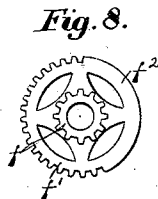
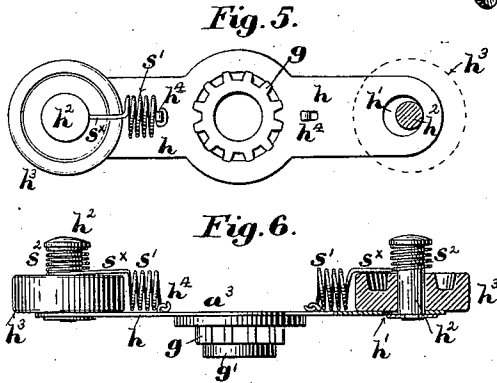
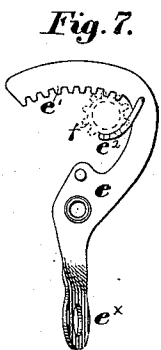
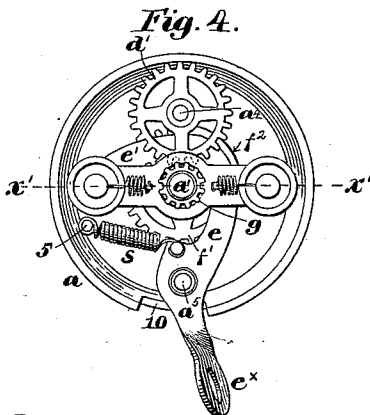
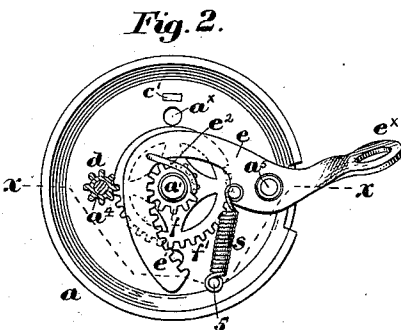
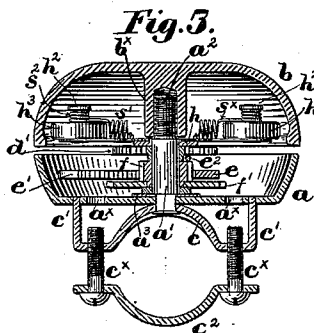
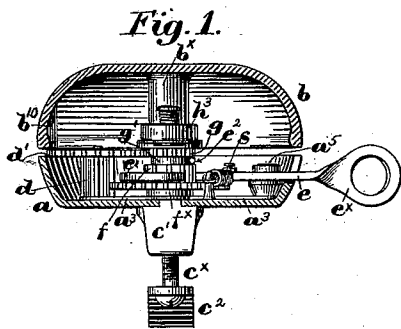


(No Model.)

N. T. MILLS.
BELL.

No. 568,693.

Patented Sept. 29, 1896.



Witnesses:
Walter E. Lombard.
Thomas J. Spummond.

Inventor:
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Attorneys.

UNITED STATES PATENT OFFICE.

NORMAN T. MILLS, OF EVERETT, MASSACHUSETTS, ASSIGNOR OF ONE-HALF
TO ALVIN T. MORRILL, OF BROOKLINE, MASSACHUSETTS.

BELL.

SPECIFICATION forming part of Letters Patent No. 568,693, dated September 29, 1896.

Application filed October 5, 1895. Serial No. 564,790. (No model.)

To all whom it may concern:

Be it known that I, NORMAN T. MILLS, of Everett, county of Middlesex, State of Massachusetts, have invented an Improvement in Bells, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to that class of gong-bells wherein the hammer-carrier has a rotating motion, and more particularly to bicycle-bells, the object of this invention being to simplify, cheapen the cost, and improve the construction of such bells, whereby all rattling of the parts is prevented and a better operation attained.

Figure 1 shows in section and elevation a bell embodying my invention, the section being taken on the irregular line xx , Fig. 2. Fig. 2 is a top or plan view of the bell with the gong, hammer-carrier, and one of the gears omitted. Fig. 3 is a vertical sectional view of the bell, taken on the line $x'x'$, Fig. 4. Fig. 4 is a top or plan view of the bell with the gong removed. Figs. 5 and 6 are greatly-enlarged views of the hammer-carrier in plan and side elevation, respectively. Fig. 7 is a detached plan view of the actuating-lever and its segmental gear; and Fig. 8 is a detail view of the locking-gear, to be described.

The base a has secured thereto by an upturned stud a' , threaded at its upper end at a^2 to receive the threaded hub b^x of the gong b , one member of a clamp, (shown as a plate c), bent down centrally and upturned at its ends to form lugs c' , which are extended into slots in the base a to aid in rigidly securing the fixed member of the clamp thereto. An adjustable clamp member c^2 is oppositely bent and connected to the fixed member by adjusting-screws c^x , the base a being provided with holes a^x (see Fig. 3) to receive the inner ends of the screws when fully turned up, the clamp serving to attach the base to a bicycle or other desired object.

