

(No Model.)

3 Sheets—Sheet 1.

J. T. HAMBAY.
SIGNAL.

No. 472,499.

Patented Apr. 5, 1892.

FIG. 1.

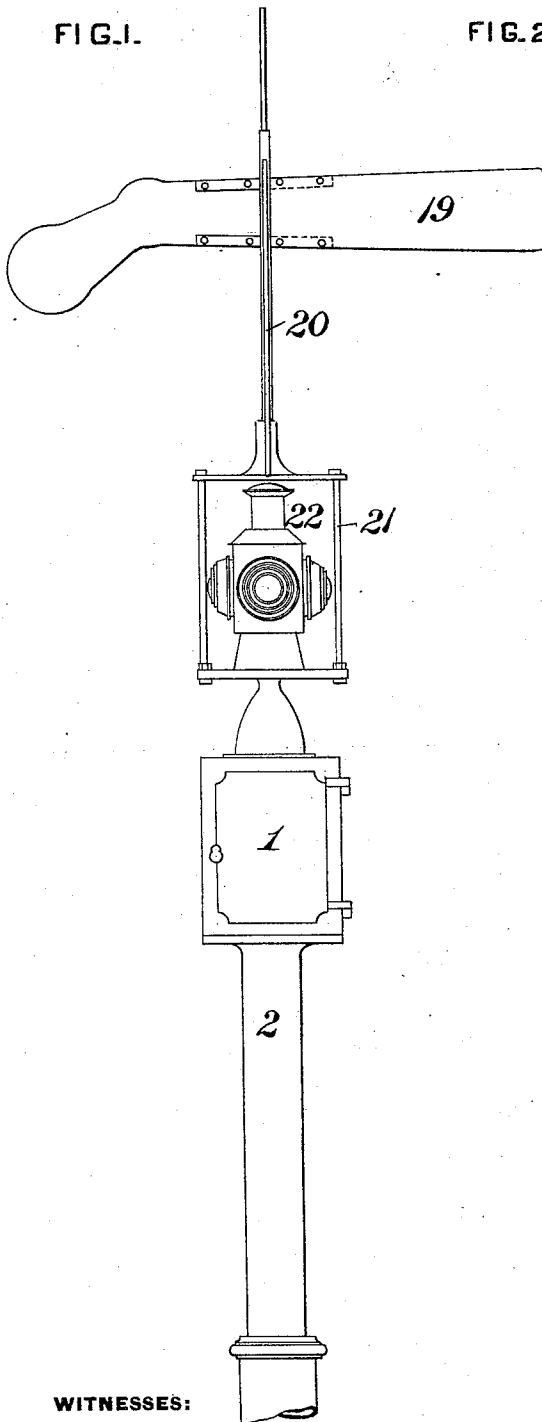
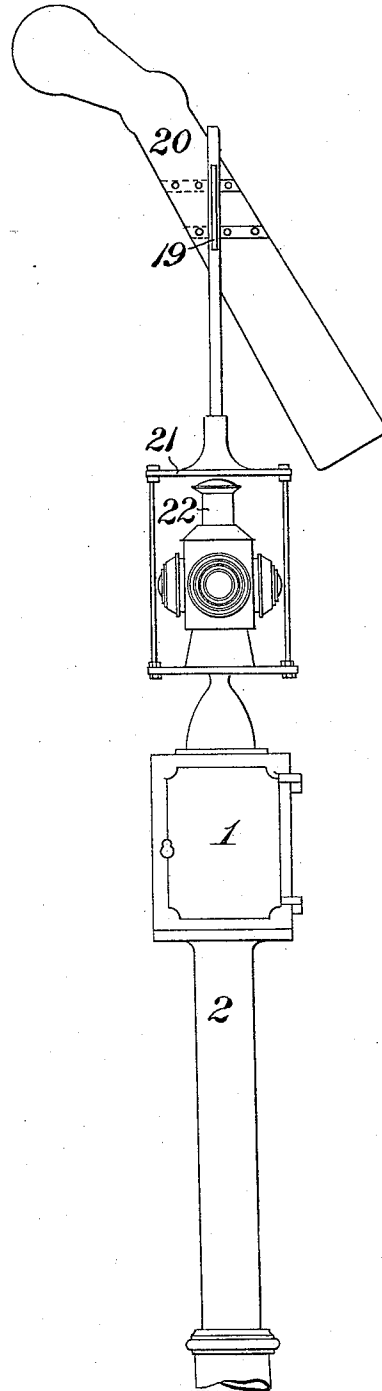


FIG. 2.



