

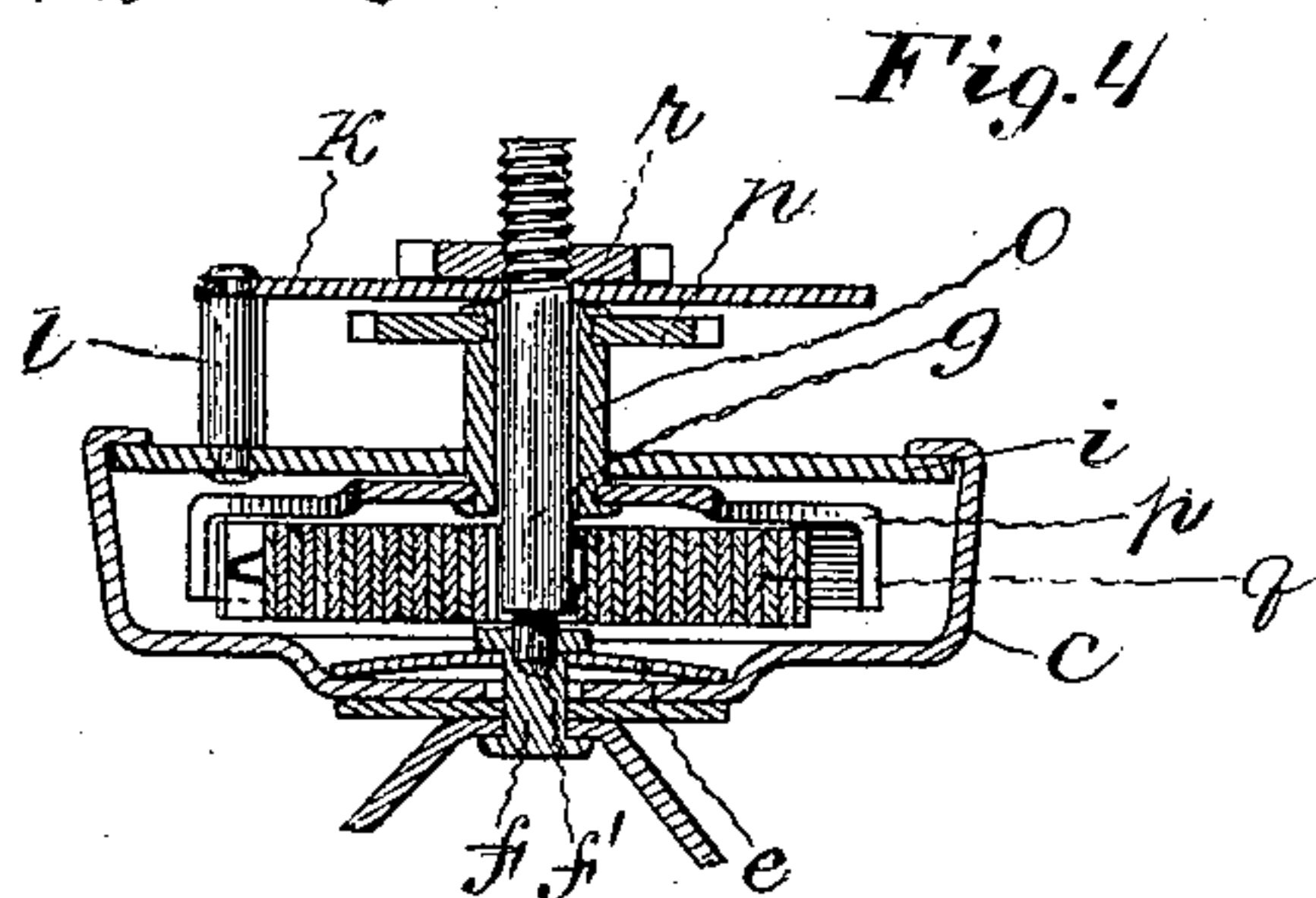
