(No Model.)

J. M. NELSON.

STATION INDICATOR.

No. 472,221. Patented Apr. 5, 1892.

Fig. 4.

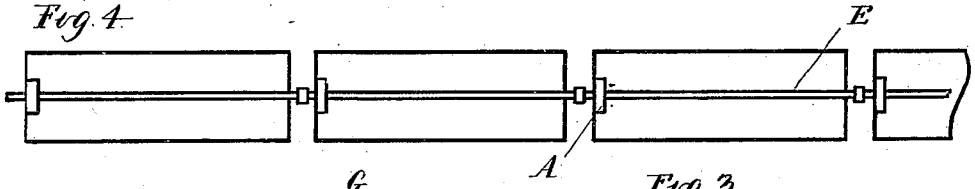


Fig. 2.

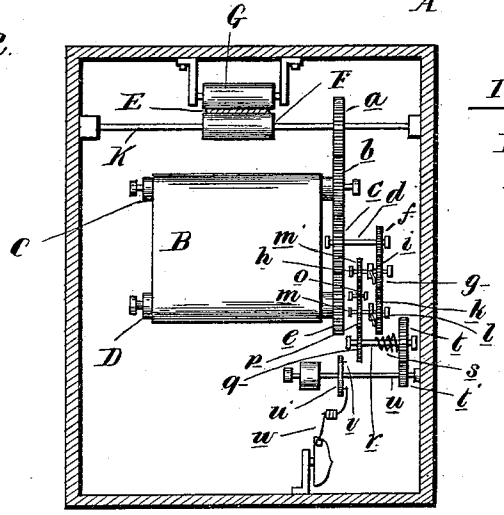


Fig. 3.

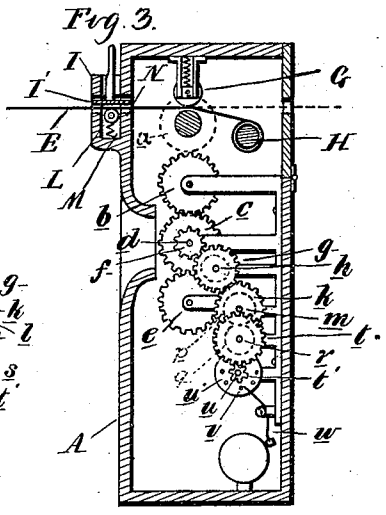


Fig. 1.

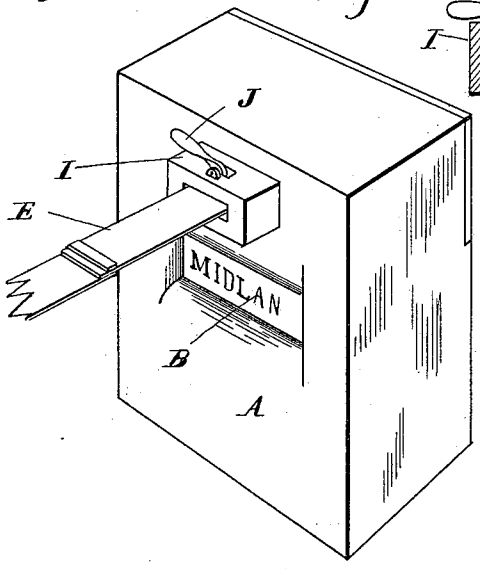
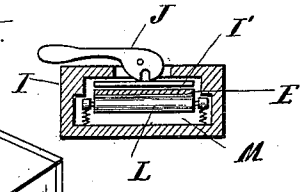


Fig. 5.



Witnesses
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH M. NELSON, OF COLEMAN, MICHIGAN.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 472,221, dated April 5, 1892.

Application filed April 6, 1891. Serial No. 387,897. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. NELSON, a citizen of the United States, residing at Coleman, in the county of Midland and State of Michigan, have invented certain new and useful Improvements in Station-Indicators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a new and useful improvement in station-indicators; and the invention consists in the peculiar construction of the indicator and in the peculiar means employed in actuating the signals in the various cars from any single point in the train, and, further, in the peculiar construction, arrangement, and combination of the various parts, all as more fully hereinafter described.

In the drawings, Figure 1 is a perspective view of an indicator-casing. Fig. 2 is a front elevation of the operating mechanism in the casing. Fig. 3 is an end elevation thereof. Fig. 4 is a diagram plan view of a train of cars, showing my invention applied. Fig. 5 is a vertical section through the locking-clamp.

A is the casing apertured at one side to expose the names of the stations on the ribbon B, which is wound on each end on rollers C and D, journaled in suitable bearings within the casing.

E is a ribbon-strip or cord having suitable coupling between the cars and passing from end to end of the train, the indicators being so located that the strip will pass through them between the stationary roller F and the spring-roller G, which clamps the cord or strip tightly between them. At each end the cord is secured to a strong spring-roller H, the two rollers having springs of the same tension, or nearly so.

