(No Model.)

W. J. KIDD.

SIGNAL AND SPEED INDICATOR FOR CARS.

No. 259,870. Patented June 20, 1882.

Fig. 1.

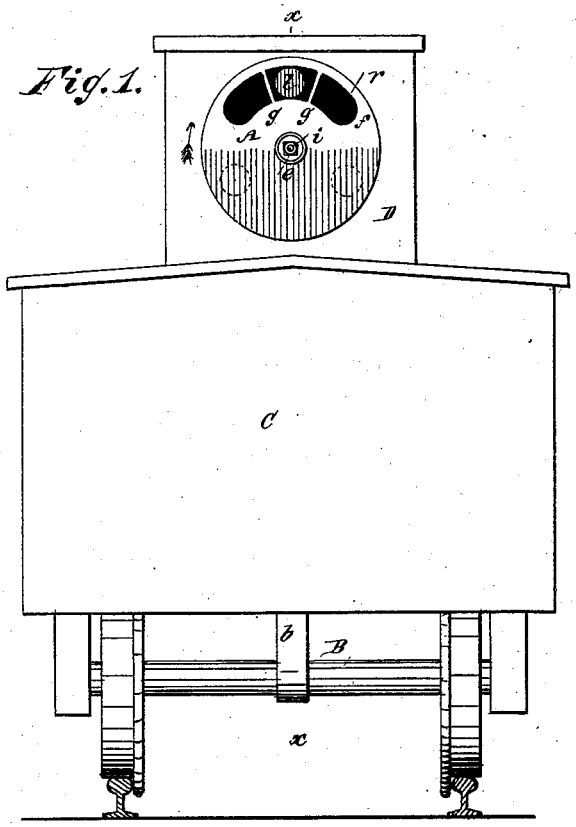


Fig. 2.

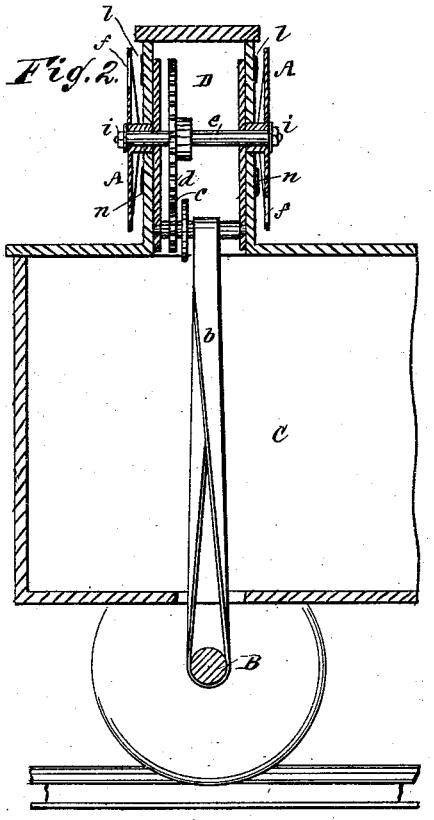


Fig. 3.

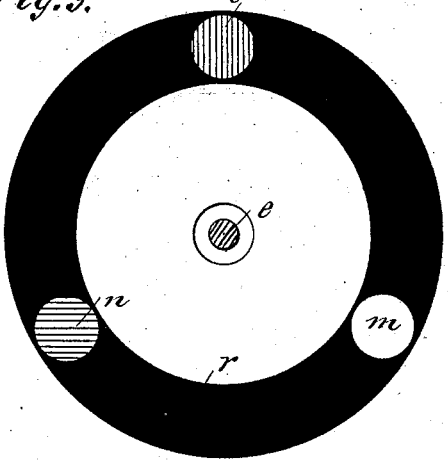
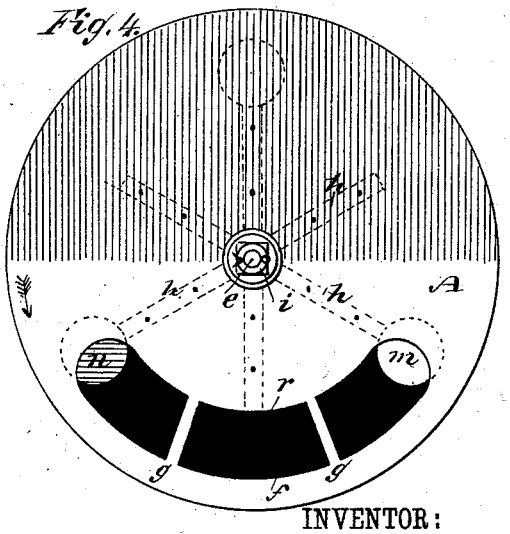


