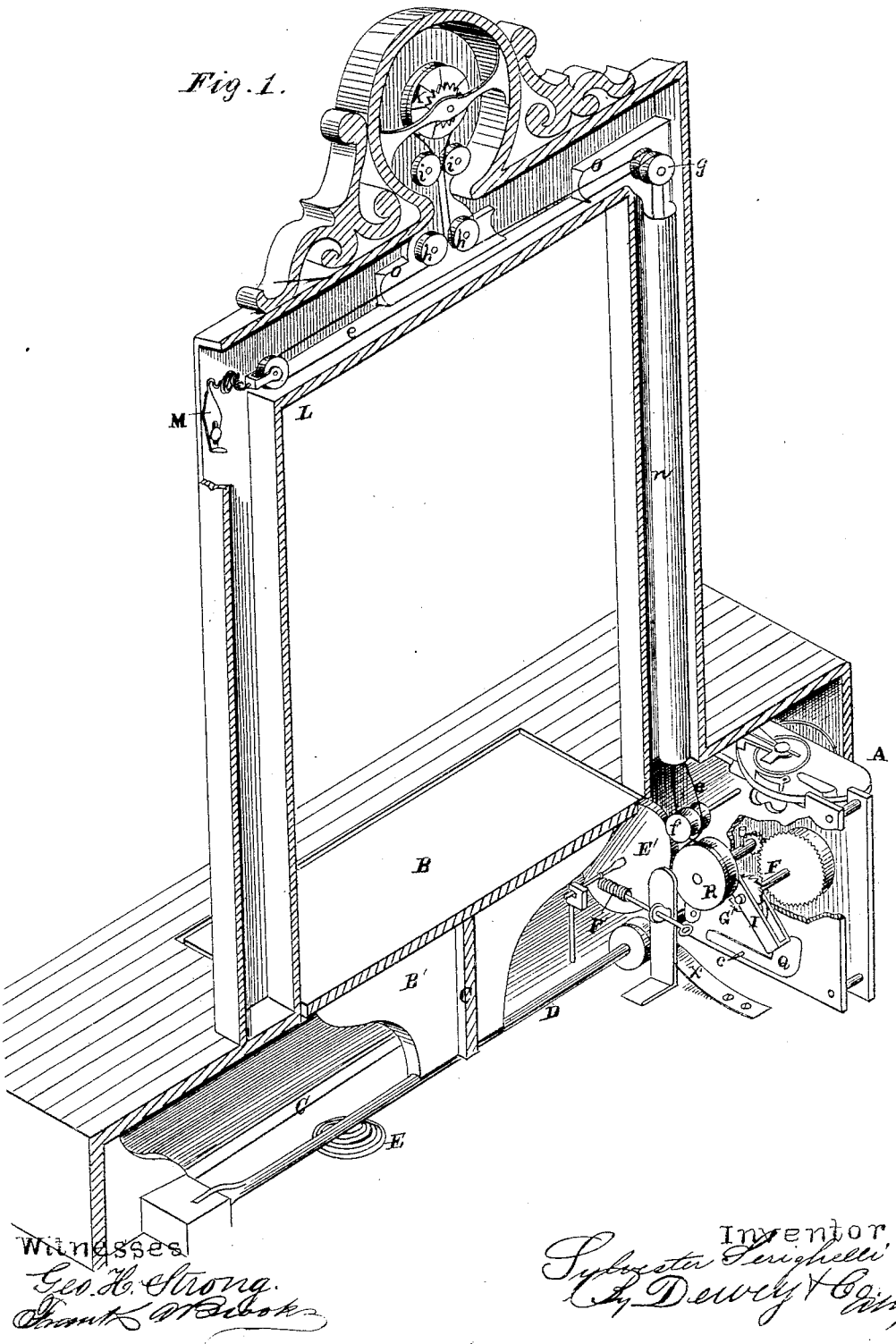
2 Sheets—Sheet 1.

S. SERIGHELLI.

Winding Attachment for Clocks.

No. 211,936. Patented Feb. 4, 1879.

Fig. 1.



