

(No Model.)

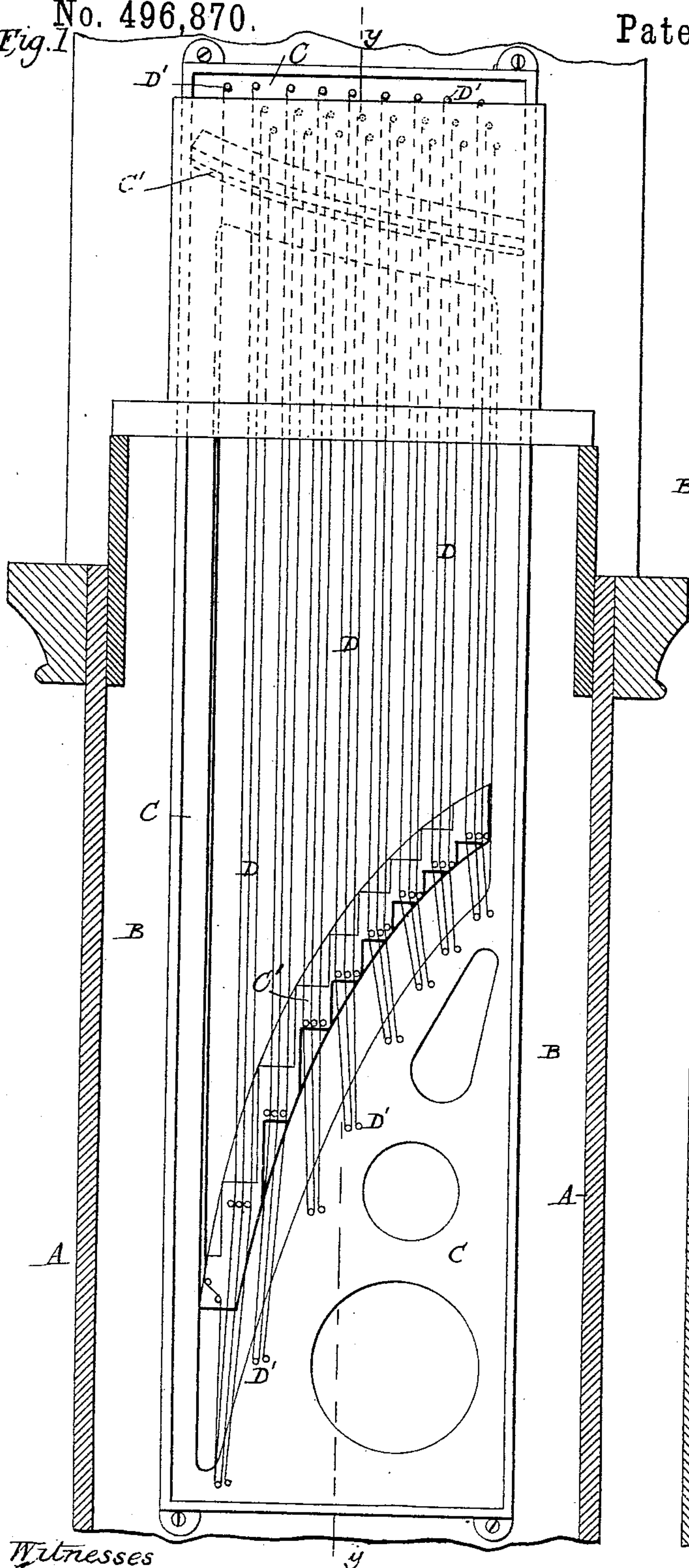
2 Sheets—Sheet 1.

J. J. ELLIOTT.
CHIMING CLOCK.

No. 496,870.

