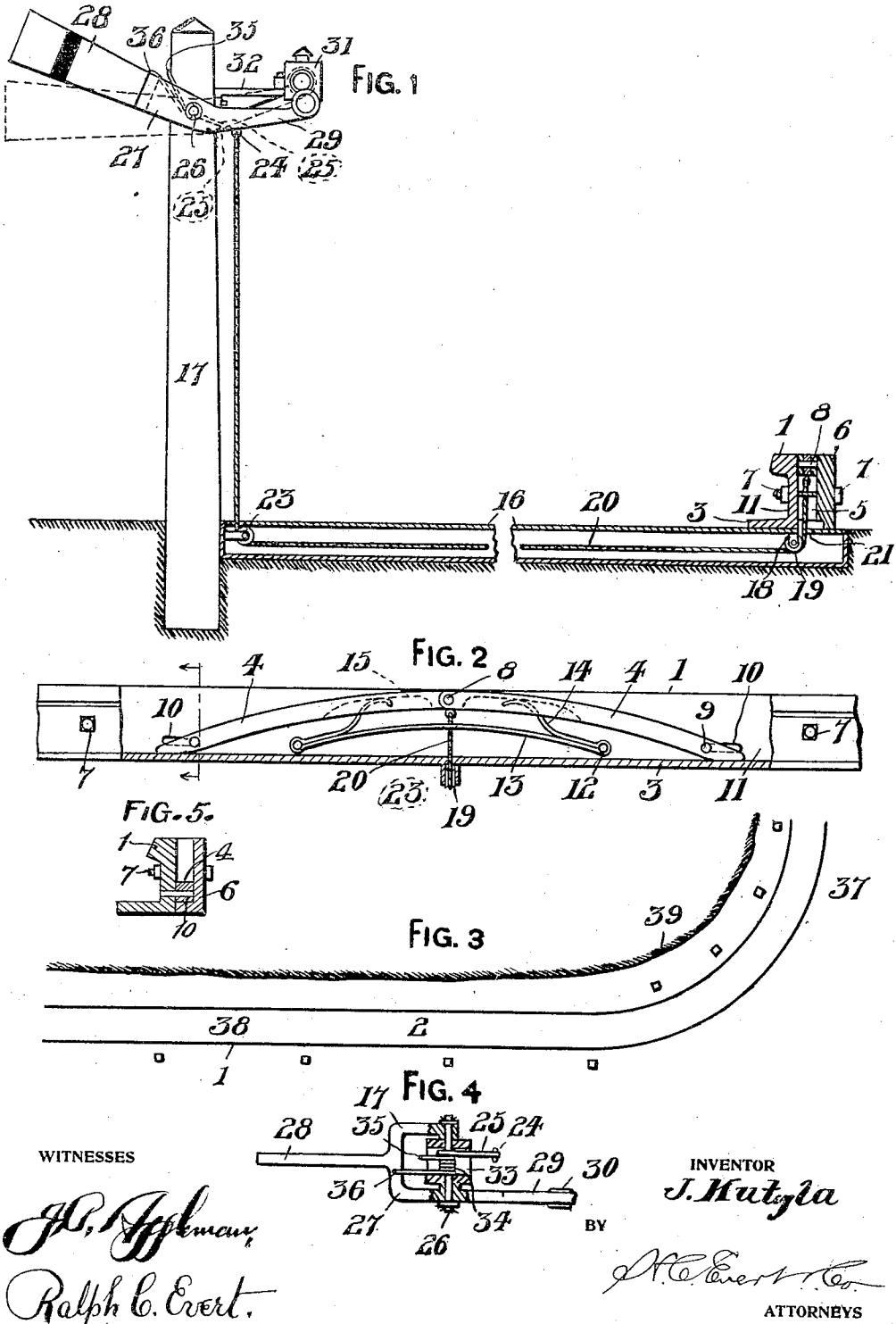


J. KUTYLA.
SEMAPHORE SIGNAL.
APPLICATION FILED SEPT. 28, 1911.

1,042,128.

Patented Oct. 22, 1912.



UNITED STATES PATENT OFFICE.

JOSEPH KUTYLA, OF McDONALD, PENNSYLVANIA.

SEMAPHORE-SIGNAL.

1,042,128.

Specification of Letters Patent.

Patented Oct. 22, 1912.

Application filed September 28, 1911. Serial No. 651,723.

To all whom it may concern:

Be it known that I, JOSEPH KUTYLA, a subject of the Czar of Russia, residing at McDonald, in the county of Washington and State of Pennsylvania, have invented certain new and useful Improvements in Semaphore-Signals, of which the following is a specification, reference being had therein to the accompanying drawing.

15 This invention relates to a semaphore signal, and more particularly to a safety device for railways.

The object of my invention is to provide a signal that will be intermittently actuated during the passage of a train over a block or section of track to display a danger signal and prevent "rear-on" collisions.

My invention aims to provide a semaphore signal that can be installed at intervals whereby one or more of the signals will be actuated by a train to notify a train approaching in the rear that it is in the vicinity of a preceding train, the arm of the semaphore being placed at a danger position for daylight signaling and the lens of the semaphore being placed in position in connection with a lantern for night signaling. The danger signaling is automatic and can be advantageously used upon a curved section of track where the signals are closely arranged in order that one of said signals will always be in view of the engineer or fireman of a train approaching in the rear of a preceding train.

