

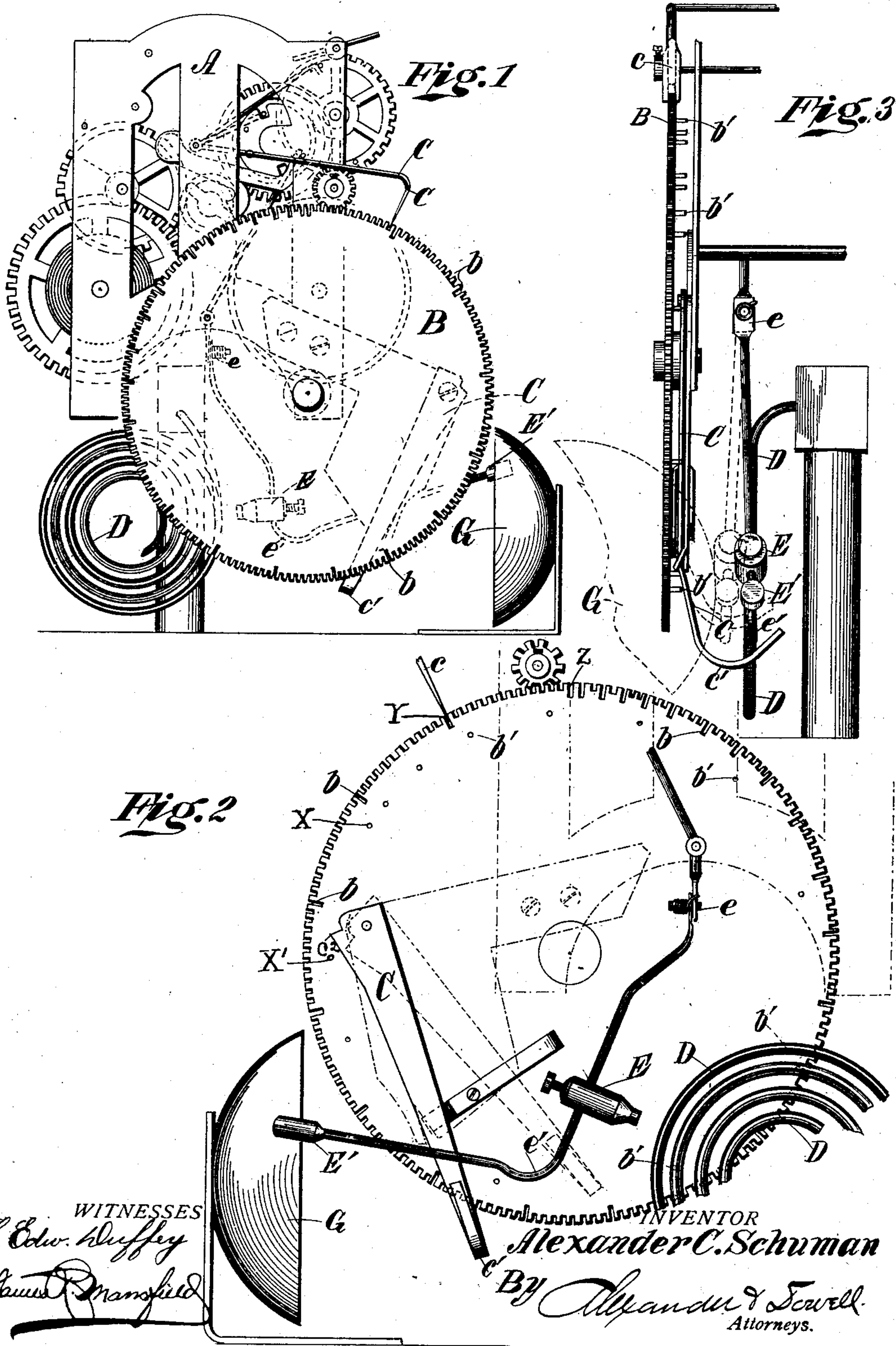
No. 724,956.

PATENTED APR. 7, 1903.

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CLOCK STRIKING MECHANISM.

APPLICATION FILED OCT. 29, 1902.

NO MODEL.



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CLOCK STRIKING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 724,956, dated April 7, 1903.

