

No. 698,951.

Patented Apr. 29, 1902.

N. N. HILL.  
BICYCLE BELL.

(Application filed Mar. 24, 1902.)

(No Model.)

Fig. 1

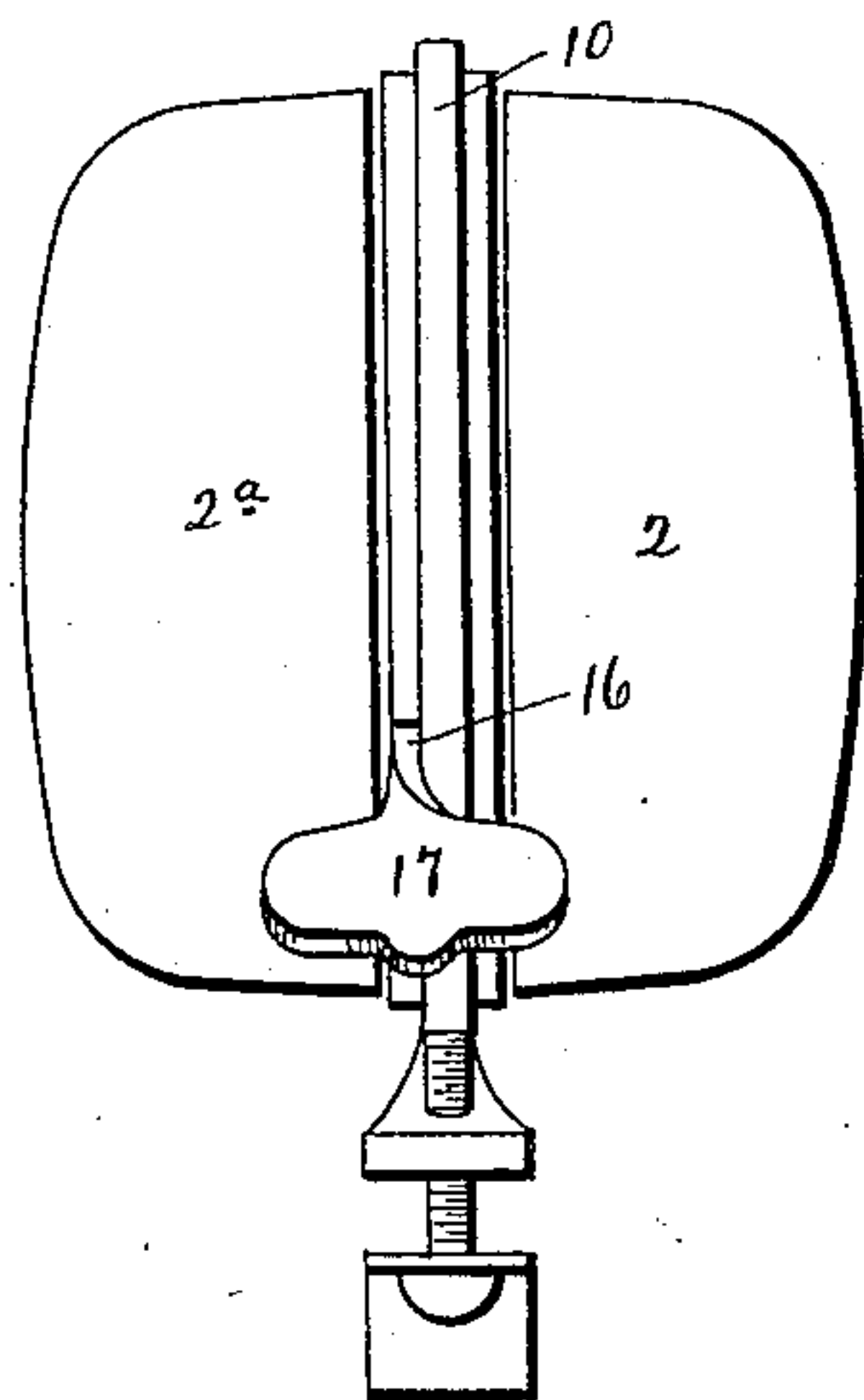


Fig. 2

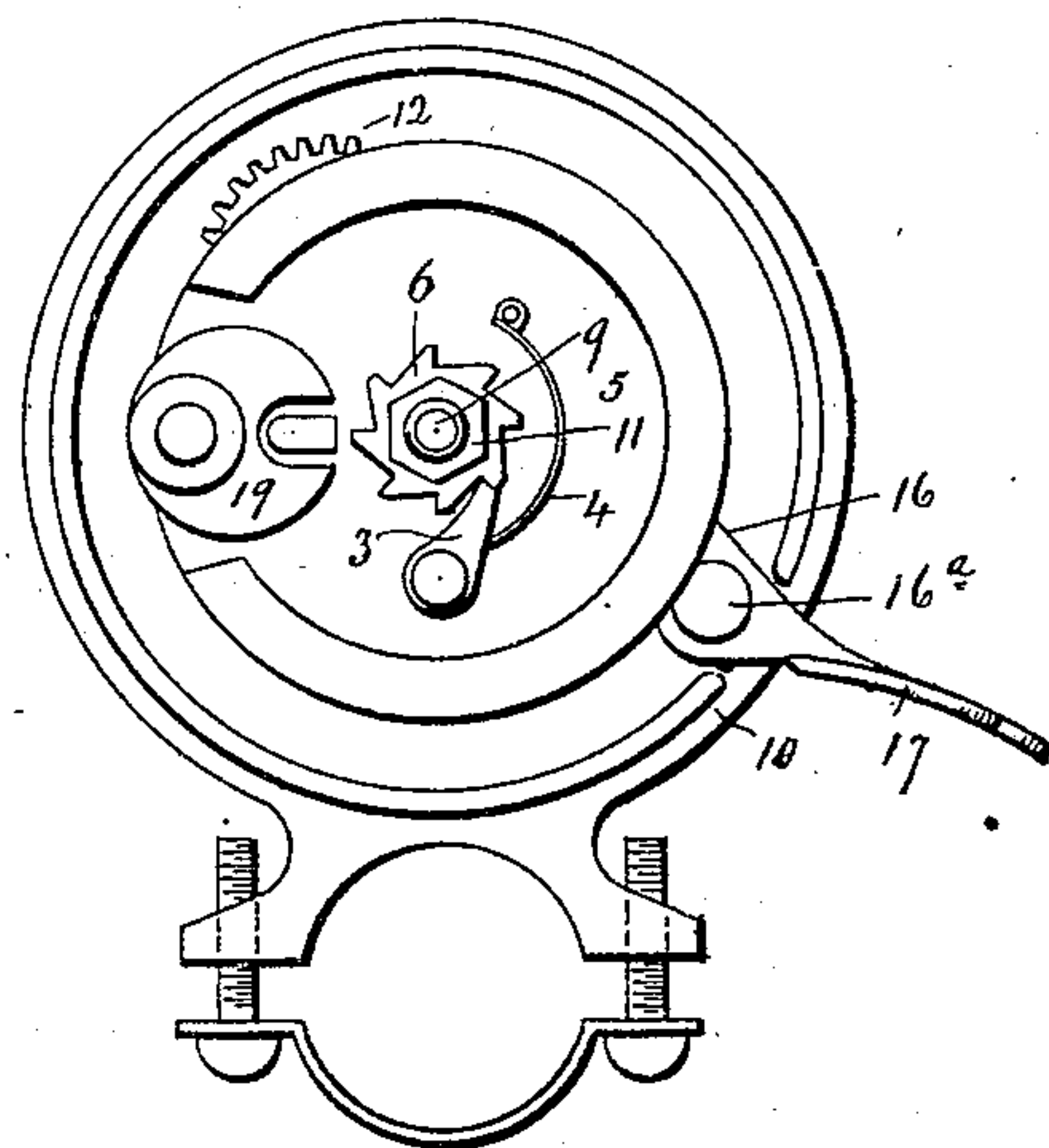


Fig. 3

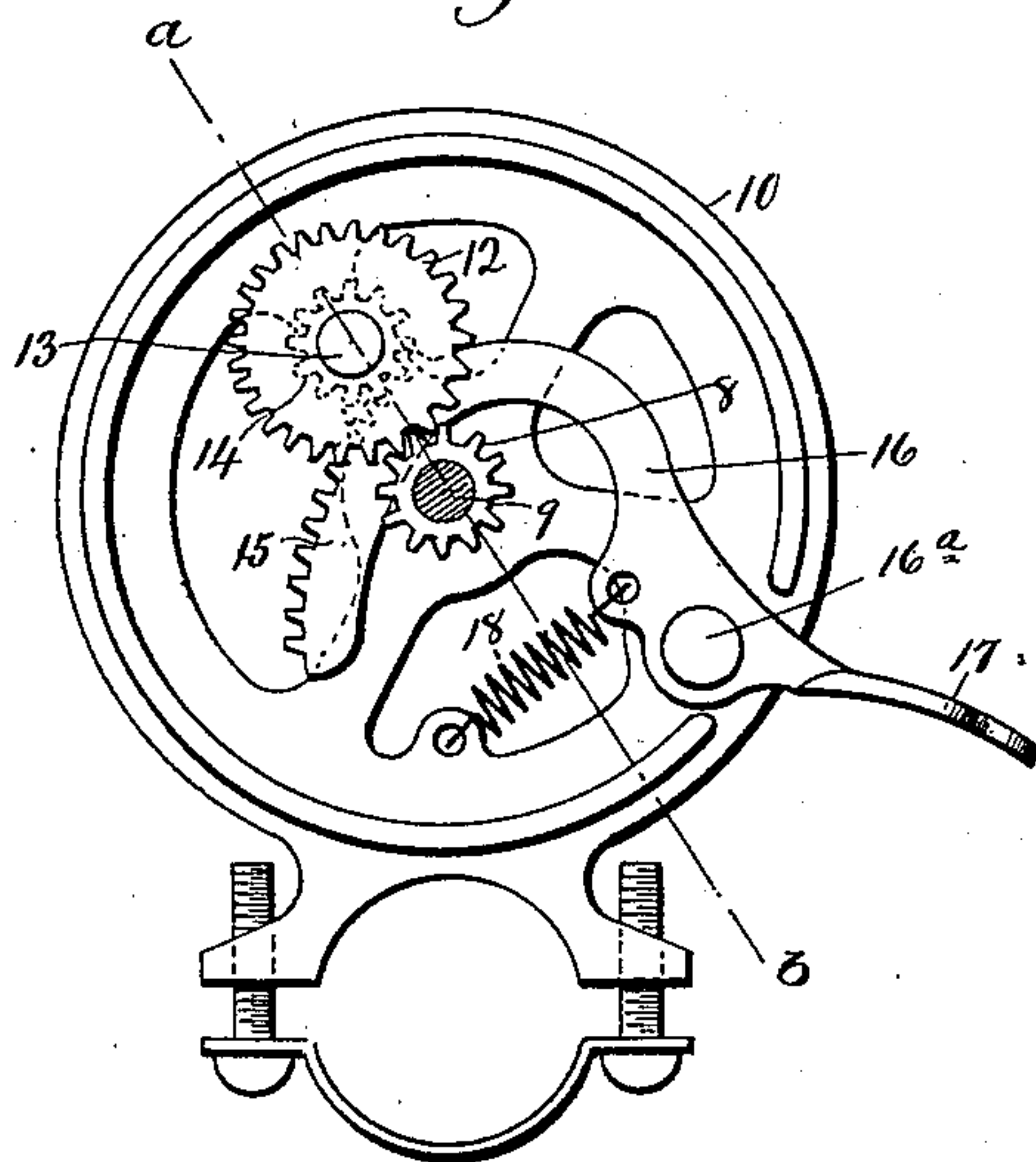
