S. F. ESTELL.

Programme Clocks.

No. 143,230. Patented September 30, 1873.

Fig. 1.

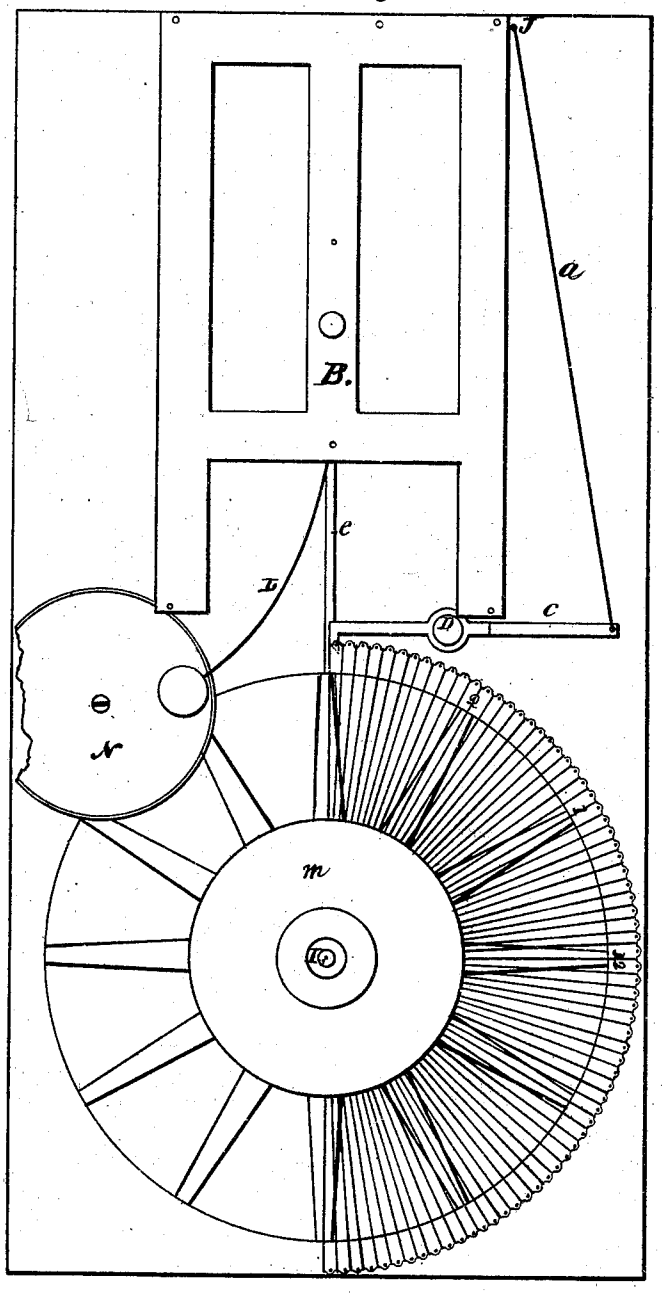
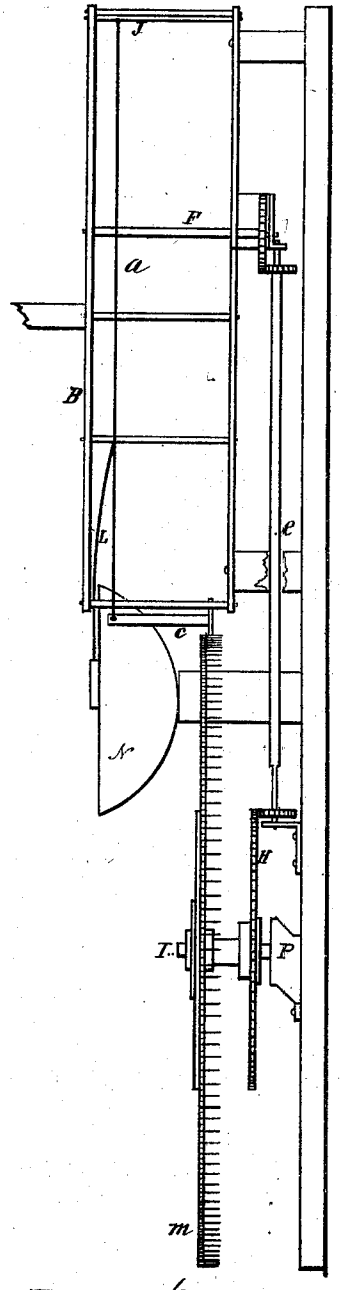


Fig. 2.



Witnesses.

Joseph Ridge

Hugh C. Goodyear

Inventor.

Samuel F. Estell

UNITED STATES PATENT OFFICE.

SAMUEL F. ESTELL, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN PROGRAMME-CLOCKS.

Specification forming part of Letters Patent No. **143,230**, dated September 30, 1873; application filed May 10, 1873.

To all whom it may concern:

Be it known that I, SAMUEL F. ESTELL, of the city of Chicago and State of Illinois, have invented a new and useful Improvement in Programme-Clocks, of which the following is a complete specification, reference being had to the accompanying drawings.

My improvement embraces a modification of my inventions relating to programme-clocks, for which Letters Patent of the United States were first granted to me January 11, 1870, No. 98,678; and has for its object the locating of the programme-wheel beneath the "movements" in a more convenient and accessible position, instead of at the rear of the movements, as originally constructed, and especially relates to the mechanism by means of which said wheel performs its function.

Figure 1 is a front elevation. Fig. 2 is a side elevation.

B represents the frame, in which the movements are held; and *m*, the programme-wheel. The programme-wheel is a metal disk, provided with wire springs, located radially on said disk, and terminating over its periphery at right angles to its plane, the manner of the operation of said wheel being fully described in the original patent. Wheel *m* is attached to a sleeve, I, which latter is rigidly secured to a plate, P, at the back of the clock-case. On the sleeve, to which wheel *m* is attached, is a wheel, H, gearing with a pinion on the upright shaft *e*. A pinion on the upper end of shaft *e* gears with a wheel on the minute-wheel shaft F. A connection is thus made between the movement of the clock and wheel *m*, by which the latter is operated, regard, of course, being had to the sizes of said wheels and pinions, so that wheel *m* shall receive a proportionate speed.

The programme-wheel, in its position herein described, operates the striking movement of the clock by means of a tripping-lever, C. Lever C is pivoted at D to a bearing secured to the back of the case, and, as shown by Fig. 2, forms an angle to accommodate it to both the wheel *m* and the drop-wire. The end of said lever C, in contact with wheel *m*, is so shaped as to be tripped by the tripping-wires or springs of wheel *m*. The other end of said lever C is attached to the drop-wire *a* of the clock, and thus at each passage of a tripping-spring, beneath the end of lever C, the striking-train is put in motion.

Having thus fully described my said invention, what I claim is—

In combination with a programme-wheel, the lever C and drop-wire *a*, operating substantially in the manner described, and for the purpose set forth.

SAMUEL F. ESTELL.

Witnesses:

JOSEPH RIDGE,

HUGH C. GOODFELLOW.