Application filed October 29, 1902. Serial No. 129,303. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER C. SCHUMAN, of Louisville, in the county of Jefferson and State of Kentucky, have invented certain
5 new and useful Improvements in Clocks; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

10 This invention is an improved attachment for clocks whereby the clock will indicate the hour before striking the half-hour. In other words, at the half-hour the clock will strike again the hour just past and will then strike
15 once for the half-hour on a different-toned bell.

The invention, in brief, consists in removing the ordinary strike or locking wheel from the ordinary half-hour-striking clock, which
20 has ninety strike-controlling notches, and substituting therefor a wheel having two sets of hour-notches and twelve half-hour notches, so that at each half-hour the preceding hour-strokes will be repeated, and this wheel also
25 controls devices whereby after the preceding hour-strokes have been repeated upon the half-hour another stroke, preferably on another gong, is sounded. In the example shown in the drawings this is accomplished
30 by means of pins on the said wheel, which operate a lever whereby the hammer is swung laterally so as to strike the half-hour gong.

The invention will be fully understood from the following description, in connection with
35 the drawings, in which—

Figure 1 is a side view of portion of a clock mechanism, showing the improved repeating and half-hour strike or locking wheel. Fig. 2 is a detail view showing the devices for
40 striking the hours and half-hours, and Fig. 3 is an edge view of Fig. 2.

A designates a clock mechanism of any suitable construction, that indicated being an ordinary pendulum-clock striking-movement.

45 B designates a strike controlling or locking wheel, which operates in the usual manner; but this wheel instead of being divided into but twelve striking-sections is divided into twenty-four, two for each hour, and these
50 being consecutive—that is, it has two adjoin-

ing sets of teeth for the first hour, two sets for the second hour, and so on for the whole twelve. The adjacent sets of teeth, however, are separated by lock-notches *b*, which notches are engaged by the usual hammer-controlling
55 finger *c* of the clock mechanism in the ordinary manner and arrests the operation of the striking mechanism after each hour is struck until the said controlling-finger is again lifted out of a locking-notch by the clock mechanism, as usual. This clock mechanism is arranged so as to release the wheel both on the hour and half-hour. Another essential peculiarity of the wheel is that each second or
60 repeating set of hour-teeth on the wheel contains one tooth more than the preceding set. For example, the first set for one o'clock contains one tooth, the second set for one o'clock contains two teeth, the first set for two o'clock contains two teeth, the second set for two
65 o'clock contains three teeth, and so on. The extra tooth in the second or repeating sets causes the half-hour to be struck after the hour has been repeated, and the half-hour is struck on a distinctive gong, as hereinafter explained. 75
On one face of this wheel B is a series of pins *b'*. There is one pin located on the wheel for and in relation to each of the second sets of hour-notches, so that said pin will during the repetition of the hour-strikes at the half-
80 hour engage and move a lever C, pivoted on a part of the clock-frame adjacent to the wheel B and hanging close beside the same. The pins *b'* are so located on the inner face of wheel B that they will engage a shoulder
85 *c*² on the upper end of lever C near its pivot and cause said lever to swing inwardly in position to bring its upwardly-curved lower end *c'* into the path of the hammer-wire, as hereinafter described, so that the hammer will
90 be caused to sound the half-hour strokes on a distinctive gong, as hereinafter described, just after the repetition of the hour.

In the drawings the main hour-gong D is sounded by the hammer E, which is con-
95 structed and actuated by the clock mechanism in the usual manner, being simply controlled by the wheel B. I preferably employ a separate half-hour gong, so the half-hour stroke will have a distinctive sound. As 100

shown, the hammer-rod is jointed at *e* to permit the hammer to swing laterally in a plane transverse to the gong D; but it normally hangs in position to properly actuate the same, and to the hammer E is attached a wire *e'*, which carries a hammer E' and is adapted to engage with the half-hour gong G when the hammer E is swung outward, as indicated in Fig. 3. The lower end of lever C is bent upwardly and inwardly, as at *c'*, and just as or after the hammer E has struck the last stroke of the repeated hour (at the half-hour) a pin *b'* on wheel B engages the shoulder *c'* on lever C and swings it inwardly, so that its lower end *c'* will come into the path of wire *e'*, and on the next stroke of the hammer E wire *e'* will engage part *c'* of lever C, which acts as a cam and causes hammer E to swing laterally out of position, so that it will not strike gong D, and at same time this lateral motion of the hammer E brings hammer E' against gong G, thereby causing the last tooth or notch of the repeating-set to indicate the half-hour on the gong G. When the wheel B is again released at the beginning of the next hour-strokes the lever C is released before the first stroke is sounded and drops out of the way, so that hammer E again engages gong D and properly sounds the hour until displaced by lever C at the proper time to cause the next succeeding half-hour stroke on gong G.