It is a well known fact that the blocks of the present signal system are often of considerable length, even upon curved sections of railroads, and that when a train is rounding a curve in one block, it is often impossible to observe the signal of the block before entering the preceding block. In this manner rear-on collisions often occur, and it is the principal object of this invention to eliminate the destruction of rolling stock and lives due to accidents, by providing simple and inexpensive devices that can be closely arranged, whereby the devices will be successively actuated by a train or single car.

The invention will be better understood when reference is had to the drawing and detail description thereof.

In the drawing like numerals designate corresponding parts throughout the several views, in which:—

Figure 1 is a front elevation of a signal in

connection with a rail, Fig. 2 is a side elevation of the signal rail, partly broken away, showing the actuating mechanism in elevation, Fig. 3 is a diagrammatic view illustrating the location of the signals relatively to a straight and curved section of a track, Fig. 4 is a horizontal sectional view of a portion of the semaphore arm, and Fig. 5 is a sectional detail.

The reference numeral 1 denotes one of the rails of a track 2 and this rail has the base flange 3 and the head thereof cut away, as at 5, the cut away portion being opposed by a side plate 6 bolted or otherwise connected, as at 7 to the rail 1, adjacent to the ends of the cut away portion 5. In the cut away portion 5 are arranged two curved shoes 4 having the confronting ends thereof pivotally connected together by a pin 8. The outer ends of the shoes 4 are provided with pins 9 and these pins extend into longitudinal slots 10 provided therefor in the web 11 of the rail. The web 11, beneath the shoes 4, is provided with pins 12 projecting into the cut away portion 5 of said rail and connecting these pins is a bar 13 having the ends bent to provide springs 14 that engage in the grooves 15 provided therefor in the under side of the curved shoes 4. The springs 14 normally support the inner ends of the shoes 4 in a plane flush with the tread of the rail 1, and the bar 13 limits the downward movement of the inner ends of said shoes. The shoes 4 are supported in a position to be engaged by the flanges of wheels of rolling stock, whereby when a train passes over the rail, the inner ends of the shoes will be rapidly depressed by the wheel flanges.

The rail 1 rests upon the end of a casing 16 that extends from said rail to a signal post 17. In the ends of the casing are bearings 18 supporting revoluble sheaves 19 and passing under said sheaves is a cable 20. One end of the cable extends upwardly through an opening 21 provided therefor in the casing 16 and is attached to an eye 22, carried by the confronting pivoted ends of the curved shoes 4. The cable passes through an opening 23 in the bar 13. The opposite end of the cable 22 is attached, as at 24 to the end of a crank 25 carried by a shaft 26 journaled in the post 17. The ends of the shaft 26 protrude from the outer sides of the post and fixed upon the ends of the shaft is a yoke 27. This yoke has a sema-

phore arm 28 and a lens holder 29. The lens 30 of the holder coöperates with a lantern 31 in displaying a danger signal at night. The lantern 31 is carried by a bracket 32 secured to the post 17. The post 17 is slotted, adjacent to the shaft 26, as at 33 and arranged upon said shaft within the slot 33 is a coiled spring 34. One end 35 of the spring engages the outer side of the post 17, and the opposite end 36 of the spring extends upwardly over the yoke 27. The object of this spring is to lower the semaphore arm 28 and elevate the lens holder 29, whereby the lens 30 will be positioned in front of the lantern 31 to display a red or danger signal.

In practice, the tension of the springs 14 is greater than that of the spring 34, consequently the pivoted curved shoes 4 will be normally retained in an elevated position with the cable 20 taut, and the lens holder 29 in a lowered position. When the flange of the wheel engages the shoes 4, the confronting pivoted ends of said shoes are depressed and the outer ends of said shoes slide within the pocket 5 and are retained therein by the pins 9. When the shoes 4 are depressed, the cable 20 shifts upon the sheaves 19 and 23 allowing the spring 34 to raise the lens holder 29 and lower the semaphore arm 28. The semaphore arm 28, in a lowered position, indicates danger during the day and the lens holder 29 in an elevated position coöperates with the lantern 31 in displaying a danger signal at night. Immediately upon the flange of a wheel releasing the pivoted shoes 4, the springs 14 restore said shoes to their normal position and lower the yoke 27.

As illustrated in Fig. 3, the signals upon a curved section of track 37 are more closely arranged than upon the straight section 38. This is in order that a fireman or engineer can easily observe the signals, particularly when the curve is very sharp and a moun-

tain 39 would obstruct the view of signals arranged the same distance apart as on a straight section of track. The signals are successively operated by a train and it is possible for an engineer following a preceding train to readily determine the distance between the trains and regulate the speed of the following train accordingly. The signal has been especially designed for mountainous districts and for sharp curves where the majority of rear-on collisions occur. It can be readily used in connection with the present type of block signal, and as the signal is independent of any electrical circuits, it can be readily maintained at a comparatively small cost.

What I claim is:—

In a semaphore signal, the combination with a rail having a cut away portion, a post located adjacent to said rail, and a semaphore arm pivotally supported by said post, of a pair of curved shoes pivotally connected together at their upper ends and slidably connected at the lower ends to the cut away portion of said rail and capable of being engaged by the flange of a wheel whereby said shoes are depressed, a bar carried by the cut away portion of said rail and provided at each end with a resilient member, said members engaging said shoes for normally maintaining them in an elevated position, a shaft journaled in the upper end of said post and to which said semaphore arm is connected, a crank carried by said shaft, a cable connecting said shoes and said crank, and means carried by said shaft for moving said semaphore arm to a danger position when said shoes are depressed.

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

JOSEPH KUTYLA.

Witnesses:

H. G. SOUTHERN,
JOHN YESADOVICK.