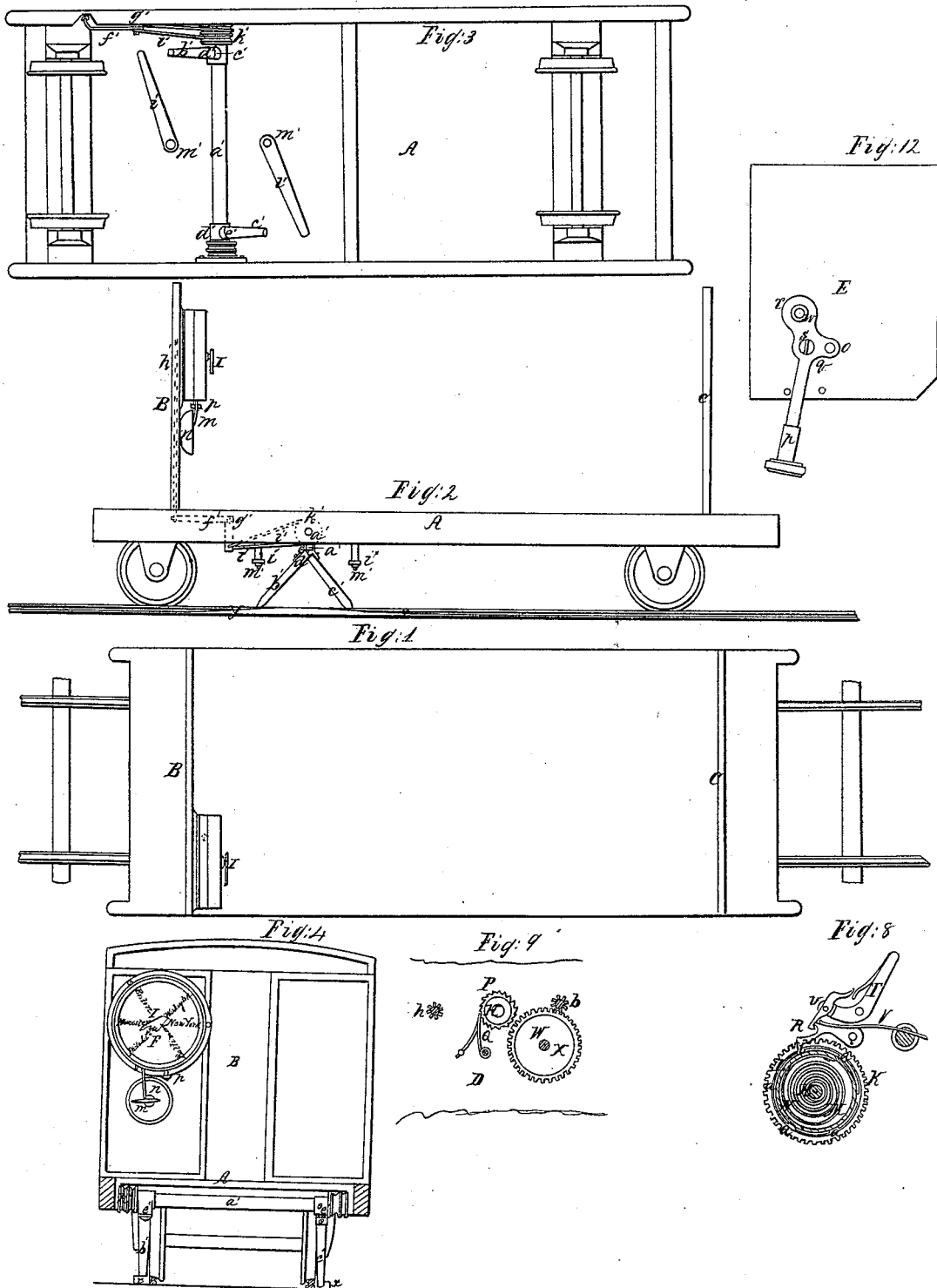


M. H. Ford.

Railroad Station-Indicator.

