No. 865.983. PATENTED SEPT. 17, 1907.

B. E. AHLDERS.

RAILWAY SIGNAL.

APPLICATION FILED MAR. 1, 1907.

Fig. 1.

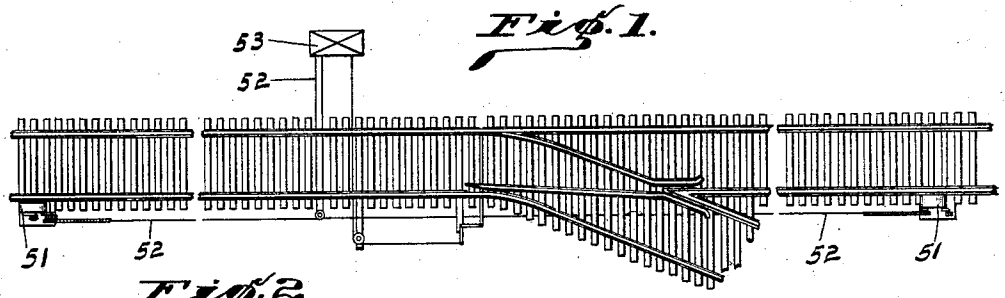


Fig. 2.

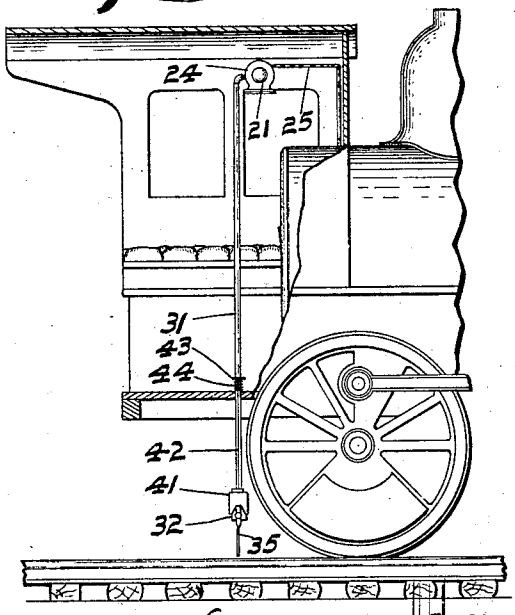


Fig. 3. Fig. 4.

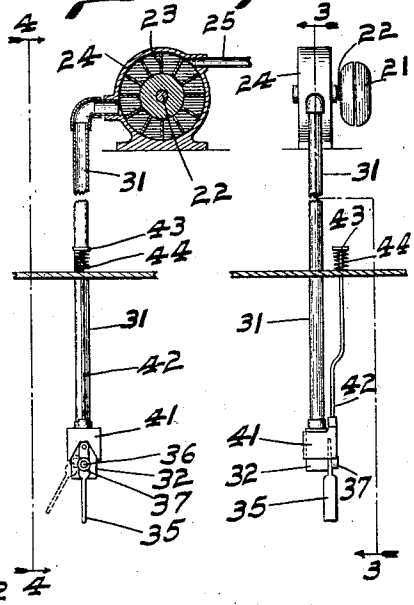


Fig. 5.

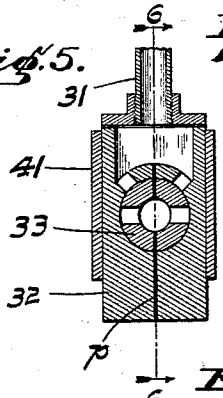


Fig. 6.

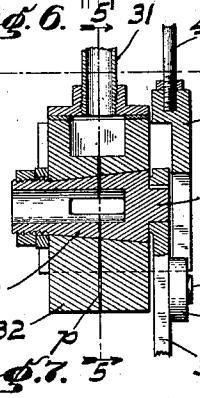


Fig. 8.

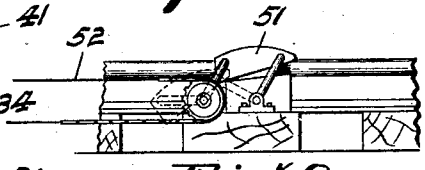


Fig. 9.

