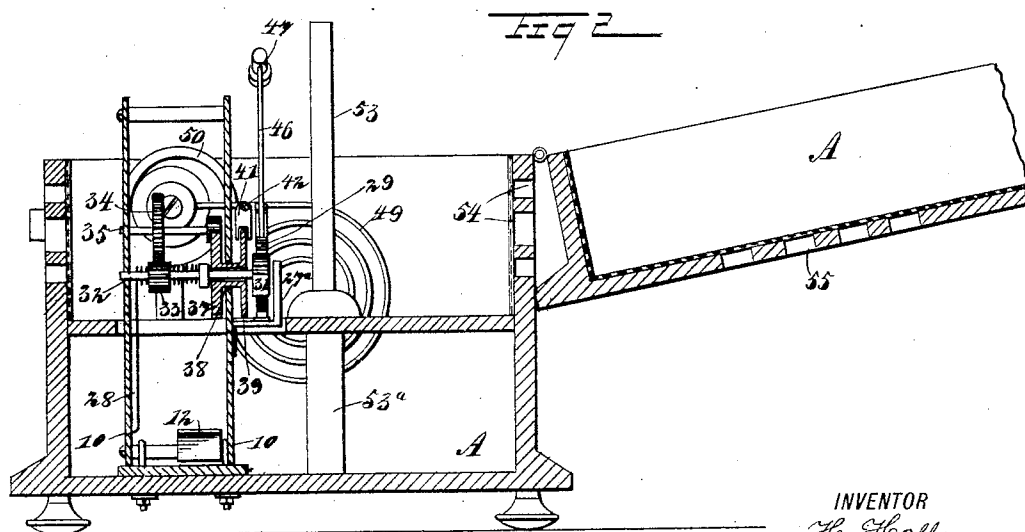
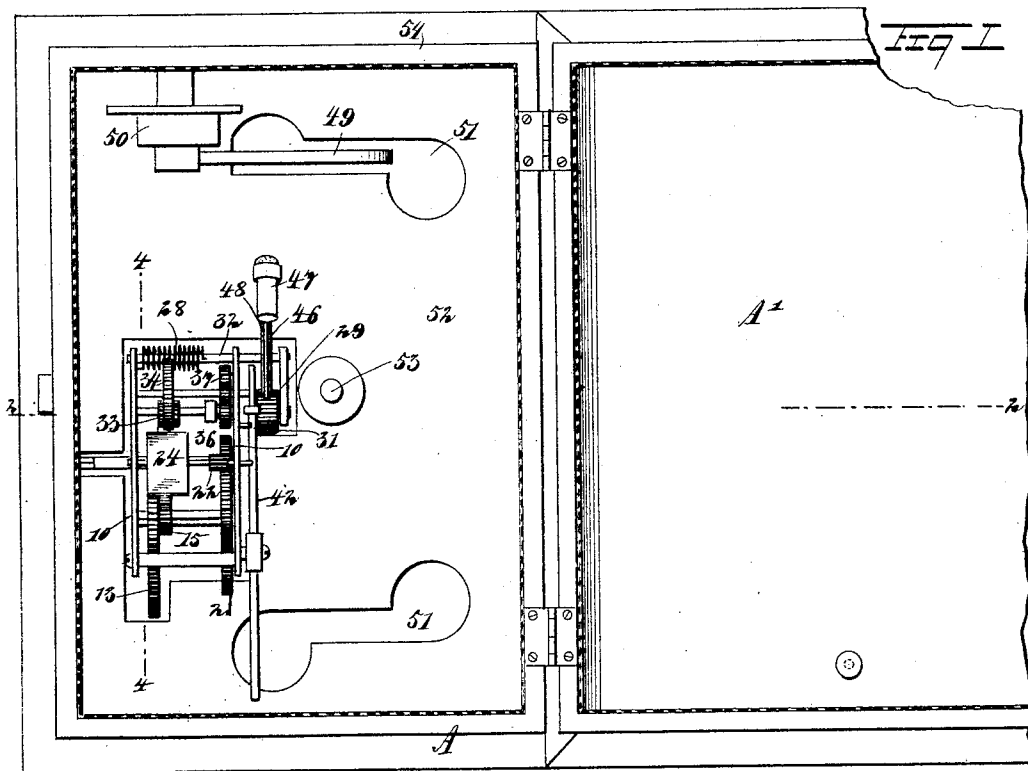
(No Model.)