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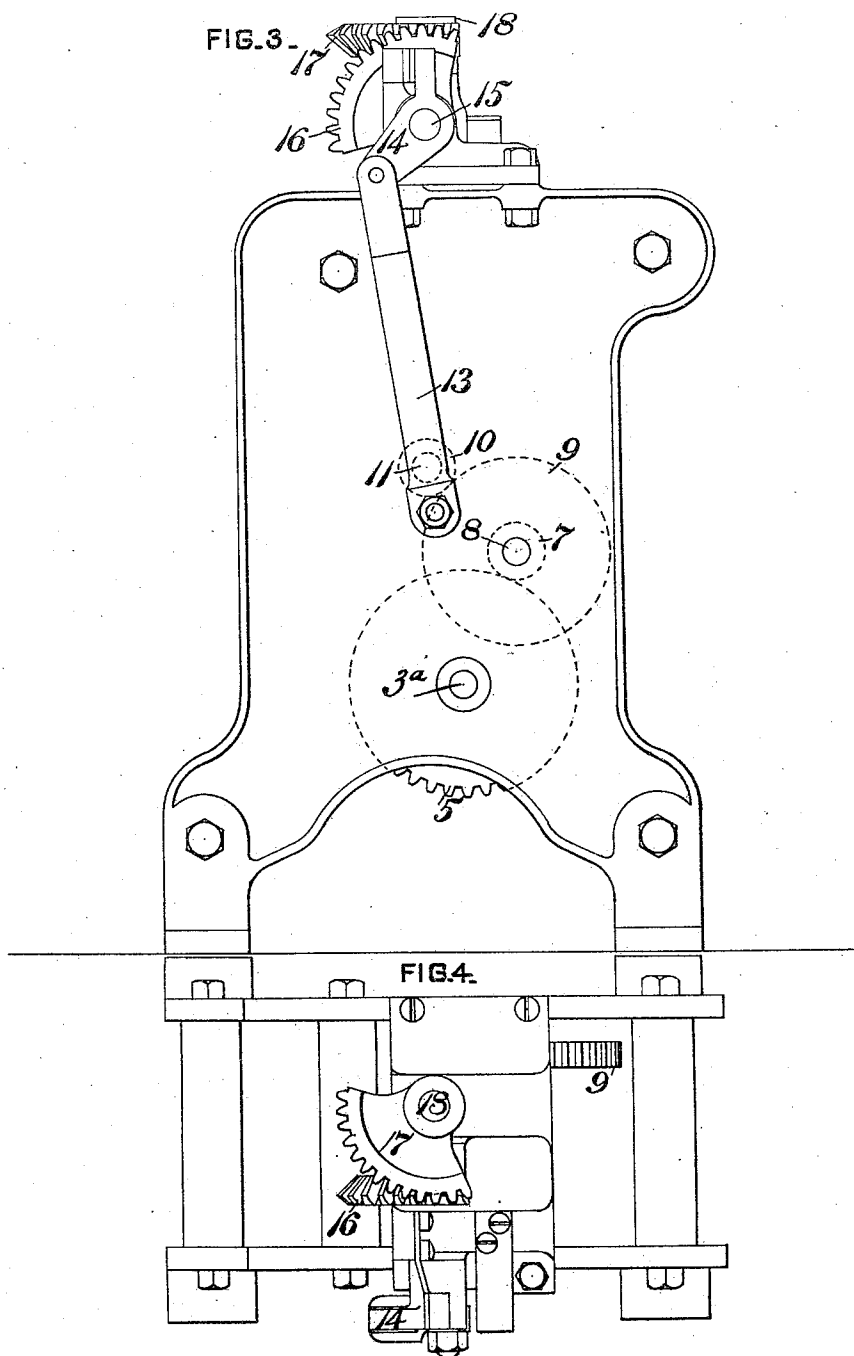
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