

No. 827,275.

PATENTED JULY 31, 1906.

L. L. VOLPO.
CLOCK STRIKING MECHANISM.

APPLICATION FILED OCT. 8, 1904.

2 SHEETS—SHEET 1.

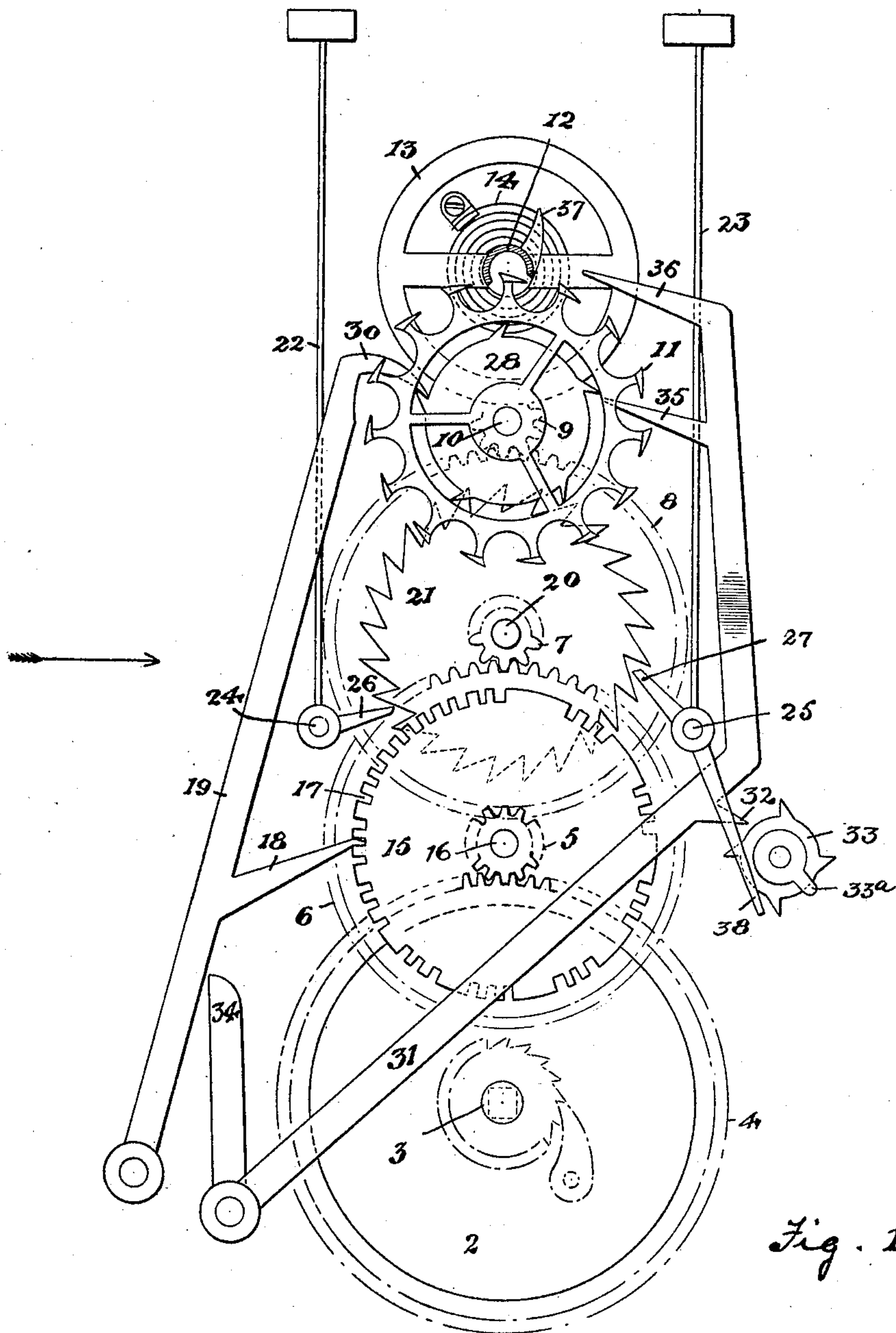


Fig. 1.

WITNESSES:

Ralph Lancaster
Russell M. Everett.

INVENTOR:

Leiser Levi Volpo.

