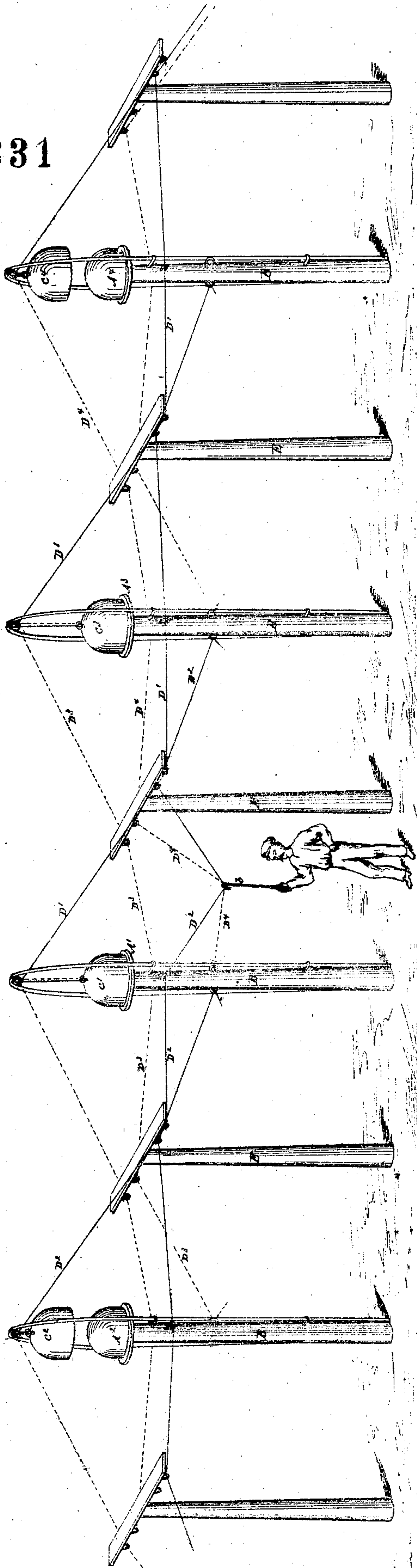


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William Green
Impt. in
Railroad Signals

PATENTED JUL 11 1871

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UNITED STATES PATENT OFFICE.

WILLIAM GREEN, OF YONKERS, NEW YORK.

IMPROVEMENT IN RAILWAY-SIGNAL APPARATUS.

Specification forming part of Letters Patent No. 116,831, dated July 11, 1871.

To all whom it may concern:

Be it known that I, WILLIAM GREEN, of Yonkers, in the county of Westchester and State of New York, have invented a new and useful Improvement in Railroad Signals; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification, and which represents a view, in perspective, of my improvement.

My invention consists in a novel system of signaling on lines of railroad by means of a certain combination of ropes arranged in sections along a line of railroad, and connected with signals placed at suitable distances apart, whereby the conductor of a train is enabled to operate a signal or signals either in front or in rear, or both, and at a greater or less distance apart along the line, to the prevention of accident and for the more perfect regulation of the running of the trains, or of making known, at a near or distant station on the line, the detention of a train by accident or otherwise, but more especially for the purpose of notifying approaching trains.

In the accompanying drawing visible signals only are shown, but it may here be observed that in carrying out my improved system of signaling the signals may either be of an audible or visible description, or both; thus, they may be bells, which will be found more serviceable in foggy weather, or they may be colored lights or painted signals for night or day use, or a signal may be constructed which will be both audible and visible during both day and night; consequently, no particular stress will here be laid upon the construction of the signals, which may be varied, and a cap arranged to rise and fall so as to expose and cover a colored signal, as shown in the drawing, will serve, as well as any other, to explain my invention. $A^1 A^2 A^3 A^4$ represent a series of such signals arranged in elevated positions along a line of railroad at any suitable distance from the track; and at intervals apart of a quarter or half of a mile, or more or less. These signals are represented, for convenience sake, as arranged on posts B, and as covered, when it is not required to expose them, by caps $C^1 C^2 C^3 C^4$, made capable of rising and falling for said purpose by pulling on or releasing hold of ropes $D^1 D^2 D^3 D^4$. The ropes, which are suitably guided and steadied by eyes connected with the post B, and eyes or

guides carried by any desired number of intervening supports E, should be arranged at sufficient elevation to be out of the way of ordinary or casual interference, and so that it will be necessary to use a crook, *b*, with which each conductor may be supplied in order to operate them. By pulling down on these ropes, which are in independent sections, the signals are exposed or operated, and said ropes or rope-sections are so connected with the different signals that one or more of them, either up or down the line, or both, may be operated as circumstances require. Thus the two ropes $D^1 D^2$, which are arranged on the near sides of the supports E and are suitably fastened at their one end, serve to operate the two signals $A^1 A^2$ in one direction of the line, and the other two ropes $D^3 D^4$, which are situated on the off sides of the supports E, are secured and made to operate the other two signals $A^3 A^4$ in the opposite direction—that is to say, the nearest rope, D^1 , operates what may be termed the nearest down-line signal, A^1 , and the next nearest rope, D^2 , the next or farthest signal, A^2 , in the same direction, and so with the other two ropes, the outside one, D^3 , of which operates the nearest up-line signal, A^3 , and the inner rope, D^4 , the farthest up-line signal, A^4 . By thus making the ropes in the order they stand on opposite sides of the post operate signals in similar relation—that is, the nearest ropes the nearest signals—the management of the signals is made more readily intelligible. All the ropes operating the several signals in a series may be pulled upon at one and the same time to operate all the signals simultaneously, or certain of the ropes be worked to actuate a limited number of the signals; thus in the drawing the ropes D^2 and D^4 are represented as being drawn upon to operate the farthest up-line and down-line signals A^2 and A^4 of the series.

Such a system of signals and ropes, made up of detached sections, may be extended or repeated for any distance required along the line, and additional ropes, if necessary, be used to operate additional signals at a yet farther distance apart. By such a system the conductor, engineer, brakeman, or other officer on the train, in case of an accident or unusual detention of his train at any point on the line, may give notice to a near or distant station, either ahead or in rear of him, or both, or to any train on the line at a given dis-

tance from him, and so prevent further accident by making known the obstruction on the road.

Under the arrangement of the ropes, as shown, each signal is represented as being controlled by an up-line and down-line rope. This, by reducing the number of signals, is an advantage, but each rope or rope-section may, if desired, be used to operate an independent signal.

What is here claimed, and desired to be secured by Letters Patent, is—

The combination of ropes arranged in sections along a line of railroad, and signals operated by the same to work in opposite directions, in the manner substantially as specified.

WILLIAM GREEN.

Witnesses:

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