

(No Model.)

W. A. PENFIELD.  
BICYCLE BELL.

No. 590,854.

Patented Sept. 28, 1897.

Fig. 1.

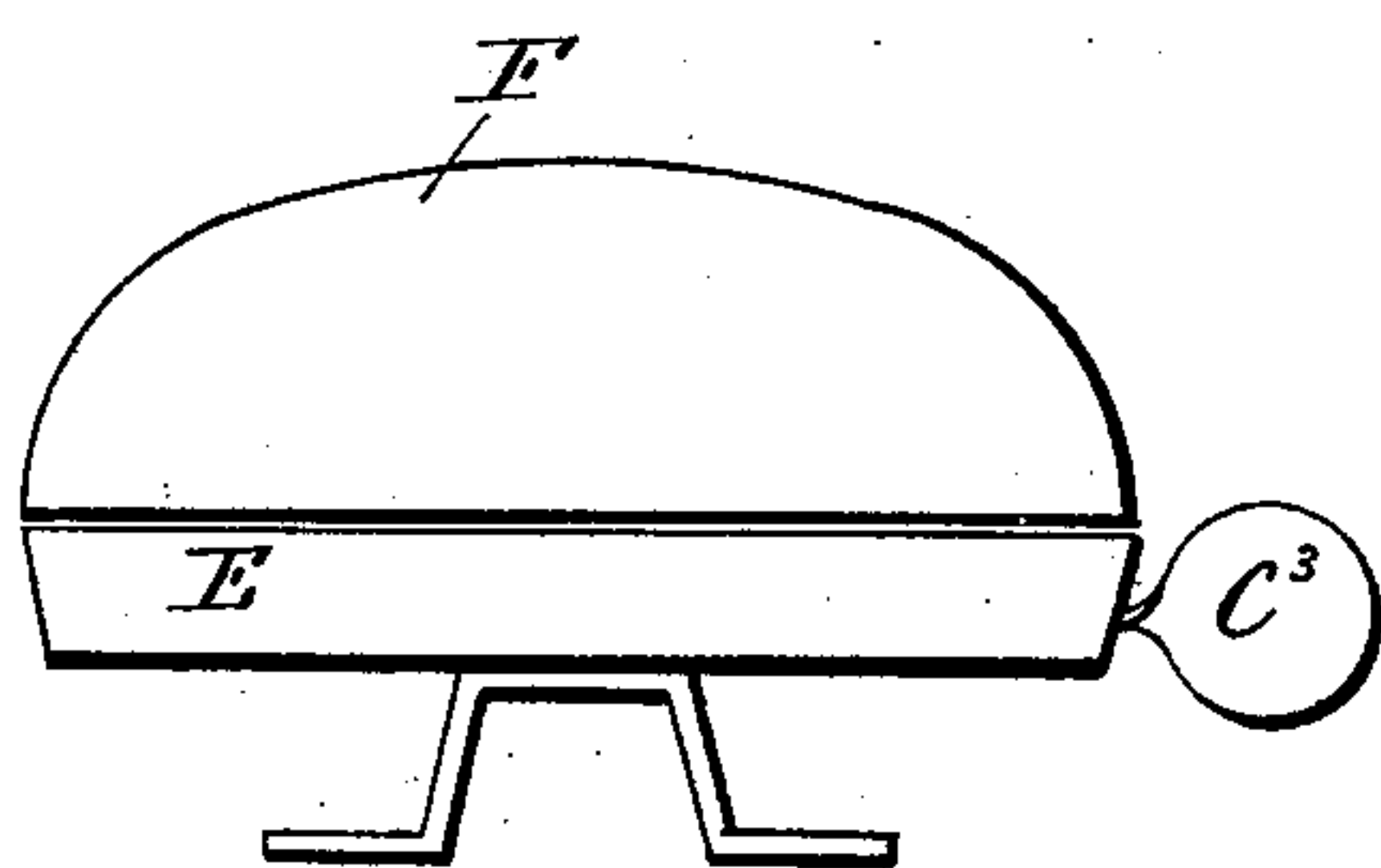


Fig. 2.

