

(No Model.)

E. C. TIBBALS.
DOOR BELL.

No. 547,694.

Patented Oct. 8, 1895.

Fig 1

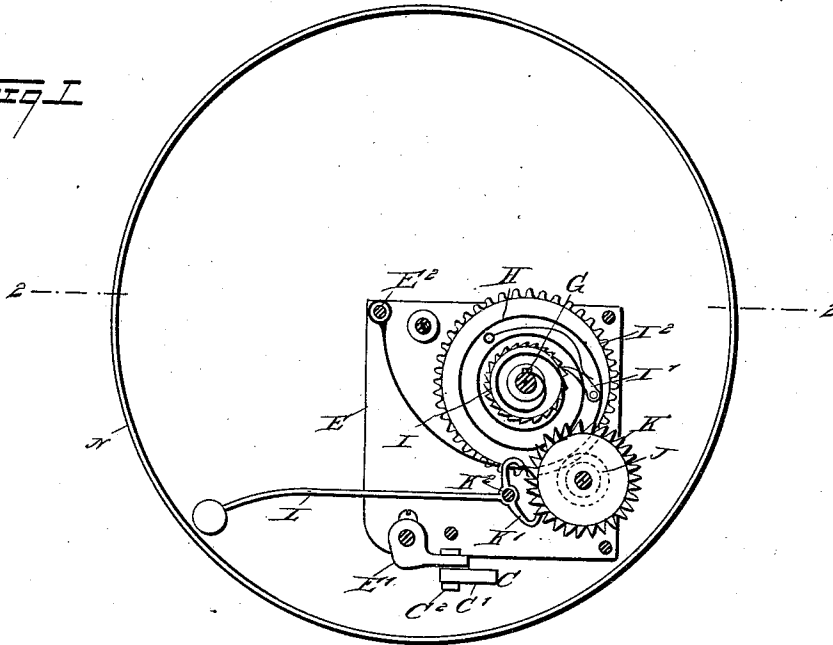


Fig 2

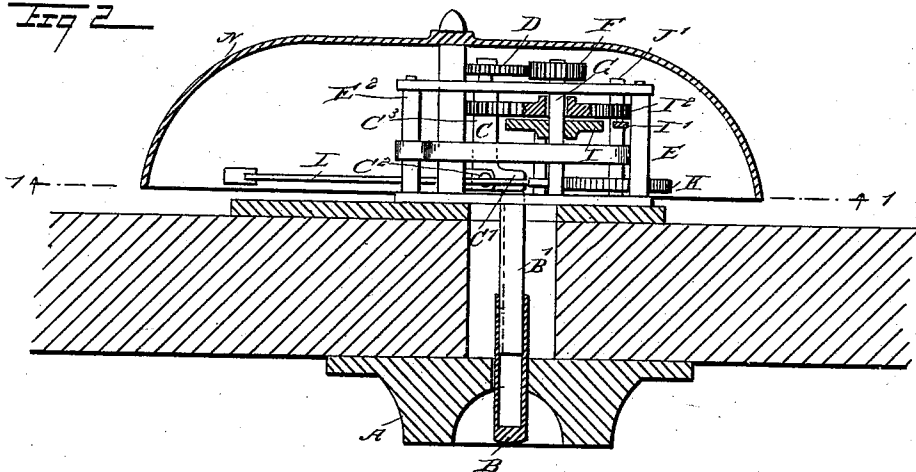
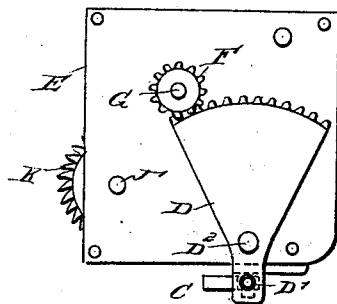


Fig 3



WITNESSES:

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UNITED STATES PATENT OFFICE.

EMERSON C. TIBBALS, OF COBALT, CONNECTICUT.

DOOR-BELL.

SPECIFICATION forming part of Letters Patent No. 547,694, dated October 8, 1895.

Application filed June 14, 1895. Serial No. 552,800. (No model.)