Witnesses
Geo. H. Strong.
Frank A. Babcock

Inventor
Sylvester Serighelli
by Dewey & Co. Attys

2 Sheets—Sheet 2.

S. SERIGHELLI.

Winding Attachment for Clocks.

No. 211,936. Patented Feb. 4, 1879.

Fig. 2.

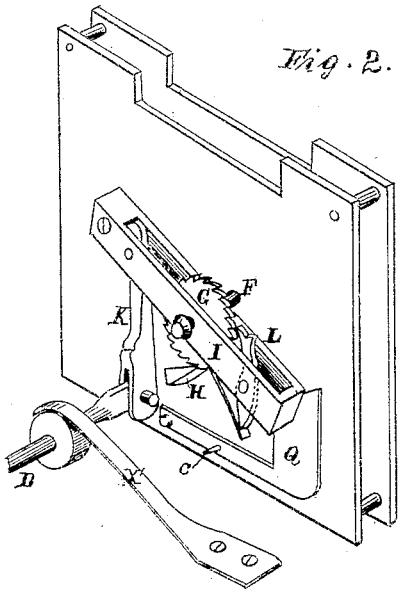


Fig. 3.

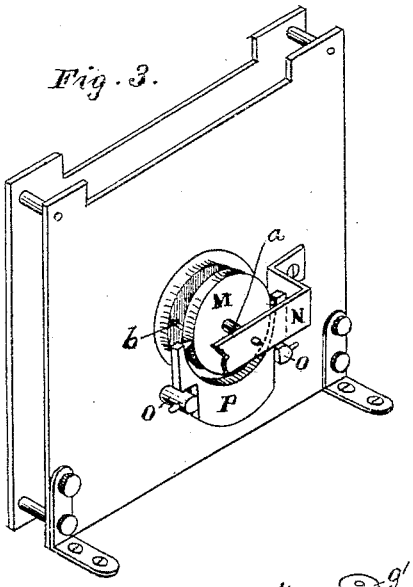


Fig. 4.

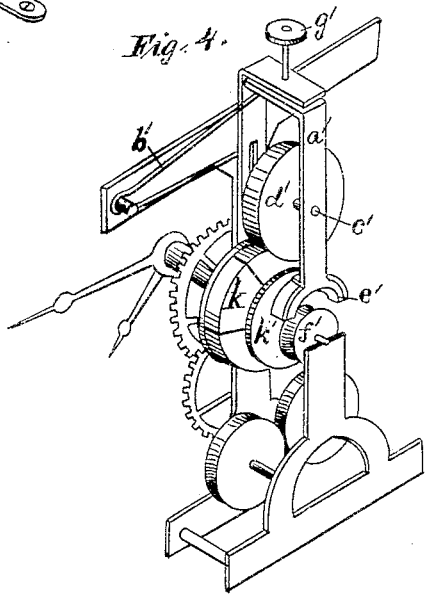
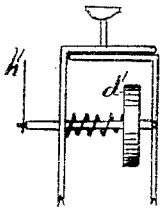
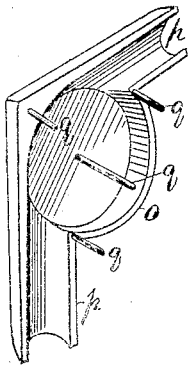
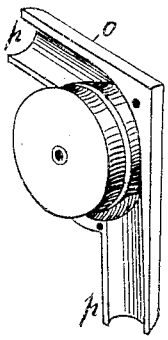
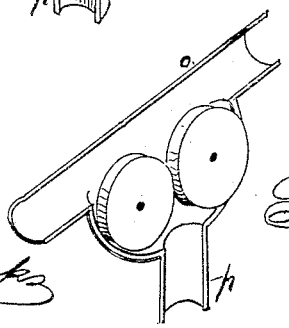


Fig. 5









Witnesses
Geo. H. Strong.
Frank A. Burke

Inventor
Sylvester Serighelli
By Dewey & Co.
Attys

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

SILVESTRO SERIGHELLI, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN WINDING ATTACHMENTS FOR CLOCKS.

