

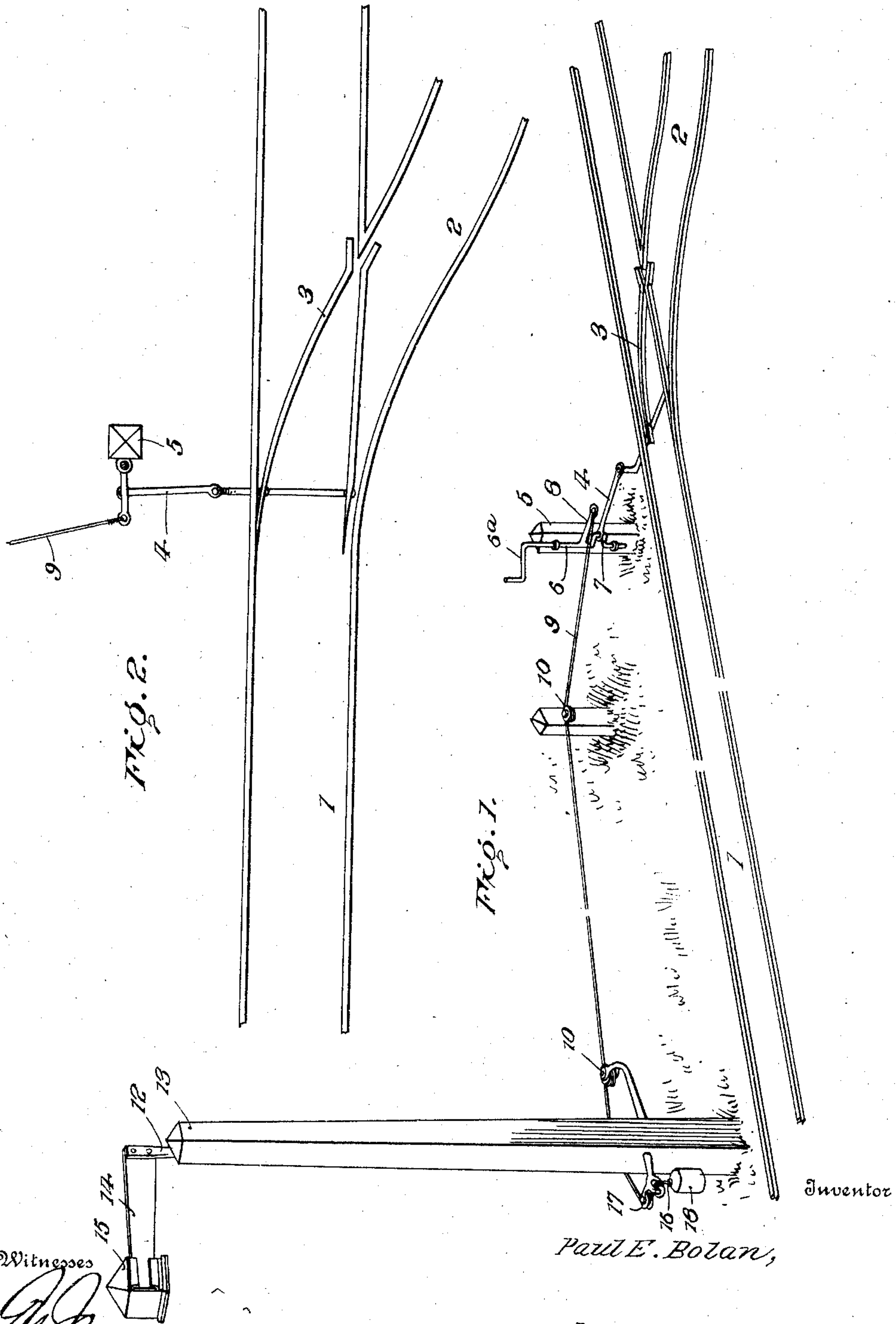
No. 879,240.

PATENTED FEB. 18, 1908.

P. E. BOLAN.
SWITCH SIGNAL.

APPLICATION FILED JUNE 25, 1907.

2 SHEETS—SHEET 1.



Witnesses

James H. Woodson

Paul E. Bolan,

By

R. A. Macy, Attorneys

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FIG. 3.

