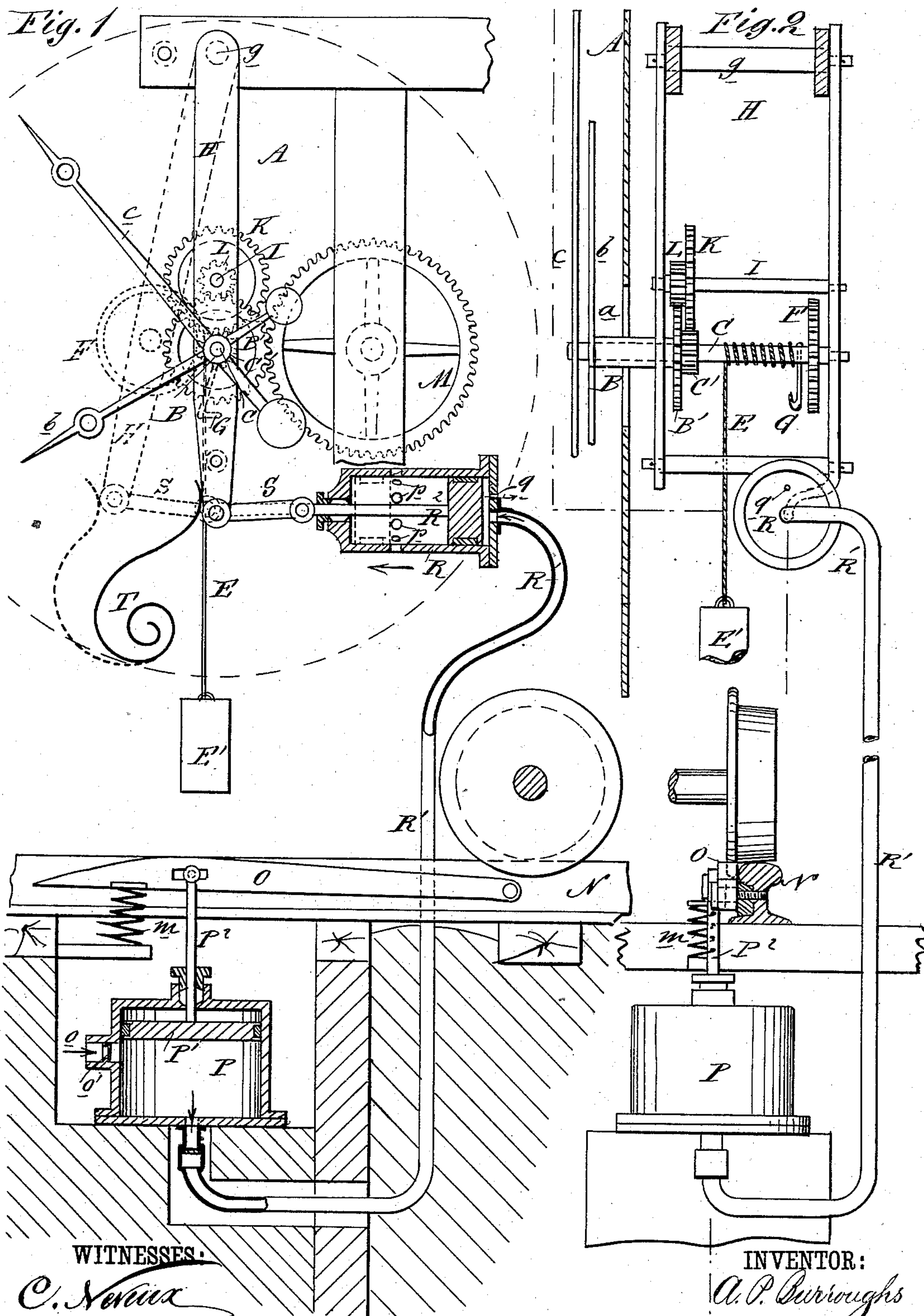


(No Model.)

A. P. BURROUGHS.
Time Signal for Railroads.

No. 239,719.

Patented April 5, 1881.



WITNESSES.
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UNITED STATES PATENT OFFICE.

ALMA P. BURROUGHS, OF SENECA FALLS, NEW YORK.

TIME-SIGNAL FOR RAILROADS.

SPECIFICATION forming part of Letters Patent No. 239,719, dated April 5, 1881.

Application filed September 3, 1880. (No model.)

To all whom it may concern :

Be it known that I, ALMA P. BURROUGHS, of Seneca Falls, in the county of Seneca and State of New York, have invented a new and Improved Time-Signal for Railways, of which the following is a specification.

The invention is an improvement upon the time-signal for which Letters Patent No. 230,738 were granted to me on the 3d day of August, 1880; and it consists in the application of compressed air, and in the mechanism therefor, whereby the clock-hands are ungeared by passing trains.

Figure 1 is a front elevation of the device, partly in section, with the dial removed. Fig. 2 is a sectional side elevation of the same.

Similar letters of reference indicate corresponding parts.

