(No Model.)

C. L. LIVINGSTON.

DOOR BELL.

No. 370,269. Patented Sept. 20, 1887.

Fig. 1.

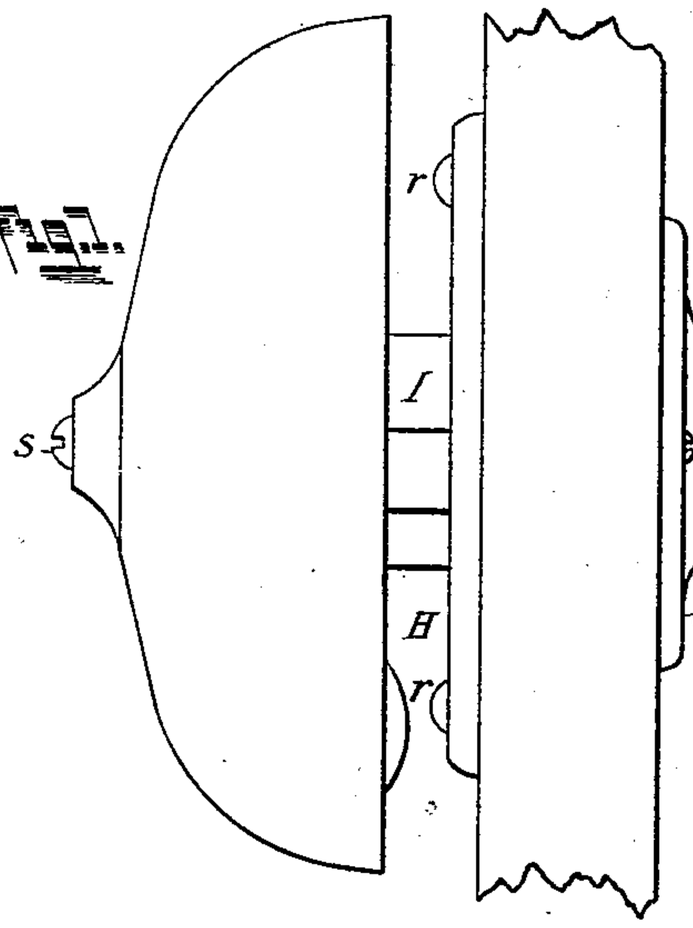


Fig. 3.

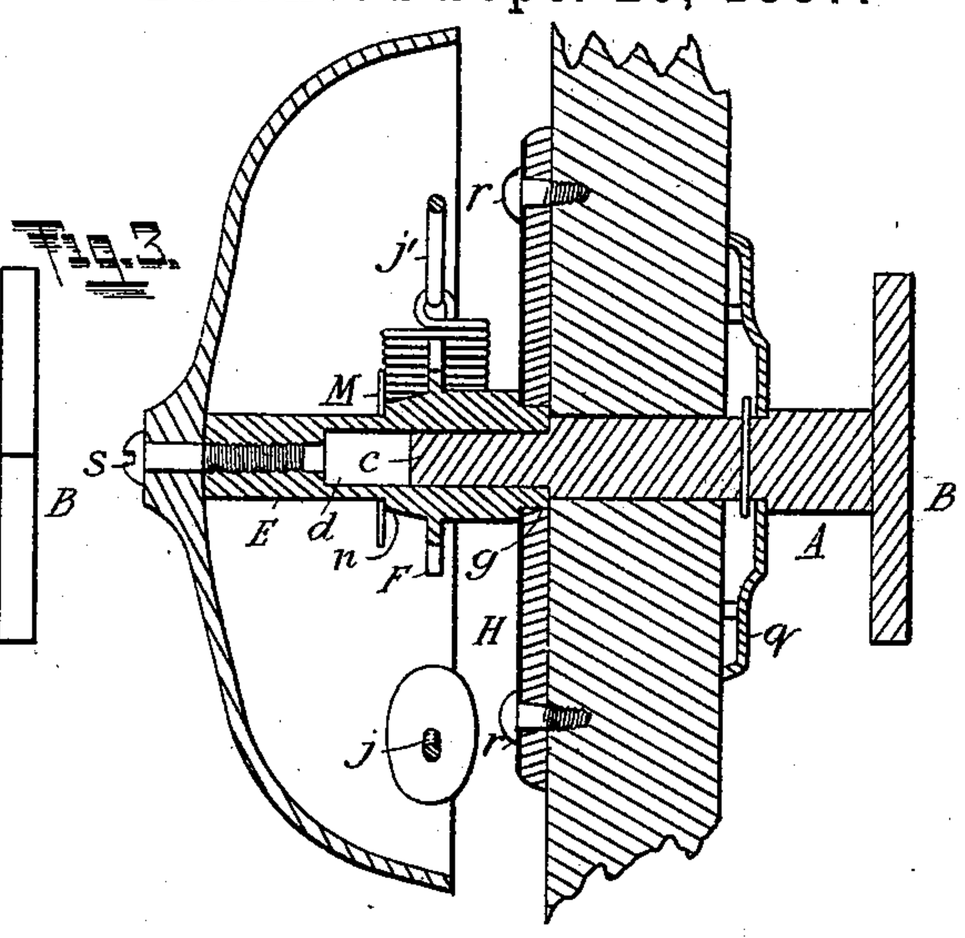


Fig. 2.

