

No. 657,346.

Patented Sept. 4, 1900.

N. N. HILL.
BICYCLE BELL.

(Application filed Dec. 20, 1899.)

(No Model.)

Fig. 1

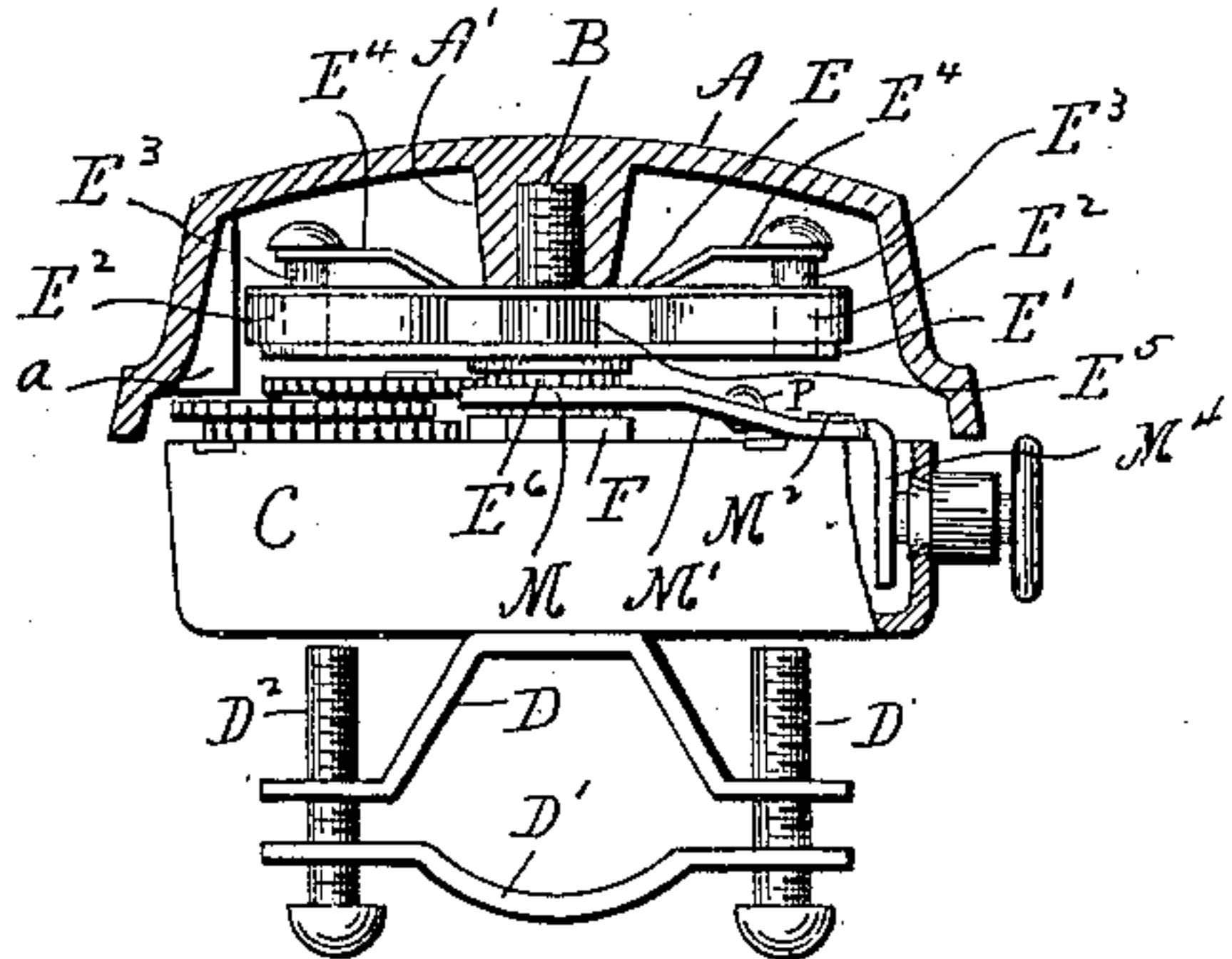


