

(No Model.)

2 Sheets—Sheet 1.

J. T. CARTER.
AUTOMATIC RAILROAD SIGNAL.

No. 530,013.

Patented Nov. 27, 1894.

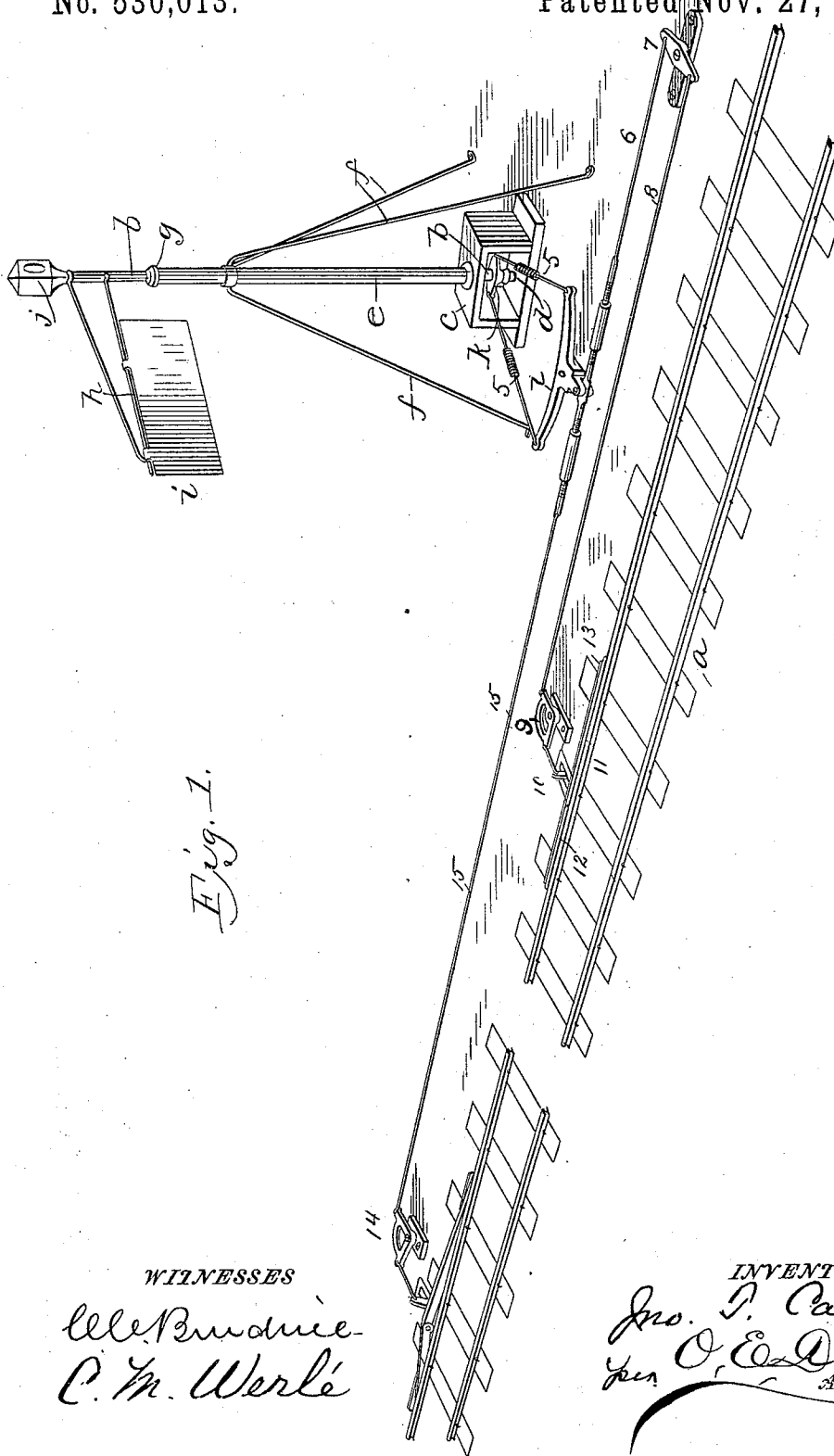


Fig. 1.

