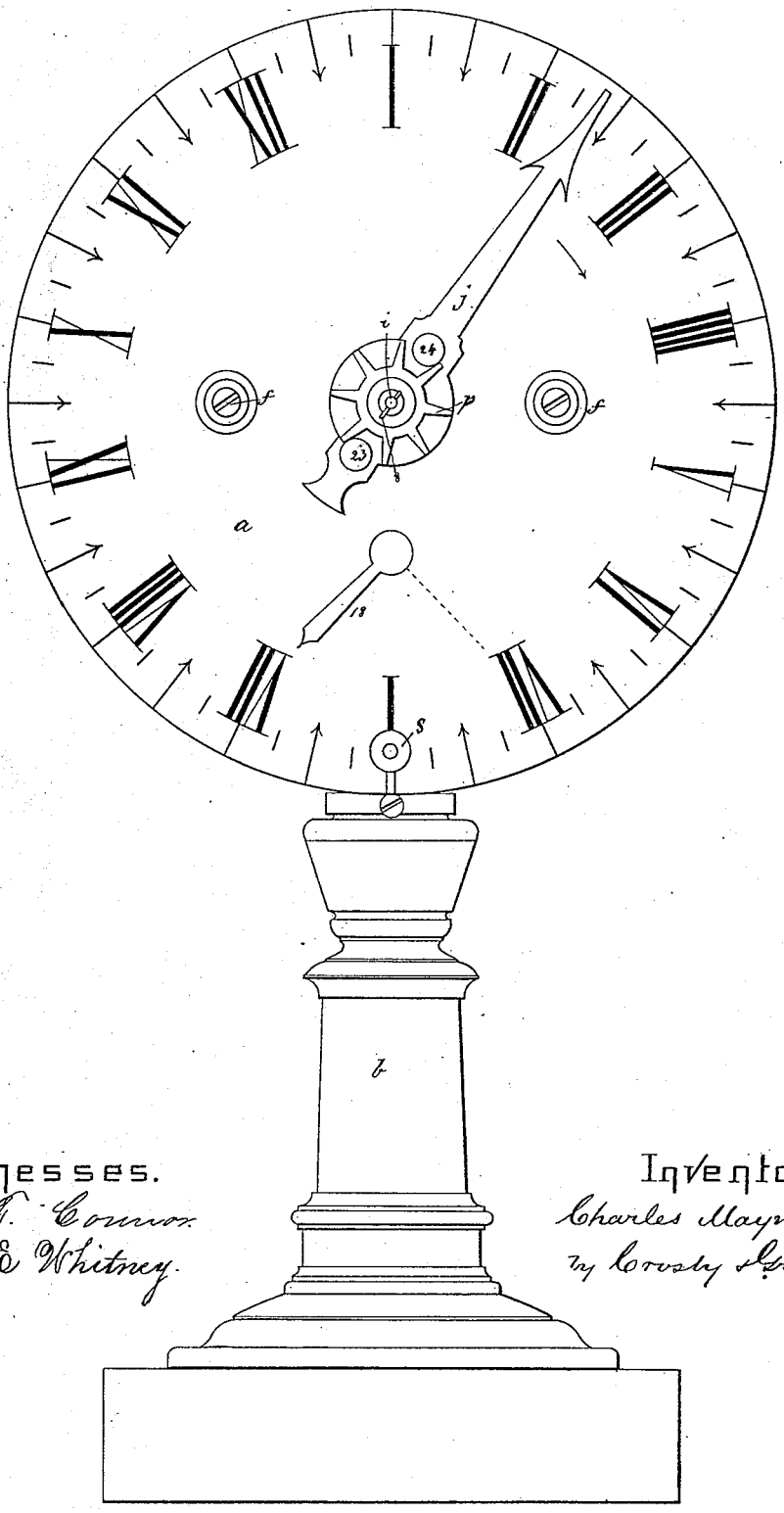
2 Sheets—Sheet 1.

C. MAYNARD.

Illuminated Clock.