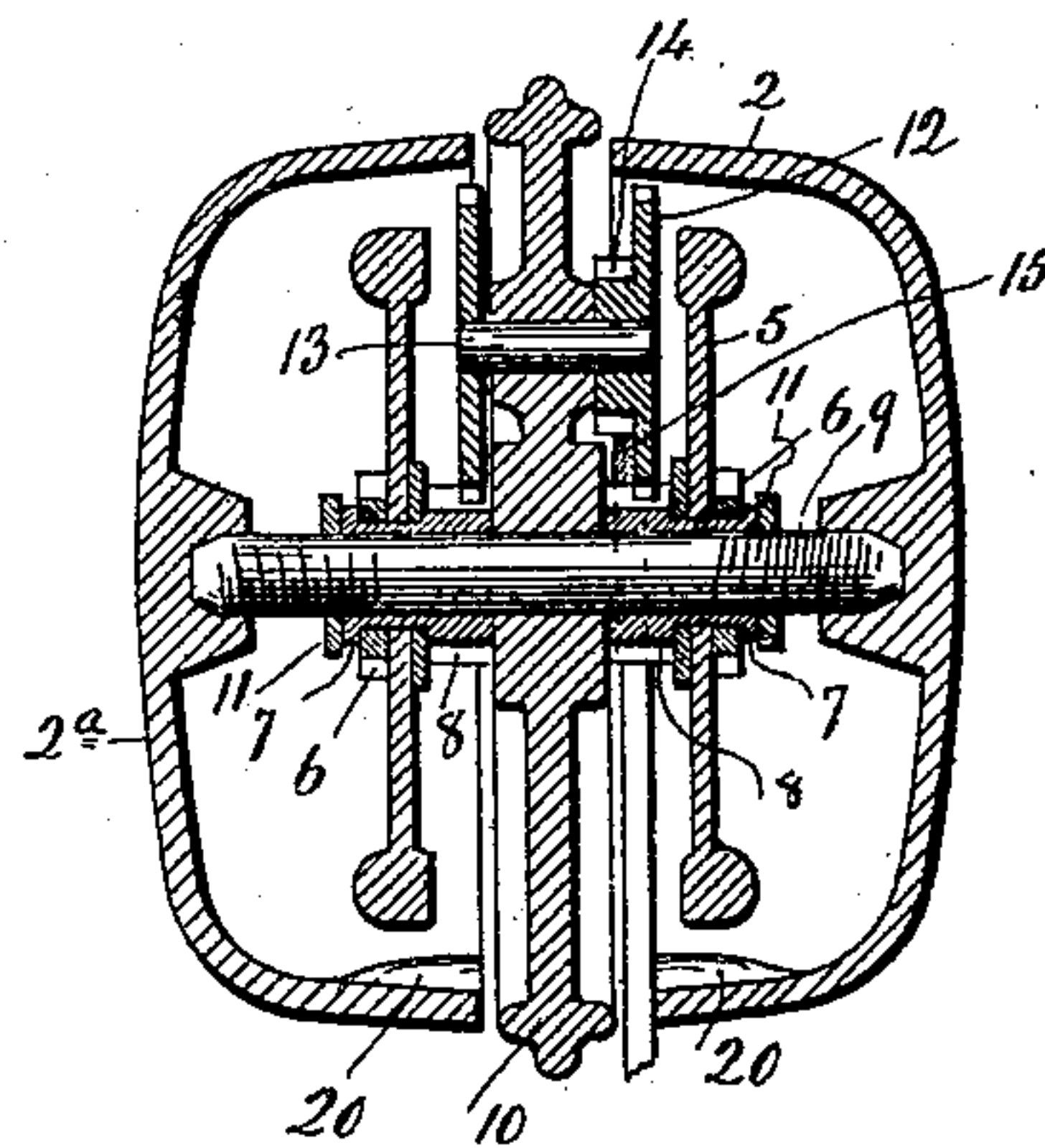


Fig. 4



Witnesses:  
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Norman Newton Hill,  
Inventor.  
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# UNITED STATES PATENT OFFICE.