The stud a' is surrounded by a thin plate a^3 , resting on the base, posts a^4 and a^5 rising from the plate, the post a^4 serving as a pivot for a pinion d , having at its upper end an attached pinion d' , while the post a^5 acts as a pivot for the actuating-lever e , (shown separately in

Fig. 7,) having an internal segmental gear e' at its inner end. A spring s , secured at one end to the actuator e , inside its pivot a^5 , is attached, as by a screw 5, at its other end to the base to normally retain the actuator in position. (Shown in Figs. 2 and 4.)

The stud a' is surrounded loosely at its lower end by a pinion f , resting preferably on a washer f^x , and a gear f' is secured to or forms a part of the pinion f , said gear being shown separately in Fig. 8. This gear has a portion of its periphery f^2 blank or not toothed, the toothed portion engaging the pinion d , while the pinion f is engaged by the internal segmental gear or rack e' , whereby movement of the actuator e will transmit rotation to the pinion f , and thence by gear f' to pinion d and gear d' .

The blank portion of the pinion f' is of such length that when the actuator e is at either extremity of its throw the teeth of the pinion d will lock against the blank, so that the said pinion cannot rattle when the bell is not operated. A pinion g , having an extended hub g' , (see Fig. 8,) is mounted loosely on the stud a' above the pinion f , and to said pinion the hammer-carrier is rigidly attached.

As shown in Figs. 2 and 7, the actuator e has attached thereto near its inner end a curved stop-pin e^2 , which normally rests against the hub g' and prevents it and its connected parts from rattling, a great desideratum in bicycle-bells, as a bell whose mechanism constantly rattles is very objectionable to riders.

The gear d' meshes with the pinion g and rotates it and the hammer-carrier when the actuator is swung by means of the finger-piece e^x , projecting through a slot 10 in the base a in usual manner.

The hammer-carrier is shown as a plate h , having a hole h' at each end to receive loosely-headed studs h^2 , on which the hammers (shown as metallic disks) h^3 are mounted.

A lug h^4 is struck up from the plate h at each side of its center to receive and hold one end of a peculiarly-shaped spring, said spring being composed of two coiled portions s' and s^2 at right angles to each other and connected by a straight portion s^x .

The coil s^2 surrounds the stud h^2 between

its upper head and the top of the hammer h^3 , pressing the latter against the plate h , while the coil s' is interposed between the stud and the lug h^4 and normally maintaining the hammer pressed out toward the end of the hammer-carrier in a yielding manner. By this construction the hammers are prevented from rattling and one spring serves the double purpose of seating and pressing the hammer outward to engage a projection b^{10} (see Fig. 1) on the interior of the gong b as the hammer-carrier is rotated.

The bell herein described is very simple, cheap to construct, efficient in operation, and consists of a comparatively small number of parts, and is entirely free from all rattling and improper vibration.

I claim—

1. The base, its attached gong, a vibratable actuator having a segmental gear; a rotatable hammer-carrier having an attached pinion; and connecting-gearing, including a locking-gear, between the segmental actuating-gear and the hammer-carrier, substantially as described.

2. In a bell of the class described a rotatable hammer-carrier; a pinion fixed thereto and having an extended hub; a segmental actuating-gear; gearing intermediate it and the hammer-carrier pinion, to rotate the latter, and a stop on the segmental gear to normally engage the hub of the hammer-carrier pinion, substantially as described.

3. In a bell of the class described, a rotatable hammer-carrier having an attached pinion; the gear d' in mesh therewith; a pinion secured to said gear; a mutilated gear engaging said pinion, to normally lock it; a pinion f attached to said mutilated gear; and a segmental actuating-gear in mesh with and to

rotate said pinion f , substantially as described.

4. In a bell of the class described, a rotatable hammer-carrier, actuating mechanism to rotate it, and means comprising a train of gearing including a mutilated gear, to normally engage and prevent rattling of said mechanism, substantially as described.

5. A rotatable hammer-carrier having a hole at one end, a disk-like hammer, a headed stud extended through said hole and the hammer, and a spring to normally hold the hammer upon the hammer-carrier and also to maintain the hammer pressed outwardly, substantially as described.

6. In a bell, the base, a clamp comprising a member centrally fixed to and having upturned ears to enter the base, forming additional support for the clamp member, a movable member, and connecting-screws to draw the members of the clamp together, substantially as described.

7. In a bell, the base, a clamp comprising a downcurved member centrally attached to the base and upturned at its ends to form ears which enter the base and prevent rotation of the said clamp member, a movable upcurved member, and adjusting-screws threaded into the fixed member between the down and up turned portions thereof, to draw the members of the clamp together, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

NORMAN T. MILLS.

Witnesses:

JOHN C. EDWARDS,
AUGUSTA E. DEAN.