L. V. ADAMS.

Station-Indicators.

No. 166,445. Patented Aug. 10, 1875.

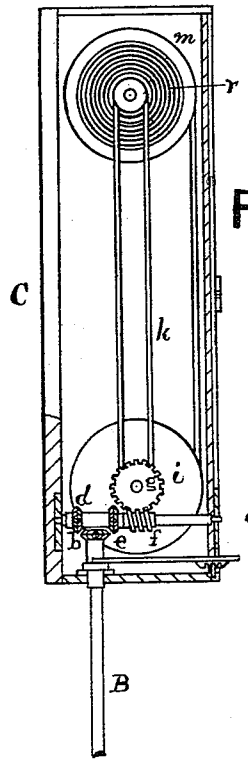


Fig. 1.

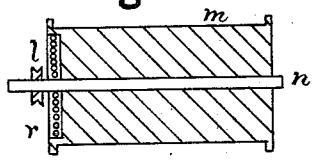


Fig. 3.

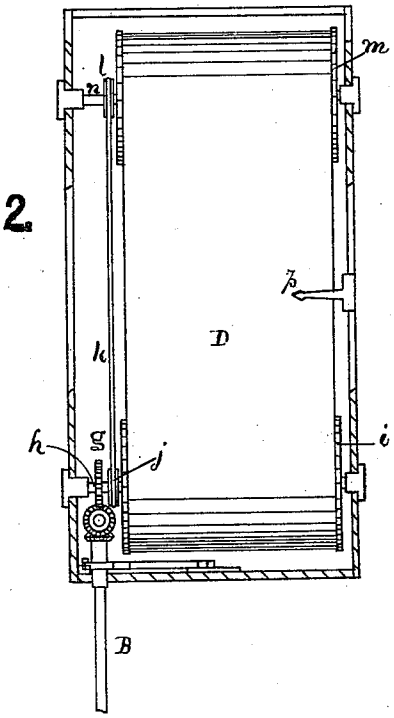


Fig. 2.

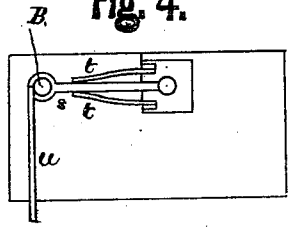
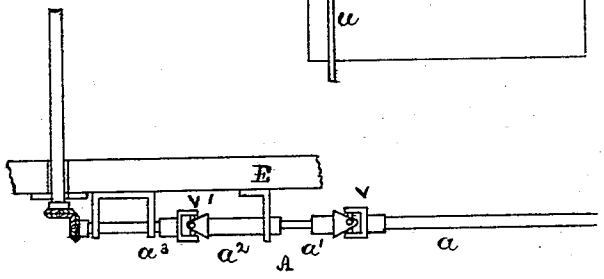


Fig. 4.



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UNITED STATES PATENT OFFICE.

LEWIS V. ADAMS, OF ROCK ISLAND, ILLINOIS.

IMPROVEMENT IN STATION-INDICATORS.

Specification forming part of Letters Patent No. **166,445**, dated August 10, 1875; application filed February 23, 1875.

To all whom it may concern:

Be it known that I, LEWIS V. ADAMS, of Rock Island, in the county of Rock Island and State of Illinois, have invented new and useful Improvements in Station-Indicators, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation, with the box, which contains a portion of the devices, partly in section; Fig. 2, a front elevation of the parts shown; Figs. 3 and 4, details.

This invention is an improvement on the devices shown in my patent of May 5, 1874, and applicable to cars where the car itself is turned at the end of the route and the operation of the devices not reversed.

In this device the names of the stations or streets are to be placed upon a ribbon passing over two rollers; and the invention consists in connecting one of these rollers to its axle by means of a coil-spring only, so that the slack of the ribbon will be taken up; in providing the shaft, beneath the car, which drives the devices, with a double joint, and in the several devices and combinations hereinafter described and claimed.

In the drawings, no part of the car has been represented except the bottom E. The devices are operated from the axle of the car, substantially as represented in my former patent.

A is a shaft, located beneath the body of the car, and driven from the axle, as aforesaid. This shaft consists of four parts, a a^1 a^2 a^3. a a^1 are connected together by a universal joint, v. a^1 slides into a^2, while a^2 and a^3 are also connected by a universal joint, v'. The object of making the shaft in this way is to allow for the various movements of the car, both vertically and laterally. B is an upright shaft; as shown, it is driven by beveled gear; it may, however, be driven by a worm. C is a box or case, located in any convenient place in the car, through the bottom of which the shaft B passes. On the upper end of B is a beveled gear-wheel b. c is a shaft running in suitable bearings, on which are two beveled wheels, d and e, and a worm, f. The wheel b may be made to engage with either d or e at pleasure. g is a cog-wheel, located on a shaft, h, running in suitable bearings, upon which shaft the roller i is permanently secured, and also a pulley, j. k is a belt or cord. m is another roller, located near the top of the case; it is placed loosely upon the shaft n. l is a pulley on the shaft n. r is a coil-spring, one end of which is secured to the shaft n, and the other end is fastened to the roller m, and this spring is the only connection which this roller m has with the shaft n. p is a pointer. D is a ribbon, on which the names of the stations or streets are to be placed. Fig. 4 shows the devices by means of which the shaft B may be disengaged from the beveled wheels d e, or be made to engage with either of them. s is a metal bar, pivoted at one end to the case, and having a hole through the other end, through which the shaft B passes. t t are springs, one on each side of s, which, when the shaft B is free, hold it midway between d and e. u is a notched arm or bar, attached either to s or to the shaft B, by means of which B may be made to engage either with d or e.

When the device has been attached to a car, it is to be run over its route. When the car reaches the first street or station, the name of such street or station must be indicated upon the ribbon D, opposite the pointer p, and so on over the whole route, after which, whichever way the car be run, when it arrives at a street or station, the name of such street or station will be opposite the pointer p. Of course, the beveled wheel b is to be engaged with d when the car goes in one direction, and with e when it returns.

The shaft n may be driven in some other way than by the belt k, if desired.

The case C may be sixteen inches long, eight inches wide, and four inches deep, inside measure, in which case the rollers should be six and a half inches long, and three and three-quarters inches in diameter.

Suppose the ribbon to be wound upon the roller m, and the driving parts be so arranged as to wind it from m upon i; then, as the upper roller is loose upon its shaft, it will be rotated by the tension of the ribbon as it is uncoiled from m and wound upon i. If the shaft n remain stationary, the spring r would be coiled up, and its tension would be con-

stantly increased; but as the shaft *n* revolves, this tension upon the spring is mostly released. During this operation the diameters of the two rollers, with the ribbon thereon, vary, that of *m* being at first the greatest, and afterward, as the ribbon is drawn from *m* upon *i*, the diameter of *i*, with the ribbon thereon, becomes the greatest, and the spring *r* compensates for this difference, and keeps the ribbon taut all the time. When the ribbon is wound from *i* upon *m*, the roller *m* will be carried by the tension of the spring *r*, and its action will keep the ribbon tight.

What I claim as new is as follows:

1. The roller *m*, shaft *n*, and spring *r*, in combination with the roller *i*, ribbon D, and cord *k*, and suitable driving devices, substantially as and for the purposes specified.

2. The shaft A, consisting of the parts *a* a^1 a^2 a^3 and shaft B, in combination with shaft *n*, roller *m*, spring *r*, roller *i*, ribbon D, and cord *k*, in a station-indicator for cars, all as and for the purpose specified.

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