Fig. 2

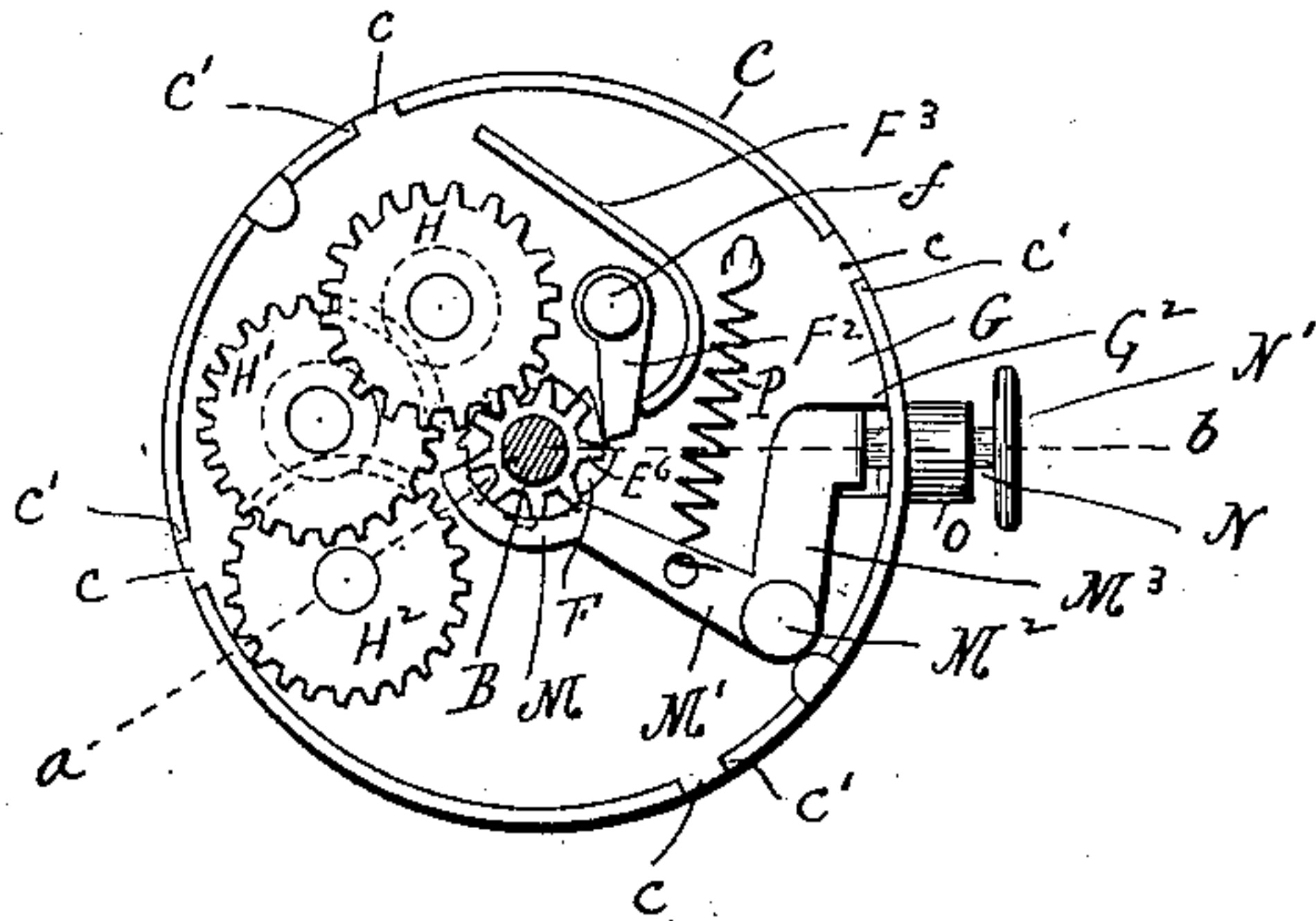


Fig. 3

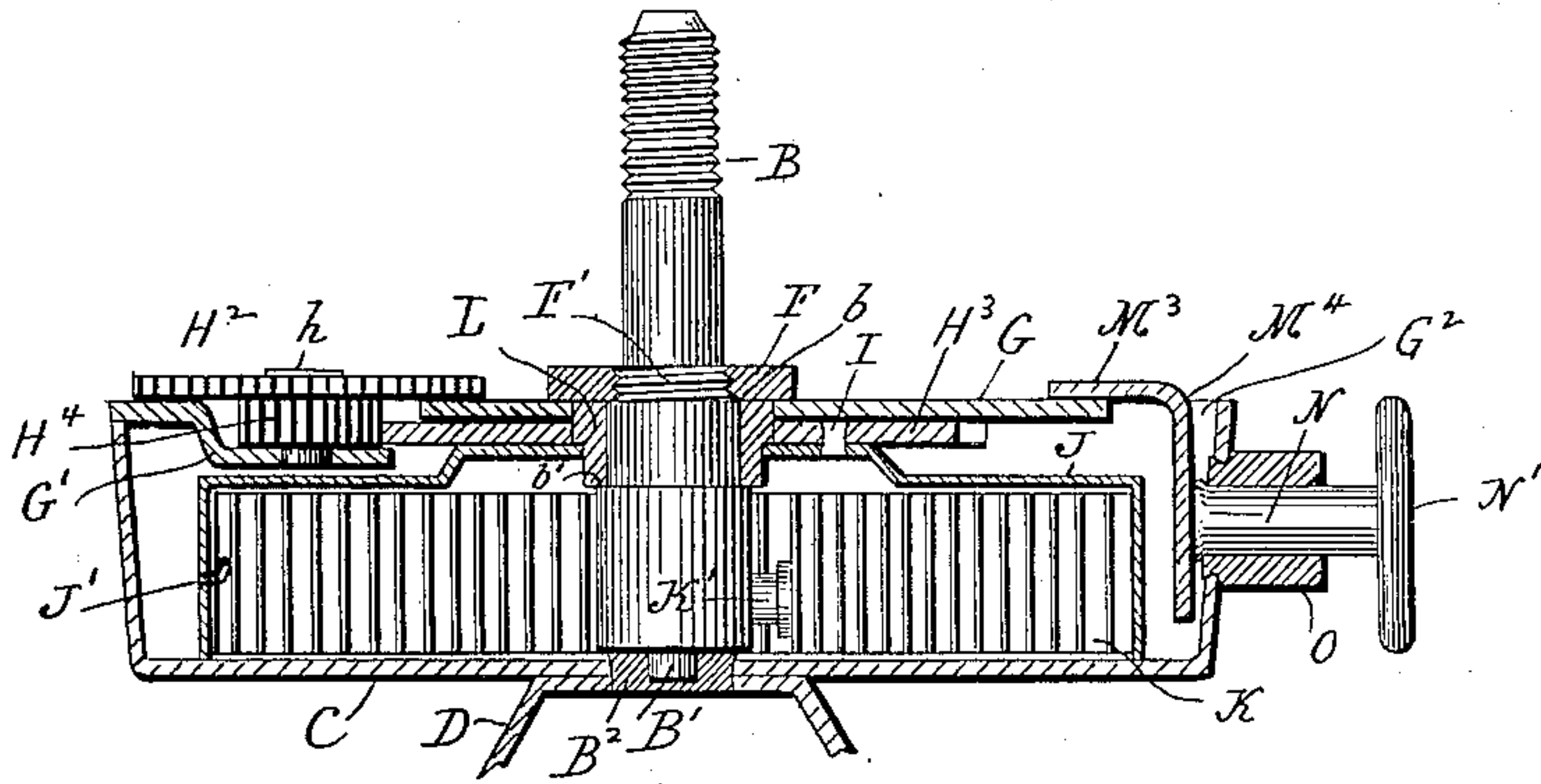


