

(No Model.)

2 Sheets—Sheet 1.

A. NICHOLAS.
BICYCLE BELL.

No. 547,886.

Patented Oct. 15, 1895.

Fig. 1.

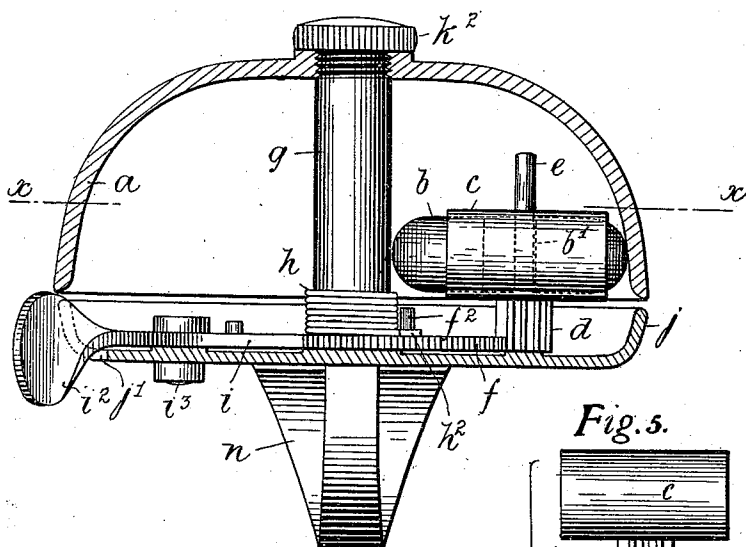


Fig. 2.

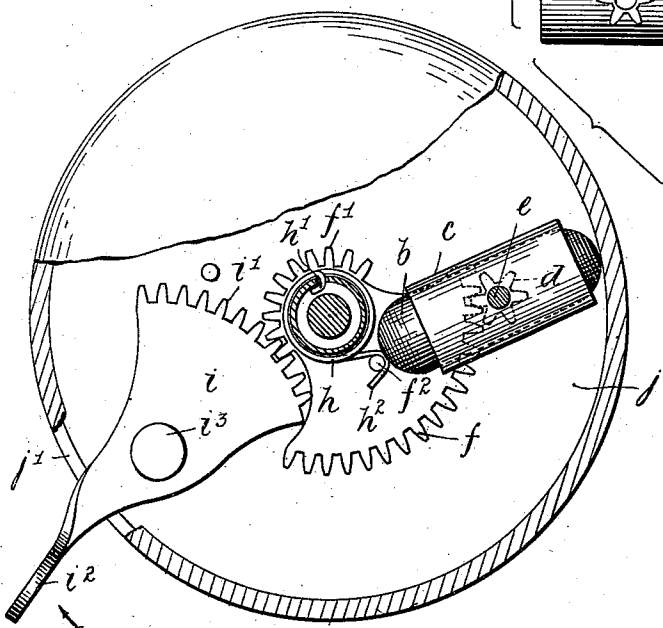


Fig. 5.

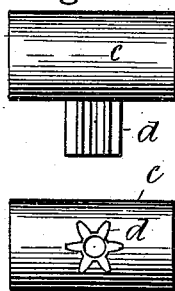


Fig. 6.

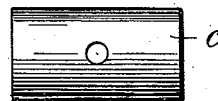
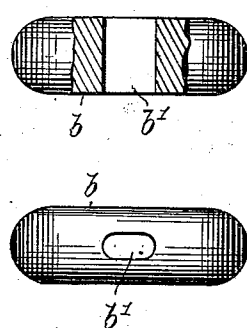
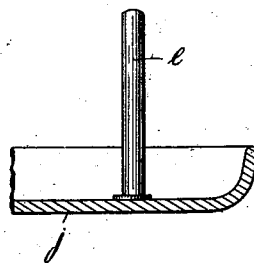


Fig. 7.