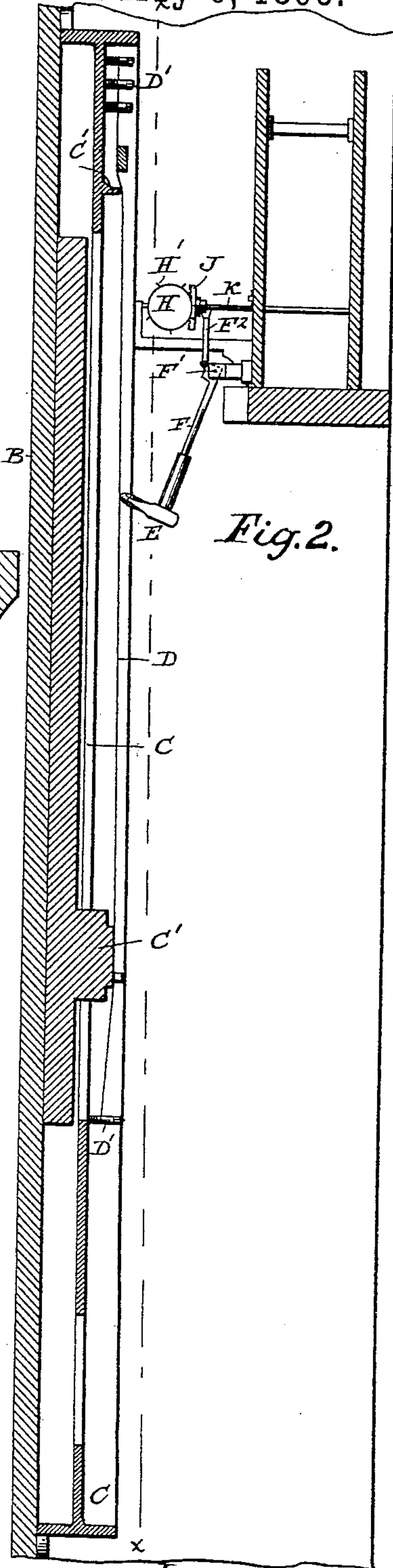
Patented May 9, 1893.