WITNESSES

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INVENTOR

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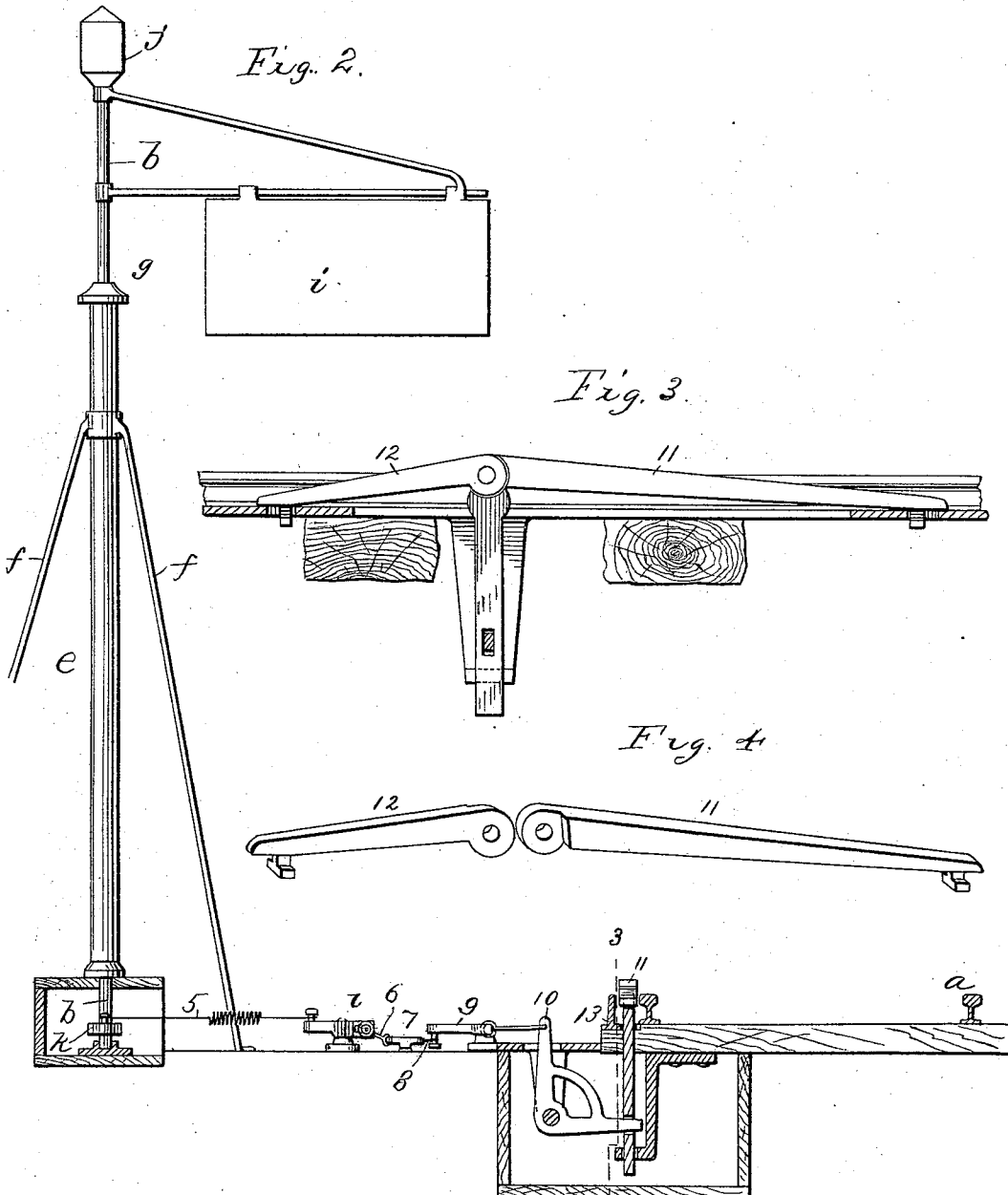
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WITNESSES:

Chas. B. ...
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INVENTOR

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UNITED STATES PATENT OFFICE.

JOHN T. CARTER, OF BROOKLAND, ASSIGNOR OF ONE-FOURTH TO SAMUEL J. HAISLETT, OF WASHINGTON, DISTRICT OF COLUMBIA.

AUTOMATIC RAILROAD-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 530,013, dated November 27, 1894.

Application filed July 2, 1894. Serial No. 516,347. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. CARTER, of Brookland, in the District of Columbia, have invented certain new and useful Improvements in Automatic Railway-Signals; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in railway signals.

The object of the invention is to provide an improved mechanical block system of signals for railways, exceedingly simple, durable and efficient in construction and composed of a minimum number of parts.