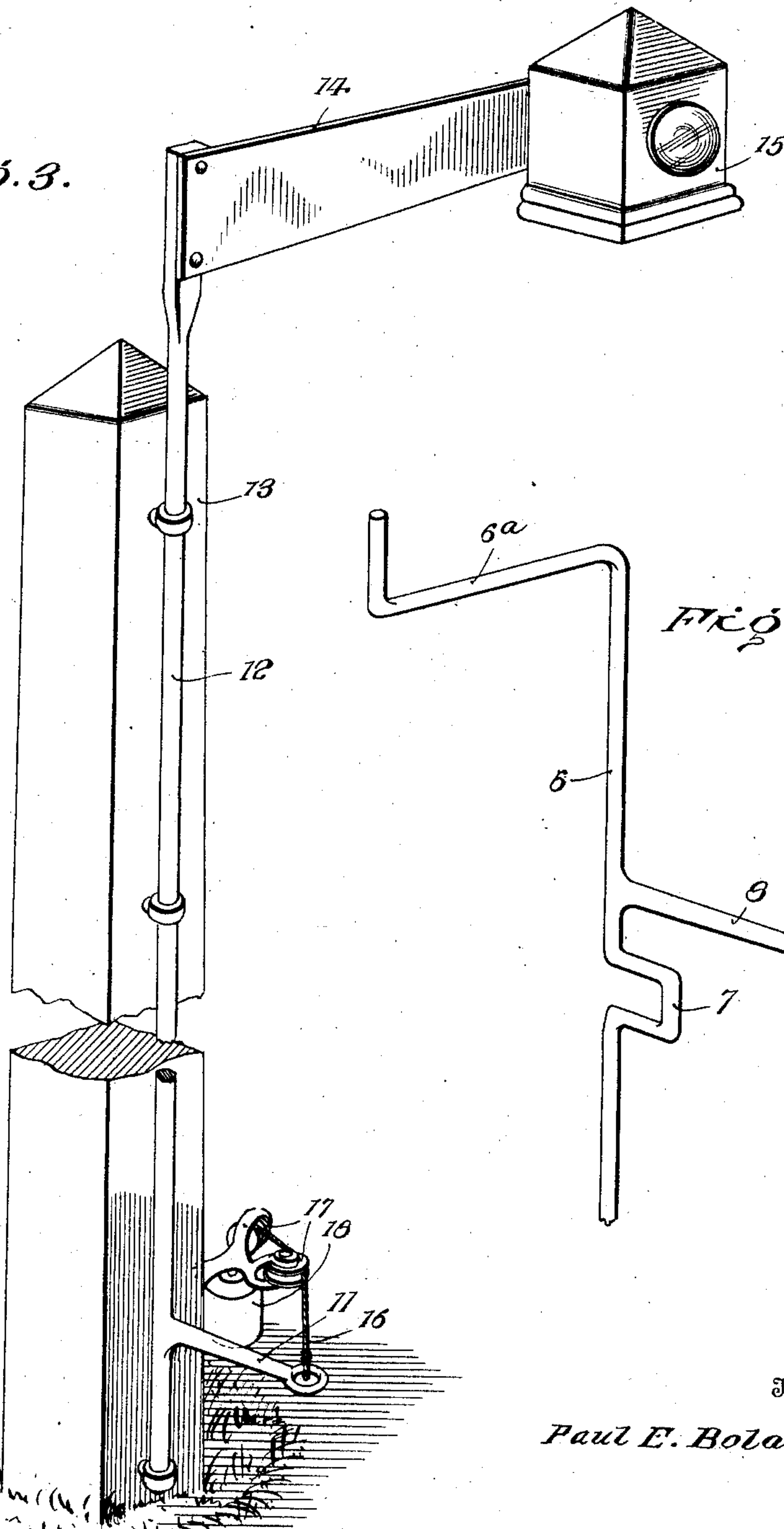