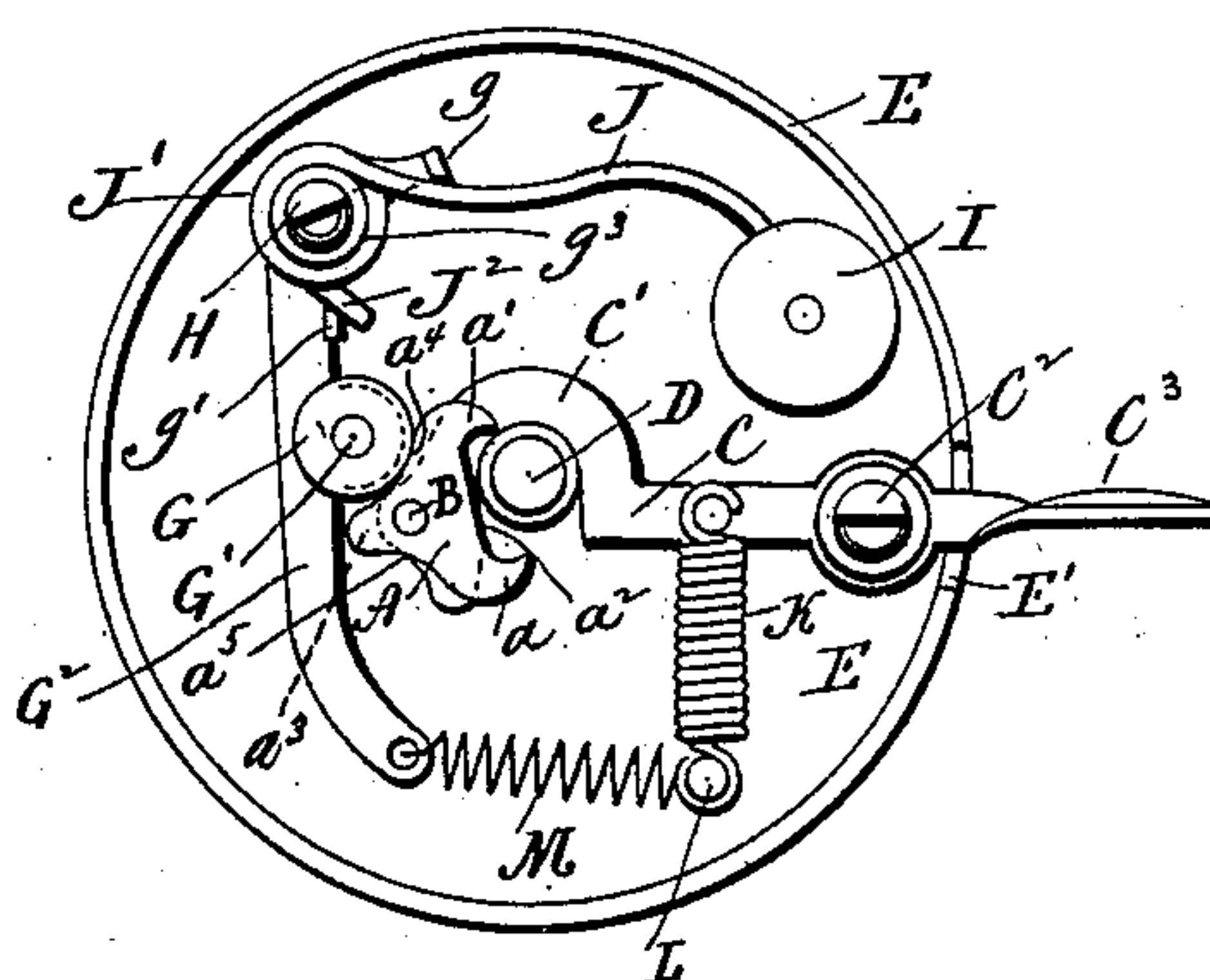


Fig. 3.

