2 Sheets—Sheet 1.

C. A. EVANS.

STATION-INDICATOR.

No. 178,128. Patented May 30, 1876.

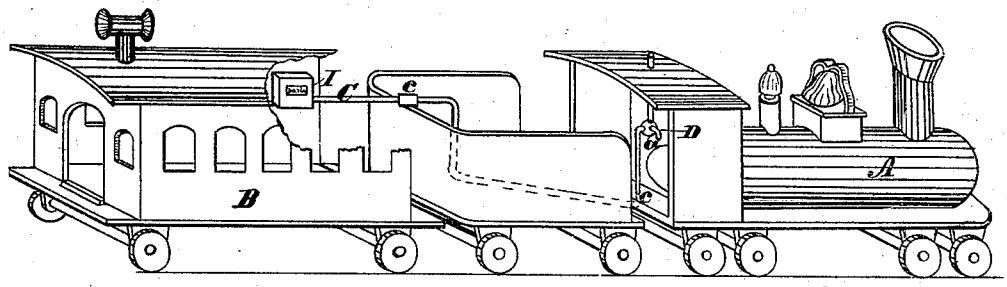

Fig. 1

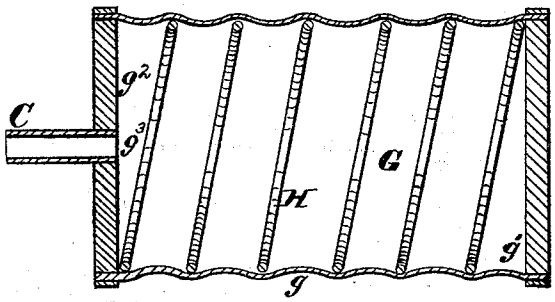

Fig. 2

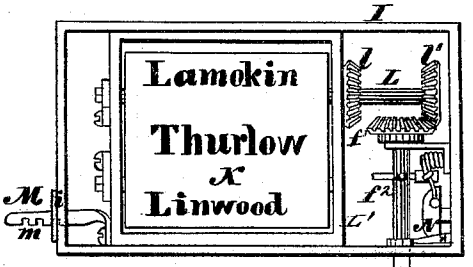

Fig. 3

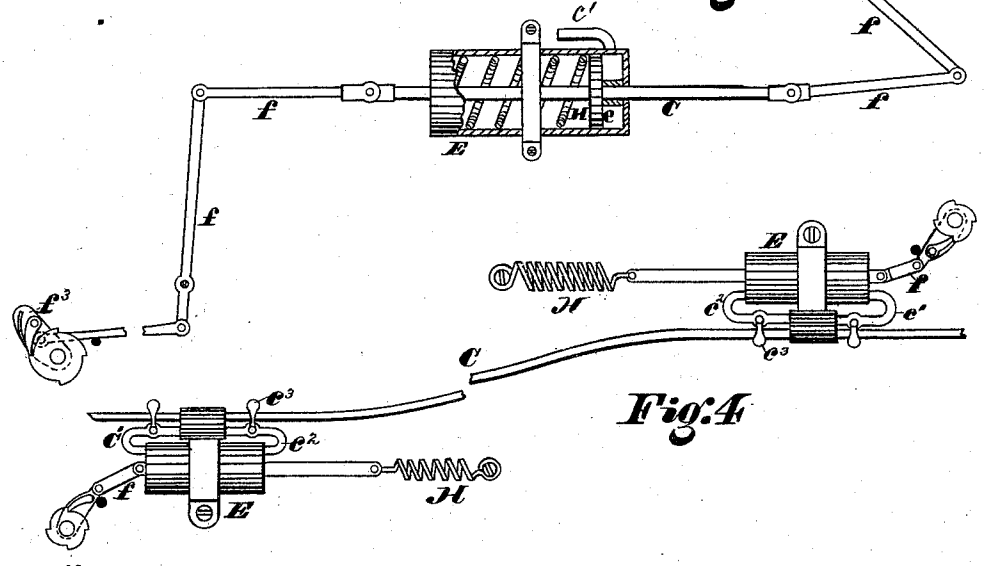

Fig. 4

Witnesses

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2 Sheets—Sheet 2.

C. A. EVANS.

STATION-INDICATOR.

