

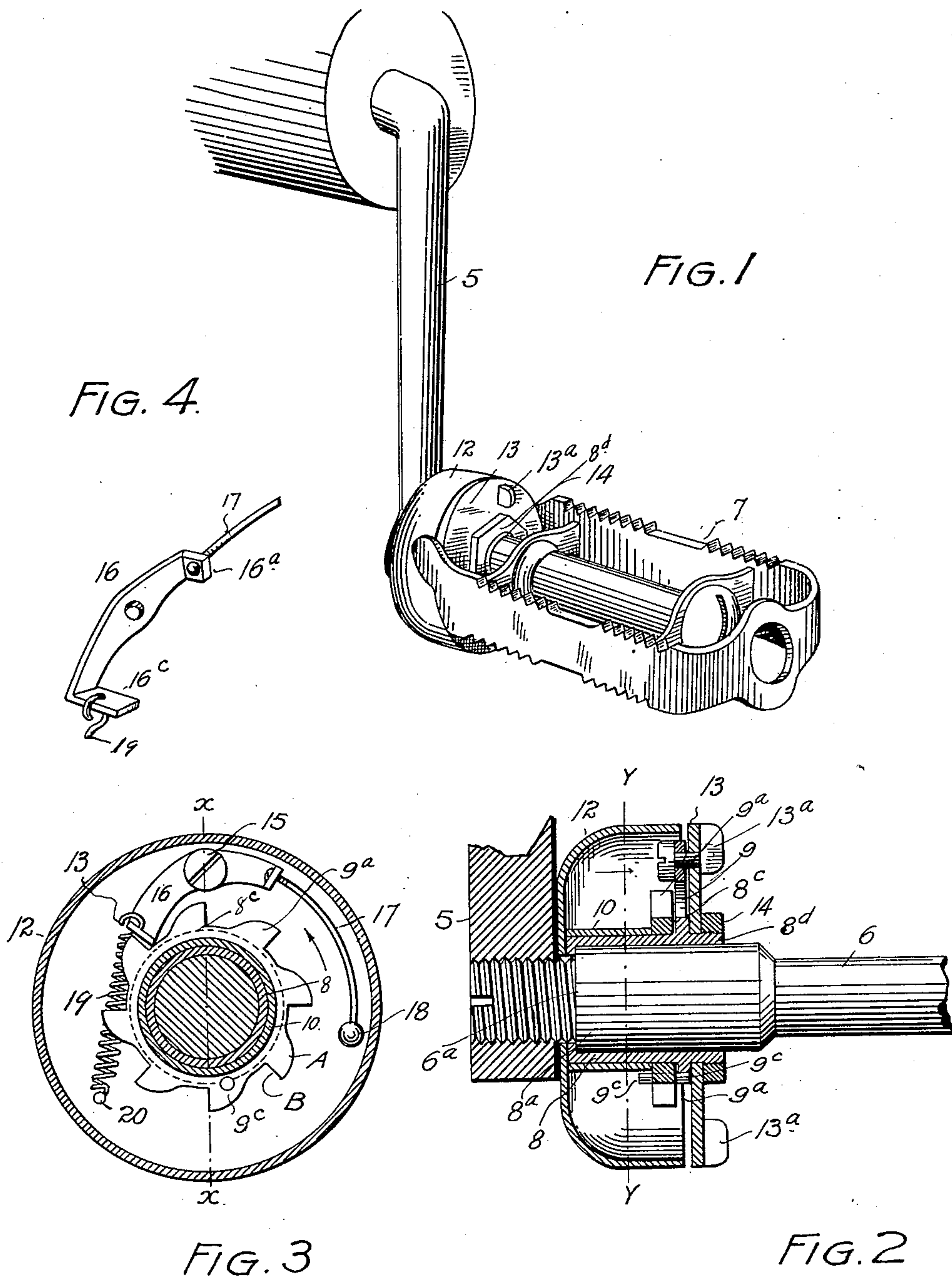
No. 640,712.

Patented Jan. 2, 1900.

A. M. SOUTHARD.  
BICYCLE PEDAL BELL.

(Application filed Apr. 25, 1899.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

ABRAHAM M. SOUTHARD, OF DENVER, COLORADO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO JAMES WESLEY KUYKENDALL, OF SAME PLACE.

## BICYCLE-PEDAL BELL.

SPECIFICATION forming part of Letters Patent No. 640,712, dated January 2, 1900.

Application filed April 25, 1899. Serial No. 714,345. (No model.)

*To all whom it may concern:*

Be it known that I, ABRAHAM M. SOUTHARD, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Bicycle-Pedal Bells; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in bicycle-pedal bells of the class set forth in patents numbered 570,944 and 584,312, dated November 10, 1896, and June 8, 1897, respectively.