Fig. 1



Witnesses
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Fig. 2



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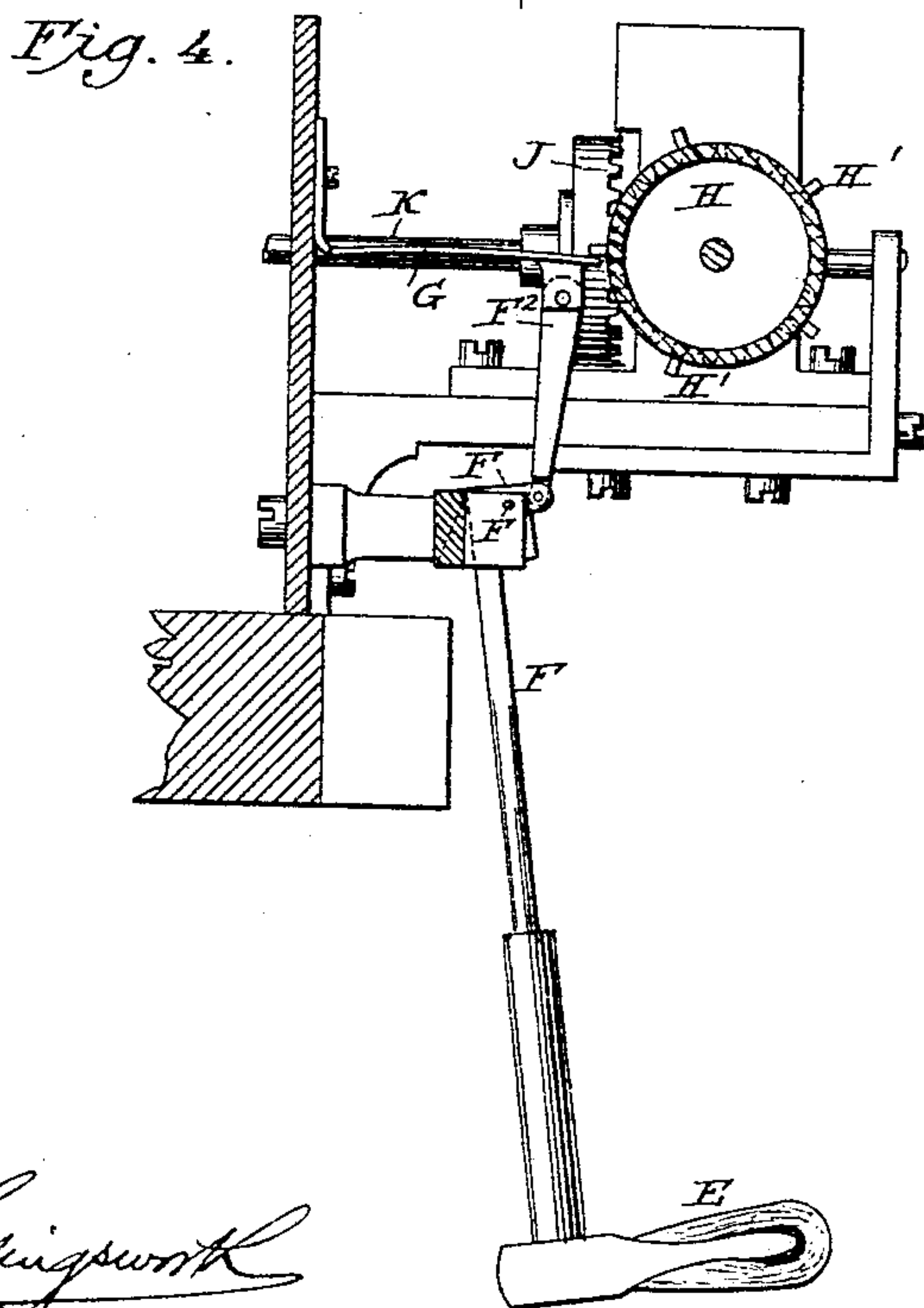
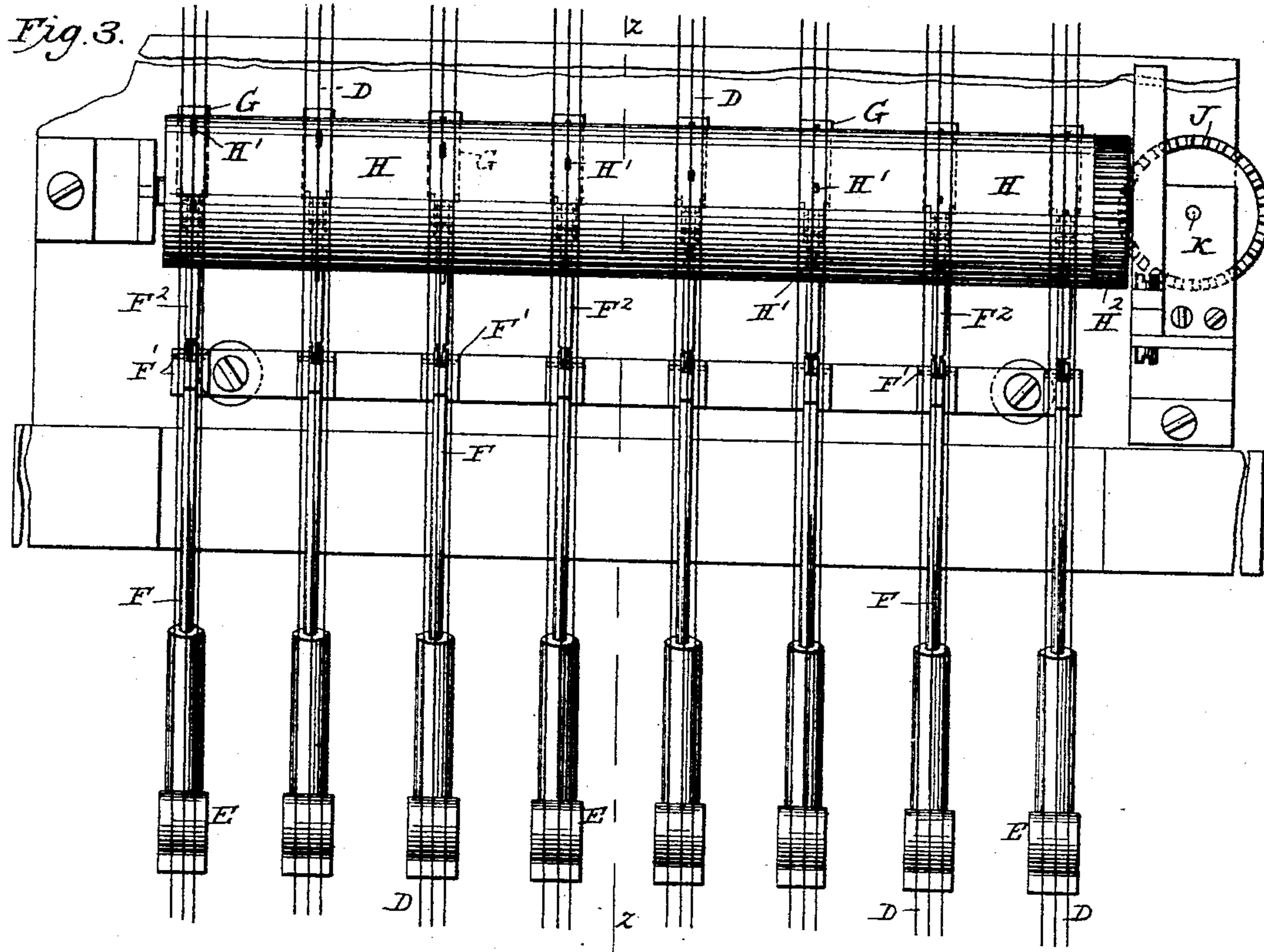
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UNITED STATES PATENT OFFICE.

