

J. M. JOSIAS.  
Clock.

No. 218,980.

Patented Aug. 26, 1879.

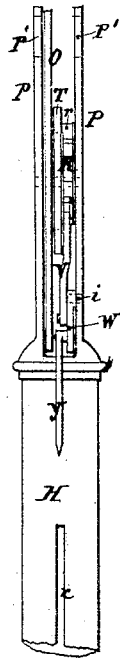


Fig. II.

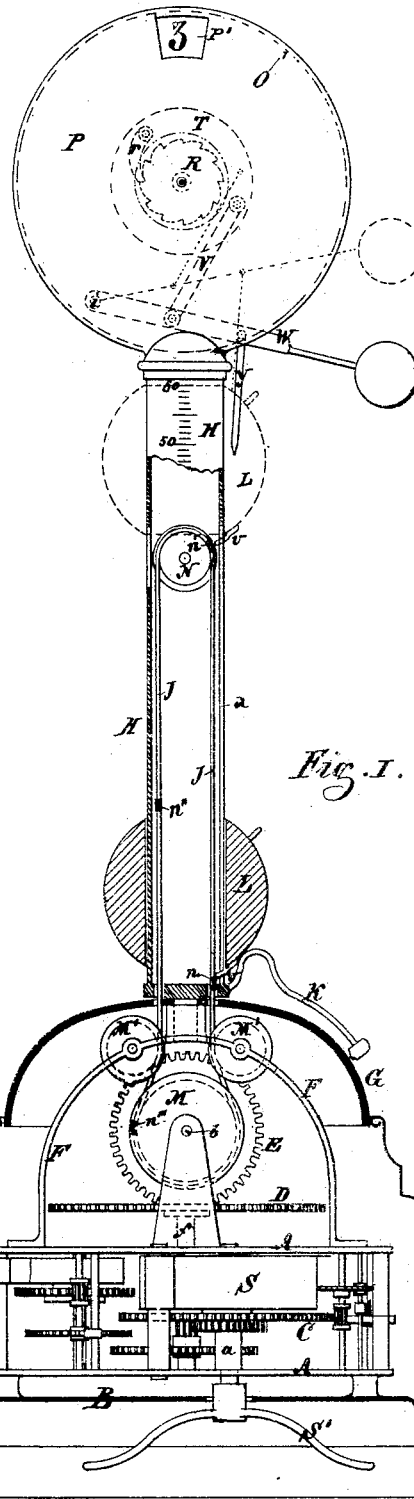


Fig. I.

Witnesses.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN CLOCKS.

Specification forming part of Letters Patent No. **218,980**, dated August 26, 1879; application filed January 23, 1879.

*To all whom it may concern:*

Be it known that I, JOSHUA M. JOSIAS, of New York, in the State of New York, have invented a new and useful Improvement in Clocks, of which the following is a specification.

The nature of my invention consists in the arrangement of a column or rods, in which an endless band or chain is made to move regularly around suitable wheels or pulleys, operated by the usual clock-work, and provided with knots or projections at regular fixed distances. One of these knots or projections engages with a projection on a ball or weight sliding on said column or rods, and raises this ball or weight a certain distance during a fixed time—say one hour—when said knot or projection will move clear of the projection on the ball or weight, and allow the same to fall down again by its own weight, where a similar knot or projection on said band or chain will again come in contact with the ball or weight, and again raise said ball or weight the same distance during the fixed time of one hour.

At the bottom of the column or rods a bell is arranged, provided with a suitable hammer and arm, against which the ball or weight will come in its fall, and thus produce an alarm. At the top of said column or rods a dial-plate, upon which the hours are marked, is arranged, connected with suitable levers, which, coming in contact with the ball or weight near the end of its upward motion, will be operated so as to change the hour indicated.

In the accompanying drawings, Figure I represents my improved clock, partly in section. Fig. II is a side view of the top part.

A A is the frame containing the clock-work C, attached to a suitable foot, B. The spindle *a* of the mainspring S of said works passes through the bottom of the foot, and receives a spoke-wheel, S', to facilitate the winding up of the same.

To the central spindle, *f*, of the works a wheel, D, is attached, meshing into a wheel, E, fast to a shaft, *b*. To the upper part of the frame A a suitable frame, F, is attached, supporting a bell, G, and above the same a hollow tube or column, H. K is the hammer-arm, attached to the lower end of the column H, having a suitable weight or hammer at its end.