WITNESSES

Henry Skerrett
Arthur J. Sadler

INVENTOR

Alfred Nicholas

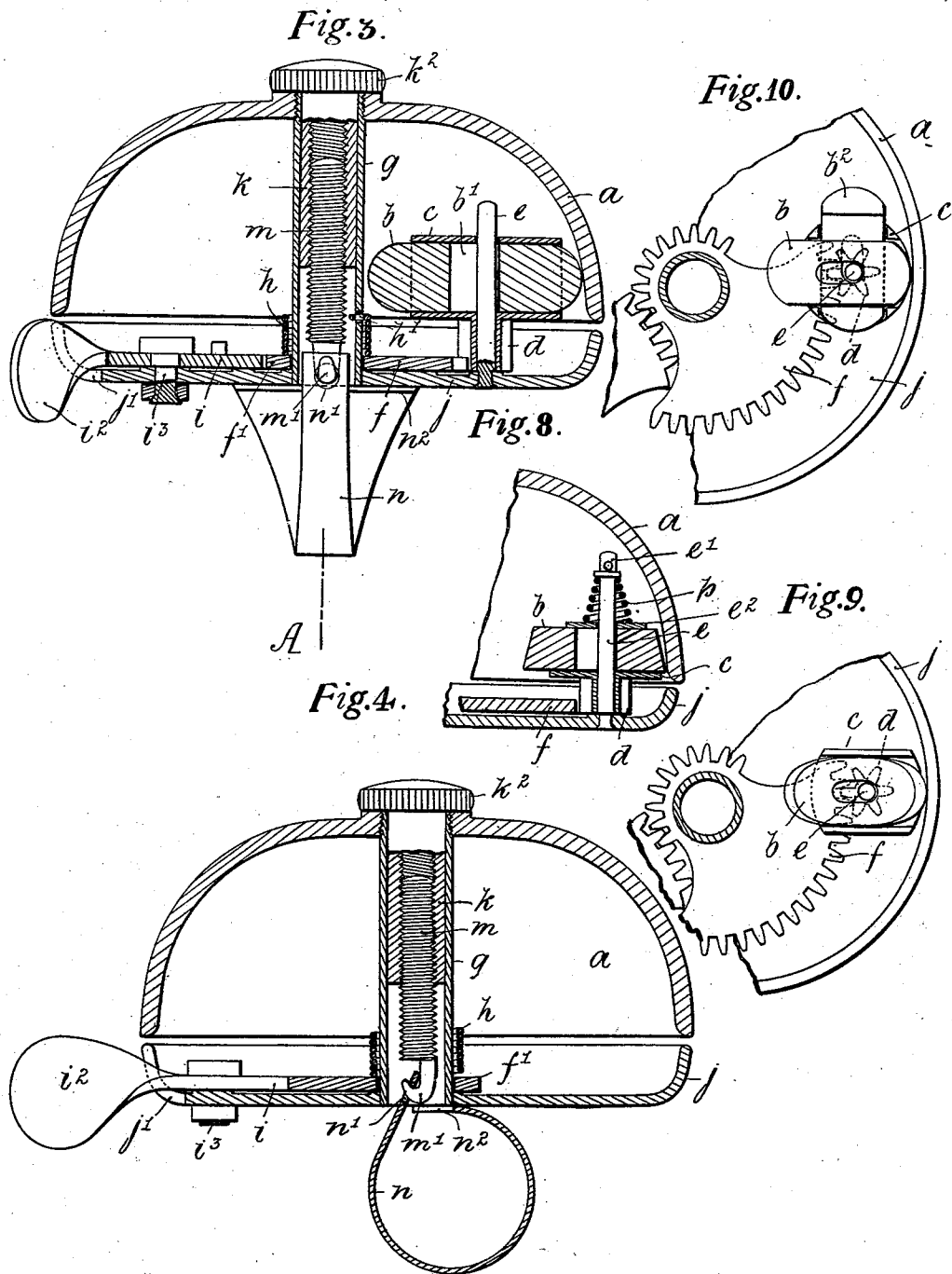
(No Model.)