2 Sheets—Sheet 1.

H. HALL.
CLOCK STRIKING MECHANISM.

No. 571,615.

Patented Nov. 17, 1896.



WITNESSES:

N. Walker
John Acker

INVENTOR
H. Hall.

BY

Munroe
ATTORNEYS.

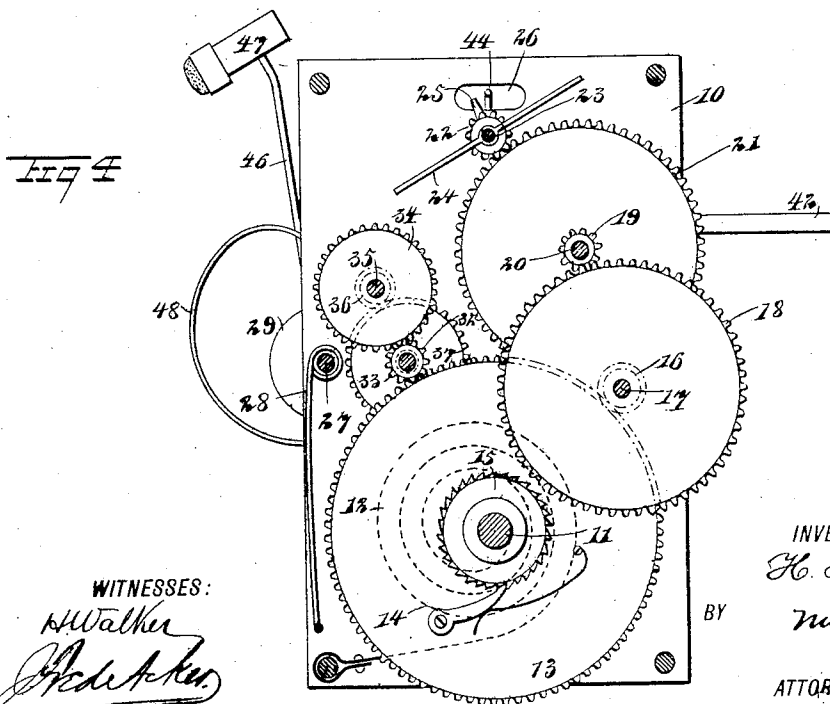
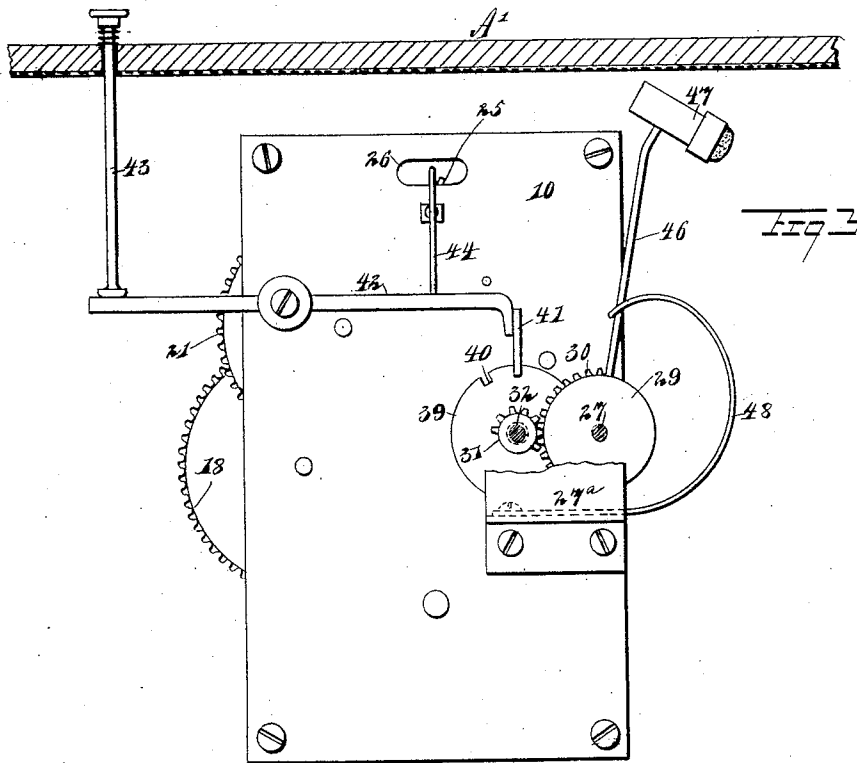
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WITNESSES:
H. Walker
John A. Ken.