Fig. 5

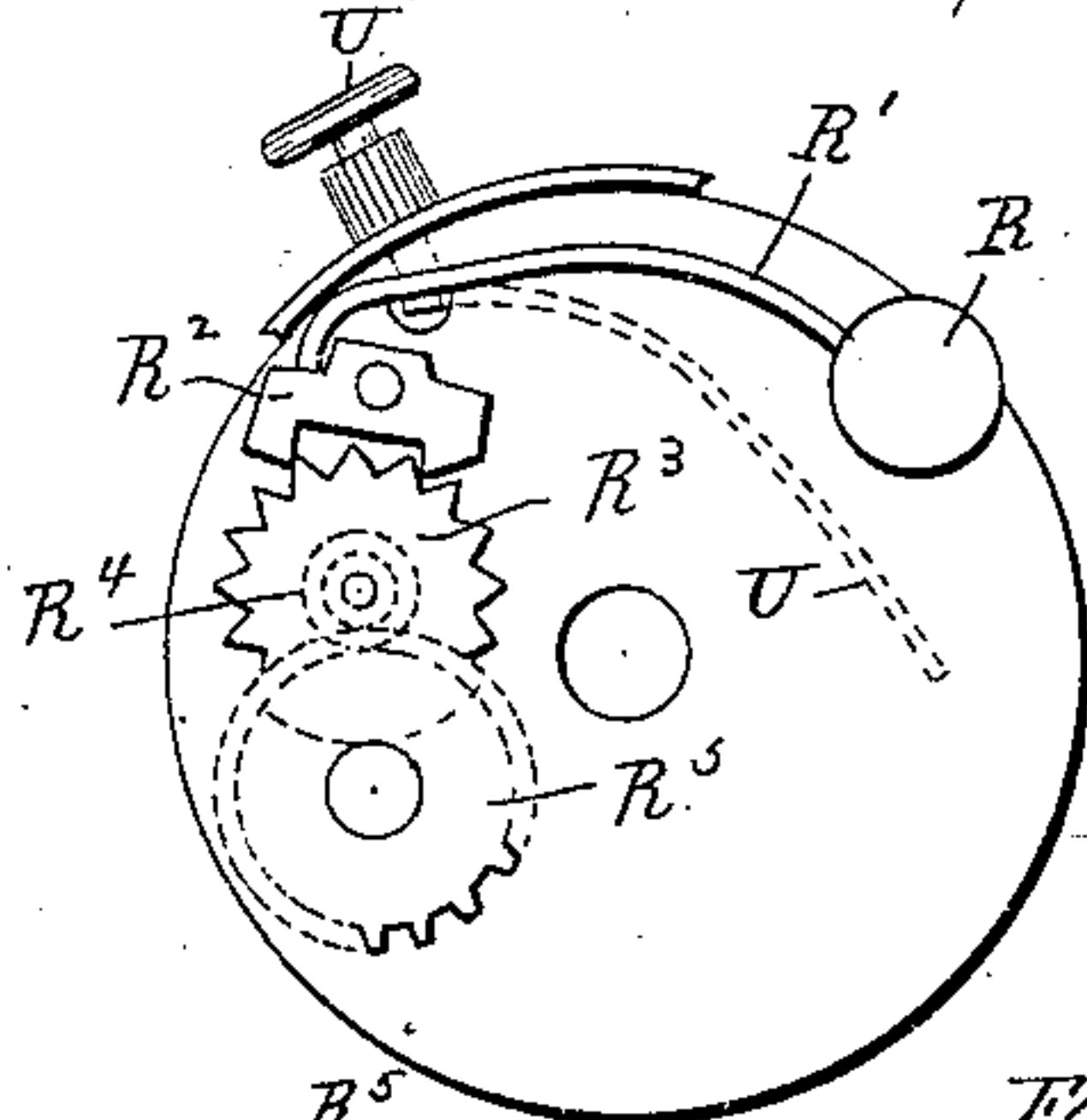


Fig. 4