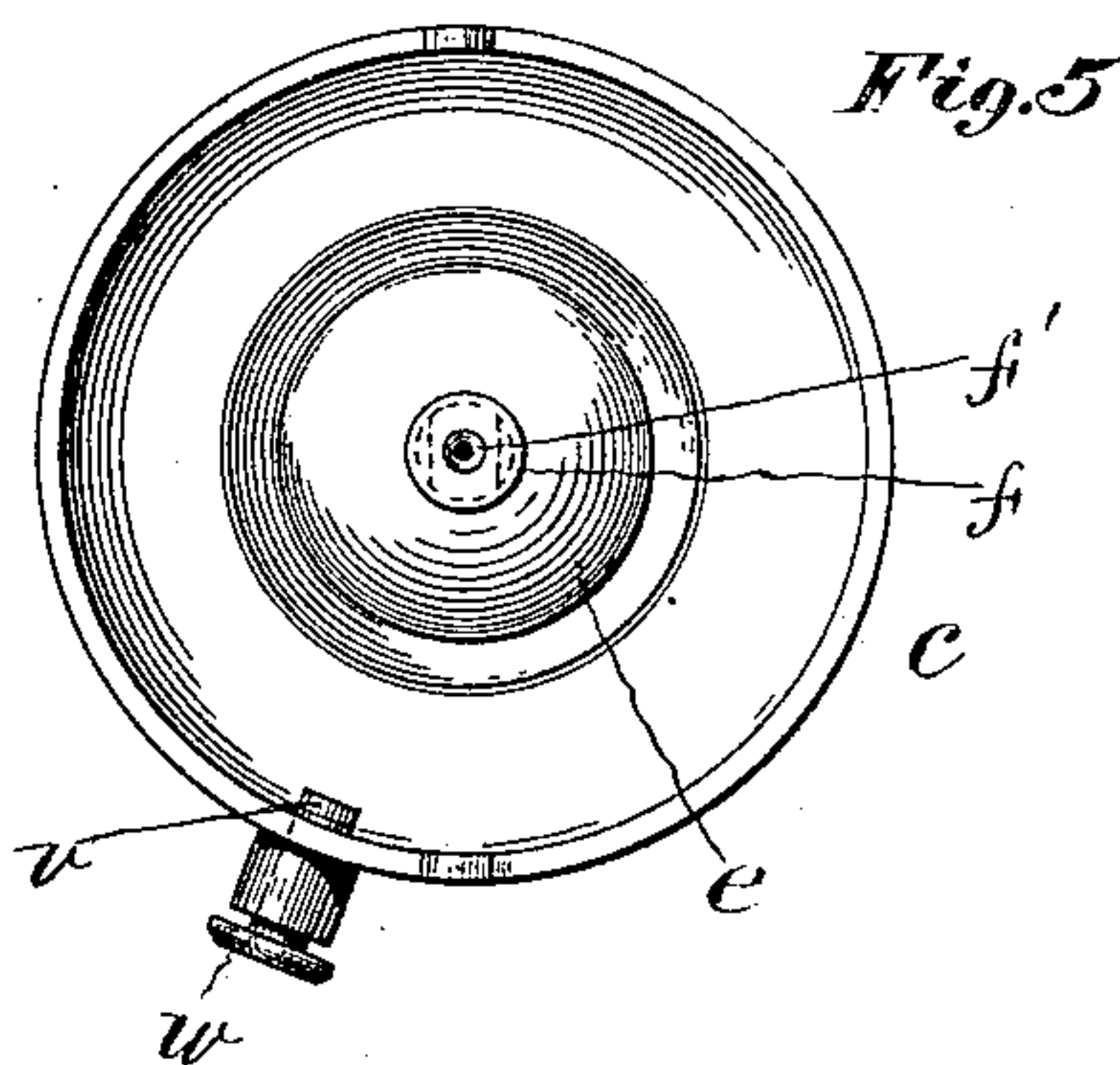