INVENTOR
H. Hall.
BY *Wm. H. [Signature]*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

HENRY HALL, OF PORTSMOUTH, OHIO.

CLOCK STRIKING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 571,615, dated November 17, 1896.

Application filed May 19, 1896. Serial No. 592,127. (No model.)

To all whom it may concern:

Be it known that I, HENRY HALL, of Portsmouth, in the county of Scioto and State of Ohio, have invented a new and Improved Bell-Ringing Device, of which the following is a full, clear, and exact description.

My invention relates to an alarm device, and particularly to a device adapted for use in Masonic lodges to sound what is technically known as "low twelve."

The object of the invention is to provide a gong or a cathedral-chime or like alarm which will be sounded slowly and solemnly, and which may be set in operation from the exterior of the inclosing case and will automatically produce a predetermined number of strokes on a bell at predetermined intervals apart, the mechanism being automatically checked when the desired number of alarms have been sounded.

A further object of the invention is to provide a casing or other inclosure with sounding-boards and posts arranged to produce an equalization of vibratory action.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the casing in which the alarm device is placed, and also a plan view of the alarm device, the top of the casing being open. Fig. 2 is a section taken transversely through the operative mechanism of the alarm device and casing, the said section being taken on the line 2 2 of Fig. 1. Fig. 3 is an outer face view of the mechanism actuating the alarm, parts being broken away and the lid of the casing being shown in section; and Fig. 4 is a section taken through the operative mechanism for the alarm practically on the line 4 4 of Fig. 1.

The mechanism for producing the alarm is contained within two cheek pieces or plates 10 in like manner as an ordinary clock mechanism, and much of the mechanism is that embraced in the usual clock-movement. The ordinary portions of the mechanism consist of a mainspring 12, which is secured to a shaft

11 and operates in conjunction with a master-wheel 13, mounted on the said shaft, a pawl 14, carried by the master-wheel, and a ratchet-wheel 15, which is secured to the said shaft 11, the master-wheel being loose on the shaft. The master-wheel 13 meshes with a pinion 16, which is secured on a shaft 19, journaled in the side plates 10, and on this shaft a gear 18 is secured, which gear is in mesh with the pinion 19^a on an upper shaft 20, and this upper shaft 20 has likewise attached to it a gear 21, and this latter gear is in mesh with a pinion 22, located on the escapement-shaft 23, carrying the escapement 24, and the pinion 22 is provided with a finger 25, which extends at one point in the revolution of the escapement-shaft across an opening 26, made in one of the side plates 10, as illustrated in Figs. 3 and 4.

