No. 648,351. Patented Apr. 24, 1900.

F. D. ALLEN.

TRAIN ORDER SIGNAL.

(Application filed Dec. 7, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

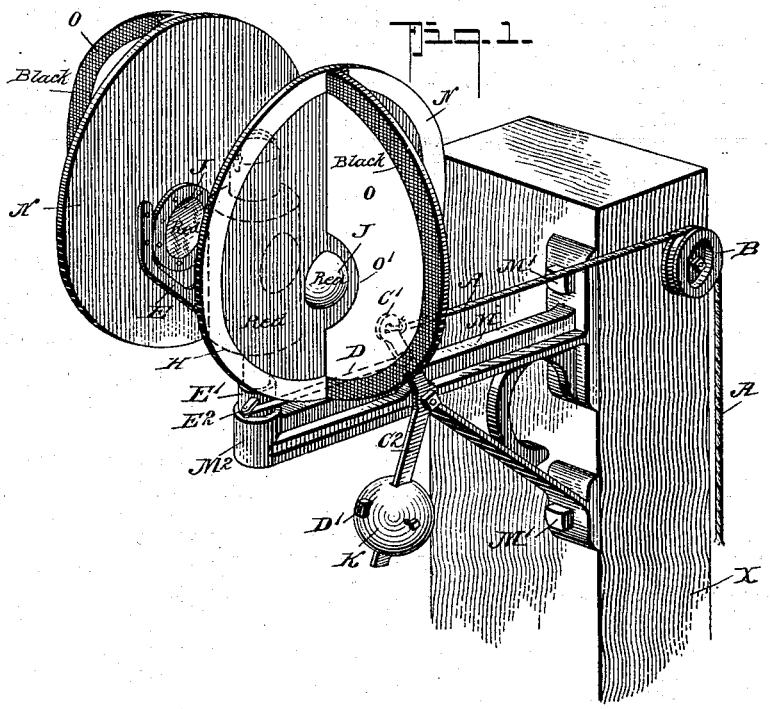

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Fig. 3.

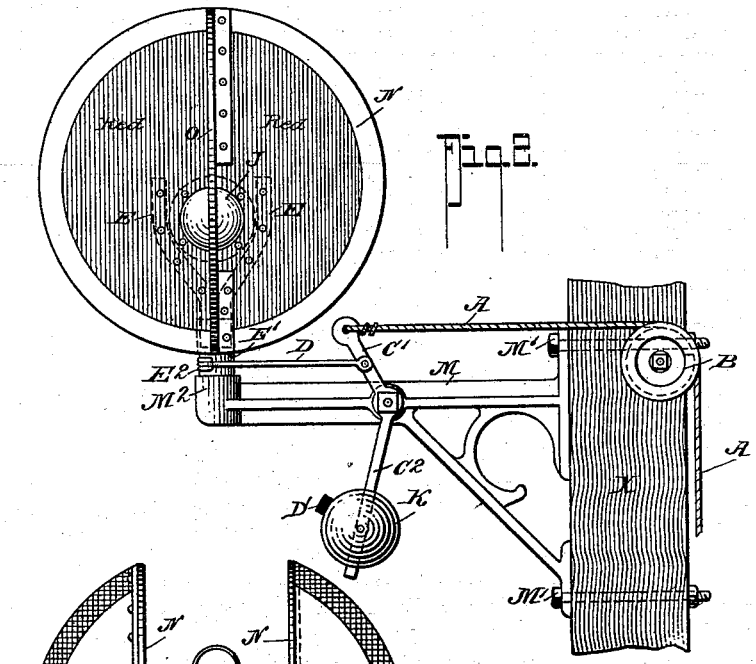


Fig. 5.