My object is to provide a bell or alarm device adapted to be attached to or mounted upon the pedals of bicycles or other velocipedes and which shall be simple in construction, economical in cost, reliable, durable, and efficient in use; and to these ends the invention consists of the features, arrangements, and combinations hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a perspective view of my improved device shown in connection with a bicycle pedal and crank. Fig. 2 is a section taken through the bell mechanism on the line *xx*, Fig. 3. Fig. 3 is a section taken on the line *yy*, Fig. 2, looking in the direction of the arrow. Fig. 4 is a perspective view of the spring-held clapper-lever.

Similar reference characters indicate corresponding parts in the views.

The numeral 5 designates the crank of the bicycle, 6 the pedal-pin upon which the crank is screwed, and 7 the pedal-frame revoluble on the pin.

My improved device is mounted on the pedal-pin between the crank and the pedal-frame and will now be described in detail. Upon the inner extremity of the pedal-pin, adjacent to the crank, is located what I will term a "hub" 8, having an interior collar 8<sup>a</sup>, engaging a shoulder 6<sup>a</sup>, framed on the pedal-pin. This hub is also provided with an

exterior collar 8<sup>c</sup>, which is engaged on one side by a ring having teeth 9<sup>a</sup>, which perform the function of cams in the operation of the device. This ring 9 is provided with studs 9<sup>c</sup>, one of which enters an opening formed in the collar 8<sup>c</sup> of the hub, whereby the cam-ring is locked on the hub and arranged to turn therewith. There are two studs 9<sup>c</sup> projecting in opposite directions from the toothed ratchet or cam-ring in order to make the latter interchangeable and adapted for use either on the right or left pedal, since in changing the ring from one pedal to the other it must be turned over, its position being reversed. The cam-ring is held in operative position on the hub by a sleeve 10 surrounding the hub, one extremity of this sleeve engaging the cam-ring, while the other extremity is engaged by the gong 12, which holds the sleeve in place. The gong also engages the inner extremity of the hub. The gong, the hub 8, the sleeve 10, and the ratchet or cam-ring 9 are locked tightly in place on the pedal-pin by the crank 5 when the latter is screwed to position, (see Fig. 2,) causing the said parts to turn with the crank and pedal-pin.

Loosely mounted on the hub 8 and engaging the outer surface of the collar 8<sup>c</sup> is a circular plate or disk 13, which is held in place from the outside by a lock-nut 14, screwed upon a portion 8<sup>d</sup> of the hub extending outward from the collar 8<sup>c</sup>. This nut is adjusted to allow the hub to turn freely in the disk for purposes hereinafter explained. Upon this disk is fulcrumed at 15 a lever 16, having a lug 16<sup>a</sup> at one extremity to which is attached a spring-arm 17, terminating in a ball or knob 18, adapted to strike the gong and sound the alarm, as hereinafter explained. The opposite extremity of the lever 16 is provided with a lug 16<sup>c</sup>, to which is attached one extremity of a coil-spring 19, whose opposite extremity is attached to a pin 20, fast on the disk 13. This spring normally holds the lever and the clapper or hammer arm in the position shown in Fig. 3. The lug 16<sup>c</sup> is of sufficient length to project into the path of the teeth or cams 9<sup>a</sup> of the ring 9. Each of these cams has one curved or inclined face A and a straight or vertical face B. The disk 13 is provided with one or more lugs or projections 13<sup>a</sup>, extending outward



toward the pedal-frame and arranged to be readily engaged by the foot of the rider when he desires to sound the alarm or ring the bell.

It will now be readily understood that normally or when the bell is not ringing, all the parts of the improved device turn with the crank 5 and the pedal-pin 6. The disk 13, however, being loose on the hub 8 will cease to turn with the pin as soon as the foot of the rider is moved into the path of the lugs 13<sup>a</sup>. When the foot holds the disk from turning, the hub and pedal-pin will continue their rotation in the direction indicated by the arrow in Fig. 3. This movement of the hub, together with the parts mounted thereon, causes the cams or teeth 9<sup>a</sup> of the ring 9 to pass in succession under the lug 16<sup>c</sup> of the lever 16. As this occurs the extremity of the lever to which the lug 16 is attached is thrown outward toward the periphery of the disk 10, while the lug is engaging the face A of the cam, the spring being at the same time stretched or placed under tension. As soon, however, as the highest point of the cam-tooth has passed under the lug the latter is suddenly released and instantly returned to its normal position by the recoil of the spring 19, thus throwing the clapper-arm outward with such force or momentum as to cause its spring-arm to yield sufficiently to bring the hammer ball or head 18 against the inner surface of the gong. It is evident there may be any desired number of the cam-teeth 9<sup>a</sup>, causing the hammer or clapper to strike the gong as many times as may be desired for every rotation of the hub and pedal-pin, since the operation just described is repeated every time a cam 9<sup>a</sup> engages the lug 16<sup>c</sup> of the lever.