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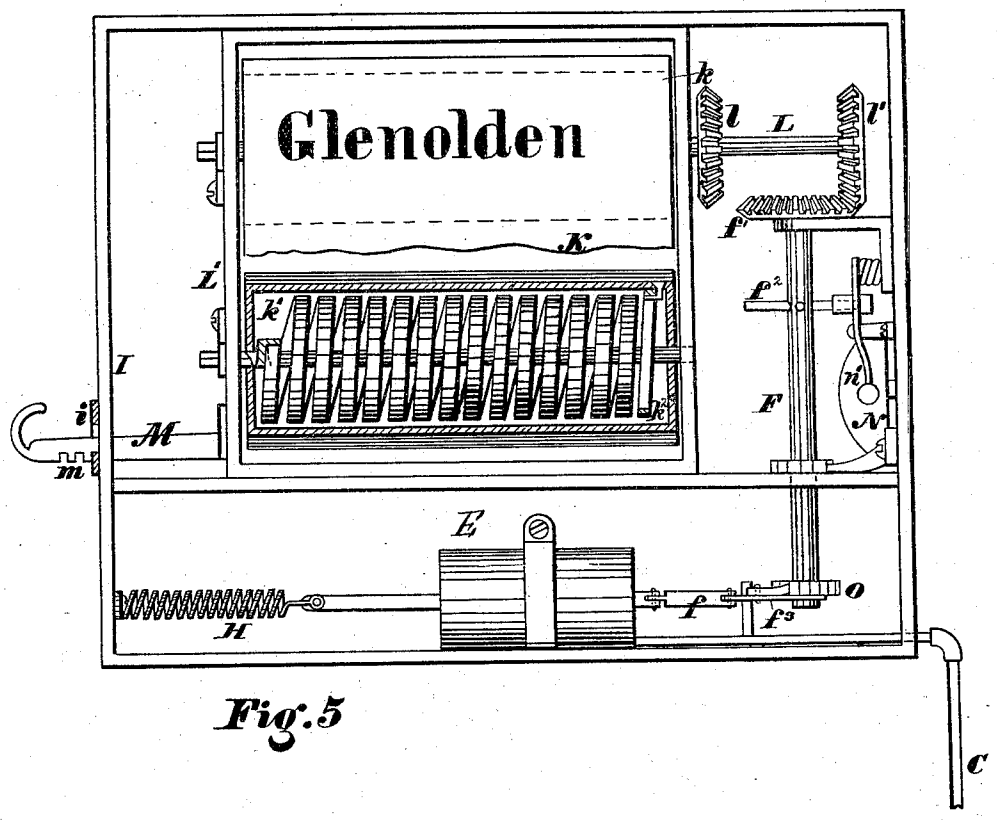

Fig. 5

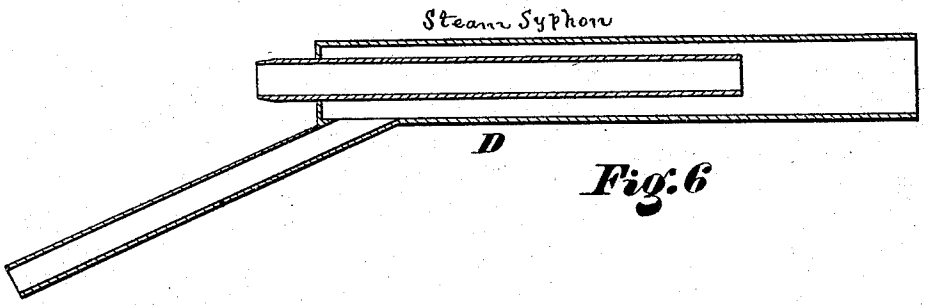

Fig. 6

Witnesses

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UNITED STATES PATENT OFFICE.

CLARENCE A. EVANS, OF UPLAND, PENNSYLVANIA.

IMPROVEMENT IN STATION-INDICATORS.

Specification forming part of Letters Patent No. **178,128**, dated May 30, 1876; application filed January 14, 1876.

To all whom it may concern:

Be it known that I, CLARENCE A. EVANS, of Upland, in the county of Delaware and State of Pennsylvania, have invented certain new and useful Improvements in Station-Indicators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a perspective representation of a train of cars provided with my improvement. Fig. 2 is a central longitudinal section of vacuum-chamber. Fig. 3 is a front elevation of indicator, and a partly sectional view of vacuum apparatus. Fig. 4 is a plan view of modified form of vacuum apparatus. Fig. 5 is an elevation and partial section of indicators. Fig. 6 is a detail view.

The object of my invention is to provide means for operating all the station-indicators of a train of cars simultaneously from the locomotive, such operation to be effected through the medium of devices whereby a vacuum is created in a pipe extending from the locomotive to the cars and forming connections with cylinders or equivalent apparatus connected with suitable gearing for moving the indicators. A further object of my invention is to improve the construction of the indicators themselves, so as to cause them to work easily and be readily reversed.

The nature of my invention consists in the peculiar construction and combination of parts, as hereinafter more fully described.