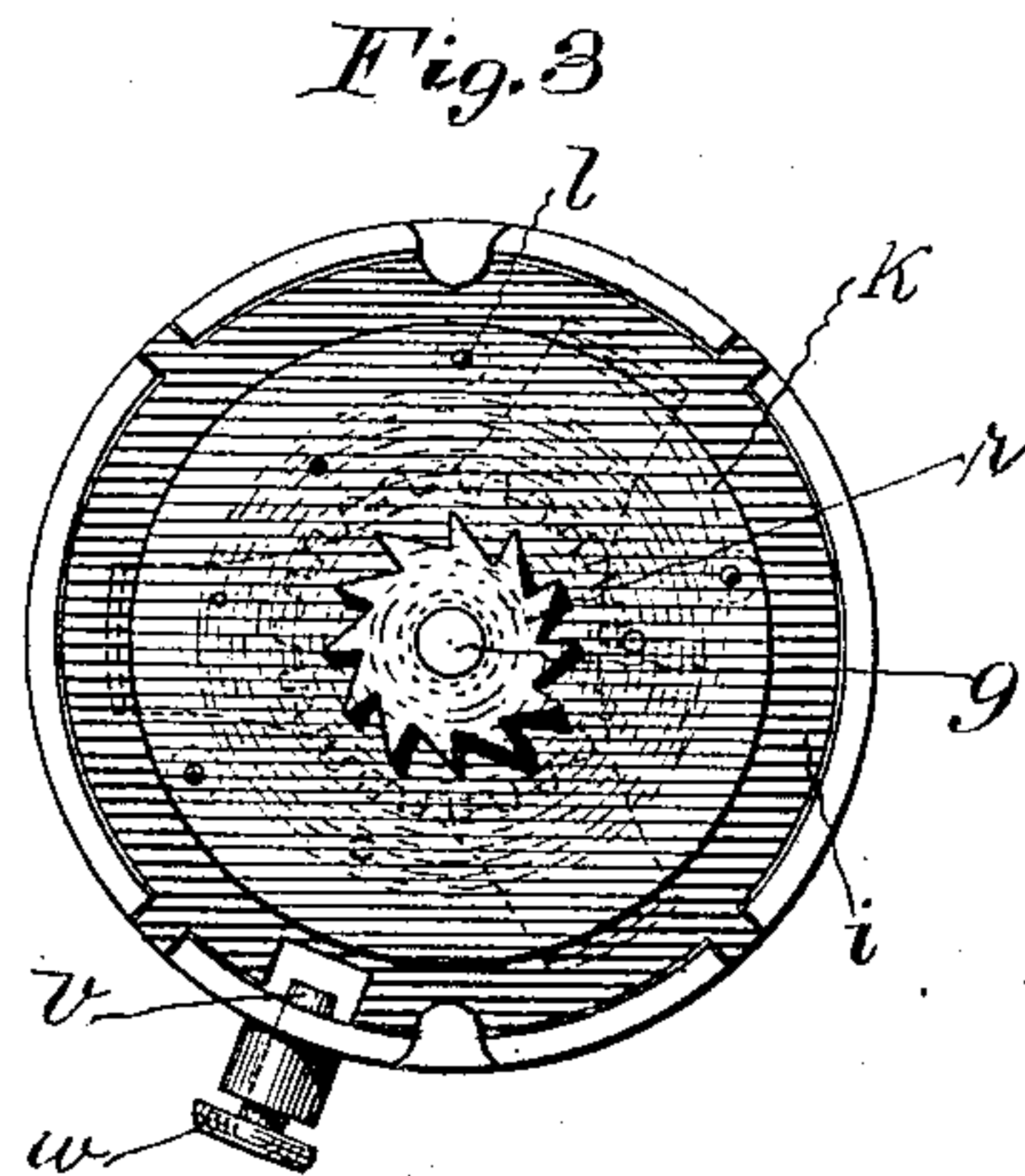