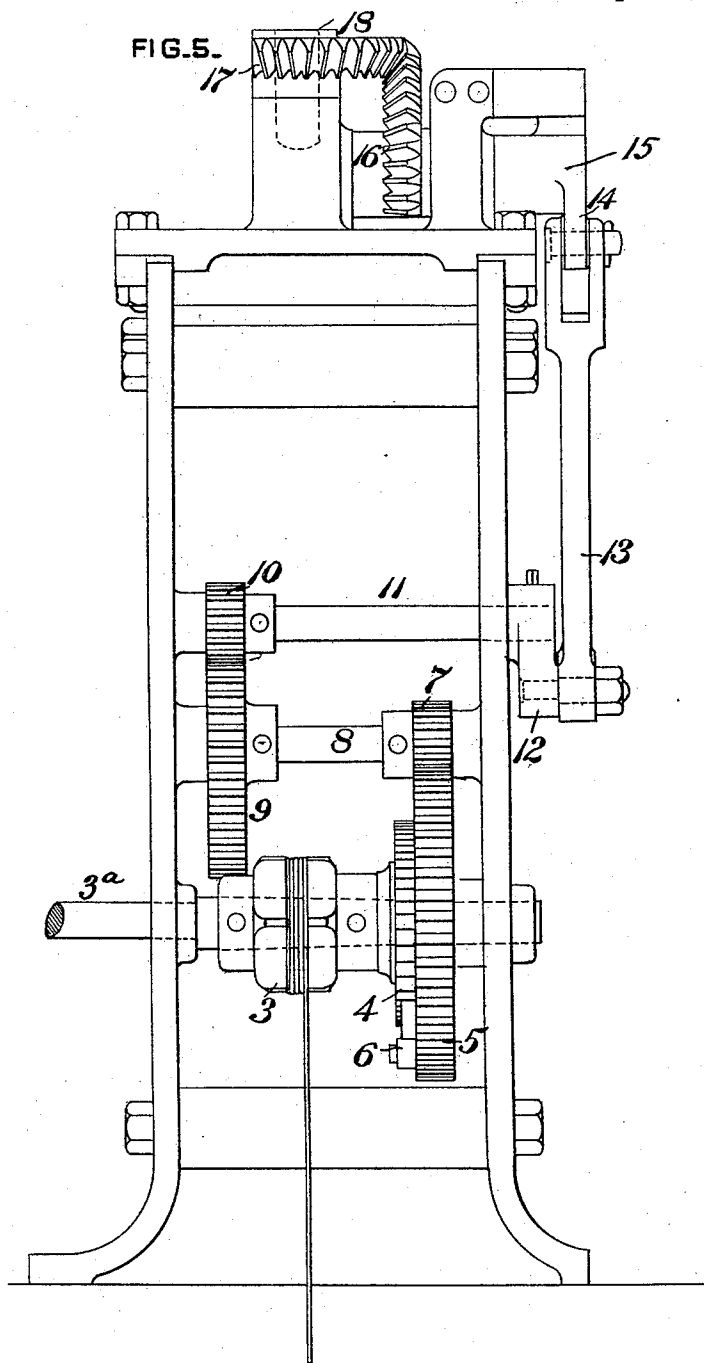
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UNITED STATES PATENT OFFICE.