In the accompanying drawings, A represents the clock-dial, having an opening, *a*, in its face, to permit the free movement of the spindles of the hour and minute hands.

B is the hour-hand spindle, carrying the hour-hand *b* and cog-wheel B', and C is the minute-hand spindle, carrying the minute-hand *c* and the pinion C', both spindles B C projecting through the opening *a* in the dial A.

E is a cord wound around the spindle C, and having one end made fast thereto, and having a weight, E', attached to the other end, to reverse the movement of the clock-hands *b c* when they are ungeared from the driving mechanism of the clock.

F is a cog-wheel keyed on said spindle C, to engage in the driving-wheel M of the clock, and thereby transmit the movement of the clock mechanism to the hands *b c*.

G is a stop fastened on the spindle C, and designed to check the uncoiling of the cord E at proper times.

H is a rectangular swinging frame pivoted at its top on a spindle, *g*, within the frame of the clock, and affording a bearing for the spindles B C and for the spindle I, that is parallel with the spindles B C, and carries the counter-wheel K and pinion L, that are geared, respectively, with the wheel and pinion B' C', and receive motion from the pinion C' and transmit motion to the hour-spindle B through the wheel B'.

M represents the driving-wheel of the clock.

N represents a rail of a railroad-track, and

O a lever fixed against the inside or outside of said rail and parallel thereto, and having its upper edge within easy reach of the flanges or tread of passing car-wheels, and also having beneath its free end a strong spring, *m*, to raise it after each wheel of a train has passed over it, so that it shall move with a constant up-and-down motion during the passing of a car or train.

P represents an air-compressor fixed below the lever O, provided with inlet-ports *o*, provided with suitable valve, *o'*; and P' is the piston of said compressor P, connected with the lever O by the piston-rod P².

R' represents a tube, having proper valve, leading from the air-compressor P to an air-storing cylinder, R, that is placed within the clock-case, and is provided with radial exhaust-ports *p p* and small rear escape-port, *q*.

R² represents the piston and piston-rod of said cylinder R, the former of which has a pivotal connection with a rod, S, that is pivoted to the lower end of the frame H.

The design of this improved mechanism is the same as that of the mechanism described in Letters Patent No. 230,738, above referred to—namely, to throw the clock-hands out of gear and make them return to mark twelve o'clock by the passing of a car or train of cars over a certain point, when the said hands will return in gear with the driving-wheel of the clock and continue to mark the time in the usual manner until another car or train passes to ungear and throw them back to twelve o'clock again. The wheel flanges or tread of a passing car or train successively pressing upon the lever O cause it to move down and up, thereby moving the piston P', to draw air into the inlet-ports *o* of the compressor P and force it out through the tube R' into the receiving-cylinders R, where the air is stored up to force the piston and piston-rod R², connecting-rod S, and frame H in the direction of the arrow, Fig. 1, whereby said frame H and the mechanisms thereto attached are swung to the position indicated by the dotted lines, Fig. 1, and the cog-wheel F thereby thrown out of gear with the driving-wheel M, so that the weight E' shall take effect to unwind the cord E, thereby reversing the movement of the hands *b c*, and causing them to return to mark the hour of twelve on the dial, the stop G operat-

ing to check the unwinding of the cord E at this point. As soon as the hands are thrown out of gear by the movement of the piston and rod R² the air in cylinder R escapes through the exhaust-ports *p p*, and after the train has passed the residuum of the air escapes through the partly-opened escape-port *q*, and permits the spring T to operate to throw the parts in gear again. As soon as the lever O is relieved of the pressure of the passing train the said lever O is restored to its primary position by the action of the spring *m*, and the frame H resumes its original position with the cog-wheel F in gear with the driving-wheel M, through the medium of the spring T, that is fixed within the clock-case and opposes its pressure to the movement of the frame H, and the regular movement of the clock-hands goes on as before, which movement winds the cord E around the spindle C, and thereby draws up the weight E', so that by its gravity the said weight E' shall again reverse the motion of the hands *b c*, when another car or train puts the herein-described mechanism in operation.

It is not desirable, when hand-cars, shunting-engines, &c., are run over the track, that they should throw the clock-hands out of gear; consequently the spring T is constructed of

such power that the piston and rod R² cannot be moved against it by the quantity of air that may be pumped in the cylinder R by the passage of a hand-car or shunting-engine over the lever O, it being requisite for operating the device that a greater volume and longer-continued current of air shall be forced into the cylinder R than can be accomplished by the wheels of a single car or engine. The escape-port *q* is small enough not to cause any perceptible diminution of pressure in the cylinder R when the air-pump is in operation; but on the cessation of the movement of the piston P' the residuum of the air in the cylinder R will exhaust quickly through the said port *q*.

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

The combination, with the swinging frame H and its supported parts, as specified, of the connecting-rod S, air-storing cylinder R, air-compressor P, and lever O, and their connections, substantially as herein shown, and for the purpose described.

ALMA P. BURROUGHS.

Witnesses:

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