

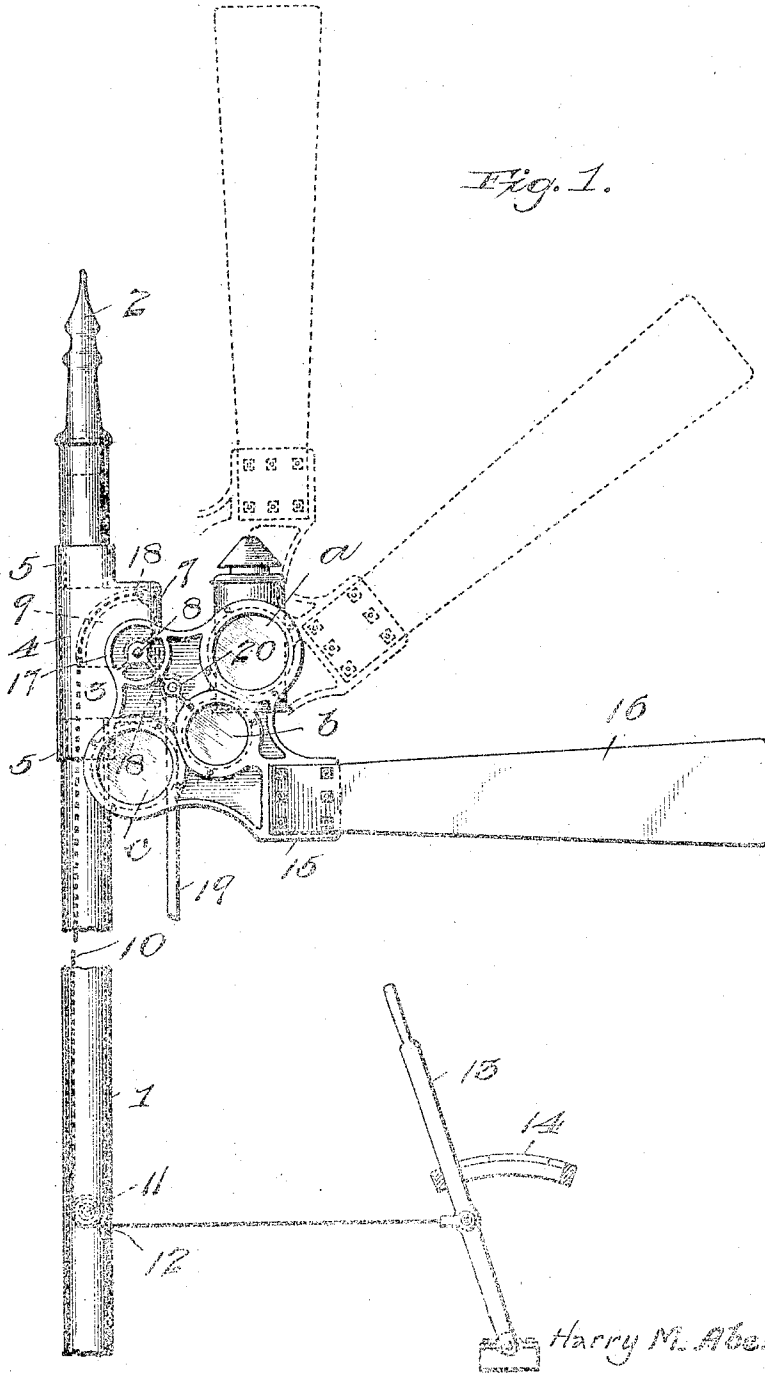
No. 829,311.

PATENTED AUG. 21, 1906.

H. M. ABERNETHY.  
RAILWAY SEMAPHORE SIGNAL.  
APPLICATION FILED DEC. 7, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