Having thus described my invention, what I claim is—

1. In a bell-pedal the combination with the pedal-pin, of alarm mechanism mounted thereon and normally turning with the pin, one part of said mechanism being fast on the pin, and the other part being loosely mounted and provided with means fast thereon for stopping the rotation with the pin, the arrangement being such that the stopping of the one part results in the operation of the alarm mechanism.

2. In a bell-pedal the combination with the pedal-pin, of suitable alarm mechanism mounted thereon, and comprising two parts normally moving in unison with each other, the arrangement being such that as soon as the unison of movement is destroyed the bell is rung or the alarm sounded, and means fast on one part, and accessible to the foot of the rider, to facilitate destroying the unison of movement between the two parts.

3. The combination with the pedal of a gong suitably mounted thereon, a clapper device and means for operating the clapper device, the clapper device, and its operating means, normally moving in unison, but capable of independent movement, the arrangement being such that as soon as their unison of move-

ment is destroyed the clapper device is operated and the alarm sounded, and means fast on the clapper device, and accessible to the foot of the rider, for destroying the unison of movement between the clapper device and its operating means.

4. The combination with the pedal-pin, of a clapper device and operating means mounted on the pedal-pin, and normally moving therewith, the clapper device and its operating means being capable, however, of movement independently of each other, and a gong suitably supported in proximity to the clapper device, the arrangement being such that as soon as the harmony of the movement between the clapper device and its operating means is destroyed the clapper device is operated and the alarm sounded, and means fast on the clapper device, and accessible to the foot of the rider, for destroying the unison of movement between the clapper device and its operating means.

5. The combination with the pedal-pin, of a clapper device, comprising a clapper-holder and a lever fulcrumed thereon, a gong and means for operating the clapper-lever, the clapper-operating means being fast on the pin, the clapper-holder being loosely mounted, but normally turning with the pin and operating means, and means fast on the clapper-holder for stopping the rotation of the clapper device while the operating means continues its movement with the pin.

6. The combination with the pedal-pin, of a clapper device comprising a plate loosely mounted on the pin, and provided with external means to facilitate the stopping of the said plate, a spring-held lever fulcrumed on the plate and provided with a spring clapper-arm, a gong mounted in proximity to the clapper device, and a cam fast on the pedal-pin and adapted to engage the lever and operate the clapper device when the latter is held against rotation with the pedal-pin.

7. The combination with the pedal-pin and the gong suitably mounted, of a clapper device comprising a plate loosely mounted on the pin, a lever fulcrumed on the plate, a spring connected with one arm of the lever, a clapper connected with the other arm of the lever and a cam fast on the pedal-pin and adapted to engage a projection formed on the spring extremity of the lever when the clapper device is held against movement with the pedal-pin, the plate being provided with exterior means to facilitate stopping it with the foot.

8. The combination with the pedal-pin, of a plate or disk loosely mounted thereon, and provided with exterior means adapted to be engaged by the foot to stop the movement of the plate with the pedal-pin, a spring-held lever fulcrumed on the plate and provided with a clapper, a gong mounted in proximity to the clapper, a cam-ring fast on the pedal-pin and adapted to engage a projection formed on the lever whereby as the clapper-plate is



held from rotation, the cam-ring operates the clapper.

5 9. The combination with the pedal and crank, of a hub mounted on the pedal-pin between the crank and the pedal-frame, and provided with one or more cams, the hub being locked on the pedal-pin, a plate loose on said hub but normally turning with the pedal-pin, a spring-held clapper-lever fulcrumed on  
10 the plate, and having a lug projecting into the path of the cams on the hub, and a gong mounted in proximity to the clapper, the said plate having one or more exterior projections to facilitate stopping its rotation with the  
15 pedal-pin.

20 10. The combination with the pedal and crank, of a hub mounted on the pedal-pin and having an interior collar engaging a shoulder on the pin, and an exterior collar, a ring surrounding the hub and engaging the

exterior collar, said ring being provided with a number of cams, and having a stud engaging the exterior collar of the hub, a sleeve surrounding the hub and engaging the cam-ring, a gong mounted on the pin and engaging the hub and sleeve, the hub and sleeve being locked on the pin by the crank, a plate surrounding the hub and loose thereon, a clapper-lever fulcrumed on the plate and having a lug projecting into the path of the cams  
25 on the ring, the said plate having projections to facilitate holding it from rotation with the pedal-pin. 30

In testimony whereof I affix my signature in presence of two witnesses.

ABRAHAM M. SOUTHARD.

Witnesses:

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