Specification forming part of Letters Patent No. **211,936**, dated February 4, 1879; application filed November 22, 1878.

To all whom it may concern:

Be it known that I, SILVESTRO SERIGHELLI, of the city and county of San Francisco, and State of California, have invented a Winding Attachment for Clocks; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention relates to an improved winding attachment for clocks; and my improvements consist in placing at any desired point under the floor at the main entrance of a building the works of a clock, which are so connected with a movable section of the floor that the weight of the persons passing over said floor-section will depress it, and thus wind up the spring, which furnishes power to the clock-movement.

The clock-dials may be placed at suitable points in different parts of the building, the one movement furnishing power to the various dials by means of endless cords passing around the main drum, and thence through tubes and over or under small pulleys to the drum behind the dials, which is mounted on the shaft carrying the hands.

My invention also relates to a method of inclosing the small pulleys at the corners, where the line of direction of the pipes through which the operating-cords are led is changed.

It also consists in a method by which I am enabled to operate the cord without its slipping, and in a means of automatically taking up any slack or stretch in the cord.

Figure 1 is a perspective view of my invention. Figs. 2, 3, 4, and 5 are details of construction.

At any suitable point under the floor of the main entrance of the building is placed the clock-movement (represented at A,) any ordinary form of movement being used.

At some central point in the floor over the clock a part of the floor is removed, and the section B inserted after the manner of a trap-door, being close-fitting, but independent of the main floor. This section rests on frame-work B′, and is steadied in its position by the hinged arms or braces C, pivoted to the frame-work and to suitable parts of the building.

The frame-work sustaining the section rests on a rod, D, hinged at its outer end, and under this rod is a spring, E, which lifts the frame, so that the section rests flush with the floor when no weight is upon it.

At the outer end of the rod D is a spring, X′, which prevents said rod from rising too high if it is released suddenly from any downward pressure.

The clock-movement is placed in the ordinary frame, and has the usual shaft F, on which the mainspring is coiled. This shaft F is extended both ways through the frame, so as to project outward from it on both sides. On the side nearest to the movable floor-section is secured a pinion or ratchet wheel, G, controlled by the spring-pawl H, attached to the frame. On the same shaft, and inclosing or on one side of the ratchet-wheel G, is pivoted the lever-arm I, which is connected by a hinged swinging arm, K, with the end of the rod D, on which the movable floor-section rests.

A spring-pawl, L, on the lever-arm engages with the ratchet-wheel G as the rod D operates said arm on its shaft by weight being brought on the movable floor-section resting on said rod.

On the other end of the mainspring-shaft F, where it is extended through the frame, are formed screw-threads, as shown at *a*, and on this portion of the shaft is the grooved internally-threaded pulley M, which is kept from rotating by the lug *b*, which passes loosely through it, and is secured to the frame containing the movement. The outer end of the shaft F is properly journaled in the hanger or strap N, as shown.

On the same side of the movement frame, and under the pulley M, are two small lugs, O, through which pass the fulcrum-pins, on which is pivoted the bifurcated lever P, the pulley M being between the bifurcations of the lever, so that the beveled edges engage with the groove in said pulley.

To the lower or short arm of the lever P is secured a rod, *c*, which passes back through the movement-frame, and is secured to a spring-plate, Q. This spring-plate is so placed under the lever-arm I that when it is pushed away from the movement-plate by the lever P it comes under said arm I and holds it up, so that no further winding of the clock is possible.