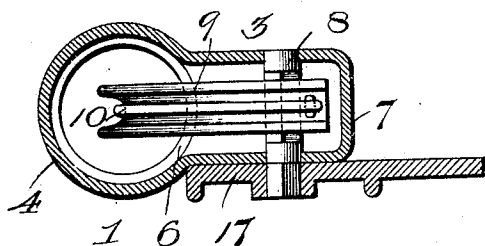
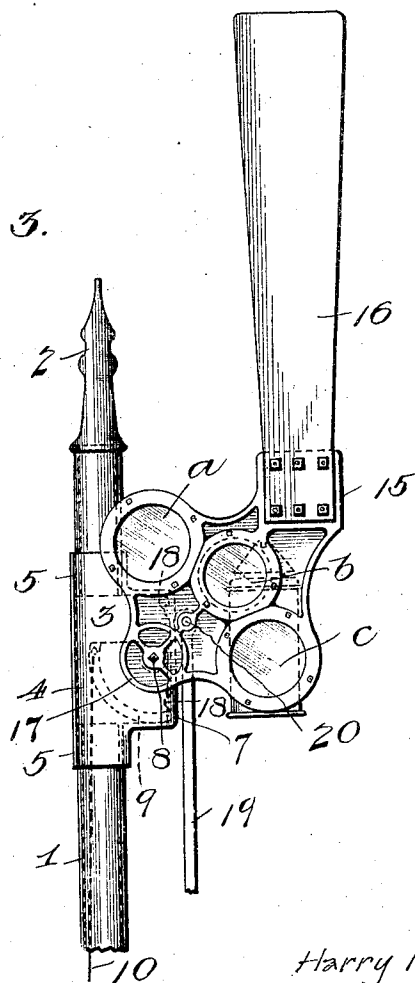


Fig. 3.



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# UNITED STATES PATENT OFFICE.

HARRY M. ABERNETHY, OF CLEVELAND, OHIO, ASSIGNOR TO THE  
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## RAILWAY SEMAPHORE-SIGNAL.

No. 829,311.

Specification of Letters Patent.

Patented Aug. 21, 1906.

Application filed December 7, 1905. Serial No. 290,743.

*To all whom it may concern:*

Be it known that I, HARRY M. ABERNETHY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Railway Semaphore-Signals, of which the following is a specification.

This invention relates to railway-signals of the semaphore type; and one of the principal objects of the same is to provide a signal of this character in which the semaphore casting and blade and the lamp are all on one side of the post or support.

Another object is to provide a semaphore-signal in which the weight of the casting and blade exert a stress having a tendency to throw the arm to the danger position in order that should the operating mechanism become broken or injured the blade would fall by gravity to danger position. Owing to the accumulation of snow and ice on the casting and blade of semaphore-signals during the winter, the smooth and reliable operation of these signals is materially interfered with. It has been one of the objects of my invention to so pivot the blade that any accumulation of snow or ice on the blade would have a tendency to throw the blade down to a horizontal or danger position by means of the weight of the accumulation added to the blade.

Another object of my invention is to provide a signal in which the casting and blade are located upon one side of a post or support in such a manner that the blade will drop to "danger" by gravity and must be lifted to "caution" or "safety" by some operative means. In other words, the blade is operated by gravity from "safety" to "caution" or "danger," while to bring the blade from "danger" to "caution" or "safety" requires sufficient force to lift the blade or to swing it upon its pivotal point.

The objects and advantages referred to are attained by means of the construction illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a semaphore-signal made in accordance with my invention and mounted upon a hollow post or standard, the blade being shown in full lines in danger position and in dotted lines at "caution" and "safety." Fig. 2 is a sectional view taken on a line through the pivotal point of the blade. Fig. 3 is a view similar to Fig. 1, the

blade being shown in a vertical position to indicate a clear track.

Referring to the drawings for a more particular description of my invention, the numeral 1 designates the post or upright standard, which is preferably hollow or of tubular form, as shown, and having a point or finial 2 at its upper end. The semaphore-bracket 3 has a tubular portion 4, having upper and lower extended ends 5, said tubular portion being fitted upon and properly secured to the hollow post 1 near its upper end 6. The casting 3 is provided with a laterally-extending hollow portion 7, to which the spectacle-case is pivotally connected upon the squared end of a short shaft 8, which passes through said hollow portion 7. Upon the shaft 8 within the hollow portion 7 is a quadrant-sheave 9, also fitted to a squared part of shaft 8, said sheave extending in the hollow part of the post to a point about central the vertical plane thereof. The curved outer face of the sheave is grooved or provided with side flanges, and connected to the upper end of said sheave in the groove is a chain or cable 10, which extends down through the post and around a pulley 11, journaled within the lower end of the post, said chain or cable passing thence out through a hole 12 and laterally to an operating-lever 13, extending through a rack 14, having a scale thereon to indicate the positions of the semaphore-blade.