2 Sheets—Sheet 2.

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No. 547,886.

Patented Oct. 15, 1895.



WITNESSES

Henry Skerrett
Arthur J. Sadler

INVENTOR

Alfred Nicholas

UNITED STATES PATENT OFFICE.

ALFRED NICHOLAS, OF BIRMINGHAM, ENGLAND, ASSIGNOR TO JOSEPH LUCAS AND HARRY LUCAS, OF SAME PLACE.

BICYCLE-BELL.

SPECIFICATION forming part of Letters Patent No. 547,886, dated October 15, 1895.

Application filed August 8, 1895. Serial No. 558,604. (No model.) Patented in England November 15, 1894, No. 22,049.

To all whom it may concern:

Be it known that I, ALFRED NICHOLAS, manufacturer, a subject of the Queen of Great Britain, residing on Water Street, in the city of Birmingham, England, have invented new and useful Improvements in Bells, of which the following is a specification, and for which said invention I have obtained Letters Patent of Great Britain, dated November 15, 1894, No. 22,049.

My invention has relation to repeater-action bell mechanism comprehending a repeating-striker and means for communicating motion thereto.

Figure 1 of the accompanying drawings represents, partly in vertical section and partly in elevation, a cycle-bell provided with a repeating-striker and striker-operating mechanism constructed according to my invention. Fig. 2 represents a horizontal section of the bell upon the dotted lines $x x$, Fig. 1, thus showing the intergearing driven and driving elements of the mechanism and the revoluble striker, whose ends are alternately made to strike and recede inward on each rotation of the casing, within which it is carried and wherein it stiffly slides. Fig. 3 represents a complete vertical section of the bell. Fig. 4 represents a similar view as Fig. 3, but with the section taken at right angles upon the dotted line A of the said Fig. 3. Fig. 5 represents an elevation and top, side, and underneath plans of the striker-casing and its driving-pinion. Fig. 6 is a part section and a plan of the bolt-like striker separately. Fig. 7 represents the arbor or upright spindle upon which the carrying-casing of the striker rotates. Fig. 8 is a section of a different arrangement of the striker. Fig. 9 is a top plan view of the same. Fig. 10 is a plan view of another different arrangement of striker.

The same letters of reference indicate corresponding parts in the several figures of the drawings.

Located within the interior of the bell a is a reciprocating plunger-like striker b , carried by and working to and fro within a revoluble carrier or casing c , having made fast to its under side a pinion d , through which pinion and the center of the casing and through a stop-

hole b' in the striker an arbor or spindle e , carried by the base-plate j , upwardly passes and upon which the pinion and casing revolve when the said pinion is driven by its teeth engaging with those of a double-toothed sector f or a toothed sector having upon the opposite side of the toothed part of it a half-pinion f' , which combined sector and half-pinion rotate freely about the hollow central stem or pillar g as a center of motion. Encircling the lower part of the central stem or pillar g is a coiled spring h , with one end h' made fast to the pillar and the other end h^2 taking around a stud f^2 on the toothed sector f , so that as the said combined sector and half-pinion is partly rotated through the teeth i' of a toothed lever-sector i , turning about the pivot-pin i^2 , secured to the said base-plate j as a center, the coils of the spring are wound up or compressed, and its reaction automatically takes the striker-operating mechanism back to its normal position. The toothed sector i has a thumb lever or arm i^2 extending through a gap j' in the base-plate. Thus by pressing the said thumb-lever in the direction of the arrow, Fig. 2, the toothed sector i turns the toothed sector f through the medium of the half-pinion f' , whereby the pinion d is rapidly rotated and with it the revoluble striker casing or carrier c , which in its turn carries with it the plunger-like striker b , and, being longer than the casing, one or other of its ends is always projecting to a distance beyond one or other of the casing ends, thereby coming within the range of the inside of the bell, so that as the projecting end is rapidly brought round and against the inside of the bell it strikes and rings the same, and is by the impact impelled driven or shot back through the casing, causing the other end in its turn to extend alike unto the first-named end or to be ready to again strike the bell when the said last-named end is brought round to its acting position. This is repeated continuously and two rings of the bell are made by every single rotation of the striker.