The shafts 17 and 20 are near one side of the side plates 10, and at the opposite side the hammer-shaft 27 is journaled, and around the said hammer-shaft the spring 28 is coiled, having one end secured to the shaft and the other end to a fixed point within the plates 10. At one outer extremity of the hammer-shaft 27 a mutilated gear 29 is secured, the teeth 30 whereof are adapted to engage with the teeth of the mutilated pinion 31, located on a shaft 32 adjacent to the hammer-shaft 27, as is best shown in Fig. 3, and the outer ends of the shafts 27 and 32 are supported in a bracket 27^a or like device located on the outer face of one of the aforesaid plates.

On the shaft 32 between the plates 10 a pinion 33 is secured, which meshes with the master-wheel 13, and the said pinion 33 meshes with a gear 34, located on a shaft 35 above the shaft 32, as shown in Fig. 4, and on the said shaft 35 a pinion 36 is secured, which is preferably of the same diameter as the pinion 33, and the upper pinion 36 meshes with a gear 37, connected by a sleeve 38 with a striking-disk 39, and the said striking-disk 39 and its gear 37 and sleeve 38 are loosely mounted on the shaft 32, and the striking-disk 39 is placed adjacent to the mutilated pinion 31 outside of the framing, in which the clockwork mechanism is located.

It is obvious that while the shaft 32, carrying the mutilated pinion 31, may travel very rapidly the striking-disk 39 will travel very

slowly by reason of the pinion-and-gear connection 33 and 34 between the shaft 32 and the shaft 35 and the pinion connection between the shaft 35 and the loosely-mounted gear 37, connected with the aforesaid striking-disk. The striking-disk is provided with a notch 40 in its periphery, and a locking-arm 41 is adapted to enter the notch or recess 40, the said locking-arm being attached to one end of a horizontal lever 42, fulcrumed upon one of the casing-plates 10, as shown in Fig. 3, the lever extending beyond one side of the said plate and is preferably engaged by a spring-controlled trip-bar 43, extending outward through the top A' of the casing A, in which the striking mechanism is located. A second locking-arm 44 is projected upward from the lever 42 across the opening 26 in the casing-plate above referred to, and this second locking-arm is curved at its upper end to extend through the said casing-opening, and when the lower locking-arm 41 enters the notch or recess 40 in the striking-disk the upper locking-arm will be in the path of the spur 25, connected with the escapement-shaft 23, preventing the said shaft from revolving, the lower arm preventing the striking-disk from turning.

In one revolution of the striking-disk there will be twelve strokes of the hammer 47, which is connected by a shank 46 directly to the mutilated gear 29, as shown in Fig. 3. The said hammer is adapted to strike a cathedral-coil 49 or a gong which is secured to a suitable support 50 within the body of the box A, as shown in Figs. 1 and 2, and the said support is above a sounding-board 52, having openings 51 therein, through one of which openings the said coil extends. A sounding-post 53 extends from the sounding-board and is adapted to engage with the cover of the casing or box when the said cover is closed, and a second sounding-post connects the sounding-board 52 with the bottom of the box or casing, thereby equalizing the vibrations incident to the striking of the gong, and the forward or striking movement of the hammer 47 is in a measure checked by a spring 48, secured to a fixed support and coiled upward, having its upper end forked to receive the shank of the hammer, so that the hammer will not strike the cathedral-gong too violently, and will produce a solemn and a regular alarm. The post 50, to which the gong or the cathedral-chime is attached, is preferably given a coil shape, as shown in Fig. 2, so as to promote the vibration of the chime-coil to a certain extent and also to obviate the dull metallic tone incident to a solid post.

In order that the sound shall be widely disseminated when the cover is closed over the box, the box is provided with various apertures or openings 54 and the cover with openings 55.