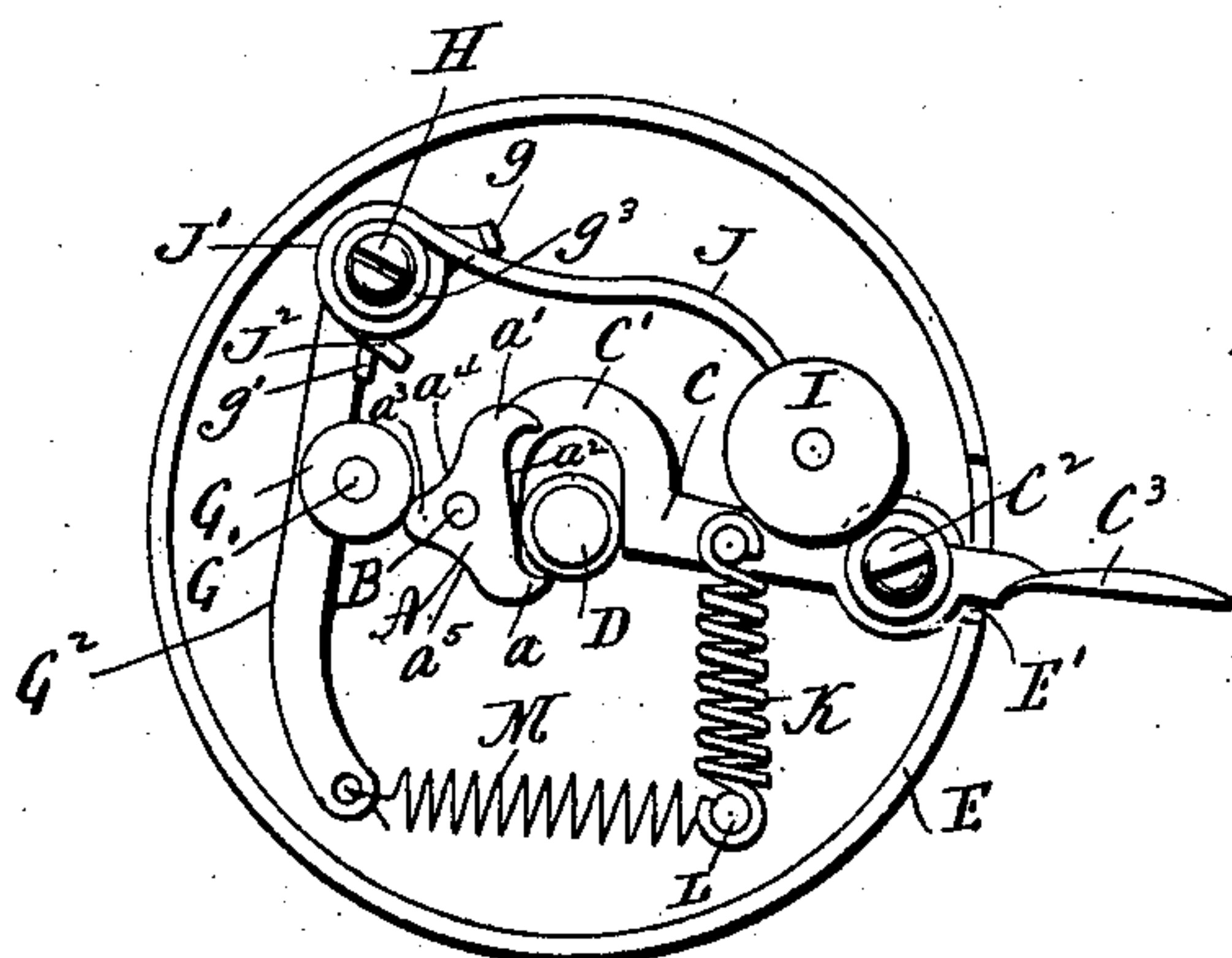


Fig. 4.