Referring to the accompanying drawing, A represents a locomotive, and B B the cars of a train, provided with my improved station-indicators. C is a pipe, extending from the locomotive back to the cars, having suitable connections or joints between them, as shown at *c c*. The forward end of this pipe connects on the locomotive with a steam-siphon, D, or other equivalent device for creating a vacuum, communicating on the cars with cylinders E E, so that when a vacuum is created in said pipe the pistons *e e* will be drawn forward, rotating the shafts F through the medium of the levers *f* or equivalent mechanical means. Instead of cylinders having pistons, a collapsible chamber, G, formed of india-rubber tubing, *g*, and solid heads g^1 g^2, the latter having an opening, g^3, for the admission of the end of the pipe C, or a branch therefrom, may be employed. H represents a coiled spring, within the cylinder E or case G, for causing the return of the piston *e* or head g^1, after the vacuum has been destroyed or filled. I is the indicator box or case, to be placed in any suitable and convenient position within the car, said box having a window or opening through which the name of the approaching station will be shown. The names of the various stations on the route are printed on a band, K, wound upon rollers *k* k^1, one of said rollers containing a spiral spring, k^2, or being connected with an equivalent coiled or other spring, so as to take up the slack of said band K as it is unwound from the other roller. L represents the shaft of the roller *k*, having opposite-faced bevel-gear *l l'* gearing alternately with the miter-wheel f^1 on the shaft F, which is done by sliding the interior frame L', in which the rollers *k* k^1 are mounted, from side to side, by means of the lever M, having notches *m m* engaging with a plate, *i*, fastened, as shown, to the side of the box I. N represents a gong, having a spring-striker, *n'*, operated by curved arms f^2 on the shaft F; and O is a ratchet-wheel, on the lower end of said shaft, with which a spring-pawl, f^3, attached to one of the levers *f*, engages.

The interior frame L, besides being adjustable, is also removable from the outer case, the fastening M being detachable from its catch. The object in having this inner frame removable is to provide for the use of different bands or lists of stations—a necessity occasioned by the frequent transfer of cars to different roads.

The operation is substantially as follows: The several parts being duly connected and arranged as described, the engineer, on leaving a station, turns a cock, *a*, creating a vacuum, by the employment of steam, in the pipe C. Instantly the heads g^1 or pistons *e* are moved forward, actuating the levers *f* and producing a quarter revolution of the shaft F, thereby turning the shaft L and winding the band K from the roller *k* to k^1, or vice versa,

accordingly as the miter-wheel is in gear with the wheel l or l', far enough to cause the name of the next approaching station to be shown through the window of the box I. The rotation of the shaft F operates the striker n', sounding an alarm and attracting the passengers' attention to the name newly displayed. As soon as this has been accomplished, the time occupied being scarcely more than an instant, the engineer reverses the cock a, permitting air to enter the pipe C, and destroying the vacuum therein. The pistons or head g^1 are immediately returned to their normal position by the action of the springs H, the levers f also moving and causing the pawl f^3 to slide back on the ratchet O until its point impinges on another tooth, the devices being then ready to renew the operation. As soon as the end of the route is reached, the frames L′ in the boxes I are slid so as change the wheel f^1 from l to l', or vice versa. This being accomplished, the rotation of the shaft F, which is always in the one direction, will move the band K in the opposite way to what it was moved before the just-described change of gear was effected.

If desired, the cylinders E or equivalent collapsible chambers G may be located below the floor of the car, a separate cylinder being employed for each shaft F, or one cylinder operating two shafts, as shown in Fig. 3. For economical and other considerations, I prefer to locate the cylinders E or chambers G within the boxes I, and just below the sliding frame L′, as shown plainly in Fig. 5. In this case the pipe C, instead of passing below the floors of the cars, may be located against one of the walls just above the windows. Between the cars, or over the platforms, said pipe will pass near the bell-rope, so that when the brakeman is connecting or disconnecting the latter he may do the same with the former without changing his position to any considerable extent.

In Fig. 4 is shown means for utilizing the vacuum or pressure, as may be desired. For the vacuum, the connection with the cylinders E is made by means of the branch c^1; for steam, air, or water pressure, a branch, c^2, entering on the opposite side of the head e, and, having a cock, c^3, is provided.

What I claim as my invention is—

1. The combination of the siphon D, pipe C, cylinder E, or chamber G, shaft F, levers f, and indicator I, substantially as shown and described.

2. In combination with a station-indicator the collapsible chamber G, formed of the tube g and rigid heads g^1 g^2, the intermediate mechanism, substantially as set forth, whereby the expansion and contraction of said chamber communicates motion to the working parts of the indicator, substantially as shown and described.

3. In combination with the case I the interior horizontally-sliding frame L′, supporting the band-rollers k k^1, and the shaft L, provided with changeable gearing l l', substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of January, 1876.

CLARENCE A. EVANS.

Witnesses:

M. DANL. CONNOLLY,

CHAS. F. VAN HORN.