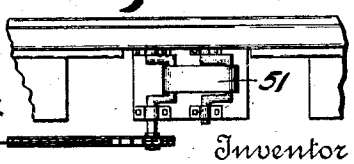
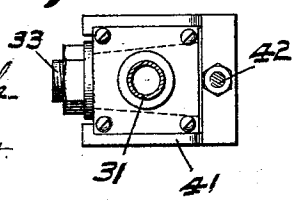


Fig. 7.



Witnesses
Frank A. Lahle
Thomas W. McMeans

Inventor
Bernard E. Ahlders
By Bradford & Hood,
Attorneys

UNITED STATES PATENT OFFICE.

BERNARD E. AHLDERS, OF INDIANAPOLIS, INDIANA.

RAILWAY-SIGNAL.

No. 865,983. Specification of Letters Patent. Patented Sept. 17, 1907.

Application filed March 1, 1907. Serial No. 359,955.

To all whom it may concern:

Be it known that I, BERNARD E. AHLDERS, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Railway-Signals, of which the following is a specification.

The object of my present invention is to provide a means whereby a signal may be given to a passing train whenever desired. Such signal is commonly to be located in the cab of the locomotive, but may, of course, be located at any point where it is calculated to attract the attention of the proper trainman.

Such invention consists in a signaling device adapted to be operated by air or steam pressure, and provided with a valve whereby the air or steam may be controlled, the valve being provided with an operating arm extending to a point adjacent to the railway track, and a strike positioned alongside the track in the path of the operating arm, which strike is adapted to be moved into or out of operative position by a person whose duty it is to give (or to omit to give) the signals.

Referring to the accompanying drawings, which are made a part hereof, and on which similar reference characters indicate similar parts, Figure 1 is a plan view of a section of railway track, with two strikes for operating the signals of my invention arranged at points distant from each other, and on the opposite sides of a switch—a switch tower from which said strikes (as well as switches) may be operated, being also indicated; Fig. 2, a fragmentary view of a locomotive having one of my improved signals situated in the cab thereof; Fig. 3, a detail view of the signal device, the operating wheel thereof being shown in section as seen when looking in the direction indicated by the arrows from the dotted line 3 3 in Fig. 4; Fig. 4, an elevation of the same parts shown in Fig. 3, as seen from the position indicated by the dotted line 4 4 alongside of Fig. 3; Fig. 5, a detail sectional view through the valve of the device, as shown from the point indicated by the dotted line 5 5 in Fig. 6; Fig. 6, a detail sectional view as seen from the point indicated by the dotted line 6 6 in Fig. 5; Fig. 7, a plan view as seen when looking downwardly from the dotted line 7 7 in Fig. 6; Fig. 8, a detail elevation of the strike and immediately adjacent parts, and Fig. 9, a top or plan view thereof—this figure being similar to a portion of Fig. 1, but on an enlarged scale.

The signal itself is shown as consisting of a bell 21. The clapper of this bell is mounted on a shaft 22, and upon this same shaft is a paddle wheel 23. Leading into the housing 24 which surrounds this paddle wheel is a small pipe 25. This pipe is shown as connected with the steam boiler; but it might as well be connected with the air system, its only purpose being to convey a fluid, under pressure, to the housing 24, which is capable of causing the paddle wheel to revolve and thus operate the signal.

Leading out from the opposite side of the housing 24 is an exhaust pipe 31. This leads downwardly to a point near the track, and upon its lower end is secured the shell 32 of a suitable valve. In said shell 32 is mounted the valve 33. Upon the stem 34 of said valve is a lever 35, which extends down to a point adjacent to the track, and is adapted to come in contact with the strike heretofore mentioned, as will presently be described. Upon this lever 35 is a stud 36, which is preferably armed with an anti-friction roller 37.

Mounted on the valve-shell 32 is a shifter 41, a portion of which, in the construction shown, is forked, and straddles the stud 36 and its roller 37, as is best shown in Fig. 3. A rod runs from this shifter up through the floor of the cab, and terminates in a treadle 43. Beneath said treadle is a spring 44 by which it is normally held to its highest position. The shape and character of the forked opening in the shifter 41 is such that when the lever 35 has been moved to the position indicated by the dotted lines in Fig. 3, it may be restored to the position indicated by the full lines in said figure, by the forked shifter being pressed downwardly, which may be done by stepping on the treadle 43. The essential feature is that the valve-operating lever or arm extends down into the vicinity of the track, where it may contact with a strike arranged in its path, and that a position-restoring device is provided in connection therewith having operating means extending to a position adjacent to that occupied by the operative.