The operation of this part of my device is as follows: Whenever any person enters or leaves the building in which this winding attachment is placed at the entrance-door, they step on the movable floor-section, and thus depress the rod D, which is connected with the lever-arm I, as described. This draws the lever I down, and the pawl on said arm rotates the ratchet-wheel G on the mainspring-shaft, the mainspring being thus wound up, and the pawl H, by engaging with the ratchet-wheel, prevents any back rotation of said wheel or shaft. As the shaft on which the spring is coiled is thus rotated, its threaded outer end, by passing through the internally-threaded pulley M, gradually moves said pulley outward away from the frame. As the arms of the bifurcated lever P engage with the grooves in said pulley, the upper end of said lever is drawn out and the lower end pushed in, so that the rod in the short arm of said lever pushes the spring-plate Q away from the frame and under the end of the lever I. The lever P is so constructed that it is not until the pulley operating it reaches nearly the end of the shaft, and the mainspring is tightly wound, that the spring-plate is pushed out so as to prevent the motion of the lever-arm winding the spring. In this way there is no danger of overwinding, since, as soon as the pulley on the main shaft is pushed out far enough by the action described, the winding action is stopped, and no damage can be done to the mechanism. The screw returns the pulley and releases the lever as the spring is unwound. As before stated, the dials, with necessary mechanism for controlling the movements of the hands, may be placed in different parts of the building, as many as may be required. The hands on these dials are then connected with the operating mechanism by means of endless cords, which pass over pulleys placed in proper positions, and which are led through the partitions and ceilings in tubes.

In the drawings I have represented the clock-dial as being placed over the entrance of the building. The shaft carrying the center-wheel, revolved by the great-wheel and pinion, in the usual manner, is extended out through the movement-frame, and has upon it a grooved pulley, R, the diameter of which in the groove is the same as the center-wheel. The endless cord *e* passes around this, is crossed, and one part is led under each of the small rollers or pulleys *f*, thence up through the door-frame to the two rollers or pulleys *g* at the upper corner, the two parts passing over said rollers. One part is then led under the pair of rollers *h*, past the friction-rollers *i*, and over the pulley *k* on the shaft, which operates the clock-hands. The cord then passes down under the rollers *h*, and to the compensating or spring pulley *l*, and thence back to the pulley R by the same course. This cord being endless, the rotation of the pulley R operates the hands on the dial at the proper rate of speed. The small compensating-pulley *l* is secured by a spring to a regulating-catch, *m*, as shown, so that any stretch of the cord may be taken up by moving the regulating-catch back, thus causing more tension on the spring holding the pulley.

A large friction-roller, E′, is journaled on a movable shaft on one side of the pulley R, and a spring, F′, keeps this roller in close contact with said pulley, and also with the small rollers *f*, so that there is no danger of the cord stopping at those points. This friction-roller is free to revolve, but presses the cord against the roller R, and prevents said end from slipping.

In order that the operating-cord may be free to move easily and not be in any danger of being caught, it is led from one place to the other in tubes *n*. At the corners of the rooms or passages, or where the direction of the cord is changed, is placed a small hollow case, *o*, in which the necessary pulleys are journaled, and which has two or more necks, *p*, over or into which the leading-tubes fit. These cases are made in two parts, as shown, and small lugs or pins *q* on one section fit into corresponding holes in the other, so as to join the parts together, and at the same time furnish axles or pins on which the rollers revolve. The rollers are placed in these cases in accordance with the position which it is designed for the case to occupy, and the direction in which the end is to be led.

On the shaft operating the gearing which moves the hands is the pulley *k*. This is an expansible pulley, for which I have applied for Letters Patent, and is so arranged that its diameter may be increased or diminished at will, and any slack taken up, so as to tighten the cord on the pulley; and as the diameter of this pulley is increased or decreased so is the speed of the hands increased or decreased, and the time of the clock thus regulated.

When the clock-dial is in a position in which it is difficult to reach the expansible pulley on the shaft which controls the movements of the hands, or when said pulley is incased so that it is difficult to reach it, I employ the following means of controlling it: In that part of the frame which carries the mechanism for controlling the hands I fix a sliding frame, *a′*, arranged so as to move up and down, a spring, *b′*, bringing it back to its highest position after being pressed down. Across this sliding frame, and projecting through a slot in the frame, is a shaft, *c′*, on which is a pulley, *d′*, having an elastic face. On the lower end of the sliding frame is a concave friction piece or holder, *e′*, which, when the sliding frame is pushed down, fits against a milled-edged pulley, *f′*, on the shaft on which the expansible pulley is fitted.