To all whom it may concern:

Be it known that I, EMERSON CALEB TIBBALS, of Cobalt, in the county of Middlesex and State of Connecticut, have invented a new and Improved Mechanical Bell, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved mechanical bell which is simple and durable in construction, very effective in operation, and arranged to positively and regularly sound a bell upon releasing a push-button.

The invention consists, principally, of a push-button for operating a segmental gear-wheel attached to a spring-pressed shaft and a pawl-and-ratchet mechanism connecting the said shaft with the striker to actuate the latter after the button is released.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional front elevation of the improvement on the line 1 1 of Fig. 2. Fig. 2 is a sectional plan view of the same on the line 2 2 of Fig. 1, and Fig. 3 is a rear elevation of the improvement, the bell being removed.

The improved mechanical bell, designed for use on doors and other places, is provided with a push-button casing A, attached in the usual manner to the outside of a door, and in this casing operates a push-button B, provided at its rear end with an adjustable extension B', abutting against one arm C' of a bell-crank lever C, pivoted at C² on a bracket E', forming part of a frame E, attached to the door at the inside thereof. The other arm C³ of the bell-crank lever C engages with its outer end a recess D' in a segmental gear-wheel D, mounted to swing on a stud D², held in the frame E. The segmental gear-wheel D is in mesh with a pinion F, attached to a shaft G, mounted to rotate in suitable bearings in the frame E.

On the shaft G is secured the inner end of a helical spring H, attached at its outer end

to a post E², projecting from and forming part of the frame E. The spring H has sufficient tension to hold the shaft G, pinion F, segmental gear-wheel D, lever C, and extension B' of the push-button B in a normal position, as shown in the drawings, so that the push-button B is in an outermost position and the segmental gear-wheel D is in the position shown in Fig. 3. Now when the push-button B is pressed inward a swinging motion is given to the bell-crank lever C, and consequently a like motion is given to the gear-wheel D, whereby the pinion F is rotated and the shaft G winds up the helical spring H. When the pressure on the button B is released, then the spring H unwinds and turns the shaft G and pinion F and the segmental gear-wheel D in the opposite direction, causing the bell-crank lever C to swing back to its normal position and move the button B back into its outermost position. The return rotary motion of the shaft G, caused by the unwinding of the spring H, is transmitted to the striker and bell, so that when the push-button is released, as above described, the bell is sounded. For this purpose a ratchet-wheel I is secured on the shaft G and is engaged by a spring-pressed pawl I', fulcrumed on the face of a gear-wheel I², loosely mounted on the shaft G and in mesh with a pinion J, attached to a shaft J', mounted to turn in suitable bearings in the frame E.

On the shaft J' is secured an escapement-wheel K, engaged by an escapement-anchor K', secured on a shaft K², journaled in the frame E and carrying the striker L, adapted to sound the bell N, supported on the frame E. Now it will be seen that when the button B is pushed inward and the shaft G is rotated in either direction the ratchet-wheel I is rotated with the shaft G; but the pawl I' glides over the teeth of the said ratchet-wheel, and consequently the gear-wheel I² is not rotated. When the button is released and moves into its outermost position, as above described, by the unwinding action of the spring H, the reverse motion of the shaft G is transmitted by the ratchet-wheel I and pawl I' to the gear-wheel I², which, by being in mesh with the pinion J, rotates the shaft J', and the escapement-wheel K on the said shaft, actuating the es-

capement K', causes the striker L to rapidly sound the bell N during the entire return movement of the said shaft G. The gearing is so arranged that when the button is released and moves into its outermost position the striker L strikes the bell N from thirty to forty times.

By the arrangement shown in the drawings the bell forms a cover or casing for the mechanism to protect the latter against dust.

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

In a mechanical bell, the combination with a frame, of a push button, a bell crank en-

gaged thereby, a toothed segment connected to the bell crank, a shaft geared with the segment, a spring connected to the shaft, a spur wheel carried by the shaft, pawl and ratchet mechanism connecting the shaft and spur wheel, an escapement wheel geared with the spur wheel, an escapement lever operating with the wheel and carrying a clapper and a bell proper, the same being arranged to embrace the mechanism, substantially as described.

EMERSON C. TIBBALS.

Witnesses:

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ADALINE M. TIBBALS.