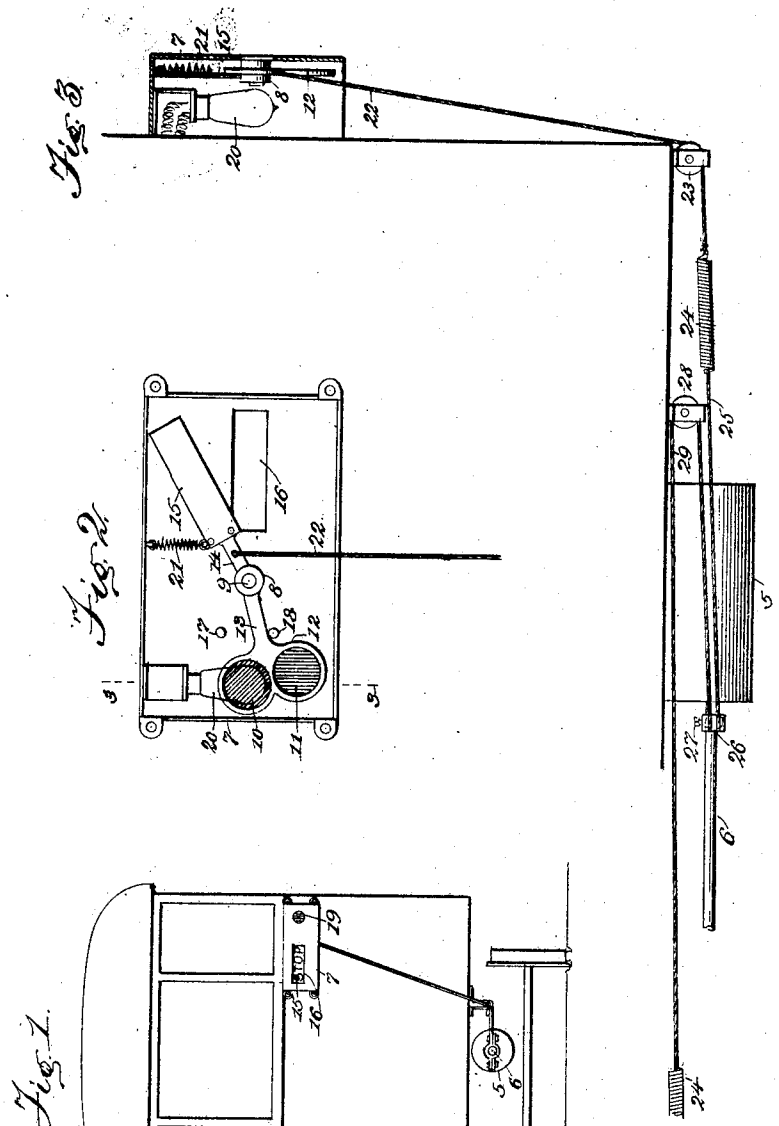
J. C. HOPKINS.

STREET CAR SIGNAL.

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1,378,790.

Patented May 17, 1921.



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UNITED STATES PATENT OFFICE.

JOHN C. HOPKINS, OF CEDAR RAPIDS, IOWA.

STREET-CAR SIGNAL.

1,378,790. Specification of Letters Patent. Patented May 17, 1921.

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To all whom it may concern:

Be it known that I, JOHN C. HOPKINS, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Street-Car Signals; 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 appertains to make and use the same.

This invention relates to signal devices for cars and the like, the object of the invention being to provide street-cars and other conveyances to which the device is applicable, with means for warning those approaching, especially from the rear, that the car-brake has been set and the car is about to stop.

The nature of the invention is fully disclosed in the description and claim following, reference being had to the accompanying drawing, in which:—

Figure 1 is a conventional rear elevation of a street-car with my signaling device attached thereto. Fig. 2 is an enlarged elevation of the semaphore apparatus, as seen from the inner side. Fig. 3 is a side elevation showing all the mechanism, the inclosure for the signal being in section, on the line 3—3 of Fig. 2.

In the drawing, the numeral 5 refers to the compressed-air cylinder with which street-cars are usualy provided, and 6 the piston-rod thereof connecting with the brakes, not shown. These are of the usual constructions, and call for no special description.

At some suitable place at or near the end of the car, and in the case of cars arranged to run in either direction, at each end, is mounted a signaling device of a simple type, of which the following is a description.

In a suitable inclosing and protective casing 7 attached to the end of the car is pivoted a semaphore 8 on a stud 9. As herein illustrated the semaphore is provided with two disks 10 and 11, of respectively green and red glass, set in a suitable frame 12 at the end of the arm 13. To the opposite arm 14 may be attached a signboard 15, which when drawn down to signaling position discloses a suitable warning through an opening 16 in the casing. The movement of the semaphore is limited by stops 17 and 18. When in the position shown in Fig. 2 the green disk fronts a hole 19 in the casing, and when the semaphore is shifted to warning position, the red disk is in the same place. Behind the disks is mounted an electric lamp 20, the current for which may be supplied in any desired way, either from the trolley wires, or from a storage battery, neither of which are herein shown.

The semaphore is held in the "clear" position shown in Fig. 2 in part by the preponderating weight of its tail-piece 15 and in part by a light spring 21, the use of the spring being mainly to insure the restoration of the semaphore to the normal clear position, when the need of a warning is no longer present.

To the arm 14 is connected a cable 22, which passes under a sheave 23 and connects with a spring 24 stiff enough to shift the semaphore. The other end of the spring connects with another section of cable 25, and this is connected to the end of an arm 26 clamped to the air-brake rod, and suitably secured against slippage, as by a set-screw 27. To give a corresponding movement to the semaphore at the other end of the car, a supplemental sheave 28 is provided, about which the cable 29 is led.

It will be understood that the purpose of the spring 24 is to compensate for a rather wide variation in the distances which the brake-rod moves under different conditions. It is contemplated that the shortest stroke of the rod will actuate the semaphore through the limit of its movement, and beyond that the spring will yield.

It will be seen that the operation of the signal requires no conscious effort on the part of the operator. In stopping or retarding the forward movement of the car he invariably sets the brake, and this automatically sets the signal.

The device is designed for the safety of the car and its occupants, and also whatever may be approaching it from behind. It is a matter of experience that most street-car accidents are in the nature of rear end collisions, and due to the difficulty of determining the exact distance of the car ahead, if at night, and whether or not it will stop more or less suddenly, by day or night. In the apparatus described, the red and green

lights are of course for night service, while the warning on the other arm of the semaphore may serve in daylight.

Having thus described my invention, I claim:

A signal of the character described comprising an elongated casing having a longitudinally disposed slot formed in one side wall of the casing, and an opening spaced from the slot but in alinement therewith, an arm pivoted within the casing at a point between its ends for vertical movement, a semaphore carried by one end of the arm, upper and lower disks carried by the opposite end of the arm, said disks being of different color and adapted to be moved singly to a position behind said opening, a lamp within the casing, means for normally holding the semaphore above the slot and one disk arranged behind said opening, and means for actuating said arm to bring the semaphore and the other disk behind the said slot and opening respectively for the purpose specified.

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

JOHN C. HOPKINS.

Witnesses:

F. W. ARMSTRONG,

J. M. ST. JOHN.