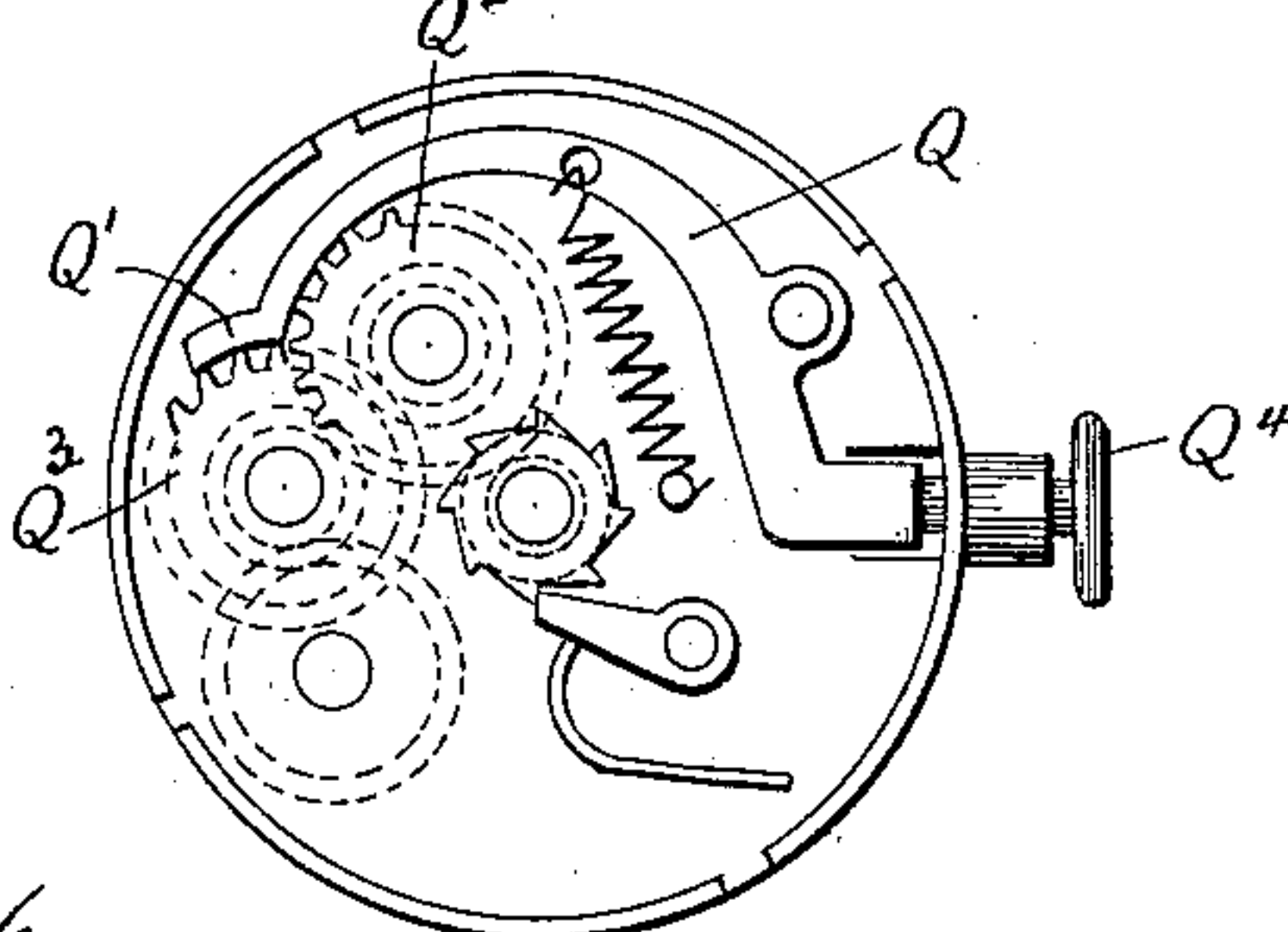
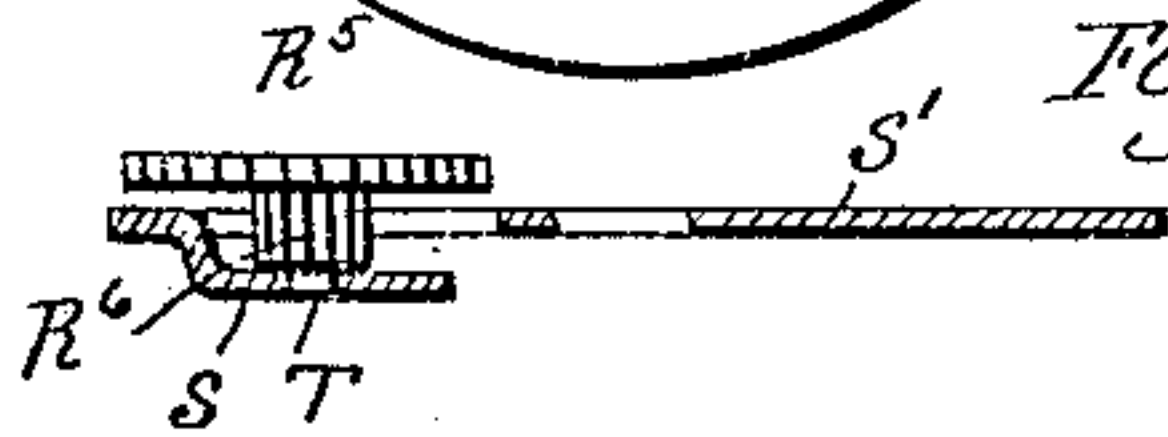