N^o 6,442.

Patented May 8, 1849.

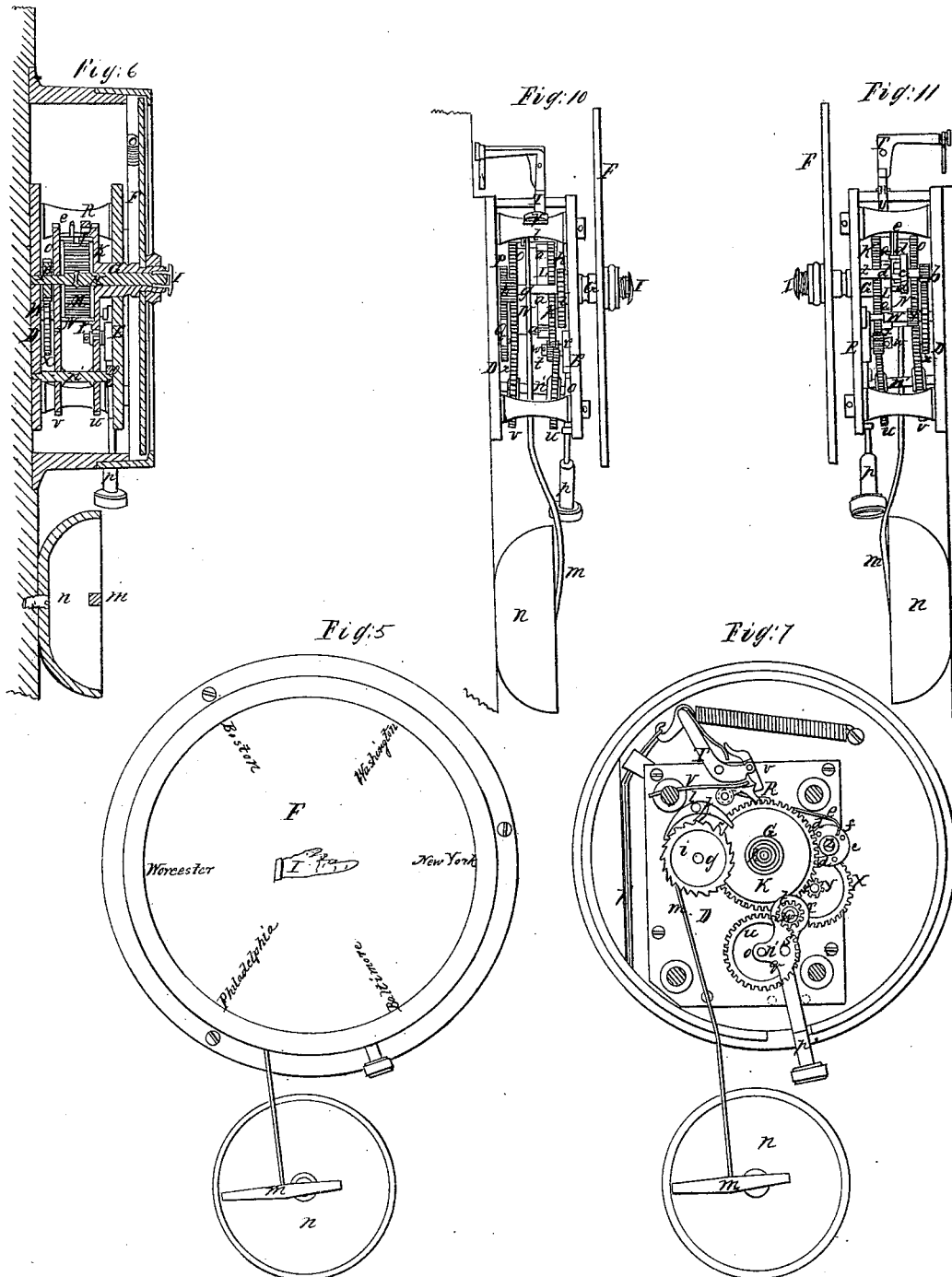


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UNITED STATES PATENT OFFICE.

