

(No Model.)

B. S. COWLES.
DOOR BELL.

No. 523,884.

Patented July 31, 1894.

Fig. 1

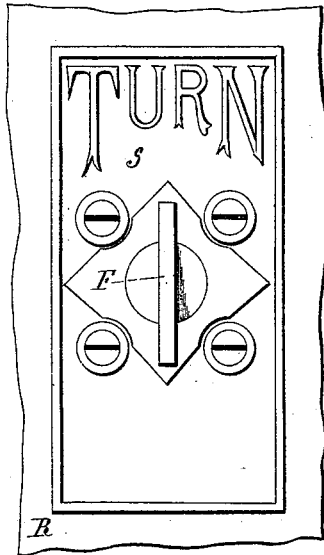


Fig. 2

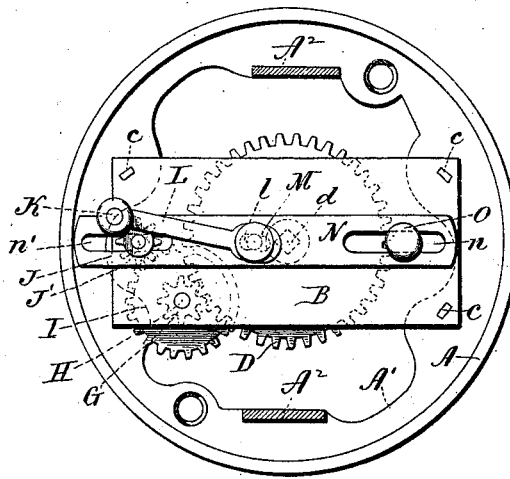


Fig. 3

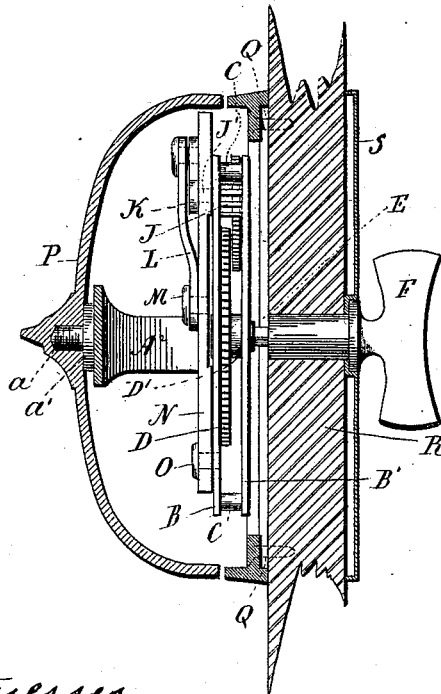
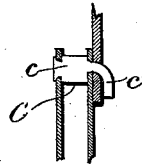


Fig. 4



Witnesses.
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UNITED STATES PATENT OFFICE.

BURTON S. COWLES, OF MERIDEN, CONNECTICUT.

DOOR-BELL.

SPECIFICATION forming part of Letters Patent No. 523,884, dated July 31, 1894.

Application filed April 2, 1894. Serial No. 506,021. (No model.)

To all whom it may concern:

Be it known that I, BURTON S. COWLES, of Meriden, in the county of New Haven and State of Connecticut, have invented a new
5 Improvement in 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
10 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 elevation showing an escutcheon and rotary thumb-piece such as may be used in connection with my improved
15 bell; Fig. 2, a view of the bell with the bell proper removed and the bell-support broken away; Fig. 3, a view of the bell, the escutcheon and thumb-piece partly in elevation and partly in vertical section; Fig. 4, a detached
20 broken sectional view showing how the movement plates are secured together and to the base of the device by a sheet-metal post having a two-fold function.

My invention relates to an improvement in
25 that class of door and call-bells in which the bell proper is struck by a hammer actuated through the medium of a train of gears, the object of my invention being to produce a simple, strong, durable and highly effective
30 bell, composed of few parts, and not liable to derangement, and capable of operation so that a single stroke may be struck upon the bell, or a succession of quick rapid strokes, as may be desired.