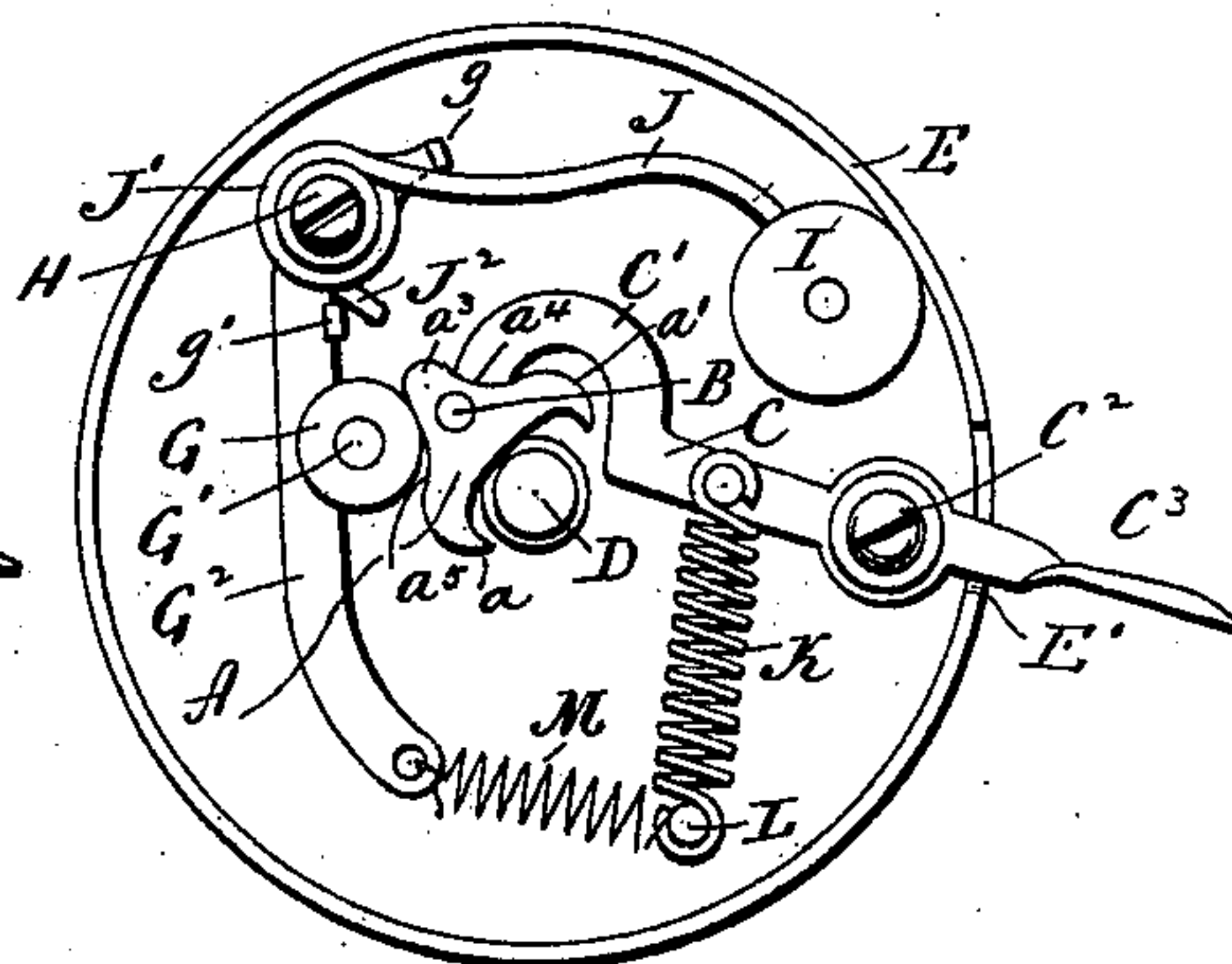


Fig. 5.

