(No Model.)

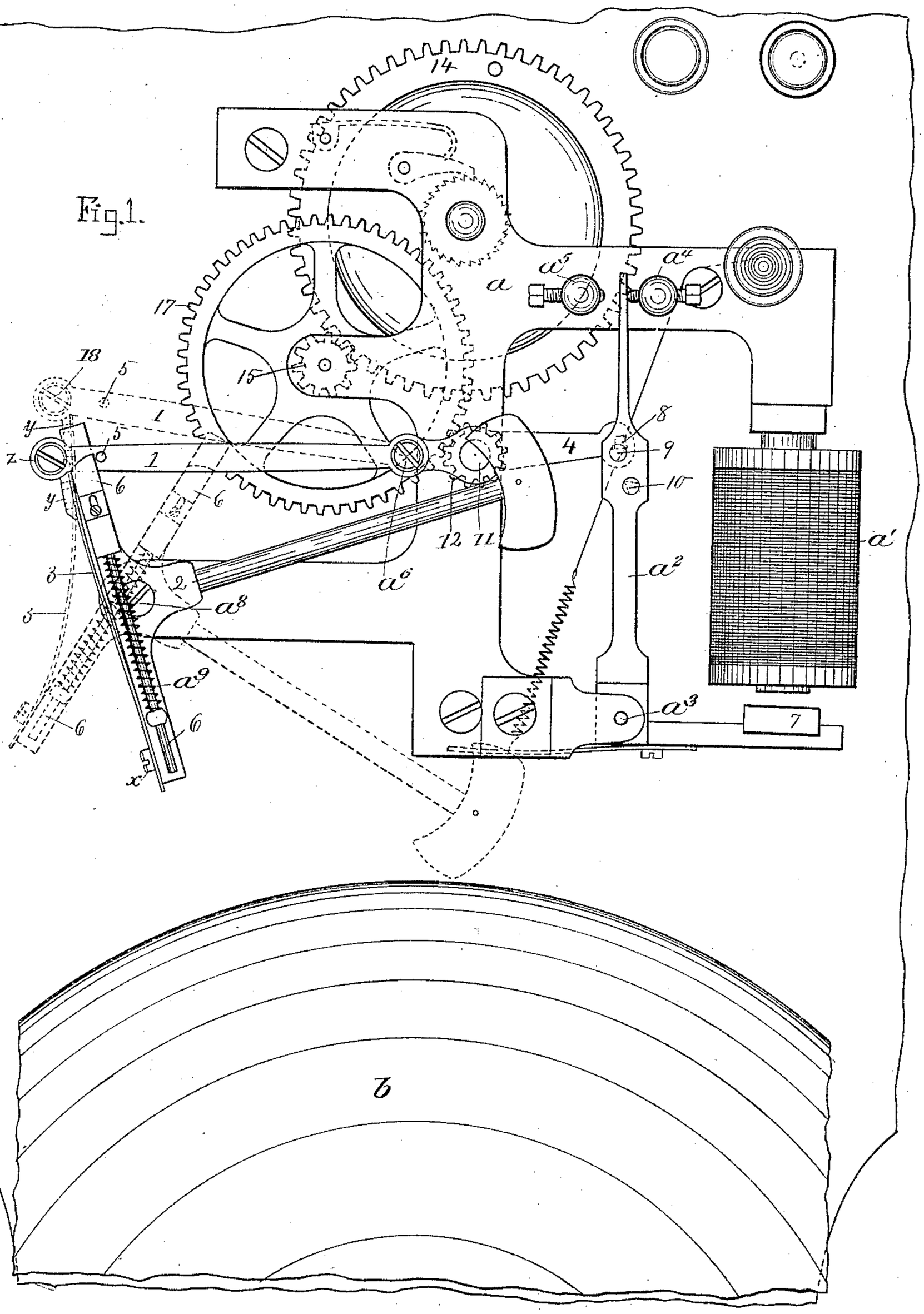
2 Sheets—Sheet 1.

