

No. 770,211.

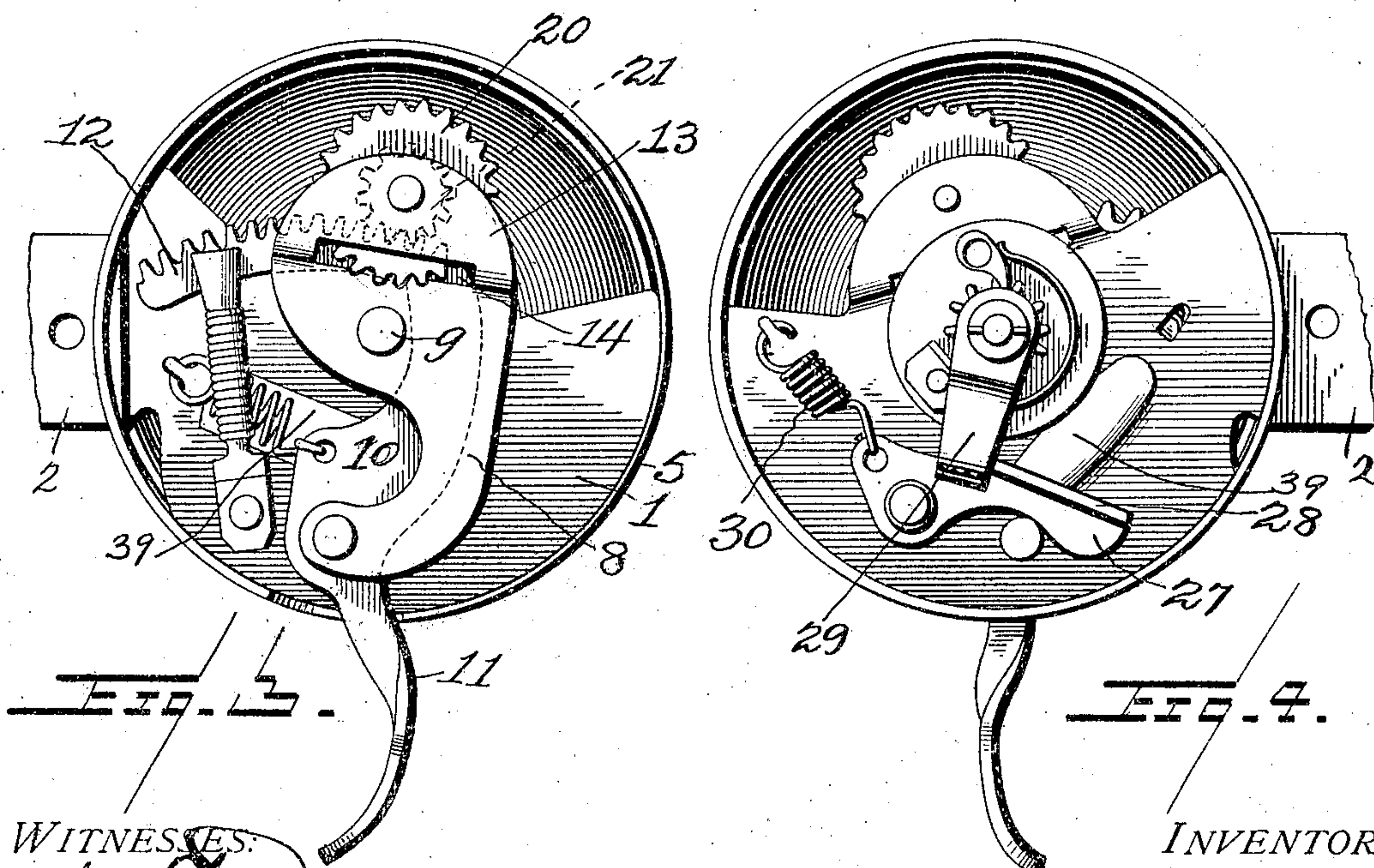