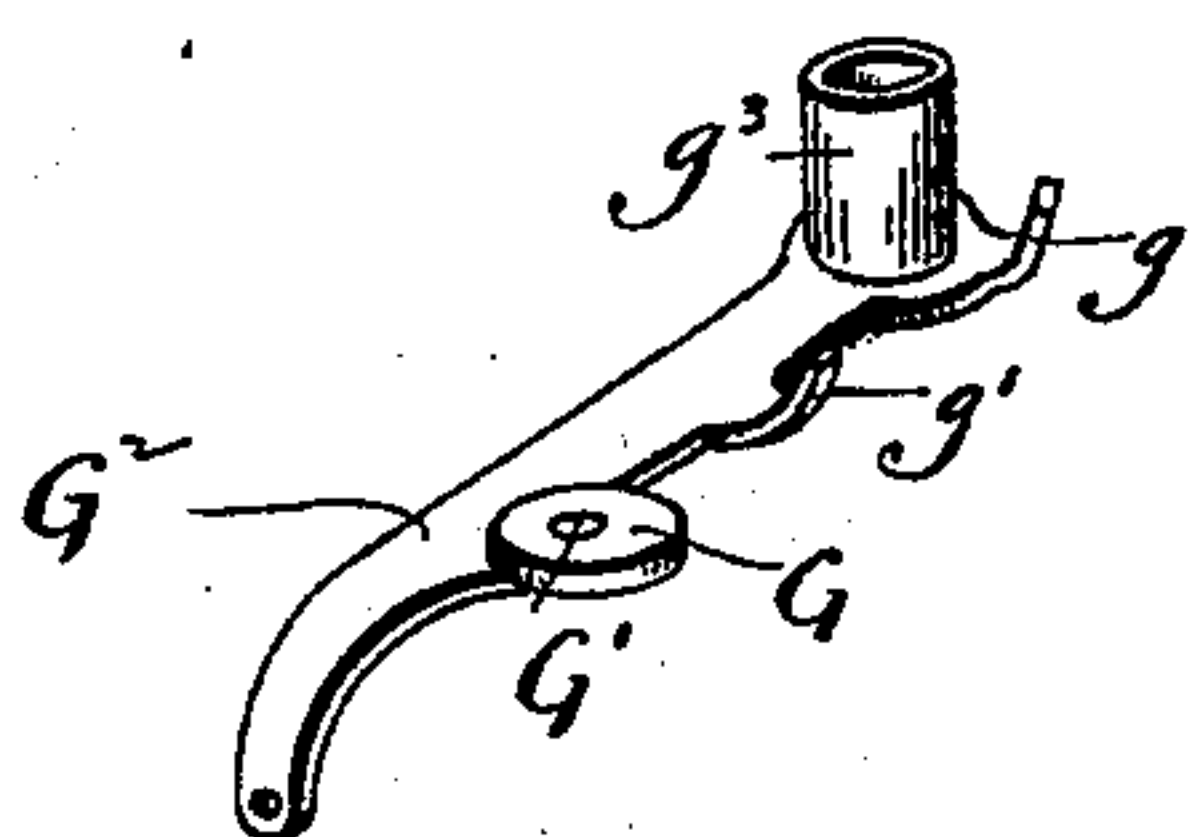


Fig. 6.



Witnesses  
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# UNITED STATES PATENT OFFICE.

WILLIAM A. PENFIELD, OF MERIDEN, CONNECTICUT, ASSIGNOR TO THE  
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## BICYCLE-BELL.

SPECIFICATION forming part of Letters Patent No. 590,854, dated September 28, 1897.

Application filed June 28, 1897. Serial No. 642,584. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. PENFIELD, of Meriden, in the county of New Haven and State of Connecticut, have invented a 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 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 plan view thereof with the gong removed; Fig. 3, a similar view showing the parts of the bell in the positions due to them just before the lug of the pivotal dog carried by the operating-lever passes the center of the pin on which the antifriction-roller of the vibrating lever turns; Fig. 4, a similar view showing the parts in the positions due to them after the gong has been struck by the striker caused by the snapping of the antifriction-roller into one of the concaves of the dog; Fig. 5, a detached perspective view of the vibrating lever; Fig. 6, a corresponding view of the yielding carrier and the striker secured thereto.