G. DOYLE.

ELECTRO MECHANICAL GONG.

No. 436,560. Patented Sept. 16, 1890.

Fig. 1.



Witnesses.

Laurits N. Møller.

John R. Snow.

Inventor.

George Doyle

by his attorneys,

Wagner & Beals.

(No Model.) 2 Sheets—Sheet 2.

G. DOYLE.

ELECTRO MECHANICAL GONG.

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Fig. 3.

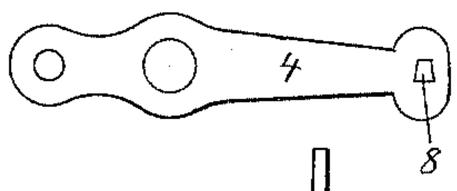


Fig. 4.

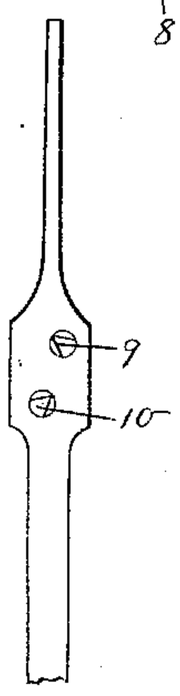


Fig. 5.

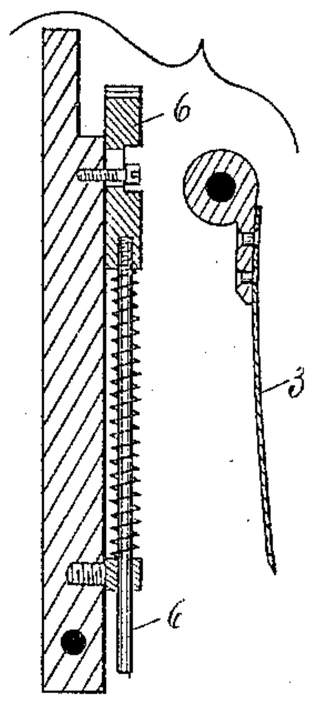