JAMES JONES ELLIOTT, OF LONDON, ENGLAND.

CHIMING-CLOCK.

SPECIFICATION forming part of Letters Patent No. 496,870, dated May 9, 1893.

Application filed March 25, 1892. Serial No. 426,462. (No model.)

To all whom it may concern:

Be it known that I, JAMES JONES ELLIOTT, a subject of the Queen of Great Britain, residing at London, England, have invented certain new and useful Improvements in Clocks, of which the following is a specification.

My invention relates to chiming clocks, or those in which heretofore a series of bells, gongs, or tubes has been employed in connection with the striking mechanism. Instead of employing bells, gongs, tubes or wire free at one end, such as coiled wires, I employ stretched wires fixed at both ends. The hammers of the clock being suitably arranged to sound them to give the desired note. By employing strained wires fixed at both ends, I obviate the objectionable over-tones heretofore incident to the use of bells, gongs, &c. These over-tones or harmonics are so prominent in bells, gongs or tubes that it has been found almost impossible to produce a perfect octave, and so, to a musical ear, they are very objectionable. While, of course, there are over-tones present when strained wires are employed, yet they are so reduced as to be free from harshness and objectionable discord. I obtain the requisite volume of sound by a series of wires, and there is less strain on the mechanism than heretofore encountered, in consequence of less weight being necessary to produce the same volume of tone, and the wear and tear on the works of the clock are greatly reduced. I arrange the wires in sets or groups and secure them on a frame having bridges and tightening pins. This frame is arranged in the clock case in such manner as to hold the wires in a vertical position. The tightening pins are arranged within convenient reach of the operator in tuning the chimes. The hammers of the clock are arranged on horizontal pivots, from which they depend, and are operated by the pin-barrel, which is part of the chiming train of the clock.