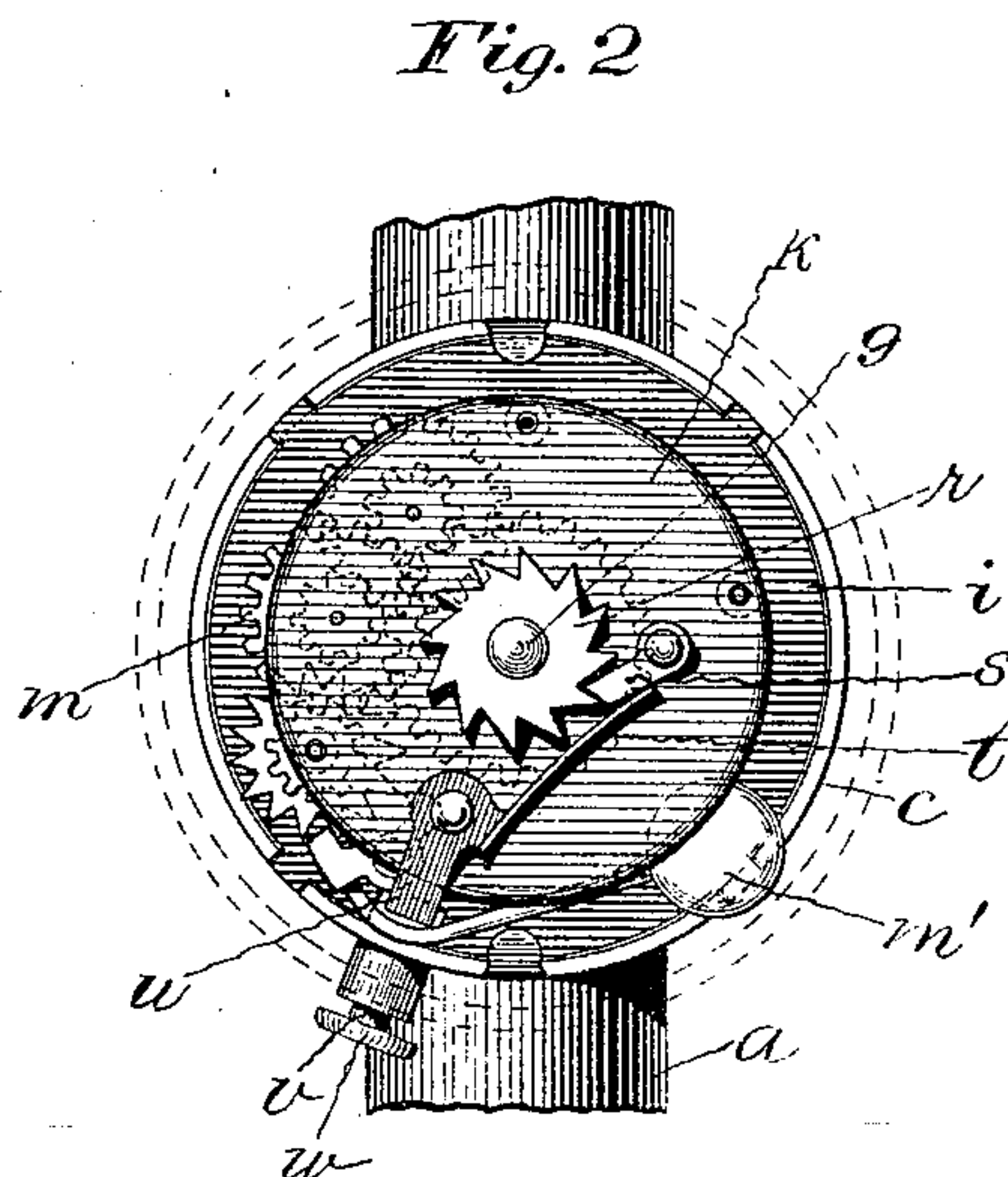