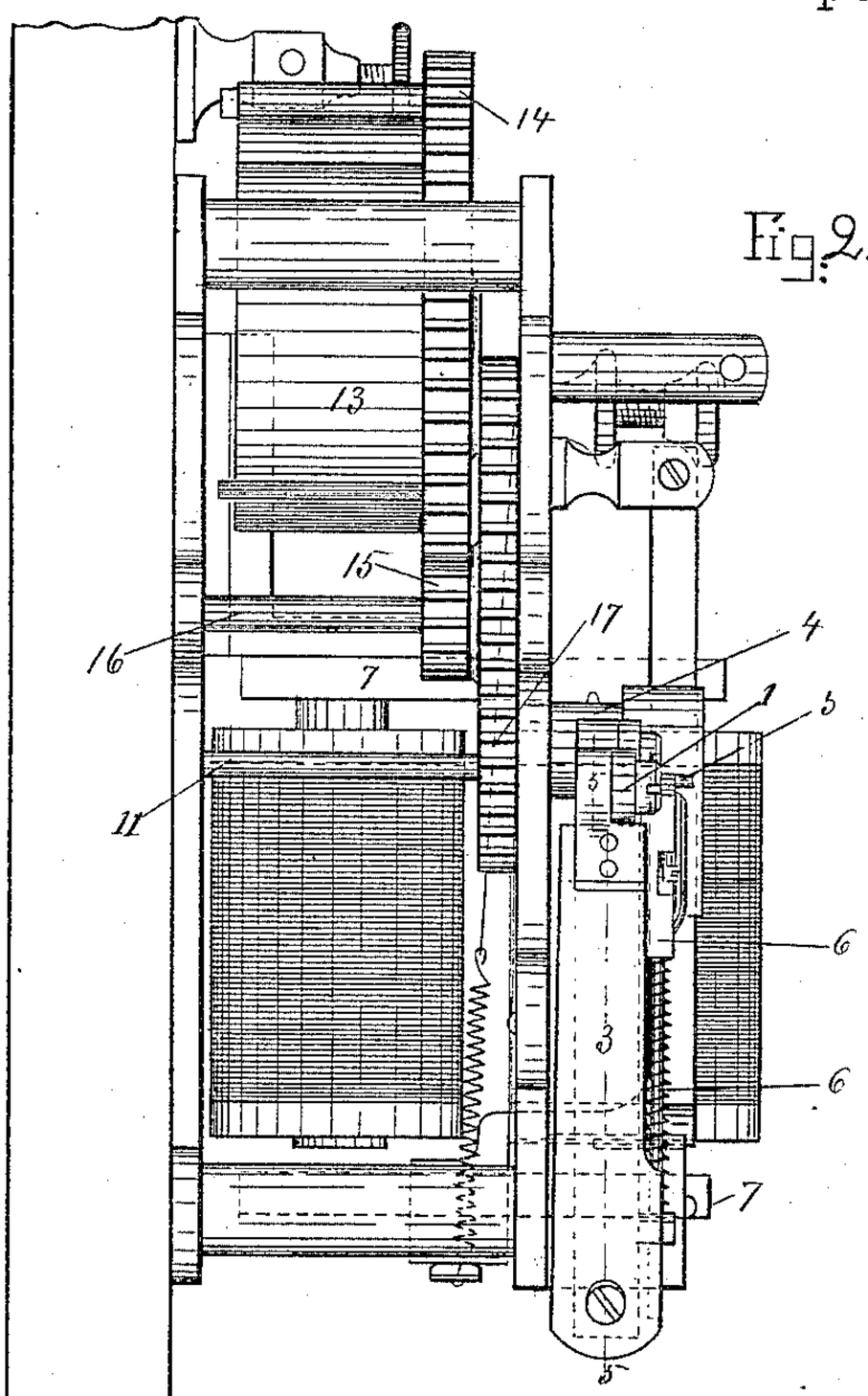
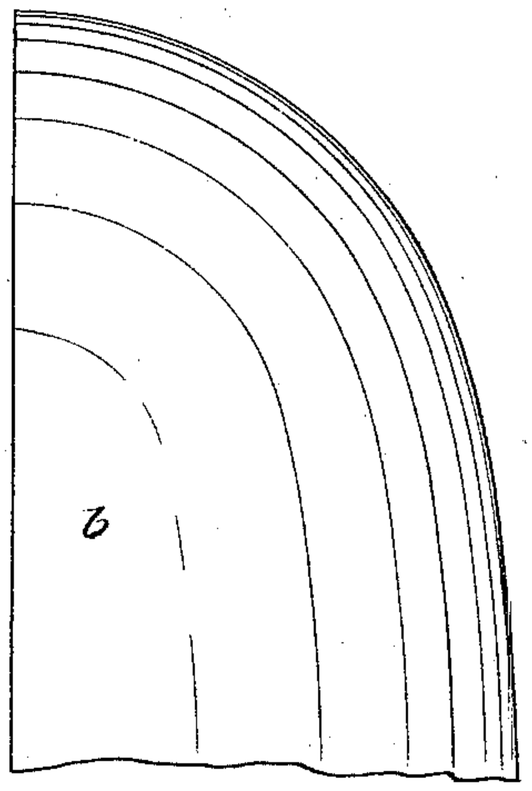


Fig. 2.





Witnesses.

Lauritz N. Möller.

John R. Snow.

Inventor.

George Doyle,

by his attorneys,

Macomber & Beach.

UNITED STATES PATENT OFFICE.

GEORGE DOYLE, OF WATERTOWN, MASSACHUSETTS.

ELECTRO-MECHANICAL GONG.

SPECIFICATION forming part of Letters Patent No. 436,560, dated September 16, 1890.

Application filed April 22, 1889. Serial No. 308,074. (No model.)