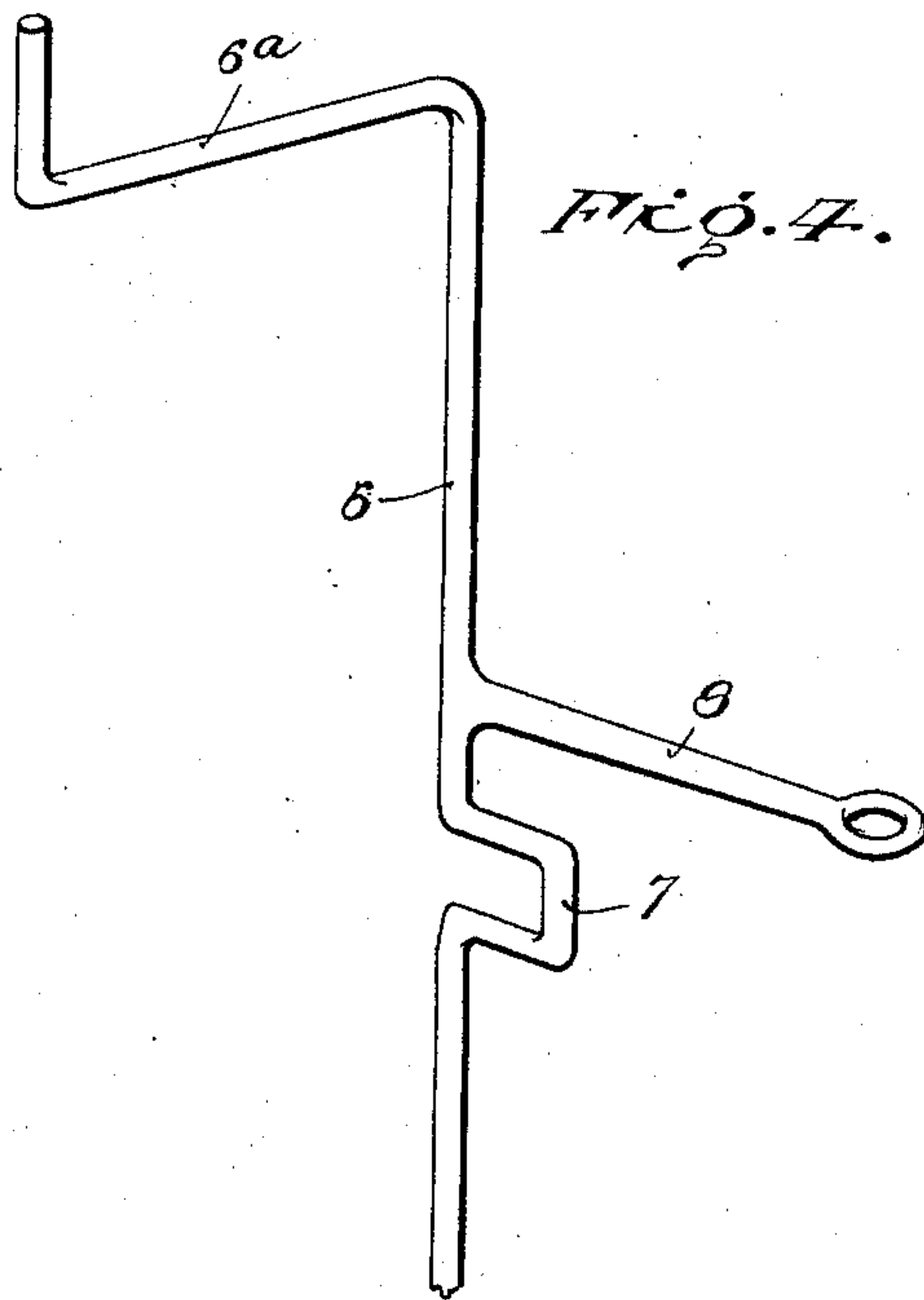