MASON H. FORD, OF BOSTON, MASSACHUSETTS.

ANNUNCIATOR FOR RAILWAY-CARRIAGES.

Specification of Letters Patent No. 6,442, dated May 8, 1849.

To all whom it may concern:

Be it known that I, MASON H. FORD, of Boston, in the county of Suffolk and State of Massachusetts, have invented an apparatus to be applied to railway-cars for the purpose of denoting or indicating the name of any town or station on the line of a railway at which the car or train may arrive; and I do hereby declare that my said invention is fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

Of the said drawings, Figure 1 denotes a top view of a car and a portion of a railway track having my improvement applied to them. Fig. 2 is a side elevation of the same. Fig. 3 is an under side view of the car. Fig. 4 is a transverse section of the car made to exhibit the station indicator, applied to the end of the car. The sides and top of the car are not exhibited in the drawings it being shown as having only a bottom or platform A, and two ends B, C. Fig. 5 represents a front view of the station announcing apparatus, the same being made to exhibit its dial plate. Fig. 6 is a central vertical and transverse section of it. Fig. 7 is a view of the positions of the wheels and various other parts situated between the parallel plates D, E, of the frame in rear of the dial plate. Such other figures as may be necessary to a clear delineation and description of the apparatus will be hereinafter alluded to and explained.

The index plate of the indicator or station annunciator is seen at F. It consists of a circular disk having the names of the various stations or stopping places on the line of railroad painted or marked on its outer face and in lines radiating from its center as denoted in the drawings by the words "Boston" Washington etc. The said disk so made is fixed at its central part, to a tubular axle or shaft G, which is supported and turns upon the main axle or shaft H, upon the outer end of which an index hand or pointer I is fastened and so arranged as to indicate any of the various stations to the name of which on the dial plate it may at any time be directed. There is a gear wheel K, and a notched wheel L, fixed on the shaft G, in the positions shown in Fig. 6, the said wheels being made to revolve with their shaft. Directly in rear of the last mentioned wheels is a coiled spiral

spring M, which is disposed within a circular box or rim N, which is made to project from a spur gear O, of the same size as the gear K. One end of the said spring, viz, its outer end, is fastened to the rim N, while the other or inner end of the said spring is secured to the central shaft or axle H, a sectional view of the coiled spring its case N, and some of the adjacent parts being represented in Fig. 8.

The shaft H, has a notched wheel P affixed to it just in rear of the wheel O, the said ratchet being made to work in connection with a spring retaining pawl Q, fixed on the plate D as seen, in Fig. 9, which denotes a detached view of the shaft, ratchet pawl and part of the plate D. From the above it will be seen that if we take hold of the hand or index pointer I and turn it so as to put the shaft H in rotation we can wind up or contract the main or spiral spring M.

Fig. 10 exhibits a view of one side of the apparatus for operating the dial plate. Fig. 11 is a view of the opposite side of the same. In the said figures the notches *a, a* &c. of the wheel L, are denoted, there being the same number of them as there are stations indicated on the dial plate. A spring pawl R operates in connection with the periphery and notches of the wheel L, it being so made as to be capable of being made to enter any one of the notches, and when therein to prevent the rotation of the notched wheel its shaft and the dial plate.

A trigger lever T, and spring catch U, are so applied together and to the pawl as to enable a person by pulling in one direction upon the lever to lift the pawl out of any one of the notches *a, a*, &c. and immediately afterward allow it to fall down upon the periphery of the wheel (the wheel in the meantime having been moved or rotated a short distance on its axis by the action of the main spring) and there remain until another or the next succeeding notch is moved around under the pawl so as to permit the latter to be sprung into it, which operation will take place through the action of the pawl spring V. The return of the lever to its former position will again engage the catch of it with the pawl.