My invention relates to an improved double-stroke bicycle-bell, the object being to produce a simple bell composed of few parts and not liable to derangement and constructed with particular reference to striking blows of such strength as to secure a clear and penetrating alarm.

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

In carrying out my invention I employ a pivotal dog A, triangular in general form and having two inwardly-projecting teeth  $a a'$ , corresponding to each other and located at the opposite ends of a clearance space or recess  $a^2$ , and a single outwardly-projecting lug or nose  $a^3$ , having a rounded end and having its edges concaved to form the concaves  $a^4 a^5$ . The said dog is secured by means of a pivot B, on which it swings, to the extreme inner end of an operating-lever C, which is formed with a bow or hook  $C'$  to adapt it to clear the gong-

post D, which is rigidly secured at its lower end in the usual manner in the center of the cup-shaped base E of the bell, and which is adapted at its upper end to have the gong  $F^2$  of the bell removably attached to it. The said lever is pivotally secured to the said base, near the edge thereof, by means of a screw-stud  $C^2$  and formed with a finger-piece  $C^3$ , which projects outward through a slot  $E'$ , formed in the flange of the base E. The teeth  $a a'$  of the pivotal dog coact with the opposite faces of the gong-post D in shifting the position of the dog, so as to cause its nose to coact with an antifriction-roller G, turning upon a pin  $G'$ , mounted in a spring-actuated vibrating lever  $G^2$ , which, as shown, is formed of sheet metal and provided at its butt-end with a hub  $G^3$ , receiving a screw H, by means of which the said lever is pivotally connected with the base E of the bell. The said lever is provided near its butt-end with two upwardly-projecting integral holding-fingers  $g g'$ , which coact with the hub in securing in place the carrier of the striker I, the said carrier consisting of a single piece of wire bent to form a long yielding arm J, to the end of which the striker is secured, a coil  $J'$ , which is set down over the hub, and a short arm  $J^2$ , which is engaged with the holding-finger  $g'$ , the other holding-finger  $g$  being engaged with the said yielding arm J near the point where the same merges into the coil  $J'$ . Under this construction and arrangement of parts the carrier and striker vibrate with the lever  $G^2$ , the vibration of the carrier being extended beyond the vibration of the lever by the yielding of the wire of which it is formed under the "snapping" character of the vibration of the lever. A heavy coiled spring K is connected at one end with the shank of the operating-lever C and at its opposite end with a pin L, driven into the base E of the bell, while a relatively lighter spring M, connected with the free end of the operating-lever  $G^2$ , is also secured at its opposite end to the said pin L. The said spring K operates to return the operating-lever to its normal position after its initial movement, which is effected by means of the finger of the user of the bell and against the tension of the spring.