The strikes 51 are positioned alongside of the railway track at desired points, and are capable of being thrown up so as to project above the track, into the path of the valve lever 35, or may be thrown down to a position where such valve lever will pass freely without striking. These strikes are shown as arranged to be operated by flexible or other connectors 52 from the switch-tower 53, but may of course be operated in any other desired manner. I have shown said strikes in the form of blocks carried on swinging links, although any other suitable construction may be employed—it being only necessary, so far as my invention is concerned, that they should be capable of being thrown into and out of the path of the valve-operating lever or arm.

In operation, a switchman (or other operative) desiring to signal the engineer or train, moves the appropriate strike into operative position. As the train reaches the point where the strike is located the valve lever 35 will come in contact therewith, and be swung from the position shown in full lines in Fig. 3 to the position shown by the dotted lines, thus opening the

valve, and permitting the fluid to pass through. This will cause the wheel 23 to rotate, thus operating the signal. After the signal has been noticed, the trainman, by pressing on the treadle 43, can restore the valve to position, shutting off the flow of fluid and stopping the signal. As will be noticed I have made the discharge or exhaust pipe 31 larger than the supply pipe 25. This avoids back pressure, permitting the signal to be operated with a minimum quantity of fluid.

As shown in Fig. 5 I provide a very small perforation (as *p*) through which the fluid may continuously pass even when the signal is not operating. This is desirable, especially where steam is used as the fluid, to prevent freezing in cold weather; as this fine perforation permits of a sufficient discharge of fluid for this purpose without causing the signal to operate.

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

1. The combination, in a railway signal, of a signaling device carried by the train, a fluid supply pipe leading from a fluid-pressure source to said signaling apparatus, a discharge pipe leading from said signaling apparatus to a point adjacent to the railway track, a valve carried by said pipe at that point, a lever attached to the valve stem of said valve and extending to a point adjacent to the railway track, and a strike positioned alongside of the railway track and adapted to be thrown up into the path of said lever.

2. The combination, in a railway signal, of a signaling device carried by the train, a wheel adapted to be operated by fluid pressure connected to said signaling device, a fluid supply pipe leading from said wheel to a point adjacent to the railway track, a valve at said point, a lever for operating said valve, and means controlled by the signal-man for operating said lever.

3. The combination, in a fluid-operated railway signaling apparatus, of a valve at the lower end of the fluid-discharge pipe, a lever carried by the valve-stem whereby the valve may be opened by means of a suitable strike thrown into its path, said strike, means extending to the signalman's station for operating said strike, a projection on said lever, and a device adapted to be moved to engage with the projection on the lever and restore it to a normal position.

4. The combination, in a fluid-operated railway signaling apparatus, of a valve at the lower end of the fluid-discharge pipe, means connected to said valve whereby said valve may be opened by means of a suitable strike thrown into its path, means for restoring said valve to closed position, and means extending therefrom to a position convenient to the operative whereby said position-restoring means may be operated by the engine man.

5. The combination, in a fluid-operated railway signaling apparatus, of a valve controlling the passage of the fluid, a lever carried by the valve stem whereby the valve may be opened by means of a suitable strike thrown into its path, a forked reciprocating device adapted to engage with a portion on the lever and restore it to normal position, a treadle for operating said position restoring device, and a spring for returning the treadle to its normal position.

6. The combination, in a fluid-operated railway signaling apparatus, of a valve controlling the passage of the fluid, a lever carried by the valve stem whereby the valve may be operated by means of a suitable strike thrown into its path, a forked reciprocating device adapted to engage with a projection on the lever and restore it to normal position from a position on either side of normal, and a treadle for operating said forked reciprocating device.

In witness whereof, I, have hereunto set my hand and seal at Indianapolis, Indiana, this twentyfifth day of February, A. D. one thousand nine hundred and seven.

BERNARD E. AHLDERS. [L. S.]

Witnesses:

CHESTER BRADFORD,

THOMAS W. MCMEANS.