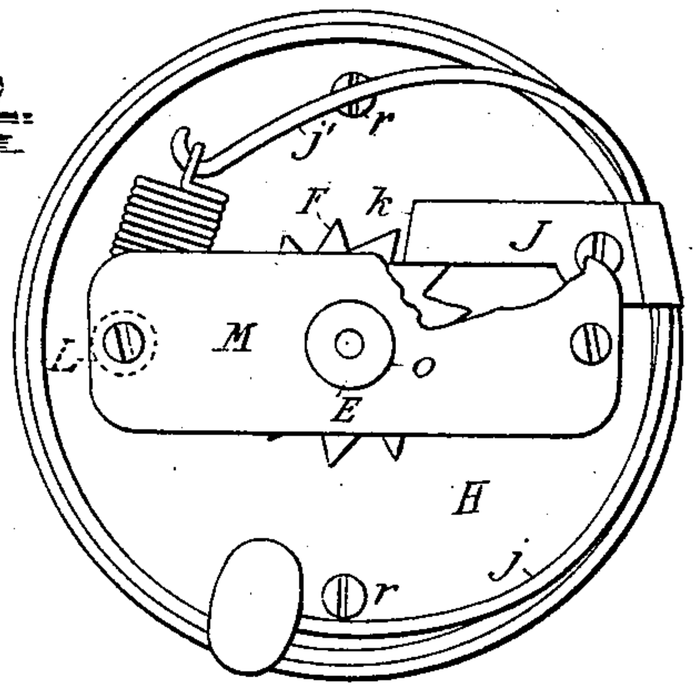
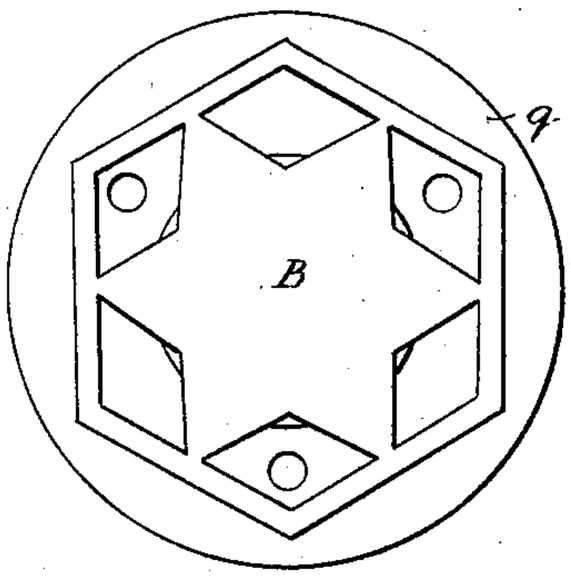


Fig. 4.



Witnesses
Will T. Norton
Samuel Scott

Inventor
Charles L. Livingston

By his Attorneys
John J. Halsted & Son

UNITED STATES PATENT OFFICE.

CHARLES L. LIVINGSTON, OF BATTLE CREEK, MICHIGAN.

DOOR-BELL.

SPECIFICATION forming part of Letters Patent No. 370,269, dated September 20, 1887.

Application filed May 17, 1887. Serial No. 238,535. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. LIVINGSTON, of Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Door-Bells; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 letters of reference marked thereon, which form a part of this specification.

My present invention differs materially from the construction shown in my former patent of September 21, 1886, No. 349,437, and has for its objects few parts, simplicity and economy of construction, little liability to get out of order, and efficiency and rapidity of action of the hammer on the bell with a partial turn of the rotating spindle.

In the drawings, Figure 1 is a side view; Fig. 2, a plan, with the gong or bell removed; Fig. 3, a longitudinal central section, and Fig. 4 an enlarged plan view of handle.

A indicates the rotating spindle, having at its outer end a hexagonal or other ornamental handle, B, for facility in turning the same, and having its inner end, *c*, made square, or of other geometric form, to enter a socket, *d*, in the central post, E, which has fixed on it or made integral with it a cog-wheel, F, so that when this post (which enters a central hole, *g*, in the base or bottom plate, H,) is turned by the spindle the wheel must always move with it. Instead of casting this post and wheel all in one piece of iron, brass, or other material, the post may be made separately, and the wheel may be pressed or stamped from brass or other material and then pressed or fastened on the post.