In order to prevent the main spring from rotating the dial plate too fast, I affix upon an axle W, a spur gear X, and a pinion Y, the teeth of the pinion being made to en-

gage with those of the wheel O. On another shaft Z, I affix a pinion *b*, and a catch wheel *c*, the said catch wheel being a circular plate having a number of pins *d*, *d*, projecting from one face of it, and disposed at equal distances asunder. From the pawl R or pawl shaft a hooked rod dog or catch *e* is made to extend toward and over, and so, as to engage with the row of pins. When the pawl descends into any one of the notches *a*, *a*, it carries the hook *f*, of the dog *e* down with it, and causes it to pass into the space between two of the pins of the catch wheel, and by its action prevents any further rotation of the catch wheel until it (the dog) is next lifted out of said space. The distances of the several pins from one another should be so regulated, that the catch may fall between some two of them whenever it descends, or the pawl drops into any one of the notches *a*, *a*, &c. The catch wheel and the dog act in conjunction with the pawl and notches in order to insure the stoppage of the dial plate at the proper time although they are not essential thereto and form no part of the mechanism herein-after claimed.

The next portion of the apparatus is the alarm. It is made as follows: On a shaft *g*, arranged as seen in the drawings a small toothed pinion *h* is fixed and made to gear into the teeth of the wheel O. There is also on the shaft *g*, an escapement wheel *i*, which operates in connection with an escapement *k* affixed to a shaft *l*, from which a pendulous hammer *m*, extends and when vibrated strikes against a bell *n*, the whole being in many respects essentially like a clock alarm.

From the above it will readily be seen how easily the index plate and hand or index may be made to move and indicate the arrival of the train at any station—noted on the dial plate, for at each station all that will be required is that the trigger lever be actuated or pulled in such manner (and this may be effected by simply pulling a string attached to the trigger lever) as to raise the pawl out of the notch *a*, in which it may be. This being effected the dial plate will turn and the bell be rung until the pawl falls into a succeeding notch.

The part of the apparatus to be next described, is that for reversing the rotary movement of the dial plate in order that it may be made to correctly indicate the stations on the return of the car.

n' denotes a shaft one journal of which turns in a bearing made in the back plate D of the frame, while the other is made to revolve in a bearing *o*, made in one arm of a tri armed lever *p*, *q*, *r*, shaped as seen in Fig. 12, which exhibits a rear side view of it and the plate E to which it is connected by its fulcrum screws. The said lever turns on said fulcrum screw and carries on the

end of the arm *r*, a toothed pinion *t*, which is arranged between the gear wheel *k*, and a gear wheel *u* fixed on the shaft *n*, in the plane or about in the plane of the wheel *k*. Another gear wheel *v* similar to the wheel *u*, is fixed on the shaft *n'*, in the plane of the wheel O, and is made to engage with said wheel O. The pinion *t*, turns freely on a pin *w*, projecting from the lever *p*, *q*, *r*. By moving the said lever *p*, *q*, *r*, on its fulcrum the wheel *u*, may be thrown in or out of gear with the wheel K, the pinion *t*, being so disposed that when the wheel *u*, is out of gear with the wheel K, it (the pinion) shall be thrown into gear with both of said wheels K, and *u*, and so that when the wheel O revolves the wheel *v* being always in gear with it, a reversed motion will be given to the wheel X and the dial plate.