To all whom it may concern:

Be it known that I, GEORGE DOYLE, of Watertown, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Electro-Mechanical Gongs and the Like, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a front, and Fig. 2 a side view, of a gong embodying my invention. Fig. 3 is a detail view of the double arm hereinafter referred to. Fig. 4 is a detail view of a portion of the armature-arm, showing the lugs with which the lug shown on the double arm engages. Fig. 5 shows the spring-bolt and rebounding spring hereinafter explained.

My invention consists in the combination of a bell-hammer and clock-work to actuate it by means of a spring connecting the bell-hammer and pitman controlled by the clock-work. Hitherto the bell-hammers have been connected rigidly to the pitman, and the consequence has been that the hammer has been retracted with practically the same force that was expended in causing it to strike the bell. This has resulted in a vibration of the hammer at the end of its return-stroke and frequent consequent false blows on the bell. The object of my invention is to prevent the false blows.

In the drawings, the pitman 1, instead of being rigidly attached to the bell-hammer 2, as heretofore, is connected to the bell-hammer by a spring 3, one end of the spring being secured to the bell-hammer at x and the other end to a block y, into which the body-screw Z through the end of the pitman sets. (See Fig. 1.)

I provide a locking device to secure the pitman and bell-hammer together at the end of the back-stroke of the hammer, and this device is conveniently made up of the lug 5 on the pitman and a bolt 6 on the bell-hammer, the bolt 6 being backed up by a spring a^9.

Starting with the parts in the positions shown in Fig. 1, the operation is as follows: A current through the coil a' attracts the armature 7 and moves its arm a^2, so that the lug 8 on the double arm 4 is moved out of engagement with the lug 9 on the armature-arm and into engagement with the lug 10 on the armature-arm, the double arm 4 being rigidly mounted on the journal 11, which is provided with a gear 12. This gear 12 meshes with gear 17, mounted on a journal 16, provided with a gear 15, which meshes with gear 14, which is actuated directly by the mainspring 13. When the armature-arm is moved, as above explained, the double arm is necessarily moved to separate lugs 8 and 9, and when the armature moves back the lug 10 is carried out of the path of the lug 8, and the double arm 4 and its journal 11 are now free to rotate. Rotation of the journal 11 moves the joint a^6, by which the inner ends of the double arm 4 and pitman 1 are connected, in a circular path, and the lug 5 on pitman 1 is carried past the end of the bolt 6. As the joint a^6 completes, say, its one hundred and eightieth degree of rotation, the hammer strikes the bell, and as the joint a^6 moves to the position shown in Fig. 1 the spring 3 is put under tension, and this tension of the spring 3 returns the hammer more leisurely to its position of rest (see full lines in Fig. 1) than is the case when the pitman and hammer are rigidly connected. As the hammer returns to its position of rest, the beveled end of the bolt 6 strikes against and rides over its lug 5, the bolt 6 being pushed back against the force of its spring a^9, and as the bolt slips past the lug 5 the spring a^9 pushes the bolt 6 past the lug 5, as shown in Fig. 1, and no vibration of the hammer sufficient to permit the striking of a false blow is possible.

What I claim is—

1. In an electro-mechanical gong, the combination, with an armature, an arm carried thereby, and a lever mounted on a shaft which forms part of the motor, of a pitman, a spring, and a pivoted hammer, the lever and pitman being loosely jointed together, the free end of the lever and the arm of the armature being alternately engaged and disengaged, and the pitman and pivoted hammer being connected by the spring, substantially as and for the purpose set forth.

2. In an electro-mechanical gong, the combination of the pitman and pivoted hammer with a spring and locking device, the spring connecting the pitman and hammer and returning the hammer to its position of rest and the locking device locking the hammer in its position of rest when the hammer is returned by its spring, substantially as and for the purpose set forth.

GEORGE DOYLE.

Witnesses:
EDWARD S. BEACH,
JOHN R. SNOW.