The several elements above described are



shown in their normal positions in Fig. 2, the antifriction-roll  $G$  resting in the concave  $a^4$  of the dog and held in that position under the tension of the spring  $M$ , while the dog itself is held in the position shown by the tension of the spring  $K$ , acting through the operating-lever  $C$ . When, however, the lever is operated by means of its finger-piece  $C^3$  against the tension of the spring  $K$  and swung away from the gong-post  $D$ , its tooth  $a$  is engaged with the gong-post, causing the dog to be rocked on its pivot, whereby the rounded nose of the dog is forced against the antifriction-roller  $G$ , with the effect of pushing the vibrating lever  $G^2$  outward against the tension of the spring  $M$ , which is extended and placed under additional tension. During the time that the dog is acting against the antifriction-roller and pushing the vibrating lever outward the gong-post is acting, as it were, as a point of purchase for the operation of the dog. As soon, however, as the nose of the dog is carried by the movement of the operating-lever and by the swinging of the dog upon its own pivot  $B$  beyond the center of the pivot  $G'$  of the antifriction-roller the same is "snapped," so to speak, with considerable violence into the concave  $a^5$  of the dog by the action of the spring  $M$ , which suddenly draws the lever inward, with the effect of throwing the yielding arm of its wire carrier outward with sufficient force to spring it enough to cause the impingement of the striker  $H$  against the edge of the gong with such force as to sound a clear and penetrating alarm upon the same. The draft of the finger of the hand of the user being now removed from the finger-piece  $C^3$  of the operating-lever, the heavy spring  $K$  immediately asserts itself to draw the lever back into its normal position, with the immediate effect of engaging the tooth  $a'$  of the dog with the opposite face of the gong-post. Then as the spring continues to draw the lever inward the dog is simultaneously moved inward and simultaneously turned upon its pin  $B$ , with the effect of again pushing the vibrating lever outward against the tension of its spring  $M$ , whereby the same will be extended and placed under additional tension, and whereby also the carrier will be retracted toward the center of the bell. In this movement of the dog the gong-post acts, as before, as a point of purchase for turning it, but at this time the opposite face of the gong-post is engaged by the tooth  $a'$  of the dog, as aforesaid. Now when the combined swinging movement of the lever and the turning movement of the dog carries the nose of the dog past the center of the pin  $G'$  of the antifriction-roll, the same will be "snapped" suddenly, so to speak, into the concave  $a^4$  of the dog by the action of the spring  $M$ , whereby the lever will be drawn inward, while the carrier is thrown outward with sufficient force to spring its yielding arm enough to permit

the striker  $I$  to come sharply against the edge of the gong. It is this sudden snapping of the antifriction-roll into the opposite concaves of the dog that gives my improved bell such positiveness and sharpness of operation. I may remark that the yielding arm is bent so that it normally holds the striker sufficiently away from the edge of the gong as not to touch the same during any ordinary usage of the bell, which will not, therefore, sound a false alarm or rattle.

It is apparent that in carrying out my invention certain changes from the construction herein shown and described may be made. I would therefore have it understood that I do not limit myself to the exact construction herein set forth, but hold myself at liberty to make such 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 the base, gong-post and gong thereof, of an operating-lever, a spring for returning the same to its normal position after its initial operation which is against the tension of the spring, a pivotal dog carried by the said lever and coacting with the gong-post which forms a point of purchase for its operation, a spring-actuated vibrating lever with which the said dog coacts, and a striker yieldingly carried by the said vibrating lever which is pushed outward in one direction by the dog, and suddenly drawn inward in the opposite direction by its spring, with the effect of causing the striker to impinge against the gong.

2. In a bicycle-bell, the combination with the base, gong-post and gong thereof, of an operating-lever, a spring for returning the same to its normal position after its initial operation which is against the tension of the said spring, a pivotal dog carried by the said lever and formed with two teeth respectively coacting with the opposite faces of the gong-post which constitutes a point of purchase for the operation of the dog, which is also formed with an outwardly-projecting nose; a spring-actuated vibrating lever carrying an antifriction-roller with which the nose of the dog engages, a yielding carrier attached to the said vibrating lever, and a striker connected with the said carrier.

3. In a bicycle-bell, the combination with the base, gong-post and gong thereof, of a pivotal operating-lever having its inner end shaped in the form of a hook to clear the gong-post, a spring for returning the said lever to its normal position after its initial operation which is against the tension of the said spring, a pivotal dog carried by the said lever, having two teeth which coact with the said gong-post, and also having an outwardly-projecting lug or nose, a spring-actuated vibrating lever with which the nose of the dog



engages to push it outward against the tension of its spring, a carrier secured to the butt-end of the said vibrating lever, formed from a single piece of wire, and comprising a  
5 long yielding arm, a coil, and a short arm, and a striker secured to the yielding arm of the carrier.

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

WILLIAM A. PENFIELD.

Witnesses:

W. A. HALL,  
E. R. LEWIS.