

T. MAYHEW.

Time-Recording Instrument.

No. 164,384.

Patented June 15, 1875.

Fig. 1.

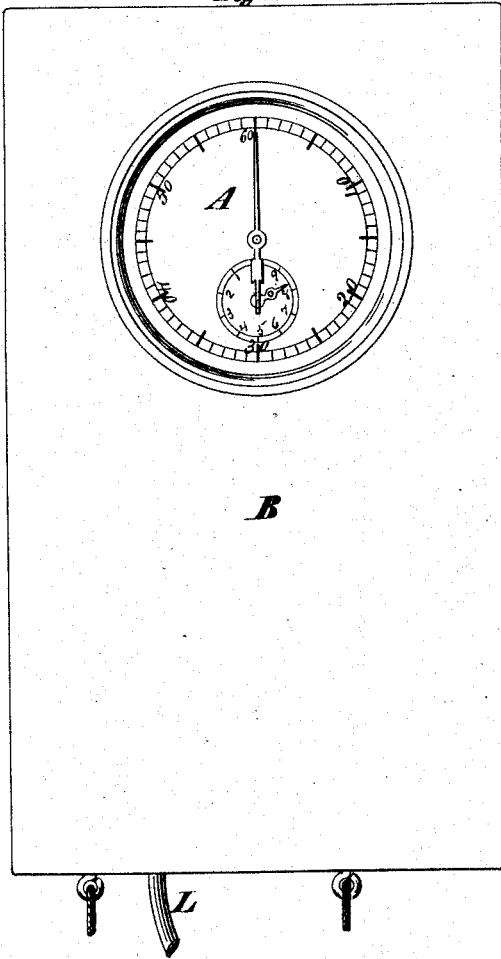


Fig. 2.

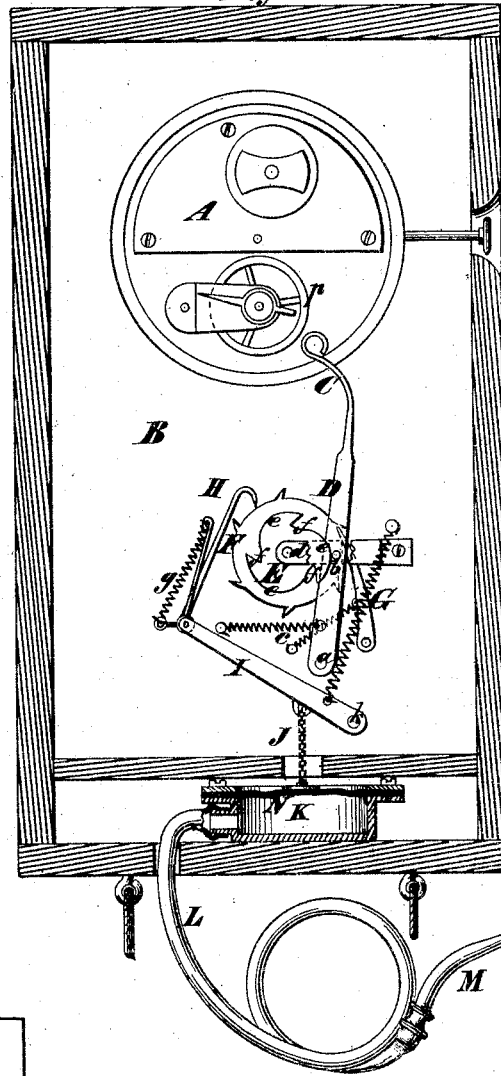
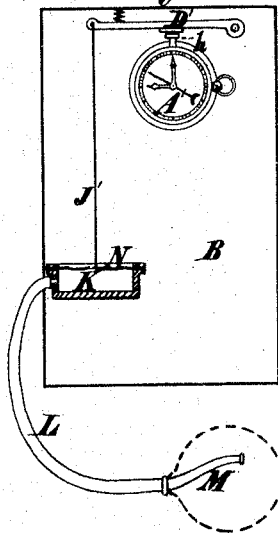


Fig. 3.



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## IMPROVEMENT IN TIME-RECORDING INSTRUMENTS.

Specification forming part of Letters Patent No. **164,384**, dated June 15, 1875; application filed January 23, 1875.

*To all whom it may concern:*

Be it known that I, THEOPHILUS MAYHEW, of the city of Poughkeepsie, in the county of Dutchess and State of New York, have invented a new and useful Improvement in Time-Recording Instruments; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms part of this specification.

The object of my invention is to enable a person, while both hands are engaged, to effect the starting and stopping of a time-recording instrument, so that he may accurately determine the time consumed in any operation or pursuit in which he may be engaged, such, for instance, as driving horses or rowing a boat certain distances. To this end my invention consists in an instrument adapted to be worn upon the person, and embodying in its construction a time-recorder, a pneumatic device, a lever-connection between them, and an inclosing-case, as will be hereinafter more fully explained.