BY

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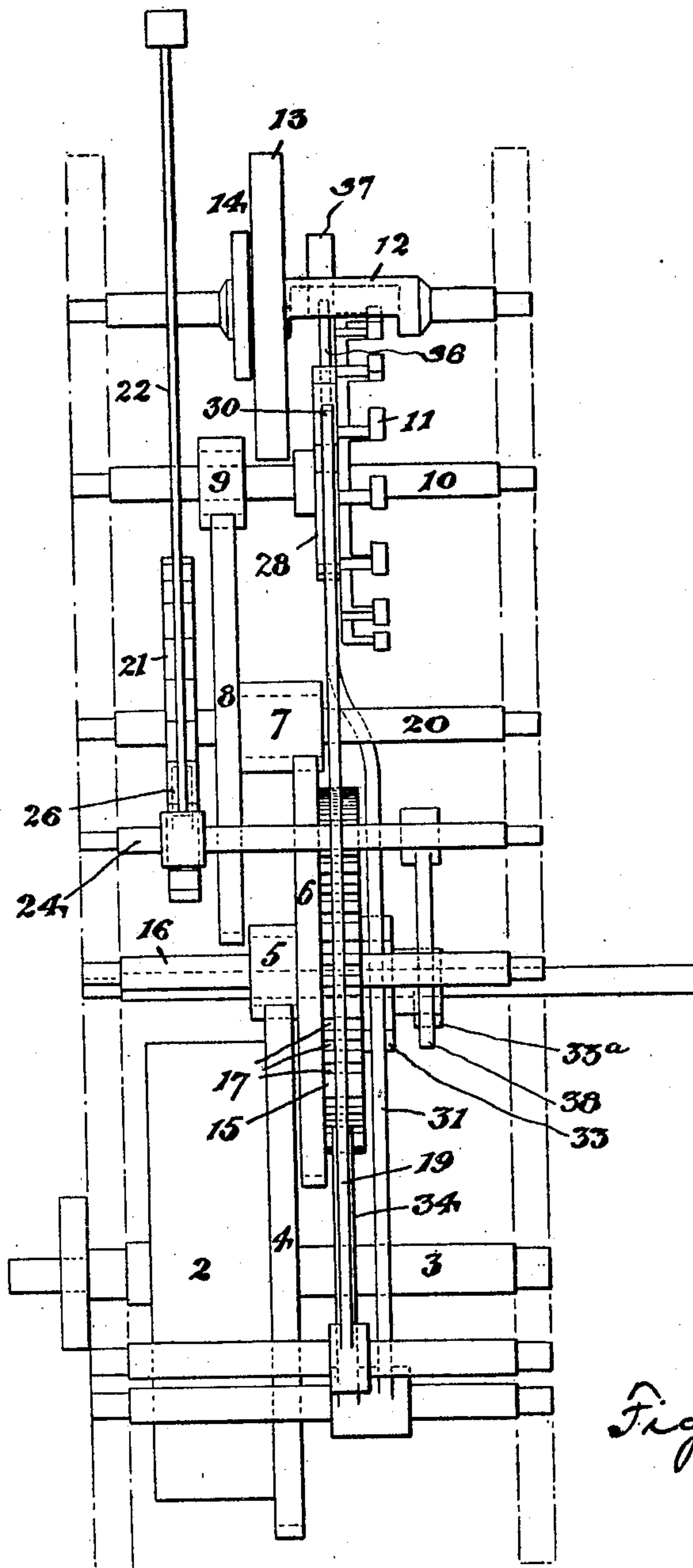


Fig. 2.

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UNITED STATES PATENT OFFICE.

LEISER LEVI VOLPO, OF NEW YORK, N. Y.

CLOCK STRIKING MECHANISM.

No. 827,275.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed October 8, 1904. Serial No. 227,725.

To all whom it may concern:

Be it known that I, LEISER LEVI VOLPO, a British subject, residing at No. 73 Monroe street, borough of Manhattan, in the city, county, and State of New York, have invented Improvements in Striking Mechanism for Clocks and Watches, of which the following is a specification.

This invention relates to improvements in the striking mechanism of clocks and watches; and the objects of the invention are to obtain a simple construction, to economize power, to regulate the speed of the striking apparatus by a complete escapement apparatus separate from the time-train of the clock or watch, to impart initial motion to the balance-wheel or pendulum of the striking-train escapement apparatus by the time-train at the same time as it releases the striking-train, and to obtain other advantages and results, some of which may be hereinafter referred to in connection with the description of the working parts.

The invention consists in the improved clock striking mechanism and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like numerals of reference indicate corresponding parts in each of the figures, Figure 1 shows in side view a construction of mechanism for carrying out my invention, and Fig. 2 illustrates the same in edge view looking in the direction indicated by the arrow in Fig. 1.

In said drawings, 2 indicates a barrel containing a spring adapted to be wound in any usual manner to furnish power for the striking apparatus. Upon the shaft 3 of the spring and outside the barrel 2 is a gear-wheel 4, which drives a pinion 5 and large wheel 6, the latter in turn meshing with a pinion 7, having a large wheel 8, which engages a pinion 9 on the escapement-wheel shaft 10. Said escapement-wheel 11 has a cooperating cylinder 12 of ordinary construction and carrying a balance-wheel 13 and a hair-spring 14.