To a side projection on an upright, I, is screwed or pivoted, so that it may have the requisite movement, a strong pawl or pallet, J, whose free end K is little less than a right angle, and thereby adapted to engage with the teeth of wheel F, the spaces between whose adjacent teeth are substantially right angles. The form and position of this pallet J are such as to permit the wheel to be turned only in one direction—say to the right—but it may be arranged to turn in either direction. The cog-wheel F may have as large or as small teeth as desired. If a heavy stroke is required, large teeth may be used, or small teeth for a light stroke. The teeth may be few or many, according to the rapidity of stroke desired. Connected positively and firmly to the rear of this pallet is a stout wire or arm, *j j'*, extending in opposite curves on opposite sides of the same, one end being free and carrying the hammer or clapper and the other end being connected to a strong spiral spring, which is fastened to an upright, L, or which may be fastened to the plate or to any other solid part of the frame-work of the bell.

M is a plate fitting over the inner end, *n*, of the central post and arranged to be screwed to the uprights I and L, and its central opening, *o*, through which the central post projects, serves as a bearing or support for it and aids to keep it in proper position.

The spiral spring serves, by exerting a constant pull upon the arm *j'*, to keep the pallet in engagement with the teeth, and when the wheel F is turned by the handle to ring the bell this spring is stretched or elongated, and the instant a tooth has passed the end of the pallet the spring quickly pulls back the pallet into the next notch of the wheel, and with corresponding quickness the hammer acts upon the bell, it being understood that the pallet being a pivoted lever and carrying both the arm with the spring and also the opposite arm, which carries the hammer-weight at its extremity, the hammer must partake of the movement of the pallet and be actuated by its every motion. The arms *j j'*, preferably, have each more or less inherent resilliency or springy quality. This is more especially of value in that one which carries the clapper or hammer. These arms may be separately fastened to the pallet, or may be in one continuous piece. These arms may, however, be one or both quite rigid in some cases, if desired.

The center post, E, which carries the toothed or ratchet wheel, does not extend beyond the outer face of the base-plate H, so that this plate and all that it carries and supports may be placed flush against the inner side of the doorway or other structure to which the device is to be applied and secured by screws *r*, and

the square end *c* of the spindle A, which carries the handle, is passed through an opening made for it in the wood-work of the doorway or frame and enters the socket *d* in the post E. The spindle A also carries the outer shield or plate, *q*, which is secured on it by a pin or otherwise, and these with the handle may all be thus permanently kept together, and all applied and removed together, and the size or form or both the size and form of the handle are such that after the spindle has been placed in its socket *d* a screw-driver may be conveniently used to fasten this plate *q* to its place on the outer side of the door-frame.

The handle is preferably made with openings through it, not only to give it an ornamental character—such as presenting to the eye a central figure, like a star, eagle, or otherwise—but these openings also afford an opportunity for passing a screw-driver through them for fastening the plate *q* after the spindle has been put to place in its socket. This handle or knob may of course be of any size or pattern, and the screw-holes in plate *q* may be placed where most convenient with relation to the handle.

The bell is shown in its proper place, and is held there by means of a left-hand screw, *s*, which enters a correspondingly-threaded hole in the inner end of the center post. This screw may be a right-hand one, if desired. The screw that serves as a fulcrum for the swinging pallet is also a left-hand one; but may be a right-hand one, if desired. It has an unthreaded shoulder just beneath its head of a length equal to the thickness of the pallet which it holds, thus allowing free turning movement of the pallet.

The shaft being made in two parts, A and E, as shown and described, and the square portion *c* of A entering the socket *e* in the part E, the apparatus is thereby adapted for application to doors or structures of varying thicknesses, inasmuch as the square part *c*, however much or little it enters the socket *e*, will yet be able to turn the parts and ring the bell.

I claim—

1. In a door bell or gong, the combination, with the central post, E, and with its toothed wheel affixed to and turning therewith, of a pivoted pallet, J, carrying the arms *j j'*, one arm being connected with a reacting spring and the other carrying the clapper, substantially as shown and described.

2. In combination with the base-plate and a striking mechanism, with a handle for operating the same, the central post carrying the toothed wheel F, such post terminating at its outer end about flush with the outer face of such plate, and provided with a square socket, as set forth, for receiving the square end of the spindle, and having its other end interiorly threaded, as described, for securing the bell thereto, all substantially as shown and described.

3. In combination with a striking mechanism, the base-plate, the center post and its toothed wheel, such post terminating with the outer face of this plate, and a spindle on the knob or handle adapted to extend through the door-frame and into a socket in such post, and having secured to it before it is so applied the outer shield or plate, *q*, as and for the purpose set forth.

4. In combination, a bell and clapper, the central post, E, carrying the bell and toothed wheel, the opposite uprights, I and L, and the plate M, serving to connect together this post and the uprights, the pallet engaging said toothed wheel, and the reacting spring for such pallet, all substantially as and for the purposes set forth.

CHARLES L. LIVINGSTON.

Witnesses:

GEORGE W. MECHEM,

JAS. T. CALDWELL.