In the accompanying drawing, Figure 1 is a face view of a time-recording instrument embodying my invention. Fig. 2 is a longitudinal vertical section of the same, taken through the back part of the said instrument; and Fig. 3 is a diagram illustrating a modification of my invention.

A, Figs. 1 and 2, designates a time-recording instrument of the class popularly known as horse-timers. On the face of this instrument are two dials, one large dial, around which travels a long hand or index for recording seconds, and one small dial, around which travels a short hand or index for recording minutes. This timer A is, in the present instance, arranged so that its face is visible through an opening in a case or box, B, which may be of any suitable construction. C designates a friction-brake, which may be applied to the balance-wheel *p* of the works of the timer A to stop the same; or may be withdrawn from the said balance-wheel to allow it to start. This brake, in the example of my invention illustrated in the drawing, projects from one end of the lever D, which lever is pivoted to a fulcrum-pin, *a*, and, at a suitable point in its

length, is furnished with a stop or pin, *b*, which is held against the face of a cam, E, by a spring, *e*, applied to the lever. The said cam E is mounted on an arbor, *d*, and its periphery carries projecting portions or teeth *e* and recesses *f*, and it is so arranged, with relation to the said pin *d*, that when said pin occupies one of the recesses *f* the friction-brake C is applied to the balance-wheel, and all the parts of the apparatus are at rest; but, when the pin is forced and held outward by one of the projections or teeth *e*, the friction-brake is held away from the balance-wheel, and the wheel-work of the timer is allowed to operate. F designates a ratchet-wheel, which is also mounted on the arbor *d*, and which has applied to it a stop-pawl, G, to prevent it from turning in the wrong direction; and it has also applied to it a hook-shaped pawl, H, which is pivoted to the end of a lever, I, and held against the said ratchet-wheel F by a spring, *g*, suitably applied, so that when said pawl H is vibrated on its fulcrum-pin *k* it will revolve the said wheel F. This lever I is connected, say, by a chain, J, to a flexible diaphragm, N, which latter, on being actuated by pneumatic pressure, operates the starting and stopping mechanism.

I will here remark that it is obvious that the said lever I may be pivoted at or near its center, and connected, by a rod or other rigid connection, to the flexible diaphragm; in which case it would be operated by exerting a pressure within the pneumatic part of the instrument.

In the example of my invention illustrated in the drawing the pneumatic device consists of a cylindrical vessel, K, provided with a flexible disk or diaphragm, N, of india-rubber, thin metal, or other suitable material. A pipe, L, which may be of india-rubber or other suitable (preferably flexible) material, is attached at one end to this vessel K, so as to communicate therewith, and at the other end it is provided with a mouth-piece, M. It is, however, obvious that any other form of instrument having a part which may be moved by pneumatic pressure may be used—as, for instance, a cylinder and piston. It is also obvious that the free end of the pipe L may be provided with a compressible air-bulb, as indicated by the dot-

ted outline in Fig. 3, and that this air pump or bulb may be operated in various ways while the hands are engaged.

To start the time-recording indexes by the mechanism shown in the drawing the mouth-piece is held in the mouth and sucked in order to operate the free end of the lever I, and thereby cause the pawl H to turn the ratchet-wheel, so that one of the projecting portions *e* of the cam E is caused to bear against the stop *b* of the brake-lever D, and remove the brake C from contact with the balance-wheel of the timer. To stop the indexes, the suction is renewed, and the lever I, pawl H, and ratchet-wheel F are thereby operated a second time, and one of the recesses *f* of the cam E is brought opposite the stop *b* of the brake-lever, whereupon the latter is drawn over by the spring *c*, and the brake C is applied to the balance-wheel of the timer.

The diagram, Fig. 3, illustrates a modification of my invention, which provides for operating the starting and stopping mechanism of a watch having a horse-timing index. A' designates such a watch, fitted in an appropriate manner in a case, B; and *h* is the usual knob, which can be manipulated to operate the starting and stopping mechanism. D' designates a lever piv-

oted within the case, and connected to a pneumatic device, K N, in a suitable manner—say, by a rod or cord, J'; and hence, when the pneumatic device is actuated by pneumatic pressure, as hereinbefore described, the said lever will press upon and operate the said knob *h*.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A pneumatic time-recording instrument, consisting of the combination of a pneumatic device, the works and index of a time-recorder, a lever-connection between the same, and an inclosing-case, the said instrument being adapted to be worn upon the person, and to be operated by a tube held in the mouth, substantially as and for the purposes herein specified.

2. The combination of the following elements: A timer or time-recording instrument, A, arranged in case or box B, brake C, brake-lever D, cam E, ratchet-wheel F, pawls G and H, lever I, and the pneumatic device K N L, substantially as and for the purpose herein specified.

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Witnesses:

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