Fig. 6



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BICYCLE-BELL.

SPECIFICATION forming part of Letters Patent No. 657,346, dated September 4, 1900.

Application filed December 20, 1899. Serial No. 740,963. (No model.)

To all whom it may concern:

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

Figure 1, a view in vertical section of one form which a bell constructed in accordance with my invention may assume; Fig. 2, a
15 plan view of the bell with the gong removed; Fig. 3, an enlarged view, in vertical section, of the bell with the gong removed; Fig. 4, a detached plan view showing a modification of my improvement; Fig. 5, a detached plan
20 view of a movement-plate provided with a vibrating hammer and members of a train for actuating the same; Fig 6, a view thereof in vertical central section.

My invention relates to an improvement in
25 bicycle-bells, the object being to produce a continuous-ringing push-button bell which shall be of simple, compact, and durable construction.

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

In carrying out my invention I employ a gong A, having a centrally-arranged internally-threaded inwardly-projecting hub A',
35 adapting it to be applied to the screw-threaded upper end of a rotatable post B, the lower end of which is formed with a trunnion B', entering a step B², located in the center of the bottom of the cup-shaped base or body C, and
40 securing thereto the upper member D of the clip, which also comprises a lower member D' and two clamping-screws D² D², of ordinary construction. Upon the post B, at a
45 point directly below the hub A, which forms one bearing for it, I locate a centrally-arranged rotary hammer, which may be of any approved construction and which consists, as shown, of an upper plate E, a lower plate
50 E', vibrating disks E² E², pins E³ E³, disk springs E⁴ E⁴, a central hub E⁵, and a pinion

E⁶. The said pinion E⁶ bears upon a ratchet-wheel F, internally threaded for engagement with threads F' formed upon the post B, which is formed with a narrow shoulder b,
55 upon which the lower face of the ratchet-wheel is seated.