No. 208,478. Patented Oct. 1, 1878.

Fig. 1.



Witnesses.
L. F. Connor
N. E. Whitney.

Inventor.
Charles Maynard
by Crosby & Gregory Attys

2 Sheets—Sheet 2.

C. MAYNARD.

Illuminated Clock.

No. 208,478. Patented Oct. 1, 1878.

Fig:2.

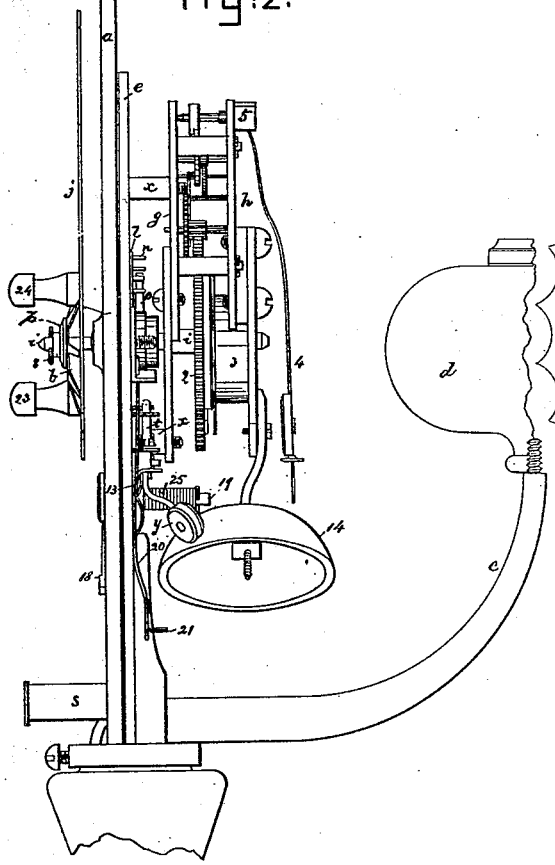


Fig:3.

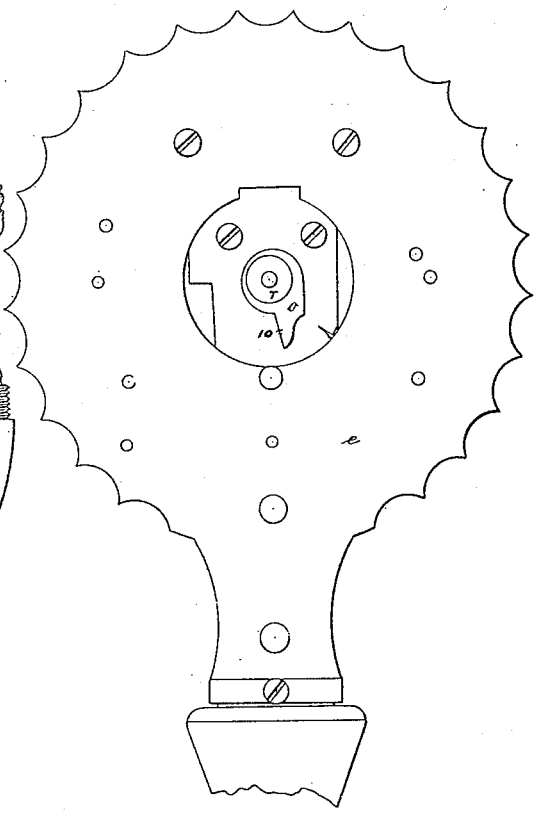


Fig:4.

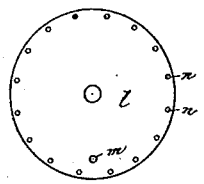


Fig:5.