NORMAN NEWTON HILL, OF EAST HAMPTON, CONNECTICUT.

## BICYCLE-BELL.

SPECIFICATION forming part of Letters Patent No. 698,951, dated April 29, 1902.

Application filed March 24, 1902. Serial No. 99,786. (No model.)

*To all whom it may concern:*

Be it known that I, NORMAN NEWTON HILL, of East Hampton, in the county of Middlesex and State of Connecticut, have invented a new and useful Improvement in Bicycle-Bells; and I do hereby declare the following, when taken in connection with the accompanying drawings and the figures of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view in side elevation of a bell constructed in accordance with my invention; Fig. 2, a view thereof in side elevation, with one of the gongs removed to expose its balance-wheel; Fig. 3, a corresponding view of the bell with the said balance-wheel removed; Fig. 4, a view of the bell in cross-section on the line *a b* of Fig. 3.

My invention relates to bicycle-bells of that class in which the gongs remain stationary and are struck by strikers mounted upon revolving striker-carriers, and constitutes an improvement upon the bell shown and described in the application filed in the United States Patent Office by me December 12, 1901, and serially numbered 85,600, the object being to produce a simple, compact, and effective structure, with particular reference to strength and durability.

With these ends in view my invention consists in a bell having certain details of construction and combination of parts, as will be hereinafter described, and pointed out in the claims.

For the illustration of my invention I have chosen a double bell—that is to say, a bell with two gongs 2 and 2<sup>a</sup>; but it will be understood that my invention is equally applicable to “single” bells, as bells having but one gong are called.

As the mechanism for sounding one gong is the duplicate of the mechanism for sounding the other gong, it will be sufficient to describe the mechanism of the gong 2.

In carrying out my present invention I secure a pawl 3 and a pawl-spring 4 to the balance-wheel 5, which constitutes a rotary striker-carrier for the gong 2. The said pawl 3 engages with a ratchet-wheel 6, which is fixed upon the outer end of a hub 7, on which the

balance-wheel 5 is loosely mounted and free to turn and which constitutes an outward extension of a pinion 8. The said ratchet-wheel 6, hub 7, and pinion 8 virtually constitute one piece and are mounted so as to turn loosely upon one end of a central arbor or post 9, mounted in the disk-like skeleton frame 10 of the bell. The outer ends of the said post 9 are threaded for the reception of the gongs 2 and 2<sup>a</sup>, the threading of the ends of the post being carried inward for the application of washers 11, which engage with the outer ends of the hubs 7 and hold the balance-wheels against outward displacement on the post 9. The said pinion 8 meshes into a wheel 12, fixed to one end of a short shaft 13, journaled in the frame 10 and carrying a pinion 14, meshed into by a segmental rack 15, formed upon an operating-lever 16, which is pivoted upon a stud 16<sup>a</sup> and provided with a projecting finger-piece 17. A spiral spring 18, connected with the said lever and also with the frame 10, operates in the usual manner to return the lever to its normal position. Each of the balance-wheels 5 is provided with a suitable striker 19, which may or may not be revolvable and which is thrown outward by the rotation of the balance-wheels, so as to strike a lug 20, formed within each gong.