FIG. 4.



Inventor

Paul E. Bolan,

Witnesses

M. J. Miller
W. J. Hodson

By

R. H. Racy, Attorneys

UNITED STATES PATENT OFFICE.

PAUL E. BOLAN, OF CLOQUET, MINNESOTA.

SWITCH-SIGNAL.

No. 879,240.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed June 25, 1907. Serial No. 380,695.

To all whom it may concern:

Be it known that I, PAUL E. BOLAN, citizen of the United States, residing at Cloquet, in the county of Carlton and State of Minnesota, have invented certain new and useful Improvements in Switch-Signals, of which the following is a specification.

This invention contemplates certain new and useful improvements in switch signal apparatus and the invention has for its object an improved construction of switch signal arranged to show to the engineer of an on-coming train by a signal arm or target in the day time and a lantern at night, the condition of the track ahead of the switch tower, the semaphore constituted by the signal board and lantern being automatically extended across the track when the switch is open to a siding or cross-over and being automatically swung away from the track when the main line is open.

With this and other objects in view as will more fully appear as the description proceeds, the invention consists in certain constructions, arrangements and combinations of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a perspective view. Fig. 2 is a detail view in plan. Fig. 3 is a perspective detail view of the signal. Fig. 4 is a perspective detail view of the operating lever.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawings, the numeral 1 designates the main line of a railway track, 2 the rails leading to a siding or cross-over, and 3 the switch rails to which the switch bar 4 is connected.

5 designates the switch stand at one side of the track and 6^a designates the switch lever which in the present instance is formed as the crank end of a shaft 6 journaled to turn about its longitudinal axis in suitable bearings on the switch stand 5.

The switch shaft 6 is provided with a relatively small crank 7 to which one end of the switch bar 4 is connected. The said switch shaft 6 is also formed with an off-set

and relatively larger crank 8, which preferably registers with the crank 7, and it is made with the extra length necessary to turn the signal by the throwing of the switch. This secondary crank 8 of the switch shaft 6 is connected to one end of a cable 9 which extends over pulleys or rollers 10 alongside of the track and which may be run to the switch tower that may be located at any desired distance from the switch stand and switch. The other end of the signal actuating cable 9 is connected to a radial arm 11, and said arm in turn is secured to or formed on and projects from the vertically extending signal shaft 12 journaled to turn about its longitudinal axis at one side of the signal tower 13. At its upper end the shaft 12 carries a semaphore for the purpose of signaling both day and night, consisting of a signal board or target 14 which carries at its outer end a lantern 15 so that the said board and lantern will be swung over the track or away from the track according as the shaft 12 is turned in one direction or the other. The shaft 12 is designed to be turned in one direction by a pull exerted upon the cable 9. In order to turn the shaft in the opposite direction, another cable 16 is secured to the arm 11, and said cable 16 extends around the pulleys or rollers 17 and has a weight 18 secured to it at one end so as to automatically return the signal to its initial position after being actuated by the switch moving apparatus.

In the practical operation of my improved switch signal, when the operator turns the crank handle 6^a of the switch rod or shaft 6 in a direction to open the switch, the semaphore will at the same time, through the cable connection 9 and crank 8 and arm 11, be turned inwardly automatically and extend over the track so as to warn the engineer of the oncoming train that the switch is open to the siding or cross-over. Conversely when the switch is turned to a closed position, leaving the main track open, the semaphore or signal device will be automatically turned away from the track. In the preferred and present arrangement of the parts, the weight 18 will have a tendency to move the semaphore across the track and will be raised when the shaft 12 is turned to carry the semaphore away from the track.

From the foregoing description in connection with the accompanying drawings, it will be seen that I have provided a simple, dura-

ble and efficient construction of switch signal which embodies a single actuating shaft for the switch bar provided with two cranks, one a relatively short crank connected with the switch bar, and another a larger crank, both cranks operating simultaneously to effect the desired movement of the switch signal at the same time the switch is opened or closed.

Having thus described the invention, what is claimed as new is:

1. In an apparatus of the character described, the combination with switch rails and their switch bar, of a switch actuating rod provided with a crank connected to said switch bar and with a secondary crank relatively larger than the first named crank, a switch stand supporting said switch rod, a signal actuating cable connected at one end to the larger crank, a signal tower, a vertical signal shaft secured to said tower and provided with a radially extending arm to which the other end of said cable is secured, a semaphore carried by said signal shaft, another cable connected to said arm, and a counteracting weight connected with said last named cable.

2. An apparatus of the character described, comprising, in combination with switch rails and their switch bar, a switch actuating rod formed with two cranks, one

of which is connected to the switch bar, a switch stand supporting said switch rod, a signal tower, a signal shaft journaled alongside of said tower, a semaphore carried by said shaft, and an operative connection between said signal shaft and the second crank of the switch rod.

3. In an apparatus of the character described, the combination with switch rails and their switch bar, of a switch rod provided with a crank connected to one end of the switch bar, a stand for said switch rod, the switch rod being provided with a second crank off-set and registering with the first named crank, a cable connected at one end to said off-set crank, a signal tower at a distance from the switch stand, a signal shaft journaled on said switch tower and provided with a radially extending arm to which the other end of said cable is connected, guiding rollers over which the cable extends, a semaphore carried by said signal shaft, and a counterbalancing weight and cable also connected to the arm of said shaft.

In testimony whereof I affix my signature in presence of two witnesses.

PAUL E. BOLAN. [L. s.]

Witnesses:

F. V. INSKEEP,

C. L. SANDSTROM.