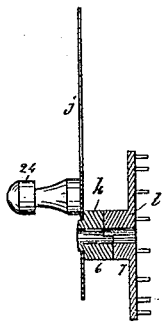
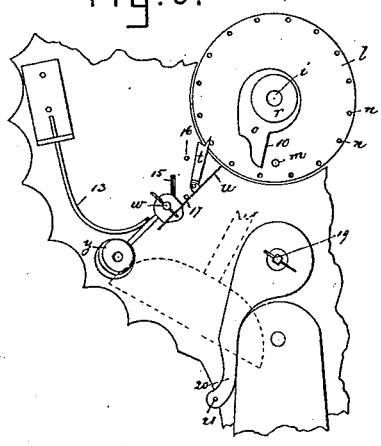


Fig:6.



Witnesses.

L. G. Connor.

N. E. Whitney.

Inventor.

Charles Maynard

by Cressby & Gregory Attys

UNITED STATES PATENT OFFICE.

CHARLES MAYNARD, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN ILLUMINATED CLOCKS.

Specification forming part of Letters Patent No. **208,478**, dated October 1, 1878; application filed July 13, 1878.

To all whom it may concern:

Be it known that I, CHAS. MAYNARD, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Illuminated Clocks, of which the following description, taken in connection with the drawings forming part thereof, is a specification.

This invention relates to improvements in illuminated clocks for use in chambers or rooms of invalids.

In this my improved clock the dial is shown as of sufficient diameter to designate fourteen hours, and the hour-hand is permitted to revolve but once about the dial, when it is arrested by a stop.

The hour-hand is so connected with the main shaft or arbor of the clock that it may be turned backward at any time, so as to set the hand at the hour of retiring or otherwise, and the hand will be moved regularly from such position until it meets the stop, when its motion will be arrested.

When the hour-hand is moved backward it winds the spring which drives the clock-train sufficiently to drive the hour-hand in the opposite direction to the stop.

Figure 1 represents, in front elevation, a sufficient portion of an illuminated clock to illustrate my invention; Fig. 2, a side elevation thereof, the standard being broken away; Fig. 3, a partial front view, the dial and hour-hand being removed; Fig. 4, a rear-side view of the winding-wheel; Fig. 5, a section of the winding-wheel and the hour-hand; and Fig. 6, a partial rear elevation, the train of clock-gear and pendulum being omitted.

The dial *a*, composed of glass or other transparent or translucent material, or so made as to show figures for hours, is supported above the standard *b*, or in any usual or suitable manner, and is provided at its rear side with a bracket, *c*, upon which may be placed a lamp, *d;* or a gas-light may be placed behind the dial.

The plate *e*, to which the dial is directly attached by screws *f f*, has secured at its rear side, by studs *x*, two frame-plates, *g h*, between which is mounted a clock-train of any usual construction, not necessary to be herein particularly described, it being only necessary that it move the hour-hand shaft *i* at the proper speed. This main or hour-hand shaft *i* of the train has upon it a strong spring, 3, to rotate the said shaft in one direction, and cause the toothed wheel 2 to drive the remaining portion of the clock-train, the pendulum 4 operating the escapement-pawl 5, all as usual.

The hour-hand *j* is fixed to one hub or half, 6, of the clutch *k*, adapted to engage with the other hub or half, 7, of the said clutch, the said half 7 forming part of the winding-wheel *l*, mounted loosely upon shaft *i*, and provided with a winding-pin, *m*, and alarm-pins *n*, the winding-pin acting upon the arm *o*, fixed to shaft *i*, while the winding-wheel is turned in one direction to rotate the said shaft and wind up the spring 3, and the pins *n* acting, when the winding-wheel is moved in the opposite direction by the spring, to sound an alarm or gong.

The winding wheel is placed about the front end of shaft *i*, in front of arm *o*, and the hub 6 and connected hand are placed over the outer end of shaft *i*, and the spring-washer *p*, held in place by a pin, 8, in shaft *i*, presses the hub 6, connected with the hand, firmly against the hub 7, and the latter against a loose washer, *r*, in front of arm *o*. When shaft *i* is rotated by the spring 3 the pressure exerted by the spring-washer *p*, or an equivalent device, is sufficient to force the hubs, winding-wheel, and washer *r* closely enough together to cause the hour-hand and winding-wheel to move in the direction of the arrow, Fig. 1, with the shaft, by frictional adhesion of the parts pressed together by the spring-washer *p;* but when the hand *j* strikes the stop *s*, (see Fig. 1,) it remains at rest, and the clock-train continues to move the shaft until the side 10 of arm *o* meets pin *m*.