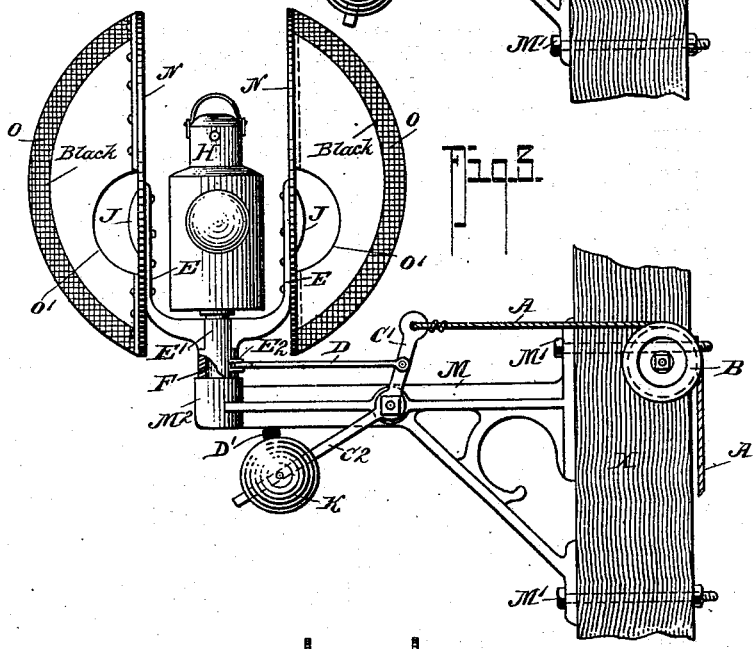
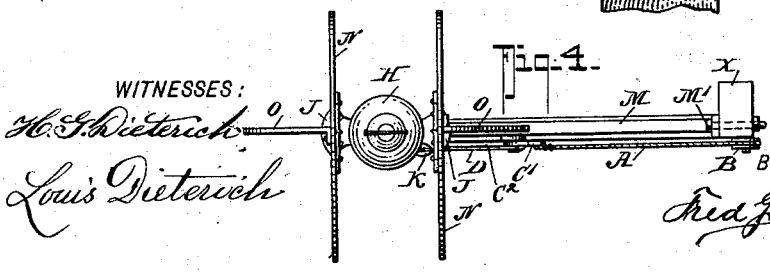


Fig. 4.



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UNITED STATES PATENT OFFICE.

FRANK D. ALLEN, OF STONE CLIFF, WEST VIRGINIA, ASSIGNOR OF ONE-HALF TO JOHN A. HALLSTED, OF CINCINNATI, OHIO.

TRAIN-ORDER SIGNAL.

SPECIFICATION forming part of Letters Patent No. 648,351, dated April 24, 1900.

Application filed December 7, 1899. Serial No. 739,560. (No model.)

To all whom it may concern:

Be it known that I, FRANK D. ALLEN, residing at Stone Cliff, in the county of Fayette and State of West Virginia, have invented certain new and useful Improvements in Train-Order Signals, of which the following is a specification.

This invention relates to semaphore or train-order signals for railways; and it pertains more particularly to that class of train-signals embodying day and night indicating disks and lamps adapted to be set normally to danger position by gearing devices set to one position by gravity-operated means and adapted to be moved to their other position by lever-and-chain mechanisms operative from the station or signal-box.

My invention particularly seeks to provide a signal apparatus of the character stated having the operating mechanism compactly arranged and capable of being economically constructed, easily set up to an operative position, conveniently manipulated, and which will effectively serve for its intended purposes.

This invention in its general construction comprehends a novel arrangement of a supporting-bracket and signal-lamp and sectional disk members operatively combined with the lamp-signal, whereby the "danger" or "fair" signals can be set without disturbing the position of the lamp.

In its more subordinate features my invention embodies certain details of construction and combination of parts, all of which will be hereinafter fully described, and set out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the preferred form of my invention. Fig. 2 is a side elevation of the form shown in Fig. 1 with the signals set to a red or danger position or stop. Fig. 3 is a similar view showing the signal set to the clear or proceed position. Fig. 4 is a plan view of the mechanism illustrated in Figs. 1, 2, and 3.

Referring to the accompanying drawings, in which like letters indicate like parts in all the figures, X indicates the signal post or beam, from which is projected at a suitable height a metal bracket M, rigidly secured to the post X by the bolts M′ M′. Fixedly connected to or formed integral with the bracket M is a vertical shaft F, on the upper end of which is fixedly held a signal-lamp, which may be of any approved construction, the same, however, being set with its bull's-eyes in the direction of the trackway. In connection with the fixedly-held lamp I employ a novel arrangement of sectional disks, comprising a pair of complete circular plates N, each of which has a semicircular plate O fixedly secured thereto and projected at right angles therefrom. Each disk N O is rigidly secured to the bracket-arm E, and both of the bracket-arms E form an integral part of the hub E′, rotatably held on the shaft F and resting upon the annular seat M^2 of the bracket M.

It will be noticed by reference to Fig. 2 that the two brackets E project one from each side of the hub E′ and in diametrically-opposite directions, and the hub E′ has a vertical arm E^2, with which connects the outer end of the pitman-rod D, the inner end of which pivotally joins the short arm C′ of the bell-crank lever, the long arm C^2 of which carries a counterpoise or weight K, adjustably held upon the said arm C^2, the purpose of which is to normally cause the bell-crank lever to gravitate to the position shown in Fig. 2 and in consequence swing the disks N O to close over the lamp for the danger or blocking position.