The operation of this part of my device is as follows: When it is desired to alter the speed of the clock the size of the pulley is increased or decreased, as desired. To accomplish this when it is difficult to reach the

works, a rod or lever, g', on the sliding frame is pushed down, which forces the sliding frame a' down, so that the holder e' rests on the milled-edged pulley f'. This holds the shaft on which the pulley is mounted so that said shaft cannot revolve. As the sliding frame is thus brought down the elastic-faced pulley d' comes against the milled-edged adjusting-wheel k' on the cone operating the pulley. Then, by turning the shaft c' by means of the pointer h', the cone is moved so that the pulley is expanded or contracted, as desired, and the speed of the clock is thus regulated. This pointer h' can also be used as an indicator, and may be placed in position at one side if the clock is running slow, and on the other if fast, so it may be known which way the expansible pulley should be operated to regulate the clock. By this means I am enabled to operate the cone which controls the expansible pulley without the necessity of reaching into the frame in which said pulley is placed. The rod or lever controlling the sliding frame may be made in any form and project through the casing or wall at any desired point.

By this mechanism for controlling the shaft or wheel the hands are regulated. All the different clocks may be properly set by turning the hands on the main dial, as this will turn the expansible pulley and revolve the cords. When, however, it is desired to set one clock alone, by pushing down the sliding frame so that the holder holds the shaft, the hands may be turned to any desired position without revolving the expansible pulley or operating the hands on the other clocks run by the same movement.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The movable floor-section B, with its downwardly-projecting frame B′, in combination with the parallel rods or arms C, whereby the floor-section is allowed to move vertically and is steadied, substantially as and for the purpose herein described.

2. The movable floor-section B, with its guiding and steadying arms, whereby it may have a vertical movement, in combination with the supporting-bar D, hinged at one end, and having its opposite end connected with the mechanism A, said bar being provided with the returning spring or weight E, substantially as and for the purpose herein described.

3. The vertically-moving section B, with its parallel rods C, supporting-bar D, and spring E, operating as shown, in combination with the spring or stop X′, to regulate and limit the motion of the bar and section B, substantially as herein described.

4. The shaft F, carrying the driving spring or weight, and projecting through the framework, as shown, in combination with the ratchet and pawl, the lever-arm I and connecting-link, and the vertically-moving section B, with its connecting-bar, or equivalent device, substantially as and for the purpose herein described.

5. The shaft F, having screw-threads cut to receive the pulley M, and the bifurcated clutch-lever P, with its pin c, and the stop-plate Q, in combination with the pawl and ratchet, lever I, and winding device, whereby the winding is stopped automatically, substantially as herein described.

6. The pulley R, secured to the center shaft of the clock mechanism, the guiding-pulleys f g h i, and pulley k upon the hand-carrying shaft, in combination with the compensating-spring pulley l and cord e, whereby the dial-hands may be driven and the cord automatically taken up, substantially as herein described.

7. The main driving-pulley R, with the guiding-pulleys and cord e, in combination with the friction-roller E′, movable shaft, and regulating-spring F′, substantially as and for the purpose herein described.

8. In combination with the clock mechanism, with its directing-pulleys and cord for transmitting motion, as shown, the expansible pulley k, whereby the speed of the clock may be regulated, substantially as herein described.

9. In combination with the expansible pulley k, with its adjusting-wheel k', the milled wheel f' and the friction block or holder e', said holder being mounted in the sliding independent frame a', so as to be thrown into or out of contact with the milled wheel substantially as and for the purpose herein described.

10. The expansible regulating-pulley k, with its milled wheel f' and holder e', whereby the shaft is prevented from turning, and the expanding or adjusting wheel k', in combination with the elastic-faced pulley d', mounted upon the movable frame a', so that it may be moved into or out of contact with adjusting-wheel, substantially as and for the purpose herein described.

11. The movable elastic-faced pulley d', so mounted as to be thrown into or out of contact with the adjusting-wheel k', the shaft of said pulley being provided with the indicator-arm h', whereby the pulley may be rotated and the amount of adjustment shown, substantially as herein described.

In witness whereof I have hereunto set my hand.

SILVESTRO SERIGHELLI.

Witnesses:
CHAS. G. YALE,
FRANK A. BROOKS.