When the bell is assembled, it will be understood that the hammer, which turns freely upon the post, is confined between the hub
60 A' of the gong and the said ratchet-wheel, which is engaged by a pawl F², operated by a spring F³, and secured by a pivot f to the upper face of a disk-shaped movement-plate G, adapted to set within the extreme upper
65 edge of the cup-shaped base C, in which it is prevented from turning by means of outwardly-projecting lugs g, which set into notches c', formed in the upper edge of the base, as clearly shown in Fig. 2. The said
70 pinion is meshed into by the fourth wheel H of a train, also comprising a third wheel H' and a second wheel H², located above the plate, and a centrally-arranged first wheel H³, located below the plate and secured by rivets
75 I to the large shallow rotatable barrel J, containing the coiled actuating-spring K. The said first wheel H³ meshes into the pinion H⁴ of the second wheel H², which, with its pinion, is secured in place by a rivet h, mounted in
80 a bracket-like arm G', forming an integral part of the plate G, and set down below the upper face thereof and forming a bearing for the pinion H⁴, which is thus allowed to extend down through the plate into position to be
85 meshed into by the first wheel H³, as clearly shown in Fig. 3. It will thus be seen that a portion of the actuating-train of the bell is located above the plate G and a portion of it below the plate G and that I dispense with
90 the plate ordinarily located above the plate G to form a bearing for the upper ends of the pinions of the members of the actuating-train. The central portions of the plate G, the first wheel H³, and the bottom of the barrel J are
95 formed with central perforations for the reception of a loose bushing L, which constitutes a central bearing for the post B, the upper edge of the said hub bearing against the lower face of the ratchet-wheel F and
100 the lower edge of it resting upon a shoulder b', formed upon the post to which the inner

end of the spring is rigidly secured by means of a pin K' , the outer end of the spring being secured by a hook J' to the flange of the barrel J . Under this construction the spring is wound up by rotating the post B through the medium of the gong A , the pawl F^2 and the ratchet-wheel F operating to hold the post against reverse rotation under the influence of the spring, which exerts a constant effort to rotate the barrel J and actuate the train, and hence the revolving hammer. Normally this effort of the spring to rotate the barrel, train, and hammer is resisted by means of a brake-shoe M , having friction engagement with the pinion E^6 of the hammer, this shoe being formed integral with the inner arm of a bell-crank brake-lever M' , secured by a pivot M^2 to the upper face of the plate G and having its outer arm M^3 formed with a downwardly-turned finger M^4 , which extends downward through a clearance-slot G^2 , formed in the edge of the plate G , into position to be engaged by the inner end of the stem N of a push-button N' , mounted for reciprocation in a sleeve or collar O , rigidly secured to the rim or flange of the cup-like base C or body of the bell, as shown in Fig. 3. A spiral spring P , secured at one end to the upper surface of the plate G and at the other end to the inner arm M' of the said bell-crank lever, is employed to normally maintain the shoe M in frictional engagement with the pinion E^6 . In this position of the lever the finger M^4 aforesaid pushes the push-button outward, as shown in Fig. 3. It will be readily understood now that when the push-button is pressed inward by the operator of the bell the tension of the spring P is overcome and the brake-shoe M forced away from the pinion E^6 , whereby the actuating-train is relieved of restraint and immediately set in operation by the spring K , which begins to uncoil and in so doing rotates the barrel J upon the post B as a center and actuates the train, and therefore rotates the hammer, the disks E^2 of which are thrown outward for engagement with one or more projections a , formed within the gong A .

It is apparent that in carrying out my invention the mechanism herein shown and described may be modified in a variety of ways. Thus instead of having the brake-lever coact at its inner end with the pinion of the rotary hammer I I may employ, as shown in Fig. 4, a brake-lever Q , having its bent inner end Q' adapted to coact with the fourth wheel Q^2 and the third wheel Q^3 of the actuating-train, the outer end of the lever being adapted to be engaged by the stem of a push-button Q^4 . Again, my improved movement-plate, having a depressed integral bracket-like arm, may be used in a bell having a vibrating instead of a rotary hammer, as shown in Figs. 5 and 6, in which the hammer R is mounted upon a hammer-wire R' , secured to a verge R^2 , co-acting with an escapement or crown wheel R^3 , the pinion R^4 of which is meshed into by

