(No Model.)

B. E. WATERS.

RAILWAY TRAIN INDICATOR.

No. 391,568. Patented Oct. 23, 1888.

Fig. 1,

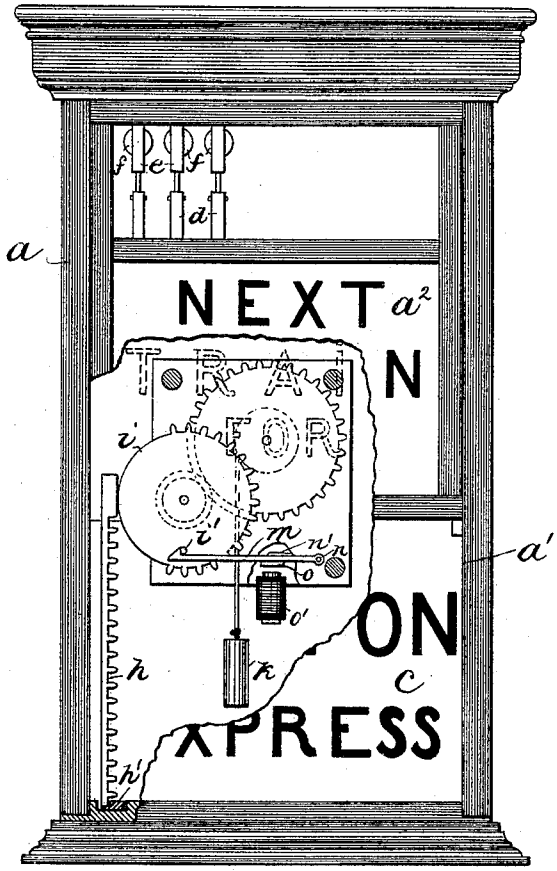
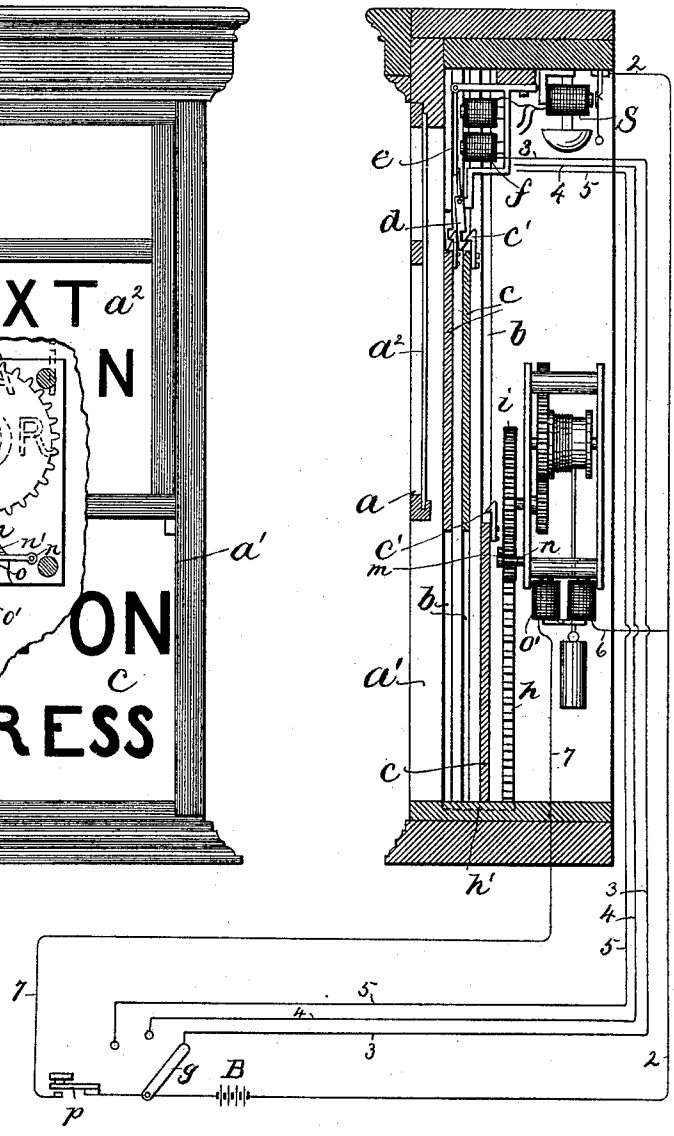


Fig. 2,



Witnesses,
Jas. J. Maloney.
W. Ed. Hale

Inventor,
B. E. Waters,
by Jos. P. Livermore,
Att'y.

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

BENJAMIN E. WATERS, OF BROCKTON, ASSIGNOR OF ONE-HALF TO MOSES E. HATCH, OF NEW BEDFORD, MASSACHUSETTS.

RAILWAY-TRAIN INDICATOR.

SPECIFICATION forming part of Letters Patent No. 391,568, dated October 23, 1888.

Application filed April 9, 1888. Serial No. 270,067. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN E. WATERS, of Brockton, county of Plymouth, and State of Massachusetts, have invented an Improvement in Railway-Train Indicators, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relates to a train-indicator for use at railway-stations, being especially useful at way-stations to indicate the destination of the train that is about to start and the names of the stations on the route at which it stops.