The details of the best way of carrying out my invention will be hereinafter more fully described.

In the accompanying drawings,—Figure 1 is a vertical section of part of a clock embodying my invention on the line $x-x$ of Fig. 2. Fig. 2 is a vertical section on the line $y-y$ of Fig. 1. Fig. 3 is an elevation of part of the

chiming mechanism, on an enlarged scale, and Fig. 4 is a section on the line $z-z$ of Fig. 3.

In the drawings, A, indicates the clock case, and C, indicates a frame secured to the back B, of the case. This frame is provided with bridges C' over which the wires D, extend. The wires are secured at each end to tightening pins D'. As shown, the wires are arranged in groups or sets. The drawings show a series composed mainly of sets or groups of three wires. All the wires in each set or group are adapted to be struck by a single hammer and give the same tone. By this arrangement, a much better tone is obtained.

The frame carrying the wires is adapted to be arranged vertically in the clock case, and to be secured to the back thereof, in rear of the pendulum weights and the works. The shaft K, on the striking side of the clock-works, carries a gear-wheel J, meshing with teeth H², on a cylinder H, carrying pins H'. At each quarter of the hour or other predetermined interval, the cylinder is actuated, as is usual in chiming clocks. The hammers E, are secured to arms F, of bell-crank levers pivoted on horizontal pivots F'. Rods F², are pivotally connected with the shorter arms of the bell-crank levers, and, at their upper ends, are secured to springs G, fixed to the clock case, or to the case or frame of the clock-works. It will be observed that the hammers are located below the pin-barrel or cylinder and below the clock-works. The pins H' are adapted to engage with the springs in such manner as to depress the rods F², and to deflect the hammers to cause them to recede from the wires. When the pins have passed the ends of the springs, the hammers are returned to give a quick, sharp blow to the wires to sound the notes. By the vertical arrangement, I can employ a large number of wires in the clock-case, and make them of the requisite length to give the desired notes, and the wires, by this vertical arrangement, being arranged side by side, the hammers may be placed close together and in convenient position to be operated upon by their actuating mechanism.

I claim as my invention—

1. The combination, substantially as hereinbefore set forth, of a clock case, a frame

secured within the clock case, a series of strained wires fixed at both ends to the frame and arranged vertically thereon, a series of hammers within the clock case, and mechanism operated by the clock works to actuate the hammers to strike the hours and quarter hours upon the strained wires.

2. The combination, substantially as here-
inbefore set forth, of a clock case, a frame
secured therein and having bridges at its upper and lower ends, a series of sets or groups of wires arranged vertically on said frame, a series of hammers, each of which is adapted to strike all the wires in each group or set, and mechanism operated by the clock works to actuate the hammers.

3. The combination, substantially as here-
inbefore set forth, of a clock case, a frame
having bridges at its upper and lower ends
and secured to the back of the clock case, strained wires fixed at both ends and arranged vertically on the frame, a series of hammers carried by bell crank levers mounted on horizontal pivots, a revolving pin barrel operated by the clock works at pre-determined intervals of time, and connections between the pin barrel and the bell crank levers.

4. The combination, substantially as here-

inbefore set forth, of a clock case, a frame secured within the clock case, and having bridges at its upper and lower ends, strained wires fixed at both ends arranged vertically on the frame, a series of hammers mounted on horizontal pivots from which they depend, and connections between the hammers and the clock works.

5. The combination, substantially as here-
inbefore set forth, of a clock-case, a frame
having bridges at its upper and lower ends
and secured to the back of the clock-case, strained wires fixed at both ends, arranged vertically on the frame, the clock-hammers carried by bell-crank levers mounted on horizontal pivots, a series of springs G, rods connecting the springs with the bell-crank levers, and a chiming clock, the barrel or cylinder of which engages with the springs which actuate the hammers.

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