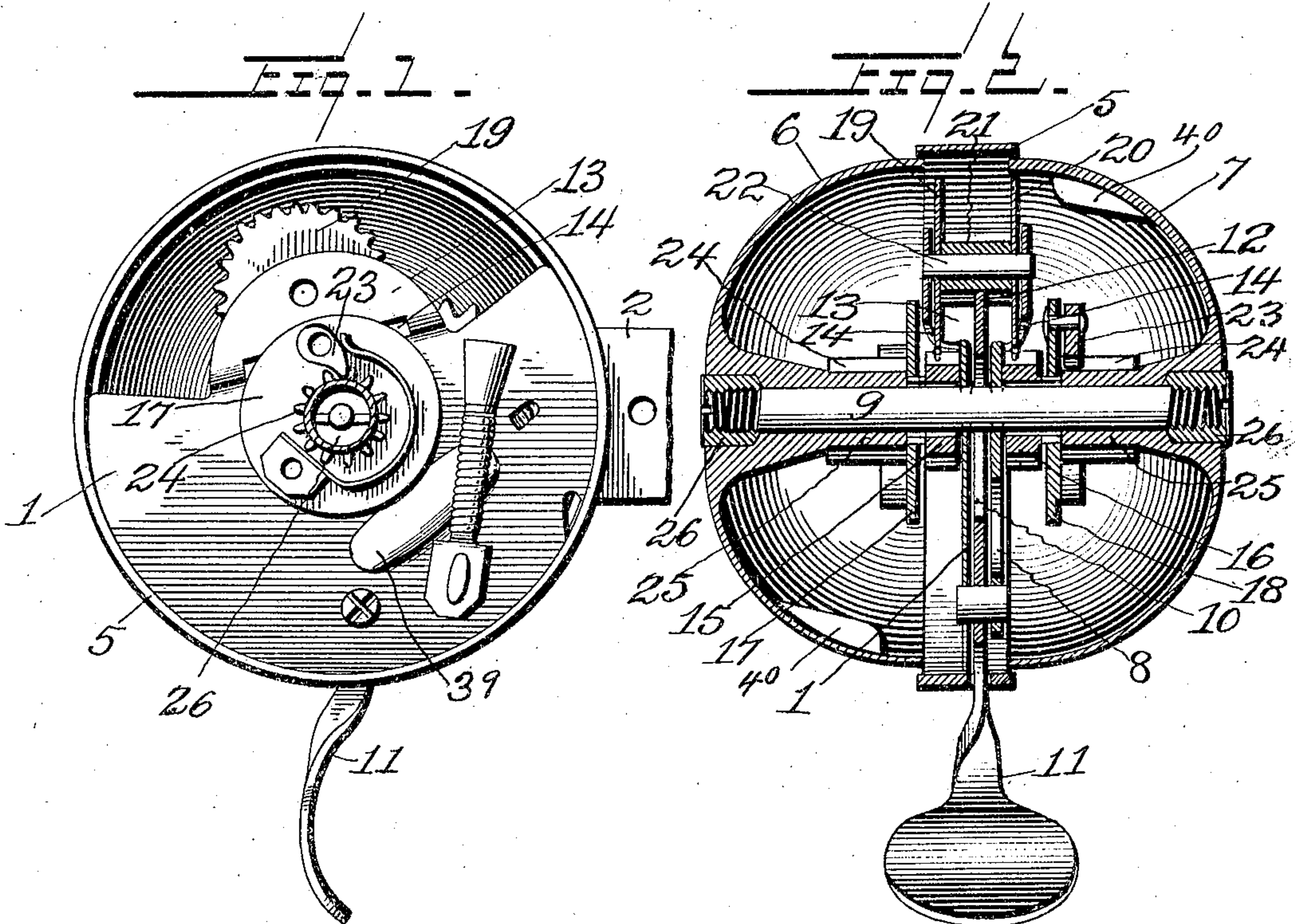
PATENTED SEPT. 13, 1904.