Fig. 4.



WITNESSES:

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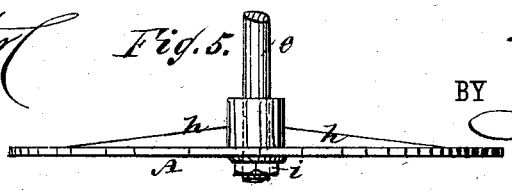
Fig. 5.



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UNITED STATES PATENT OFFICE.

WALTER J. KIDD, OF LOGANSPORT, INDIANA.

SIGNAL AND SPEED-INDICATOR FOR CARS.

SPECIFICATION forming part of Letters Patent No. 259,870, dated June 20, 1882.

Application filed January 14, 1882. (No model.)

To all whom it may concern:

Be it known that I, WALTER JOHN KIDD, of Logansport, in the county of Cass and State of Indiana, have invented a new and useful Improvement in Combined Signal and Speed-Indicator for Railroad-Cars and other Conveyances, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents an end elevation of a railroad-car with my invention applied. Fig. 2 is a longitudinal vertical section of the same on the line *x x* in Fig. 1; Fig. 3, a face view of a darkened surface at back of the signal with different-colored lights; Fig. 4, a face view of the signal, and Fig. 5 a plan of the target or disk signal detached.

This invention consists in an improved flash and revolving disk or target signal, also applicable as a speed-indication for guarding against danger and insuring safety, both by night and day, to railroad-cars or other conveyances by indicating the direction in which the conveyance is moving and the speed at which it is traveling, substantially as hereinafter described.

Said invention is applicable to railroad-trains, street-cars, steamboats or vessels of various kinds, and other conveyances.

In the application of the invention to a railroad-train the signal may be mounted, as shown in the drawings, on the roof of a car, or it may be arranged on the end or side of the car, or elsewhere, wherever most convenient or visible; or, again, it may be applied to the locomotive attached to the train.

A is the target or target-like signal, which is a revolving one, and derives its motion by belt *b* or other means from the axle B of the car C. Said belt *b* can be run through a narrow box in the side of the car or elsewhere, and the motion of the target as derived from the belt is communicated through any suitable system of gearing, *c d*, arranged within the box D, in which are the bearings for the horizontal shaft *e* of the signal.

The shield or target A, which may be of any desired diameter, is a disk with an arc-shaped eccentric slot, *f*, cut in and through its face, of about one hundred and forty degrees in length and four inches in width, more or less. Braces *g* may be applied to the said disk to strengthen it at its cut-away or slotted portion, and it is or may be stiffened at its back by ribs *h*, and be secured to its shaft *e* by an outside nut, *i*.

Reference so far has here only been made to a single disk or target A; but two disks A A, facing in opposite directions, are proposed to be used, as shown in the drawings, on the front and back sides of the box D, both disks being fast on the same shaft, *e*. Behind either of these disks A, preferably at equal distances apart, and at the same distance from the axial center of the disk as is its slot *f*, are arranged three lamps or lights, *l*, *m*, and *n*. The one of these, *l*, is a red light, the second one, *m*, a white light, and the third one, *n*, a blue or green light; or other colors may be used. The lamps or lights may be inclosed in a suitable box or case. The use of two disks A A on the front and back sides of the box D provides for signaling in reverse directions, and so that exposure of the disk or flash signals on a train may be visible either to a train in the front of it or to a train in the rear of it, or to both. The rotation of either slotted disk A with the stationary lights in the rear of it makes the signal a flash one. When the train or car C is moving forward the disk or target A revolves in a given direction—say to the right—as viewed from the rear of the train, and continues to do so as long as the train is in motion; but so soon as the train or car C stops the disk ceases to revolve. During the forward motion of the car the consecutive exposure of the lamps or lights would cause the signal to read red, white, and blue or green, in regular order. Supposing the car or train to be moving backward, the signal would be reversed—that is to say, would expose successively a red light or color, then blue or green, and afterward a white light.