The invention is embodied in an apparatus comprising a case or frame-work containing a number of movable signs each bearing the proper description for a given train, combined with an electro-magnet and its armature for each sign by which the said signs are normally retained concealed and so arranged that the proper attendant by closing the circuit of a given magnet may cause a corresponding sign to be displayed and preferably an audible alarm sounded, so as to call attention to the sign that has just been brought into view.

The apparatus also comprises a restoring-motor controlled by an electro-magnet and its armature, by which any sign that may have been displayed is restored to its concealed position. Thus the station-master as soon as warned of the approach of a train can cause the proper sign to be dropped and the audible signal to be sounded, so as to give due notification of the destination of the train and the stations at which the train stops, and after the train has departed the restoring-motor can be operated to remove the sign from view, so that the proper sign can be displayed when the next train arrives, all of which operations can be controlled by a person at a distance from the indicator by means of the electric circuits.

Figure 1 is a front elevation of a train-indicator embodying this invention, a portion of the front plate being broken away to show the operative parts; Fig. 2, a vertical section thereof.

The apparatus comprises a case or frame, *a*, the front of the lower portion, *a'*, of which is left open or is covered by clear glass through which the signs can be seen. The upper front portion, a^2, is opaque, so as to conceal the signs when in the upper part of the case, and the said opaque portion may have marked upon it words that constitute a permanent sign explanatory in part of all the signs—such, for instance, as the words "Next Train for." The side portions of the frame are provided with a number of guides, *b*, in which the different signs *c* are vertically movable from the upper or concealed position to the lower position, in which they can be seen through the lower open portion, *a'*, of the frame. The said signs *c* may be made of paper-board bound with metal to prevent warping, or of other suitable material, and may, if necessary, be partially counterbalanced, but will in all cases move by the action of gravity in one or the other direction, being retained in concealed position by means of catches *c'* co-operating with movable catches *d*, each operated by the armature *e* of an electro-magnet, *f*, there being one such magnet corresponding to each sign, and the said magnets being in separate circuits, as shown, so that each may be operated independently of the others, to permit the corresponding sign to drop into view. For example, the battery B may have one terminal connected with the switch *g* and its other terminal connected with a conductor, 2, passing through the magnet of a signal-instrument, S, which may be a vibrating bell of usual construction, and then passing by separate branches to one terminal of each of the magnets *e*, the other terminals of which are connected by separate wires 3 4 5 with contacts that co-operate with the switch *g*. Thus by placing the switch on any given contact the corresponding magnet *f* is energized and the corresponding sign *c* permitted to fall into view, said sign having marked upon it the names of all the stations at which the next train will stop, and the signal-magnet S will be set in operation to call attention to the sign.

The operation of the signal S may be stopped by opening the circuit at the switch *g*, but the sign will still remain displayed. After the train has departed the sign may again be concealed or restored to its normal position by

the following devices: A sliding rack-bar, *h*, is provided at its lower end with a finger, *h'*, which extends across the positions that can be occupied by any of the signs in the guides *b*. A toothed wheel, *i*, having a blank portion, as shown, forms a part of a train of wheel-work, which may be actuated by a weight, *k*, or spring, and is provided with a stop projection, *i'*, normally engaged by a stop projection on an arm, *m*, on a rock-shaft, *n*, having another arm, *n'*, provided with an armature, *o*, and magnet *o'*. The said magnet may be in a branch, 6 7, from the battery-wire 2, which branch may be controlled by a key or switch, *p*, the momentary closure of which will cause the magnet *o'* to be energized, and thus release the wheel *i* of the motor. The said wheel will then be caused to make one rotation by the actuating weight or spring of the motor, in which rotation its toothed portion will engage with the teeth of the rack *h*, raising the same, and with it any one of the signs which may then be down, carrying the catch of the said sign *c'* into engagement with its co-operating catch *d*, by which it is held in its concealed position until it is again released by its magnet *f*. As soon as the blank portion of the wheel *i* arrives at the teeth of the rack *h*, the latter will be released by the said wheel and brought back to its original or normal position ready to restore another sign at the next operation of the motor.

The apparatus can be made to accommodate any desired number of signs, and is conveniently operated by the train-master as soon as he receives notice of the approach of the train.

I claim—

1. A train-indicating apparatus comprising a case or frame having a portion of its front open for vision, a number of independent signs arranged one behind another and each movable into and away from the open portion of the frame, and an electro-magnet co-operating with each of said signs, substantially as described.

2. A train-indicating apparatus comprising a case or frame having a portion of its front open for vision, a number of independent signs arranged one behind another and each movable into and away from the open portion of the frame, and an electro-magnet co-operating with each of said signs, and a restoring-motor co-operating with all of the several signs, by which the latter are moved back into control of the magnet, substantially as described.

3. The combination of the case or frame having a portion of its front opaque and provided with a permanent sign, and another portion of its front open to vision, combined with a number of independent signs contained in said case, arranged one behind another, and movable from the position behind the opaque to a position behind the open portion of said case, and an electro-magnet and its armature co-operating with each of said movable signs, substantially as described.

4. The combination of a number of movable signs with a restoring-motor comprising an actuating-train, provided with a stop, and an electro-magnet controlling said stop, a slide-bar engaged and operated by said motor, provided with a projection that traverses the path of the said signs, substantially as described.

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

BENJAMIN E. WATERS.

Witnesses:

JOS. P. LIVERMORE,

JAS. J. MALONEY.