JAMES T. HAMBAY, OF PITTSBURG, PENNSYLVANIA.

SIGNAL.

SPECIFICATION forming part of Letters Patent No. 472,499, dated April 5, 1892.

Application filed August 17, 1891. Serial No. 402,880. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. HAMBAY, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Signals, of which improvements the following is a specification.

The invention herein described relates to certain improvements in electrically-controlled automatic signals for railways.

On many railroads the semaphore or positive signal, by which is meant a signal indicating "danger" or "safety" by the angle of the blade of the signal to its supporting-post or to a horizontal plane, has been adopted as the standard. These semaphores or position signals are usually arranged on horizontal pivots and are shifted from one position to another by suitable mechanism, and as they should be so mounted that in case of a break in the signal connections the blade will immediately assume a horizontal or "danger" position considerable power is required to shift the signal. This power is not readily available in automatic signals. Hence it has been customary to employ suitably-painted targets, which are placed at right angles on a vertical revoluble standard for this purpose.

The object of this invention is to provide for the employment of semaphore or position blades in connection with automatic mechanism for operating the same; and in general terms the invention consists in the construction and combination, substantially as hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a view in side elevation of my improved signal at "danger" position. Fig. 2 is a similar view, the signal being at "safety" position. Figs. 3 and 4 are side elevation and plan views showing the power mechanism on an enlarged scale, and Fig. 5 is an edge elevation of the same.

In the practice of my invention the operating mechanism is preferably arranged in a box 1, forming part of the hollow post 2, supporting the signal. The operating mechanism consists of a drum 3, having a cord wound

thereon and keyed to the shaft 3^a and provided on one end of its hub with a ratchet-wheel 4. A gear-wheel 5 is loosely mounted on the shaft 3, and is locked to the ratchet-wheel so as to rotate in one direction therewith by a pawl 6, pivoted on the gear-wheel and adapted to engage the ratchet-wheel. This gear-wheel engages a pinion 7 on the shaft 8, on which is also keyed a gear-wheel 9, intermeshing with a pinion 10 on the shaft 11. One end of the shaft 11 is provided with a crank-arm 12, connected by a pitman 13 with a crank-arm 14 on a shaft 15, having beveled segmental pinion 16 keyed on its opposite end. This pinion 16 intermeshes with a corresponding pinion 17 on a vertical shaft 18, extending up through the top of the box 1, and having the signal-blades and lantern mounted thereon, as hereinafter described. The crank-arms 12 and 14 are so proportioned relatively to each other, the latter being the longer, that a complete revolution of the crank 12 will oscillate the crank 14 through an arc of ninety degrees, and hence only an oscillatory movement through a corresponding arc will be imparted to the vertical shaft 18. A weight is attached to the cord, which, as stated, is wound on the drum, said weight dropping down through the hollow post as the cord passes off the drum. Any suitable electrical escapement—such as is well known in the art—may be employed for controlling the movements of the power mechanism—as, for example, that shown and described in Letters Patent No. 233,612, dated October 26, 1880.

Semaphore-blades 19 and 20 are secured on the upper portion of the vertical shaft 18 or a removable extension thereof. These blades are preferably made of thin sheet metal and are secured to the shaft at right angles to each other, as shown in Figs. 1 and 2. One of the blades, as 19, is secured to the shaft at right angles thereto, or so as to indicate "danger," while the blade 20 is attached to the shaft at an angle less than ninety degrees, so as to indicate "safety." The blades being arranged, as stated, at right angles to each other, only one will be visible to the engineer approaching along the track. The other blade,

being made of a thickness not greater than the diameter of the shaft, will not be distinctly visible.

In Fig. 1 the signal is adjusted so as to present the blade 19, indicating "danger" to the engineer, and in Fig. 2 the signal has been shifted, so as to bring the blade 20, indicating "safety," into view.

A cage 21 for the reception of the lantern 22 is made a portion of the vertical shaft 18, as shown in Figs. 1 and 2.

Where differently-painted targets or disks are employed, the vertical shaft carrying them could be rotated continuously in the same direction; but in using my improved signal-blades it is necessary to oscillate the shaft, as otherwise the signal would indicate the wrong track, it being customary to so ar-

range such position-signals that the long arm of the blade will point toward the track controlled thereby.

I claim herein as my invention—

In a signal, a vertical shaft, in combination with semaphore-blades secured thereto at right angles to each other, one of said blades being arranged at right angles to the shaft and the other at an angle less than a right angle thereto, and mechanism for oscillating the shaft, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JAMES T. HAMBAY.

Witnesses:

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W. B. CORWIN.