35 With these ends 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 as herein
40 shown, I construct a circular cast-metal base, comprising a ring A, an irregular flange A' extending inward therefrom, and an arched bell-support A², springing from opposite points in the said flange, and arching over
45 the center of the opening in the base. To the inner face of the flange A', I secure a movement frame, consisting of two corresponding oblong sheet-metal plates B and B', arranged at a right angle to the bell support A², and
50 secured together by short sheet-metal posts C, which also secure the frame to the flange A'. The said posts one of which is shown in

Fig. 4, are adapted to their double function above indicated, by being provided at one end with a rivet c, and at the other end with a
55 finger c', which is passed through a suitable opening formed in the flange, and bent down on the under face thereof, as clearly shown in the said figure of the drawings. Between the
60 two plates B and B', I locate a main wheel D, secured to a hub D', the respective ends of which are reduced in diameter, and inserted into the said plates, the outer end of the hub having a square longitudinal opening d, to receive the key E of the thumb-piece F, by
65 means of which the wheel is turned. The said wheel meshes into a pinion G, mounted upon a shaft H, journaled in the said plates B and B', and also carrying a smaller wheel I, which in turn meshes into a pinion J,
70 mounted on an arbor J', journaled in the plates, and projecting through the plate B, and furnished with a crank-arm K, to the outer end of which is attached an operating link L, the opposite end of which contains an
75 elongated slot l, receiving a headed stud M, carried by the reciprocating double-ended hammer N, which bears upon the inner movement-plate B, and extends longitudinally therewith. Said hammer is formed from a
80 heavy piece of sheet-metal, and is rounded at its ends and constructed at each end with an elongated slot n n', the former receiving a retaining stud O, entering the plate B, and the latter receiving the projecting inner end
85 of the arbor J' carrying the crank-arm K. It will be understood then, that the stud O, the arbor J' and the crank-arm K connect the hammer to the movement-plate B, permitting its longitudinal reciprocation within the
90 limits of the length of the slots n n'.

I will here call attention to the fact that inasmuch as the slot l formed in the outer end of the lever L is elongated, it permits a slight
95 recoil of the hammer in either direction, after the same has been thrown in either way under the action of the lever. The bell P, is of ordinary construction, and corresponds in diameter to the diameter of the ring A. It is constructed with an internally centrally
100 threaded bore,—adapting it to be applied to a short screw a, carried by the bell support A², which is constructed with a bearing a' around the screw for the bell to rest upon.

As shown in Fig. 3 of the drawings, the bell is represented as being secured through the medium of its base by screws Q, to a door R. The thumb-piece F is mounted in an escutcheon S, secured to the opposite side of the door R, which is cut away to receive the stem of the thumb-piece, and to permit the key E carried thereby to enter the hub D' of the wheel D.

It will be readily understood that when the thumb-piece is turned in either direction, the train will be actuated, and the hammer oscillated back and forth through the medium of the crank-arm K, and the operating lever L, whereby the reciprocating hammer is shot first in one direction and then the other so as to strike the edge of the bell at opposite points upon its inner face, the hammer being allowed to recoil after impingement against the bell within the limits allowed by the elongated slot in the operating-lever. By turning the hammer quickly in either direction, a very loud and penetrating sounding of the bell by a rapid succession of strokes may be effected, while by turning it very slightly, the hammer may be simply thrown in one direction so as to impinge against and sound the bell by a single stroke.

I am aware that a double-ended reciprocating bell-hammer adapted to strike the bell at opposite points in its inner face is old, and also that it is old to connect two movement-plates together by a sheet-metal finger formed integral with one plate, and bent transversely thereto, and passed through the other plate, and turned down. I do not, therefore, broadly claim a double ended reciprocating bell-hammer, nor a sheet-metal connection between two movement-plates, one end of the connection being turned down for securing them together.

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

1. In a door-bell, the combination with the base and bell thereof, of a train of gears, and a double-ended reciprocating hammer limited

to longitudinal movement connected with the said train for positive operation in each direction and adapted in length to strike the bell at opposite points in its inner face, substantially as described.

2. In a door-bell, the combination with the base and bell thereof, of a train of gears, and a double-ended reciprocating hammer limited to longitudinal movement adapted in length to strike the bell at opposite points in the inner face thereof, and loosely connected with the said train of gears for positive actuation in each direction thereby and so as to rebound after impingement upon the bell, substantially as described.

3. In a bell, the combination with the base and bell thereof, of a movement-frame secured to the said base, a train of gears mounted in the said frame, a double-ended reciprocating bell-hammer having bearing upon the said frame, limited to longitudinal movement and adapted to strike the bell at opposite points in the inner face thereof, and connection between the gears and hammer, whereby the same is positively reciprocated in each direction, substantially as set forth.

4. In a bell, the combination with the base and bell thereof, of a movement-frame attached to the said base, a train of gears mounted in the frame, a double-ended reciprocating bell-hammer having bearing upon the said frame, limited to longitudinal movement and adapted in length to strike opposite points upon the inner face of the bell, and an operating lever connecting the train of gears with the hammer which it positively moves in each direction, one end of the said lever containing an elongated slot for permitting the hammer to rebound after striking the bell, substantially as set forth.

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

BURTON S. COWLES.

Witnesses:

ROBT. BOWMAN,
GEO. R. DIMOCK.