From the description it will readily be seen that a train may be made to signal at night either to a train in front or in rear of it or to a fixed point on the line in which direction it is moving, or whether moving at all, thereby avoiding the risk of collision and accident, as now so frequently occurs when several trains or sections of a train follow each other in rapid succession, and have no other guide than a fixed light in the rear of them to indicate their

position or course. In cases like these last cited the engineer of an immediately-succeeding train does not know when he sees a train-light ahead of him whether the train carrying it is approaching or moving away from him or is at rest. By this improved signal, however, he knows to a certainty and controls his train accordingly.

As a day-signal, the disks A, which should be of different colors on each of their faces, will indicate by their motion to the right or to the left the direction of travel of the car or train carrying the signal, or when at rest will show that the car or train is not in motion. Thus guided, the engineer of a succeeding train will back, move ahead, or stop his train, as required.

By using two disks or targets, A A, the man or hand on the forward end of a train can tell if a rear train or the rear of his own train is following by looking to the exposure of the different colors or colored lights as they successively are presented by the rotation of the disk. According to the position of the lights, as hereinbefore described, if a rear train or the rear end of the train from which the observation is made is approaching, the lights exposed will be red, blue or green, and white, successively. This of course applies to night-signals. In signaling by day the disk A, under the same circumstances, would be seen as rotating to the left from either direction, no matter whether a train is coming from the rear of the train from which the observation is made or backing toward said train from the front.

The invention operates as a speed-indicator of the train by the number of flashes the signal makes within a given time. Thus by knowing the diameter of the car wheel or wheels, from which the disks A primarily derive their motion, and the ratio of the gearing which drives them, the speed of a moving train is readily ascertained. This will be of great advantage to the engineer of one train in following another train, to prevent telescoping and collision. The disposition of the lamps or lights *l*, *m*, and *n* and the length of the slot *f* in either disk are such that no matter where the disk stands one light is always visible. Furthermore, the surface *r* at the back of either signal is preferably black, which will give greater distinctness to the disks in their motions by day.

The same number of lights that is used for a single signal may be made to answer for a double one—that is, for two disks facing in opposite directions—by suitably arranging and constructing the lamps with suitable and different colored bull's-eye glasses on opposite sides of them. The signal, too, will always be in readiness, and there need be no changing of lamps upon the return-trip of a train, as the same colors will be read in succession for a given direction of travel.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a signal and speed-indicator for railroad-cars or other vehicles or vessels, the combination, with a series of stationary lamps or lights of different colors, of a rotating target or disk having an arc-shaped slot formed in it, and means, substantially as herein described, for rotating the same from the car-axle, as set forth.

2. In a signal and speed-indicator for railroad-cars or other vehicles or vessels, the combination, with the disk or target A, provided with the arc-shaped slot *f*, and means for rotating the same, of the different-colored stationary lamps or lights *l m n*, arranged at equal distances apart behind the said disk and within the range of the slot of the disk, substantially as and for the purpose set forth.

3. In a signal and speed-indicator for railroad-cars or other vehicles or vessels, the combination, with the axle B and the box D, carrying the stationary lights *l m n*, of the slotted target or disk A, the shaft *e*, the system of gearing *c d*, and belt *b*, substantially as and for the purpose set forth.

WALTER JOHN KIDD.

Witnesses:
SETH U. VELSEY,
C. W. FISK.