Operation: Each repeating hour-section of wheel B contains one more tooth than its related hour-section. For example, at eleven o'clock there are eleven notches, at half-past eleven o'clock twelve notches, at twelve o'clock twelve notches, and at half-past twelve thirteen notches, &c. Of course there is only one section which contains but one notch, as the half-past one o'clock section contains two notches. The wheel B contains in all one hundred and sixty-eight notches. In sounding the half-hour gong the hammer is actuated by its spring, as usual, but is controlled (on this stroke only) by lever C in this manner: The pins *b'* in wheel B are so timed in relation to the last (the additional) notch in the half-hour sections of said wheel as to present lever C in position to deflect the hammer E entirely away from the hour-gong and cause hammer E' to strike the half-hour gong once after the hour has been fully repeated on the hour-gong. Lever C remains set until after the half-hour gong is sounded and then drops back, so the following hour will be sounded on the hour-gong. As shown in Fig. 2, the clock has struck twelve o'clock and finger C is in lock-notch marked Y. Next will be half-past twelve o'clock or thirteen strokes. At the twelfth stroke the pin *b*, at point X, will engage the lever C and move it into position shown in dotted lines, so as to deflect *e'* and cause the thirteenth stroke to sound on half-hour bell. The pin will then have moved to point X' and finger C in lock-notch marked Z. The point X' will release

lever C before the following hour (one o'clock) is sounded. At half-past one the pin at V will have advanced and will engage and actuate the lever C, just as the preceding pin did at half-past twelve, and finger C will then be in lock-notch W.

I do not wish to restrict myself to the particular construction of parts herein shown and described for sounding the auxiliary gong, as they may be varied. The essential feature of the present invention I consider the employment of strike-regulating or locking wheel, having double the number of hour-notches and the usual twelve half-hour notches, making in all one hundred and sixty-eight strike-controlling notches, and devices whereby the hour-strokes are repeated upon the half-hour and devices controlled by said wheel, whereby a half-hour stroke is sounded after the repetition of the hour.

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

1. In a clock, a striking mechanism having a controlling-wheel provided with two series of strike-teeth, each hour-repeating set of teeth containing an extra tooth whereby the hour will be audibly repeated on the half-hour and an extra stroke made by the hammer after each repeated hour; in combination with devices controlled by said wheel whereby such extra tooth will cause the sounding of the half-hour on a distinctive gong after the repetition of the hour.

2. In a clock striking mechanism, the combination of a controlling-wheel having two sets of strike-teeth for each hour, said sets coming in immediate succession, and each hour-repeating set of teeth having an extra tooth whereby on the half-hour the hour-strokes will be repeated and followed by an extra stroke, a swinging lever, devices on said wheel for operating said lever on each half-hour after the hour-strokes have been repeated, and a gong-sounding mechanism controlled by said lever whereby the extra half-hour stroke is sounded after the repetition of the hour-stroke.

3. In a clock striking mechanism, the combination of the striking mechanism, including the hour-gong, and a locking-wheel provided with two sets of strike-teeth for each hour, each second set having an extra tooth whereby the preceding hour-strokes will be repeated on the half-hour, plus one extra stroke; with a half-hour gong, a hammer therefor pivotally connected with the main-hammer support, a swinging lever adapted to cause said secondary hammer to strike the half-hour gong on said extra strokes, and means on said wheel, adapted to shift said lever after the hour-strokes have been repeated on the half-hour, but before the extra stroke occurs.

4. In a clock striking mechanism, the combination of a hammer, its actuating devices, and a controlling-wheel therefor having two sets of strike-teeth for each hour, said sets

being arranged in immediate succession and each second set having an extra tooth, substantially as described; a secondary hammer, gongs adapted to be struck by said hammer, 5 a lever beside said wheel adapted to cause the secondary hammer to operate, and pins on said wheel adapted to engage said lever whereby the hour-stroke will be repeated on the hour-gong at the half-hours, and the half-

hour gong sounded once thereafter, substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

ALEXANDER C. SCHUMAN.

In presence of—

H. M. ESKRIDGE,

A. J. EARLEY.