P. C. ARNOLD.

BELL.

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NO MODEL.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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BELL.

SPECIFICATION forming part of Letters Patent No. 770,211, dated September 13, 1904.

Application filed October 8, 1903. Serial No. 176,247. (No model.)

To all whom it may concern:

Be it known that I, PHILIP C. ARNOLD, a citizen of the United States, and a resident of East Hampton, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements in Bells, of which the following is a specification.

The invention relates to bells, and more particularly to the type of bell known in the art as the "continuous-ringing" bell—that is, a bell in which the actuating mechanism for sounding the gong is given an initial movement by a suitable actuator and then runs free, continuing a rapid detonation of the gongs after the actuator has performed its function.

The object of the invention is to provide an extremely simple and durable device of the class specified so arranged as to its several parts that there will be no rattling of the several parts of the mechanism.

A further object is to provide an arrangement by which the gongs themselves will rotate independently of the other parts of the mechanism.

A still further object is to provide an extremely long bearing for the gongs to rotate upon, which will preclude all possibility of wear and consequent rattling.

Referring to the drawings, Figure 1 is a side view with one of the gongs removed. Fig. 2 is an edge view with the parts broken away to illustrate the construction. Fig. 3 is a side view similar to Fig. 1, taken from the opposite side of the device from Fig. 1 and with the clutch-plate and its pinion removed. Fig. 4 is a view similar to Fig. 1, showing a modified arrangement of striker.

In the accompanying drawings, the numeral 1 denotes the frame-plate, preferably struck from sheet metal and having an extension 2 forming one lug of a clamp, the complementary clamp part being secured thereto in any desired manner. This frame-plate 1 is surrounded by a ring 5, which forms a finish covering the opening between the adjacent edges of the gongs 6 7 and inclosing the parts contained within the gong.

The frame-plate 1 has secured in parallel re-

lation to it a cooperating plate 8, and a supporting-shaft 9 is centrally arranged with reference to the ring 5 and is secured to the two plates 1 and 8. Pivoted between these plates is a thumb-lever 10, having a handle 11 projecting beyond the periphery of the ring 5 and at its opposite end provided with a segmental rack 12. The two plates 1 and 8 are bent outward adjacent to the segmental rack and form a gear-pocket 13. The plates are cut away, as at 14, and the gears borne in the pocket between the plates project through the openings 14 to engage pinions 15 16, mounted upon clutch-disks 17 18.

The gears 19 and 20, arranged within the gear-pocket and between the two plates 1 and 8, are arranged in parallel relation and are united by a pinion 21, which provides a long bearing upon a stud 22, secured in the two plates. The pinion 21 meshes with the segmental rack.

The clutch-disks 17 and 18 are each provided with pawls or clutch members 23, arranged to engage a cooperating clutch member 24, which is secured to each of the gongs. As shown herein, this cooperating clutch member is of ratchet or pinion form and is firmly secured to and forms a part of a hub 25, formed upon the gong and extending within it. Each of the gongs, with their extended hubs and clutch members, are arranged to slide onto the supporting-shaft, and the gongs are recessed at their outer ends to receive nipples 26, which are screwed onto the ends of the supporting-shaft and form a means for securely holding the gongs in place and at the same time providing a substantial bearing upon which the gongs may rotate. These nipples have a considerable length.

Suitably arranged upon opposite sides of the frame-plate are hammers arranged to engage and strike the gongs as they are rotated. As shown in Figs. 1 and 3, these strikers are resiliently mounted on the base and secured thereto and lie as to their outer ends in the path of movement of lugs 40, projecting from the interior of the gongs and adapted to engage the strikers during the rotation of the

latter. The frame-plate may be depressed, as at 39, to form a pocket for the thumb-lever spring.

In Fig. 4 of the drawings a modified form of striker is shown. This consists of a pivoted hammer 27, held in place by suitable springs and having upturned lugs or flanges 28. Secured to the gong-hubs are actuators 29, and these are so arranged as to engage the flanges 28 during the rotation of the gongs, and thus the hammers will be retracted and released to be thrown against the gong by springs 30. Obviously either form of hammer may be used, and, in fact, various forms might be used with the mechanism herein described.

The operation of the device is obvious. A movement of the thumb-lever and segmental rack actuates the gears 19 and 20 through their intermediate pinion, and thus rotates the clutch-disk. These clutch-disks engage and move the gongs through the cooperating clutch parts or ratchets, and after a certain momentum has been given to the gongs they continue to rotate freely upon the supporting-shaft.