B indicates a cable-sheave mounted on the post X, and A indicates the pull-rope, which passes through the said sheave and connects to the outer end of the arm C′ of the lever.

So far as described it will be readily apparent that the force of the weight when falling to a vertical position causes the double sets of disks N O to turn at an angle of ninety degrees or a quarter-way round to the position shown in Fig. 2, and the disks N have border-circles, in practice painted white, while the disk members O have similar circles painted black. It will thus be seen that when the disks N O are swung to the position shown in Fig. 2 the red circles appear to view, showing the signals set to "danger," it being obvious that when the tension of the cord A is released the weight K drops to a vertical position and the disks N O will be set, as shown

in Fig. 2, with the plates N in direct view, and as the said plates N have white borders it will show the signal as red and the roadway blocked.

Each disk-plate N has a red bull's-eye which centers in line with the center of the bull's-eye in the lamp when the disk-plates are turned to the fair position, as indicated in Fig. 3, and when in this position and the lamp is lighted it is evident the said lamp will serve as night-signals and show white in both directions. When in this position, the signal is held secure by the weight until the cord A is drawn taut, when the signal can instantly take the position shown in Fig. 3 and indicate a "clear way" or "no orders."

The semicircular plate members O in practice are painted white with a black border, and said plates are added to the disk-plates N as an extra means of indicating a clear trackway, as the said plates may be seen at a greater distance from the office than is possible to see the edges of the plates N and the lamp during the day, thereby enabling the engineman of the approaching train to see at a glance that he has no orders to obtain at the station he may be passing and to enable the red bull's-eye J to be better seen from a distance. The plates O have portions cut away, as indicated at O'. In practice the supporting-bracket is cast and made in such shape as to combine lightness with strength, the same being made of a solid casting, in which is included the spindle or shaft F upon the lamp C and on which the disks revolve.

To limit the swing of the weighted arm C^2 and to reduce any unnecessary shock of abutting of parts, the weight K is in practice provided with a rubber impact member D, projected from one side, which is adapted to engage with the bracket M when the weight is swung upward, as shown in Fig. 3.

So far as described it is thought the complete operation and advantages of my invention will be readily understood. It will be noticed that under no conditions does the position of the lamp change, and therefore the danger of an improper adjustment of the lamp at any time is avoided. Furthermore, the disks when to their open position show a positive clear way and at the same time act as guards to protect the lamp from direct sun-rays, and thereby keeps the lamps in a proper condition to be viewed from a great distance.

The parts are compactly arranged and are of such character as to be easily set without danger of their readily becoming out of order.

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

1. A railway signal mechanism, comprising a supporting-bracket; a signal-lamp fixedly mounted thereon with the bull's-eyes held in line of the trackway; and a set of signal-disks rotatably mounted upon the bracket; means for automatically setting the disks to close over the signal-lamp, said disks having right-angled projections forming fair or clear-way signal faces, said projections being arranged to set in line of the trackway when the disks are swung over to the clear or open positions, said disks having danger bull's-eye portions constructed to project over the lamp bull's-eyes when the said disks are held to a danger position and hand-operated means for setting the signal to the clear position as specified.

2. In a railway-signal of the character described, in combination; a bracket-support having a spindle projecting upwardly therefrom; a lamp fixedly mounted on said spindle and having its bull's-eyes in line of the trackway; a bracket rotatably mounted on the aforesaid spindle and having a pair of oppositely-projecting arms; a danger-faced disk fixedly connected to each arm, said danger-faced disks having each a danger bull's-eye portion adapted to be brought in line with the lamp bull's-eyes; gravity-operated means connected with the rotatable-disk bracket for turning the two danger-disks at right angles over the bull's-eye faces of the lamp, said disks having right-angled projecting portions forming fair signal faces, and means for swinging the danger-disks to an open position with their edges in a plane of the trackway and their fair-disk projections facing the trackway, all substantially as shown and described.

3. The combination of the bracket M, having an upwardly-projecting spindle F; the sheave B and the lamp H, said lamp being fixedly held upon the spindle F, and having its bull's-eye in line with the trackway; of the bracket E', having oppositely-projecting arms E^2, the disks N, having right-angle semicircular disk portions O, said portions O, having cut-out sections in the plane of the lamp bull's-eyes, the disks N, having bull's-eye members J; the bracket E', having a horizontally-projecting crank member; the bell-crank lever C^2, having a counterpoise K; an operating-cord connected to the upper end of the bell-crank lever and guided upon the sheave B; a pitman-rod pivotally connected to the bell-crank lever and the crank portion of the bracket E', all being arranged substantially as shown and for the purposes described.

FRANK D. ALLEN.

Witnesses:
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G. P. PERRY.