To the shaft *b* a suitable wheel, M, is at-

tached, and near the upper end of the column H, in the inside of said column, a wheel or pulley, N, is attached, over which an endless cord, chain, or band, J, passes, regulated by suitable guide-rollers M' M', attached to the frame F. This band or chain J is provided with three or more knots or projecting pieces, *n n' n'' n'''*, at such equal distances apart that the time the projecting piece *n* will arrive at the position of the projecting piece *n'* shall be exactly one hour, and when the projection *n* has arrived at the position of the projection *n'* the projection *n'''* will be in the position the projection *n* was originally.

L is a ball or light weight, moving freely on the column H, provided with a projection, *v*, passing through a slot, *x*, in the side of the column into the interior of the same, so as to come in contact with the projecting pieces on the band or chain J.

The outside of the tube or column H, from the upper edge of the ball L, when the same is at its lowest position, to the point this upper edge of said ball L will reach when at its highest position, is divided into sixty even parts, representing the sixty minutes of the hour.

The clock-work C operates, through the wheels D and E, the shaft *b* and the pulley M, and consequently the band or chain J, and this motion is so regulated that it will take exactly one hour for said band or chain J to move the distance of one of its projecting parts, *n*, to the position of its next projecting part, *n'*.

In the position shown in the drawings the projecting piece *n* on the band J is in contact with the projection *v* on the ball L, and the motion of the band J will then move the ball L upward until the projecting piece *n* comes into the position of the projecting piece *n'*, when, while moving around the pulley N, said projecting piece *n* will move away clear of the projection *v* on the ball L, and allow said ball or weight L to fall or slide down again by its own weight, when the other projecting piece, *n'''*, which, through the continued motion of the endless band or chain J, has moved into the position formerly occupied by the projecting piece *n*, will connect with the projection *v* on the ball L and move the same again upward.

When the ball or weight L falls down by its own weight it comes, when near the bottom,

in contact with the hammer-arm K, operating the same so as to cause its weight or hammer to strike the bell G, and thus give an alarm indicating the completion of the hour.

The falling of the ball L may be arranged to operate an arm connected with the striking mechanism of the clock-work C, so as to strike thereby a number of strokes upon the bell corresponding with the hour of the day.

To the top of the column H two plates, P P, are attached, supporting a disk, O, upon which the hours are engraved, one of which numbers or figures is in sight through an opening, P', provided in the plates P. This disk O is provided with a ratchet-wheel, R, having twelve teeth, and carries on its hub a loose disk or plate, T, provided with a pawl, *r*, engaging into the teeth of the ratchet-wheel R.

W is a weighted lever, turning freely on a pin, *i*, attached to one of the plates P, and connected, through a rod, V, with the disk or plate T. Y is a rod, pointed at its lower end and suspended from the lever W.

When the ball L is moved near its upper position the same comes in contact with the rod Y, moving the same, and consequently the lever W, upward, which latter, through the connecting-rod V, will turn the disk or plate T so that the pawl *r* will move the ratchet-wheel R one tooth, and consequently turn the disk O one-twelfth part around, thereby bringing the next figure marked on said dial in sight through the opening P'.

When the ball L falls downward, the lever W will fall down into its original position by its own weight, carrying with it the disk or plate T, and bringing thereby the pawl *r* into the next tooth on the ratchet-wheel R, ready for the next operation.

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

1. In a clock, the combination of the clock-work C, wheels D and E, pulleys M and N, endless band J, with projecting pieces *n n' n'' n'''*, and the ball L, with projection *v*, sliding on a tube or column, H, arranged to operate in the manner and for the purpose substantially as described.

2. In combination with the clock mechanism C, the bell G, hammer-arm K, and ball L, said ball falling by its own weight down a column, H, arranged central with the ball, substantially in the manner and for the purpose herein set forth.

3. In a clock, the dial-plate O, provided with ratchet-wheel R, disk T, with pawl *r*, rod V, and lever W, with suspended rod Y at the top of a column or tube, H, in combination with a ball, L, made to move on said column H by an endless band, J, through the clock-work C, the whole being arranged to operate in the manner and for the purpose substantially as described.

4. In a clock, the endless band J, provided with suitable projections *n n' n'' n'''*, moving over rollers or pulleys in a suitable tube or column, H, and operated by clock-work C, in combination with a sliding ball, L, sliding on said column H, and provided with a projection, *v*, engaging with the projections on the endless band, substantially in the manner and for the purpose described.

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Witnesses:

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