I is a guide-bearing in the front side of the machine, through which the strip passes, in which is journaled a clamp I′, actuated by the cam-lever J to lock the strip after it has been moved through the necessary distance to give the proper indication. Motion is transmitted from the roller F to the rollers C and D by means of the gear-wheel *a* upon the shaft K, meshing with the gear-wheel *b* on the roller C, which meshes with the gear-wheel *c* upon the shaft *d*, and this in turn meshes with the gear-wheel *e* upon the roller D.

It is evident that the operator at one end of the train can, by first unlocking the clamp, move the indicator at that end of the train to indicate the particular station by drawing the cord in either direction and allowing the slack to be taken up by the spring-rollers and then lock the cord and thus effect the same indication at all the indicators in the train.

In order to strike the alarm to attract attention at the time the indication is changed, I provide the following mechanism: Upon the shaft *d* I secure the gear-wheels *f*. This meshes with the gear-wheel *g*, loosely journaled upon the shaft *h* and having a ratchet-and-pawl engagement, as shown at *i*, with said shaft. The gear-wheel *g* meshes with the gear-wheel *k*, which has a similar ratchet-and-pawl engagement *l* with the shaft *m*. Upon the shaft *h* is secured a gear-wheel *m′*, which meshes with the pinion *o*, which meshes on the opposite side with the gear-wheel *p* upon the shaft *m*. The wheel *p* meshes with the wheel *q* upon the shaft *r*. Secured to this shaft is the spiral spring *s*, to which is secured the gear-wheel *t*, meshing with the pinion *t′* upon the bell-actuating shaft *u*, which has secured to it the disk *u′*, having the pins *v* secured therein, adapted to engage with a lever *w* of the bell-clapper, which is adapted to strike upon the bell. It will be seen that if the shaft *d* is turned in one direction—say toward the front—the bell will be rung through the medium of the shaft *h*, gear-wheel *m′*, pinion *o*, and gear-wheels *p* and *q*. The spring being attached to the gear-wheel *t*, which is of a larger diameter than the wheel *q*, will be wound up, and as it unwinds the bell will be rung by the gear *t* meshing with the gear *t′*, which latter actuates the shaft *u* and wheel *u′*, carrying pins *v* on the wheel *u′*, striking upon the arm of the clapper. If the indication is effected by turning it in the opposite direction, the bell will be rung through the medium of the wheels *g k p q* and the shaft *h* will not turn. Thus I provide gearing adapted to ring the same bell when turned in opposite directions through two different lines of gear-wheels.

I preferably arrange a spring-pressing roller L in the guide-bearing I, upon which the cord will travel, so as to give the least possible amount of friction, and when the clamp is

depressed it is evident that the spring-roller will be moved into the recess M and the clamp will impinge against the face N and hold the cord tightly in position.

What I claim as my invention is—

1. In a station-indicator, the combination, with the casing, of the rollers journaled therein and the station-indicating ribbon thereon, a cord extending through said indicators and adapted to actuate the same, spring-rollers to which the ends of said cord are secured, and the clamping device to hold the cord in its adjusted position, substantially as described.

2. In a station-indicator, the combination, with the casing, of the rolls, the station-indicating ribbon thereon, a cord passing through the indicators, secured at its ends to spring-rollers, means for actuating the station-indicating rollers by said cord, spring-rollers to which the ends of said cord are secured, a clamp for holding said cord in its adjusted position, and the alarm mechanism adapted to be operated upon the movement of said cord in either direction, substantially as described.

3. In a station-indicator, the combination, with an operating-cord extending from end to end of the train and means for actuating the indicating-ribbons, of spring-rolls at each end of said cord adapted to take up the slack and the clamp for holding said cord in its adjusted position, substantially as described.

4. In a station-indicator, the combination, with the actuating-ribbon, of friction-rollers between which said ribbon passes, the indicating-ribbon, rolls over which said ribbon passes, a train of gear-wheels actuated by the friction-rollers for moving the indicating-ribbon, and a clamp for the actuating-ribbon, substantially as described.

5. In a station-indicator, the combination, with the casing and indicating-ribbon and an actuating-ribbon for the same, of a train of gear-wheels actuated by the actuating-ribbon for moving the indicating-ribbon in opposite directions, two parallel trains of gears actuated by said other gears, a shaft, a gear loosely mounted thereon, a spring on the shaft connected with said loosely-mounted gear, an indicating-alarm, and pawls and ratchets for striking the alarm upon the movement of the indicator in either direction, substantially as described.

6. In a station-indicator, the combination, with the casing, of an indicating-ribbon mounted on suitable rolls journaled therein, an actuating-ribbon passing entirely through the casing, a spring-actuated roll for moving the actuating-ribbon in one direction, friction-rolls between which the actuating-ribbon passes, a train of gear-wheels rotated by the friction-rolls for moving the indicating-ribbon, a spring-pressed roll below the actuating-ribbon, and a cam-lever for bearing on the actuating-ribbon above the spring-pressed roll, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH M. NELSON.

Witnesses:
A. V. LINTON,
S. S. TOWER.