a wheel R^5 , the pinion R^6 of which rests upon a depressed arm or bearing S , formed by cutting the movement-plate S' and striking a portion of it downward, this bearing-arm receiving the lower end of the pivot T , upon which the wheel R^5 and its pinion R^6 rotate. It will be observed that the pinion R^6 extends downward through the plate S in position to be engaged by a first wheel corresponding to the wheel H^3 of the other. In the construction now being described the push-button, which is not shown, will be arranged to coact with a spring U , located upon the under face of the movement-plate and formed with a finger U' , which engages with the hammer-wire R' to normally restrain the same from vibration under the constant impulsion of the train; but when the finger U' is pressed inwardly away from the hammer-arm R' by means of the push-button the train will immediately be actuated with the effect of vibrating the hammer and sounding the gong. I would therefore have it understood that I do not limit myself to the exact construction herein shown, but hold myself at liberty to make such changes and alterations 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 cup-shaped base or body, of a movement-plate secured thereto, a rotatable spring-barrel located within the said base, a rotatable post, a spring located within the said barrel and having its inner end connected with the post and its outer end connected with the barrel, and a loose hub forming a bearing for the said post, and supported in the center of the said plate and barrel.

2. In a bicycle-bell, the combination with a cup-shaped base or body, of a movement-plate secured thereto, a rotatable spring-barrel located within the said base or body, a rotatable post, a coiled spring having its inner end connected with the said post, and its outer end connected with the said barrel which it rotates, a gong applied to the said post, a rotary hammer mounted upon the post, an actuating-train connected with the said hammer, located partly above and partly below the said plate and including a first wheel secured to the said barrel, and a loose hub forming a bearing for the said post, and mounted in central perforations formed in the said plate, barrel and first wheel.

3. In a bicycle-bell, the combination with a cup-shaped base or body, of a disk-shaped plate secured thereto, a rotatable spring-barrel located within the said body, a rotatable post, a coiled spring located within the said barrel and having its inner end connected with the post and its outer end connected with the barrel, a gong applied to the said post, a rotary hammer mounted upon the post for rotation thereupon, and an actuating-train con-

necting the hammer and barrel and located partly above and partly below the said plate, which is cut and struck down to form a depressed arm which carries one member of the said train and its pinion which latter extends downward through the plate into position to be engaged by a member of the train located below the plate.

4. A bicycle-bell provided with a movement-plate struck up to form a depressed arm or bearing for carrying a member of the actuating-train of the bell and the pinion of the said member, the said pinion extending downward through the opening formed in the plate in the production of the said arm.

5. In a bicycle-bell, the combination with the body or base thereof, of a plate mounted in the said body, a rotatable post supported in the said body and plate, a gong applied to the said post, a hammer for sounding the bell, a rotatable spring-barrel located within the said body or base, a loose hub forming a bearing for the said post and supported in the center of the said plate and barrel, a spring located in the said barrel and having its inner end connected with the post and its outer end connected with the barrel which it rotates, a train connected with the barrel and with the hammer, and set in motion by the rotation of the barrel, a bell-crank lever mounted upon the said plate, and adapted at its inner end to restrain the actuation of the said train, and a push-button coacting with the outer end of

the said lever for operating the same to release the train.

6. In a bicycle-bell, the combination with the body or base thereof, of a plate mounted in the said body, a rotatable post supported in the said body and plate, a gong applied to the said post, a rotary hammer mounted upon the said post and provided with a pinion, a rotatable spring-barrel located within the said body or base, a spring located in the said barrel and having its inner end connected with the post, and its outer end connected with the barrel which it rotates, an actuating-train connected with the barrel, and set in motion by the rotation thereof, and comprising a member which meshes into the said pinion of the hammer, whereby the same is rotated, a bell-crank lever mounted upon the said plate, and adapted at its inner end to engage with the said pinion with the creation of sufficient friction to restrain the actuation of the said train, and a push-button coacting with the outer end of the said lever which it swings to clear the inner end thereof from engagement with the pinion so as to release the train and permit the sounding of the gong.

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

NORMAN N. HILL.

Witnesses:

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LILLIAN D. KELSEY.