The hollow pillar or stem g , which is carried by the bell base-plate j , has fitted within its upper part a rotating screw-box k with a milled head k^2 on its upper end and with the

inside stem part receiving a like screwed stalk *m*, having at its lower end a hook *m'* over which the pierced and loose end *n'* of a band-clip *n*, having its after end *n²* made fast to the base-plate *j*, passes. The band-clip is drawn tightly around the member to which the bell is attached by turning the milled head *k²*, which draws the screwed stalk *m* and with it the free end of the clip up to the stem *g*; hence the connection.

Fig. 8 represents a section of a modification of the striker part of my improvements, and Fig. 9 is a top side plan of the same. In this form the striker *b* works within an open-topped casing *c* instead of a closed one and is made to move stiffly by a spring *p*, located round the central stem *e*, carried by the base-plate *j* and between the head *e'* and a washer *e²* coming upon the top side of the striker. *a* is the bell, *d* the pinion, and *f* the driving-sector of it.

Fig. 10 represents a further modification of the striker part of my improvements. In this arrangement the striker, which is now flat, is the same in principle as the one already described, but the plungers are in duplicate, so that to each rotation of the carrier four rings are given instead of two. *a* is the bell. *b b²* are the reciprocating strikers. *c* is the casing or carrier; *d*, the pinion; *e*, the stem, passing through an axial hole in carrier and pinion, and through slots or stop-holes in the strikers. The stem has a coiled spring located around it and coming between the head thereof and a washer located upon the top side of the upper striker *b*, which has a sinking about its middle for the lower striker to work and be guided within. *f* is the sector driving the pinion *d*, and *j* is the base-plate carrying the stem *e*. When the double striker is rotated, the ends are continuously driven in, as they impinge against the inside of the bell; hence four strikes and rings to each single rotation.

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

1. In the strikers of repeater-action bell mechanism, the combination with a revoluble carrier driven by a pinion made fast with it and turning upon a central axis, of a reciprocating double-ended striker, whose ends are alternately brought into and taken out of a striking position by being impelled rearward

by impact on striking and ringing, substantially as described and set forth.

2. In the strikers of repeater-action bell mechanism, the combination with a revoluble carrier driven by a pinion made fast with it and turning upon a central axis, of a pair of reciprocating double-ended strikers whose ends are alternately brought into and taken out of a striking position by being impelled rearward by impact on striking and ringing, and a spring for stiffening the movement of said striker, substantially as described.

3. In the motion-transmitting mechanism for bells, the combination with a toothed lever-sector pivoted to the base plate, of a plate having two toothed sectors revoluble about a central stem and with the teeth of the larger sector meshing with the teeth of the striker pinion and with the teeth of the smaller sector meshing with the teeth of the said lever and driving sector, substantially as described and set forth.

4. In the motion-transmitting mechanism for bells, the combination with a lever sector turning about a pivot carried by the base plate, and meshing with the teeth of one part of a double sector plate, the teeth of whose other part engage with a striker pinion, of a coiled spring, whose ends engage with a fixed part of the bell and the double sector plate, respectively, substantially as and for the purpose described and set forth.

5. In the repeater-action mechanism of bells, the combination with a lever sector turning about a pivot carried by the base plate and meshing with the teeth of one part of a double sector plate, the teeth of whose other part engage with the striker pinion, and a coiled spring having one end secured to a fixed part of the bell and the other secured to the double sector plate, of a reciprocating double-ended striker bolt carried by a revoluble carrier and whose ends are alternately brought into and out of a striking position by striking the bell, substantially as described and set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ALFRED NICHOLAS.

Witnesses:

HENRY SKERRETT,
ARTHUR I. SADLER.