The object in having the clock-work continue to run after the hand has been stopped is to let the spring run down, so that the complete backward movement of the hand may not be interfered with by the tightening or complete winding of the partially-unwound spring, which would result did the train stop with the hand.

Whenever the hour-hand is turned backward the hub 6 engages the hub 7, rotates it,

causes pin *m* to act upon the side or edge of arm *o*, and rotate it and the shaft *i* to wind the spring 3.

It will be noticed that the hour-hand, being driven by friction, may be moved backward or forward at will, and whenever the shaft *i* has been rotated far enough by the spring 3 to place the edge 10 of the arm *o* so as to be struck by pin *m*, as the hour-hand and winding-wheel are reversed or turned backward, the said arm and shaft will be turned toward the spring.

As the hour-hand reaches one of the hour-numbers upon the dial, one of the pins *n* on the wheel *l* acts upon the end of the dog *t*, loosely pivoted upon the end of the striking-lever *u*, having its fulcrum at *w*, and lifts the outer end of the lever, provided with a hammer, *y*, and as the pin passes the dog the spring 13, acting upon the striking-lever, causes it to move, so that the hammer strikes the gong 14. The pin 17 co-operates with the pin 15 and the lever *u* to determine its range of motion. The pin 16 prevents the end of the dog from flying too far backward when acted upon by the pins *n* of the winding-wheel when the latter is reversed with the hands, for then it is not desired to sound the gong.

Should it be desired to omit sounding the gong each hour as the hour-hand is moved regularly forward, then the handle 18, extended through the dial and provided with a square shaft, 19, upon which is fixed an arm, 20, provided with a finger, 21, may be moved to the position shown in dotted lines, Fig. 1, which will cause the arm 20 to lift the outer end of the striking-lever high enough to place the dog *t* in such position that the pins *n* will not touch it as the wheel *l* is rotated. The mere turning of the handle 18 to the full-line position, Fig. 1, or to the dotted-line position, will enable the clock to strike at each hour, or to run without striking. The thumb-posts 23 24 on the hour-hand enable it to be moved or turned in either direction without a key.

The clock may be set running at 6, 7, or 8, or at any desired hour, and run to 8 the next morning, the stop *s* in this instance occupying an 8-space.

The dial is marked I at both ends of its vertical axis, and the VII is duplicated. The lower I is the 8 or VIII space referred to, and is so marked merely for convenience in starting, and in order to get a fourteen-hour dial to accommodate long sleepers.

This clock will be found very handy in sickness when it is desired to keep a record of time to take medicine, or to mark and show the time in the night by a faint light when one is to rise.

In Fig. 6 the dog is shown as it will be lifted by the pins *n* when the wheel *l* and hand are being reversed. A spring, 25, on the shaft 19 presses the arm 20 against the plate *e* hard enough to keep the arm from moving except when turned positively.

I claim—

1. The main shaft *i* and the fixed arm *o*, combined with the loosely-held winding-wheel, provided with the winding-pin, and the hour-hand and hubs, held pressed together, to operate substantially as described.

2. The winding-wheel and its hub, combined with the hour-hand, hub 6, and spring-washer, substantially as described.

3. In a clock, the combination, with an hour-hand frictionally held upon the main shaft, of a stop to arrest the movement of the hand while the shaft continues to rotate, substantially as described.

4. The combination, with the shaft *i* and its spring, and the arm *o*, fixed to the shaft, of a winding-wheel loose on the shaft, and provided with a pin, *m*, and an hour-hand, by which to wind the spring as the hour-hand is reversed, substantially as described.

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

CHARLES MAYNARD.

Witnesses:

G. W. GREGORY,

N. E. WHITNEY.