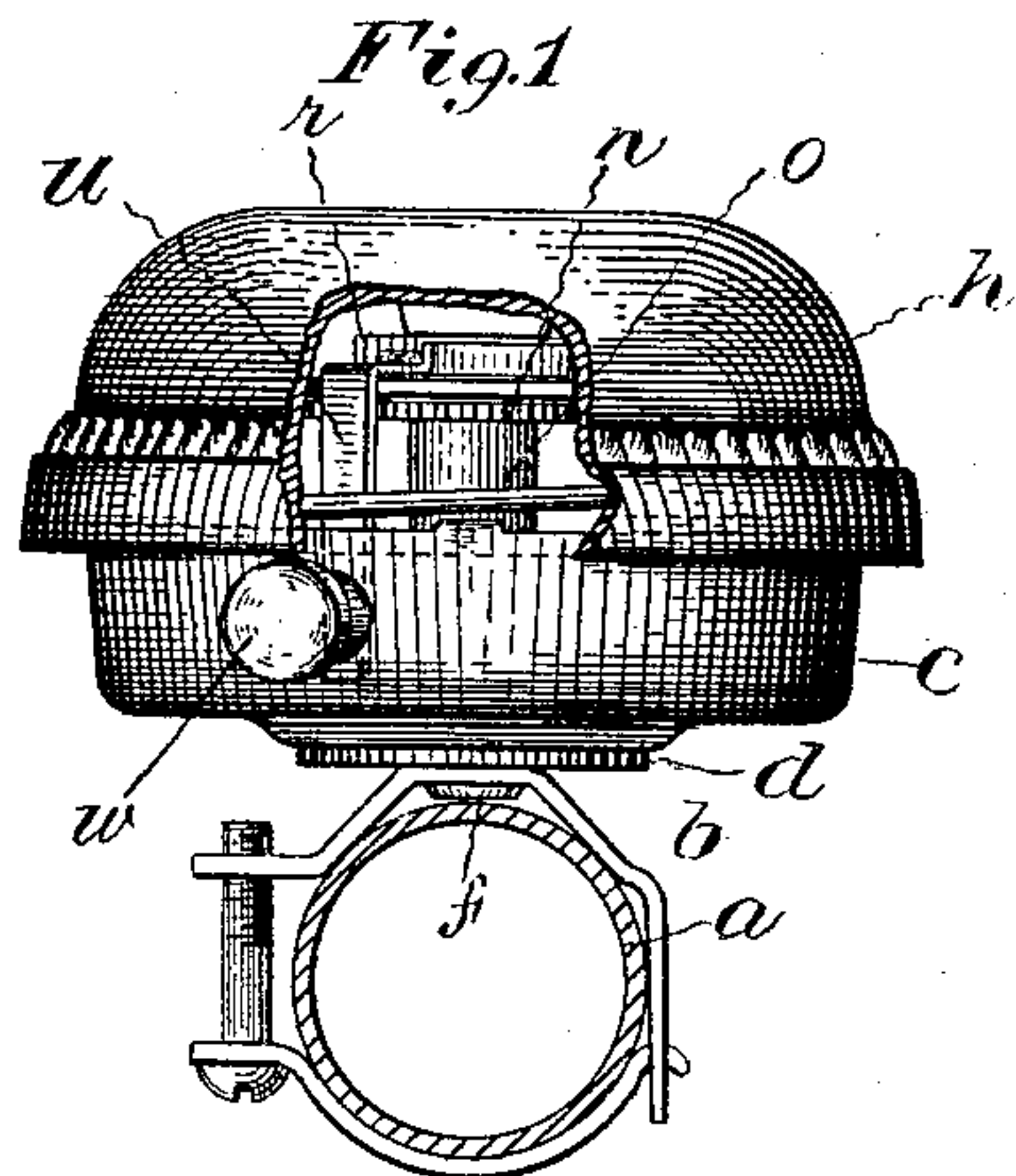
No. 636,181.