The spectacle-case comprises a skeleton frame having three circular openings for the colored and plain signal-glasses *a b c* and an extended bracket 15 on one side for the blade 16 and one, 17, on the opposite side for the pivotal point of the spectacle-case and blade. The glass *a* may be red for the danger-signal, the glass *b* may be yellow or green for caution, and the glass *c* may be plain or uncolored for safety, and these glasses are arranged radially to the pivotal point, so that each will occupy a position centrally in front of a lamp *d*, suitably supported at a point lateral to the pivot of the spectacle-case and in the same horizontal plane therewith.

It is to be noted that when the blade 16 is in a vertical position to indicate a clear track "safety" said blade occupies a plane parallel to the post and that all the weight of the arm and spectacle-case is supported by the chain or cable 10, which is held by the lever 13 against the natural tendency of the blade to

drop to "danger." Owing to this disposition of the parts, in case the cable should break the blade would drop to danger position and remain in this position until repairs were completed. The two angular sides of the sheave 9 provide means for stopping the blade at the two limits of its movement, and lugs or projections 18 may be formed on the bracket or casting 7, against which the sheave may come to a stop.

For operating the blade by hand in case of derangement of the main operating mechanism I may connect a rod 19 to the hole 20 in the spectacle-case and operate said rod by means of a bell-crank or other conventional means.

It will be understood that the signal may be operated by any suitable means other than that shown, as by electricity or other power.

It is to be noted that the semaphore-casting is pivoted at the lower inner corner when the blade is in a safety position and that there is a constant stress or tendency of the blade to fall to the danger position horizontal to the post. This tendency is only counteracted by the downward pull upon the chain or cable 10, and should the chain or cable break the blade 16 would instantly fall to a danger position. Any accumulation of ice or snow upon any part of the device while the blade is in safety position would only add more weight and tendency to the blade to assume the danger position. This is owing to the relative disposition of the pivotal point of the casting—namely, at the lower inner corner—the excess of weight being above and at one side of said pivotal point when the blade is in a vertical or safety position.

From the foregoing it will be obvious that accumulations of snow or ice upon any part of the arm or spectacle-case at whatever position the same may occupy during or after a storm will only accentuate the tendency of the blade to fall to the danger position, owing to the added weight at the blade side of the pivotal point.

The details of construction may be varied and the proportions and relative arrangement of parts may be changed without departing from the spirit or materially affecting the scope of my invention.

What I desire to secure by Letters Patent and claim is—

1. A signal comprising a post, a casting secured to the post and having a bracket projecting to one side thereof, a spectacle-case pivotally connected to said bracket at a point at one side of the post and at the lower inner corner of the spectacle-case, when the latter is in the safety position, to insure a preponderance of weight above and at one side of said pivotal point when the blade is in safety position, and means for raising said blade from its lower or danger position to a

position to indicate caution or to a position to indicate a clear track.

2. A signal pivotally mounted upon a post at a point to insure a preponderance of weight above and at one side of said pivotal point when the blade is in safety position, said blade being adapted to fall to a danger position by gravity, and said blade and spectacle-case being disposed at one side of the post in all its several indicating positions, and means for shifting said signal to indicate the required signals.

3. A signal comprising a hollow post, a casting secured thereto and projecting to one side thereof, a spectacle-case pivotally connected to the projecting portion of said casting, and disposed at one side of said post at all positions of said spectacle-case, a plurality of glasses in said spectacle-case located radially to the pivotal point of said spectacle-case, a blade connected to said spectacle-case, and means for stopping said blade at its danger position, and means for moving said blade to other position.

4. A signal pivoted at its lower inner corner when in the safety position to normally assume the danger position by gravity, a spectacle-case having a plurality of radially-arranged glasses, an arm or blade connected to said spectacle-case, a quadrant-sheave, and means for moving said sheave on its pivot to change the position of said arm or blade, and means for securing said arm or blade in adjusted position.

5. In a railway-signal of that type in which the semaphore-blade is disposed in a vertical position at one side of its supporting structure to indicate "safety" and to fall by gravity to its other indicating positions, the combination of a spectacle-frame, a blade connected thereto, the frame being pivoted to its support in such a manner that said frame and blade will remain at one side of the support during all the indicating positions.

6. A railway-signal including a support, a spectacle-frame and blade pivoted to said support and projected upward to a vertical position when indicating "safety," the frame and blade being arranged constantly to one side of the vertical plane of the pivotal point of said frame.

7. In a signal, a spectacle-case provided with a plurality of glasses, a blade connected to one side of said glasses, a frame extending from the opposite side of said glasses, and provided with means for pivotally mounting said frame upon a support, and means for the connection of auxiliary means for operating said spectacle-case on its pivot.

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In presence of—

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