A counting-wheel 15 is fixed upon the shaft 16 of the train-wheel 6 and has at its periphery notches 17 to allow the tooth 18 of an arm 19 to drop in, the distance from one notch to another being so many one hundred and fiftieths of a circle as the number of strokes required to be given, since the total number

of strokes for hours and quarter-hours in twelve hours is one hundred and fifty. Upon the shaft 20 of the pinion 7 and gear 8 is a tripping-wheel 21, which actuates the hammers 22 and 23, said hammers for this purpose projecting from a shaft 24, (or 25,) which has a dog 26, (or 27,) adapted to be tripped by the teeth of the said wheel 21.

A small toothed wheel 28 is fast upon the shaft 10 of the escapement-wheel, and this wheel 28 has five teeth adapted to engage the extremity 30 of the arm 19 when the tooth 18 of said arm is in one of the notches of the counting-wheel. This toothed wheel 28 moves a tooth for each one hundred and fiftieth part of the counting-wheel 15, and thus three teeth of the escapement-wheel 11 are allowed to pass the balance for each stroke of the hammer.

For releasing the arm 19 from the wheels 15 and 28 I have shown a lever 31, adapted to be engaged, as at a tooth 23, by a minute-wheel 33, driven by the time-train of the clock. This lever 31 when tripped engages, as at 34, the arm 19 to raise the same out of engagement with both the counting-wheel 15 and the toothed wheel 28. At the same time a finger 35 upon said lever 31 engages the toothed wheel 28 to hold it in place of the arm 19, and another finger 36, also upon said lever, engages a spur 37 upon the cylinder 12, so as to force said cylinder around a portion of a revolution. As soon as the lever 31 drops back into normal position, therefore, its finger 35 releases the toothed wheel 28, thus permitting the train to move, and its finger 36 releases the balance-wheel, so that it is started in motion. At the same time the train has started sufficiently so that as the arm 19 drops back the tooth 18 will not enter the notch of the counting-wheel from which it was lifted, but will ride upon the periphery of the wheel until the next notch is reached, when it drops in, and simultaneously its extremity 30 engages a tooth of the wheel 28, stopping the same and also the escapement apparatus.

In order to distinguish hour-strokes from quarter-hour strokes, a small arm 33^a upon the minute-wheel 33 engages an arm 38 of the adjacent hammer-shaft to hold said hammer in idle position and to permit the hours to be struck by one hammer alone.

It will be understood that the specific form and construction of the arm 19 and lever 31 may be varied at will so long as they perform

the functions described, and I do not therefore wish to be understood as limiting myself by the positive descriptive terms applied thereto. Furthermore, any kind of free escapement may be employed, such as cylinder, lever, duplex, chronometer, or anything actuating a balance-wheel with hair-spring or pendulum.

Having thus described the invention, what I claim as new is—

1. In a striking mechanism for clocks, a spring-driven train of gears, an escapement-wheel and balance-wheel in train with said gears and independent of any other, a counting-wheel in connection with said train of gears, a toothed wheel fast with respect to the escapement-wheel, an arm having a tooth to engage said counting-wheel and an extremity adapted to simultaneously engage said toothed wheel, a lever adapted to engage said arm to release it and the balance-wheel to start it, means adapted to be actuated by clockwork to trip said lever at predetermined intervals, and a hammer adapted to be operated by said gear-train.

2. In a striking mechanism for clocks, a spring-driven train of gears, an escapement-wheel and balance-wheel in train with said gears and independent of any other, a toothed wheel fixed with respect to the escapement-wheel, an arm for turning said balance-wheel, a counting-wheel in connection with said

train of gears, a second arm having a tooth to engage said counting-wheel and an extremity adapted to simultaneously engage said toothed wheel, a lever adapted at one part of itself to release said second arm and having another part adapted to engage the said arm of the balance-wheel, and means adapted to be actuated by clockwork to swing said lever.

3. In a striking mechanism for clocks, a spring-driven train of gears, an escapement-wheel and balance-wheel in train with said gears and independent of any other, a toothed wheel fixed with respect to the escapement-wheel, an arm for turning said balance-wheel, a counting-wheel in connection with said train of gears, a second arm having a tooth to engage said counting-wheel and an extremity adapted to simultaneously engage said toothed wheel, a lever adapted at one part of itself to release said second arm and having a second part to engage said arm of the balance-wheel and a third part to lock the said toothed wheel, and means adapted to be actuated by clockwork to swing said lever.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LEISER LEVI VOLPO.

Witnesses:

W. COHEN,
WALTER SACHS.