The advantages of the structure herein shown are apparent. A very firm support is given to the gongs, and they are provided with extremely-long bearings, whereby they will rotate easily upon the supporting-shaft without liability of cramping and with scarcely any tendency to wear. A great fault with bells of this description has resulted from the parts becoming worn, and thus producing rattling and vibrations of the gongs. In so far as known the gongs have always been mounted upon rotary shafts, and as the space between the gongs is limited a comparatively small bearing has been provided for said shaft. With the constant strains thrown upon the shaft in operation the connecting parts soon become worn and produce rattling and unpleasant detonations of the gongs. It is to be observed that not only is the long bearing provided for the gongs to rotate upon, but even the actuating-gears, which are here arranged parallel with each other and connected by an intermediate pinion, have an unusually long bearing upon their stud, and being held always in proper alinement produces the nicest action with their mating pinions and with the teeth of the segmental rack.

Obviously various changes might be made in the details of the arrangement herein shown without departing from the spirit or intent of the invention, which contemplates mainly an arrangement in which free-flying gongs are mounted upon a stationary supporting-shaft.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination in a bell, a supporting-plate, a shaft secured in said plate, a gong rotarily mounted upon said shaft, means for rotating said gong, and actuating-gearing for

permitting a free rotation of the gong after it has been initially rotated by the actuating-gearing.

2. In combination in a bell, a supporting plate or frame, a shaft secured in and extending on opposite sides of said plate, a pair of gongs loosely mounted upon said shaft, means for rotating said gongs, and a clutch device included in said rotating means whereby said gongs have a free movement independent of the movement of the rotating means.

3. In combination in a bell, a supporting-plate provided with an offset portion, a cooperating plate secured in substantially parallel relation thereto and having an offset portion, said offset portions of the plates providing a gear-pocket, a stud extending between said plates, a pair of gears borne upon said stud, means for actuating said gears, a shaft extending through the plates and secured thereto, gongs loosely mounted upon the shafts, and connections intermediate the gears and gongs for rotating the latter.

4. In combination in a bell, a supporting-plate, a complementary plate member operatively arranged with relation thereto and forming therewith a gear-pocket, gears arranged in said pocket connected one with the other and projecting through the walls of the pocket, and operating mechanism for rotating said gears.

5. In combination in a bell, a supporting-frame comprising a pair of plates, a shaft centrally arranged with reference to said plates and secured thereto, a gear-pocket formed between the plates and having recesses there-through, gears located within the pocket and extending through the recesses, means for simultaneously rotating the gears, and gongs operatively connected with said gears and loosely mounted upon the supporting-shaft.

6. In combination in a bell, a supporting-plate, a shaft secured thereto, a gong rotarily mounted on the shaft, means for rotating said gong, and a nipple adapted to secure the gong in place upon the shaft and providing a supplemental bearing for the gong in its rotation.

7. In combination with a frame or support, a shaft secured thereto, a gong rotarily mounted on the shaft and provided with an extended hub, a clutch-disk mounted upon the shaft and arranged to engage the hub of the gong to move the same in one direction, and means for rotating the clutch-disk.

8. In combination with a frame or support, a shaft secured thereto and projecting on opposite sides thereof, gongs mounted for rotation upon said shaft, said gongs provided with extended hubs, plates secured to the inner end of the hubs, clutch-disks mounted upon the supporting-shaft and provided with means for engaging the plates of the gong-hubs, and means for rotating said clutch-disks and rotating the gongs.

9. In combination in a gong, a supporting-plate, a shaft secured thereto, a gong mounted to rotate upon the shaft, gearing for rotating said gong, a clutch connection permitting
5 free movement of the gong, and a hammer arranged to sound the gong during the rotation of the latter.

10. In combination in a bell, a plate or support, a shaft secured thereto, a gong mounted
10 for rotation upon the shaft and provided with a hub, an operating-lever, connections intermediate the operating-lever and hub for rotating the latter, a pivoted hammer mounted upon the support, and means secured to the

hub for actuating said pivoted hammer upon 15 a rotation of the gong.

11. In combination in a gong, a supporting-plate, a shaft secured thereto, a gong mounted to rotate upon the shaft, means for rotating said gong, a clutch adapted for driving
20 and releasing connections with respect to the gong, and a hammer arranged to sound the gong during the rotation of the latter.

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