In operation when it is desired to start the machine, the spring 12 having been wound

up, it is simply necessary to push downward the trip 43, which may be done when the cover is closed, whereupon the locking-arm 41 will be removed from the notch 40 in the striking-disk 39 and the escapement will be released, permitting the gearing to act. When the teeth of the mutilated pinion 31 engage with the teeth of the mutilated gear carrying the hammer, the hammer will be brought backward or away from the gong or bell, placing the spring 28 attached to the hammer-shaft under tension, and when the plain surfaces of the mutilated gear and pinion are brought together the spring on the hammer-shaft will act to throw the hammer against the gong, the hammer being cushioned in a measure by the spring 48. This action will continue until twelve strokes of the hammer have been made, and after the twelfth stroke the notch 40 in the striking-disk will be brought under the locking-arm 41, and the latter, dropping in the said notch, will lock the disk, and the upper locking-arm 44 will prevent further movement of the gearing.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a bell-ringing device, a clock-motor, a shaft driven from said motor and provided with a mutilated pinion, a spring-controlled shaft, a hammer operated by said spring-controlled shaft, and a mutilated gear on the said spring-controlled shaft and meshing with the teeth of the said mutilated pinion, as and for the purpose specified.

2. In a bell-ringing device, a clock-motor, a shaft driven from the said motor and provided with an attached mutilated pinion, a spring-controlled shaft having a mutilated gear meshing with the teeth of the mutilated pinion, a hammer attached to the mutilated gear, a striking-disk, a locking device for the said disk, and a gear connected with the said disk, loosely mounted on the shaft carrying the mutilated pinion and operated also from the clock-motor, as and for the purpose set forth.

3. In a bell-ringing device, a clock-motor, a shaft driven from the said motor and provided with an attached mutilated pinion, a spring-controlled shaft having a mutilated gear meshing with the teeth of the mutilated pinion, a hammer attached to the mutilated gear, a striking-disk, a locking device for the said disk, a gear connected with the said disk, loosely mounted on the shaft carrying the mutilated pinion and operated also from the clock-motor, a lever, and means for operating the said lever from the exterior of the clock mechanism, the said lever being connected with the locking device for the striking-disk and the disk being provided with a recess to receive the said locking device, as and for the purpose specified.

4. In a bell-ringing device, the combination with a spring-motor having its escapement-

shaft provided with a projecting finger or spur, and a striking-disk provided with a recess in its periphery, of a lever fulcrumed upon one of the casing-plates of the motor, a
5 locking-arm at one end of the said lever and arranged to enter the recess in the striking-disk to lock the same, and a second locking-arm projecting from the lever and having its free end extending through an opening in the
10 casing-plate adjacent to the escapement-shaft, the said locking-arm being arranged to be moved in the path of the finger or spur carried by the escapement-shaft when the striking-disk is locked, as and for the purpose specified.
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5. In a bell-ringing device, the combination, with a spring-motor, a spring-controlled shaft located in the motor, a hammer connected with the said shaft, and a mutilated gear secured upon the aforesaid spring-controlled or
20 hammer shaft, of a second shaft likewise driven from the motor, provided with a mutilated pinion for engagement with the mutilated gear, a striking-disk, and an attached
25 gear loosely mounted on the pinion-shaft and driven from the motor, a lever, and locking devices located on the lever and adapted one for locking engagement with the striking-disk and the other for simultaneously stopping

engagement with the gearing of the motor, as 30 and for the purpose specified.

6. In a bell-ringing device, the combination, with a spring-motor, a spring-controlled shaft located in the motor, a hammer connected with
35 the said shaft, and a mutilated gear secured upon the aforesaid spring-controlled or hammer shaft, of a second shaft likewise driven from the motor, provided with a mutilated pinion for engagement with the mutilated
40 gear, a striking-disk and an attached gear loosely mounted on the pinion-shaft and driven from the motor, a lever, locking devices located on the lever, adapted one for locking engagement with the striking-disk
45 and the other for simultaneously stopping engagement with the gearing of the motor, means for operating the lever from a point outside of the inclosure in which the ringing device may be placed, and a cushion for the
50 hammer, arranged to contact therewith when the hammer is carried in direction of the gong or device to be struck, as and for the purpose specified.

HENRY HALL.

Witnesses:

J. B. CLARK,
B. T. NEWMAN.