When the operating-lever 16 is operated by its finger-piece 17 against the tension of the spiral spring 18, the rack 15, acting upon the pinion 14, will cause the revolution of the wheel 12, which meshes into the pinion 8, carrying the ratchet-wheel 6, a tooth of which will be pressed against the nose of the pawl 3, carried by the balance-wheel 5, which will thus be started in rotation with a rapidity proportional to the power and quickness with which the lever 17 is operated. Of course as soon as the balance-wheel begins to rotate the striker 19, carried by it, begins to sound the gong. The balance-wheel will continue to rotate long after the lever 17 has finished its actuating stroke, because its rotation in the direction in which it started rotating in the manner described is unrestrained and unhampered other than by the slight friction of the dragging of the pawl 3 over the teeth of the ratchet 6, the actuating rotation of which stops as soon as the said stroke of the lever 16 is finished. When the pressure upon the



finger-piece 17 is relieved, the spring 18 will reassert itself and pull the operating-lever 17 back into its normal position, causing the rack 15 to idly rotate the pinion 14, wheel 12, pinion 8, hub 7, and ratchet-wheel 6 in the opposite direction from which they were rotated during the first movement of the lever; but this reverse rotation of the hub 7 and ratchet-wheel 6 does not influence the continued forward rotation of the balance-wheel 5, which continues to so rotate while the hub 7, on which it is loosely mounted, is turning within it in the reverse direction and correspondingly reversely rotating the ratchet-wheel over which at the time the pawl 3 is being dragged in the opposite direction by the balance-wheel 5.

It will be understood from the foregoing that by several quick operations of the operating-lever both balance-wheels may be started in very rapid rotation, with the effect of striking the gongs with great rapidity and sounding a loud alarm, continuing some time after the rider has removed his finger from the finger-piece of the operating-lever.

The mounting of the pawl 3 and its spring 4 directly upon the balance-wheel 5 and the location of the ratchet-wheel 6, with which the pawl 3 coacts, concentric with the axis of the said wheel, reduces the strain and friction upon the parts to the minimum and enables them to be made large enough to be very durable. I would therefore have it understood that I do not limit myself to the exact construction herein shown and described, but hold myself at liberty to make such departures therefrom as fairly fall within the spirit and scope of my invention.

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

1. In a bicycle-bell, the combination with a gong, of a striker, a balance-wheel by which the striker is carried, a pawl carried by the balance-wheel, a ratchet-wheel engaged by the said pawl and having its axis concentric

with the axis of the balance-wheel, and means for positively rotating the said ratchet-wheel which is free to turn independently of the balance-wheel in the opposite direction from the direction in which the same turns.

2. In a bicycle-bell, the combination with a gong, of a striker therefor, a balance-wheel by which the striker is carried, a pawl mounted upon the balance-wheel, a ratchet-wheel engaged by the said pawl, a hub on which the balance-wheel is loosely mounted and to which the said ratchet-wheel is fixed, a pinion also connected with the said hub, and means for imparting rotation to the said pinion and hence to the said hub and ratchet-wheel which latter operates through the pawl to rotate the balance-wheel which continues to rotate after the ratchet-wheel has been operated and until its inertia is spent.

3. In a bell, the combination with a gong, of a striker, a balance-wheel carrying the said striker, a pawl also carried by the said balance-wheel, a ratchet-wheel coacting with the said pawl, a hub passing through the balance-wheel which is free to turn upon it and upon the outer end of which the said ratchet-wheel is fixed, a pinion located upon the inner end of the said hub, a post upon which the said hub rotates, a wheel meshing into the said pinion, a pinion carried by the said wheel, and a spring-controlled operating-lever formed with a rack engaging with the pinion last mentioned, whereby the balance-wheel is positively actuated in rapid rotation by means of the said lever and allowed to continue its rotation, until its inertia is spent, by the dragging of the said pawl over the said ratchet-wheel.

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

NORMAN NEWTON HILL.

Witnesses:

MAUDE E. BARTON,  
MAUDE A. CLARK.