The last portion of the mechanism to be specified is that by which the movements of the index plate are governed by the motion of the car on the railway, and without any attention or action of the conductor of the train. For this purpose I place two inclined planes *x*, *y*, on each side of the railway track at or near each railway station, the said two planes being arranged in opposite directions as seen in the drawings. Underneath the floor of the car, and transversely across the same, I place a turning shaft *a'*, so adapted to the car as to turn in suitable bearings. To this shaft two legs *b'*, *c'* are fixed, and made to extend vertically downward and so as to respectively come in contact with the two sets of inclined planes before mentioned as applied to the track. Each of these legs is connected to the shaft by a hinge joint so applied as to admit of the leg being turned from a vertical toward a horizontal line, the hinges of the two legs being arranged in opposite directions or so that while they admit of one leg being turned up in one direction they only admit the other being turned in the opposite direction. Each of the two legs is so applied that when it is brought from an inclined position into a vertical line, a shoulder *d'* of it is carried in contact with a shoulder *e'* fixed to the shaft and so as to prevent a further forward movement of the leg. A bent lever *f'* is fixed to the under side of the car and turns upon a fulcrum at *g'*. One arm of this lever is attached to a string or cord *h'*, which proceeds from the trigger lever before mentioned. The other arm of the lever *f'* has one end of a cord or chain *i'* attached to it, the other end of the said cord being carried over a pulley *k'* fixed on the shaft *a'*. From the above it will be seen that while the car is in the act of running by the one set of the inclined planes, one of the legs *b'*, *c'*, will be so acted on by one of the planes that it will turn the shaft *a'*, and thereby pull the cord con-

connected with the trigger lever and so as to lift the pawl out of the notch *a*, in which it may be.

It will be evident from what has been hereinbefore stated, that this will cause the dial plate to move and indicate the name of the station. The reason two legs are affixed to the shaft *a'*, and in the manner described, is to enable the movement of the car either in one direction or the other on the track to operate the indicator. A lever *l'* turning horizontally on a fulcrum *m'* and situated as seen in the drawings may be used to fold and hold the legs up in a horizontal position when necessary. In order to wind up the main spring a person must lay hold of the hand or the index and turn the latter and its shaft.

What I claim is as follows:

1. The combination above described to be operated by a movement of the trigger lever, by the conductor or any other person of the train, the said combination consisting, 1st of the dial plate or disk and its tubular shaft, 2 of the index hand and its shaft, the same having a ratchet wheel and retaining pawl or not as circumstances may require, 3d the notched wheel affixed to the dial plate shaft, 4th the pawl of said notched plate, 5th the main spring the said main spring being so connected to the index and dial plate shafts as to cause the dial to operate or turn around in one direction and indicate the stations, the whole being substantially as described.

2. I claim in combination with the mechanism above claimed, the mechanism for reversing the motion of the dial plate, the same consists of gear wheels O, K, those fixed on the shaft *n'*, and said shaft, the tri armed lever *p*, *q*, *r*, and pinion *t*, the whole

being applied together and to the mechanism before claimed, and made to operate essentially as above specified.

3. I claim in combination with the mechanism herein first claimed, the mechanism which retards the rotary movement of the dial plate, and serves as an additional stop motion the same consisting of the axle W, gears X, O, and Y, shaft Z, pinion *b*, catch wheel and dog, the whole being made to operate and serve the purposes above mentioned.

4. I claim in combination with the mechanism hereinbefore first claimed, the alarm apparatus, the same consisting of the gear wheel O, shaft *g*, pinion *h*, escapement wheel *i*, escapement *k*, pendulous hammer and bell the whole being combined and made to operate essentially as described.

5. In order to make the apparatus a self operating or automatic machine, I claim a combination made up of the following elements or their mechanical equivalents, viz, 1st one or more cams or inclined planes applied to the railway track, 2nd one or more legs *b'*, *c'*, affixed to a shaft connected with the car, also a cord or other contrivance so connected with the trigger lever and the shaft of the car, as to be operated as described, when the leg passes up the inclined plane, 3rd the mechanism covered by the claim hereinbefore first made or any mechanism constructed and made to operate essentially like the same.

In testimony whereof I have hereto set my signature this twenty-fourth day of October A. D. 1848.

MASON H. FORD.

Witnesses:

R. H. EDDY,
F. GOULD.