Patented Oct. 31, 1899.

E. D. ROCKWELL.  
BELL.

(Application filed Mar. 13, 1899.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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LIBERTY BELL COMPANY, OF SAME PLACE.

## BELL.

SPECIFICATION forming part of Letters Patent No. 636,181, dated October 31, 1899.

Application filed March 13, 1899. Serial No. 708,807. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD D. ROCKWELL, of Bristol, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Bells, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

My invention relates to that class of bells in which the power for operating the striking mechanism is stored within the device and is released by suitable means when required for use; and the object of my invention is to provide means for increasing the efficiency of such a bell and also to prevent injury to the parts in the operation of obtaining the power for operating the device.

To this end my invention consists in the device as a whole, in the combination of parts, and in the details and their combination, as hereinafter described, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a view in side elevation of my improved bell with the gong cut away to show construction. Fig. 2 is a detail top view of the bell with the gong removed and showing the operating parts in dotted outline. Fig. 3 is a detail top view with the gong removed and showing the mainspring in dotted outline. Fig. 4 is a view in central section through the device, the gong being removed. Fig. 5 is a detail top or plan view of the base.

In the accompanying drawings I have illustrated the invention in connection with a bell in which the stored power is obtained by the use of a spring that is wound as by means of the gong, my invention finding a ready application in a device of this class, and in said drawings the letter *a* denotes a support, as a handle-bar of a bicycle or like vehicle, *b* a clamp for securing the bell as a whole to said support, and *c* the bell-base that is secured to the clamp.

In the form of construction herein shown a washer *d* is inserted between the bell-base and clamp to provide a seat for the bell-base, and a frictional clamp *e* is located inside the bell-base and bears with a yielding pressure

against the base, a rivet *f* holding the parts together. This frictional clamp bears against the base with sufficient pressure to hold the bell firmly under ordinary use in the operation of the bell, but allows the base to be turned independent of the clamp upon the application of excessive power. The rivet *f* has a recess *f'* in its upper end, in which is seated a spindle or stud *g*, to the upper end of which a gong *h* is secured as by means of interengaging screw-threads.

A back plate *i* is secured to the base in any suitable manner, being preferably located within the periphery of the base, and a front plate *k* is supported on posts *l*, secured to the back plate. Between these two plates an operating-train *m* is mounted, this train consisting of the necessary number of gears and pinions required for operating the hammer *m'*, appurtenant to the operating-train, at the required rate of movement. This operating-train, with the hammer, may be of any well-known construction common to this class of bells, and for this reason further description is deemed unnecessary.

The main gear *n* of the operating-train is secured to a sleeve *o*, surrounding the spindle *g* and extending through the back plate *i*, this sleeve being free to turn in said back plate. A spring-box *p* is secured to the sleeve *o* underneath the back plate *i*, and a main-spring *q* is located within this spring-box, one end of the spring being secured thereto and the opposite end of the spring being secured to the spindle *g*. This spring-box has been shown herein in the form of a spider as a preferred form of construction. A ratchet-wheel *r* is secured to the spindle *g* outside of the front plate *k*, this ratchet-wheel serving the double purpose of a nut to hold the front plate in position and also of a ratchet-wheel. A pawl *s* is pivoted to the front plate in position to engage the ratchet-wheel, and a pawl-spring *t* holds the pawl normally in engagement with the ratchet-wheel. A hammer-spring *u* lies in engagement with the hammer-arm to hold the hammer against reciprocating movement, the pawl-spring and hammer-spring being in the form shown, con-



structed of a single piece extending along the front plate and overturned around the edge and extending through the back plate in position to be engaged by a push-stud *v*, on the  
5 outer end of which is formed a push-button *w*.

The thread on the spindle *g* is so formed that the gong shall be secured in place by rotation in the same direction as that in which the spindle is turned to wind the mainspring, in the form shown the thread being a right-hand thread, the gong being turned to the right to secure it in place, after which a continued rotation in the same direction will rotate the spindle to wind up the mainspring, the inner end of which is secured to the post *g*, as hereinbefore described. The spring as a whole is held against rotary movement in this operation by reason of its opposite end being secured to the spring-box connected with the operating-train that is held against reverse movement by the engagement of the pallet on the hammer-arm with the scape-wheel of the operating-train. When the spring has been wound up sufficiently, any  
25 excessive strain is communicated through the operating-train to the back plate *i* and thence to the bell-base *c*, that is permitted to rotate on the application of sufficient force through the action of the frictional clamp *e*. An important feature of my invention resides in this construction, whereby injury to the operating parts is prevented, under excessive strain applied to the spindle, by reason of this permissive rotation of the bell-base on the clamp.  
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By pressing inward on the push-button *w* the hammer-spring *u* is forced away from the hammer-arm, allowing the hammer to reciprocate under the pull of the mainspring to  
40 sound the gong. It will be noticed that in this operation the spring releases from the outside, whereas in the winding operation it was wound from the inside.

By my improved construction of mechanism I have provided means whereby the gong remains stationary during the ringing of the bell, which insures a clearer sound than in a construction where the gong rotates during the operation of the hammer. An advantage  
50 of this construction resides in the fact that the hammer during a single ringing operation strikes the gong at the same point, so that should the spindle *g* become accidentally bent the hammer may be so adjusted as to surely sound the gong continuously during a single operation. In a construction where the gong rotates during the operation of the mechanism, should the spindle become bent, the hammer, if adjusted to strike the gong  
55 at one point on its inner surface, would not strike it at other points.

In removing the gong, should it be tightly secured in place, the entire strain will be borne by the front plate through the medium of the  
65 ratchet-wheel *r* and pawl *s*. In a construction where the gong rotates during the strik-

ing operation such strain must come directly on the operating-train, with consequent liability to injury thereto.

It is obvious that other forms of construction may be employed to accomplish the results herein described, and I do not desire or intend to limit myself to the precise construction herein illustrated and described, as mere modifications or obvious changes will come  
75 within the scope of the invention.

I claim as my invention—

1. In a bicycle-bell, the combination with a base, a plate, a rotatable spring-barrel located on one side of said plate and an operating-train located on the opposite side of  
80 said plate, of a sleeve and spindle extending through the plate, one of which said parts extending through the plate forms a bearing for the opposite part and said opposite part forming a connection between the spring-barrel and operating-train. 85

2. In a bicycle-bell, in combination with a base, a plate, a mainspring located within a rotatable spring-barrel on one side of said  
90 plate, an operating-train located on the opposite side of the plate, a sleeve extending through said plate and having a bearing its entire length, and connecting the spring-barrel and operating-train, a post secured to  
95 one end of the mainspring to wind the same, and a gong secured to the post.

3. In a bell, in combination with a support, a base frictionally held against rotation on the support, a striking device supported on  
100 the base, a mainspring operatively connected with the striking device and held against rotary movement by the base, a winding-arbor connected with the mainspring, and a gong secured to the winding-arbor and held against  
105 rotation during the operation of the striking mechanism.

4. In a bell, in combination with a support, a base frictionally held against rotation on the support, a striking device supported by  
110 the base, a mainspring supported by the base, connections between the mainspring and the striking device for causing movement of the latter, a gong held against rotation during the operation of the striking mechanism, and  
115 means for allowing the striking mechanism to act.

5. In a bell, in combination, a support, a base frictionally held by the support, a mainspring supported by the base, an operating-train connected with the mainspring and including a striking device, a gong held against  
120 rotation during the operation of the striking mechanism, and means for allowing the striking mechanism to act. 125

6. In a bell, in combination with a base, a train-supporting plate mounted on the base, an operating-train mounted on the plate, a pinion of the operating-train having a sleeve extending through the plate and secured to  
130 a spring-box, a mainspring with its outer end secured to said box, a spindle projecting



through said sleeve and forming a bearing therefor, said spindle being connected to the inner end of the mainspring, a gong secured to the spindle, and means for allowing the spring to unwind to operate the striking device.

7. In a bell, in combination with a base, a mainspring supported by the base, a spindle secured to one end of the mainspring, an operating-train supported by the base and including a striking device, a plate for holding the parts of the operating-train in position, a ratchet-wheel secured to the spindle outside of the plate and holding the latter in position, a pawl in engagement with the ratchet-

wheel, a gong secured to the spindle, and means for allowing the striking mechanism to act.

8. In combination with an operating-train including a striking device and a ratchet, the latter connected to a winding-stem, a pawl, a spring, one end of which is in engagement with the pawl and the opposite end in engagement with the operating mechanism to prevent movement of the latter.

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