A further object of the invention is to provide an improved construction of trip composed of a minimum number of parts and very durable and strong in construction whereby the trip can be operated by the passage of the wheels of the train, without injuring the parts composing the trip.

A further object of the invention is to provide certain details in the construction and arrangement of parts whereby a highly efficient and reliable block system is produced.

The invention consists in certain novel features of construction and in combinations of parts more fully and particularly described hereinafter and pointed out in the claims.

Referring to the accompanying drawings:—Figure 1, is a perspective view of one block, portions being broken away to show concealed parts. Fig. 2, is a sectional view. Fig. 3, is a sectional view on the line 3—3 Fig. 2. Fig. 4, is a detail perspective view showing the various parts of the trip separated.

In the drawings, *a*, is the railroad track. The track is divided into blocks, each block being of suitable length. The signal is provided at the entrance to the block and means are located on the track for controlling said signal so that the train on entering the block throws the signal to danger position and on

leaving the block throws the signal to open position so that but one train will be on the block at a time.

Referring to the signal, *b*, is a vertical shaft of suitable length at its lower end passing through a box or casing *c*, and mounted in a step block *d*.

e, is the supporting and protecting tube through which the shaft passes and extending upwardly from the said box and secured thereto and provided with suitable braces or other supporting means *f*. The shaft projects above this tube and is provided with a rigid collar or flange *g*, to close the upper end of the tube and prevent entrance of snow, &c. The said shaft near its upper end and above the tube is provided with a horizontal arm *h*, rigid with the shaft and adapted to swing from a plane transverse to the track to a position parallel with the track. This arm can be suitably braced.

i, is a semaphore preferably rectangular in form, although I do not wish to limit myself to any particular shape, and loosely hung from the said arm, preferably by being loosely hinged to the arm so as to offer very slight resistance to the air when the shaft is turned, or when a high wind is blowing.

j, is a lantern or suitable colored light mounted on the upper ends of the shaft for use at night and having colored glass on opposite sides thereof to indicate danger or an open block. This signal is located at or near the entrance into the block. Within the said box the semaphore shaft is provided with a horizontal sector or oppositely extending arms *k*, rigid with the shaft for turning the same in opposite direction. Opposite the sector of the semaphore shaft and a suitable distance therefrom, the three arm lever *l*, is mounted on the vertical pivot to swing horizontally. The two opposite long arms of this lever extending parallel with the track are respectively connected by yielding connections 5—5 with opposite ends of the sector.

6, is the connection from the short arm of said three arm lever extending in the direction transverse to the track, to one arm of the short lever *7*, fulcrumed between its ends.

8, is the connection from the opposite end of the said lever 7, parallel with the connections 6, to one arm of the horizontal bell crank lever 9, arranged at the entrance or near the entrance into the block. The opposite arm of this bell crank lever is connected to the upright end of the vertical bell crank lever 10, mounted in suitable bearings in a box extending beneath the rail of the track and having its horizontal end extending loosely through a transverse slot in the vertically movable head, beneath the track. This head slides in suitable guides and is provided with an enlarged concaved upper end at the outer side of the rail and on which the links of the trip rest.

11 and 12 are the two links of the trip located at the outer side of the rail and pivoted together with the pivoted ends of the links, resting in the concaved end of said head. The long link 11, extends in the direction from which the train passes on to the block so that the wheel will first strike the long link and depress the same. The inner pivoted ends of the links 11 and 12 are rounded so as to fit in the depression of the end of the sliding head.

The casing 13, is provided for the links and comprises the vertical flange located parallel with the rail and at the outer sides of said links with horizontal floors or flanges on which the outer free ends of the links slide as the pivoted ends thereof rise and lower. The free ends of the links can be confined to said floors by any suitable means as by headed projections extending into longitudinal slots as clearly shown. A similar trip to that just described is located at the rear end of the block and the vertical bell crank lever of this last mentioned trip is connected to one end of the horizontal bell crank lever 14, located beside the trip; and the opposite end of said bell crank lever 14, is connected by connections 15, with the said short arm of the three armed lever connected with the semaphore shaft.

It will thus be observed by reason of the peculiar arrangement and connections that a train entering the block engages the long link of the first trip and thereby depresses the pivoted ends of the links and forces down the vertical moving head and rocks the upright end of the vertical bell crank lever inwardly toward the track thereby rocking the said short lever in the direction to move the short arm of the three arm lever forwardly in the direction from which the train comes, thereby turning the semaphore shaft in the direction to throw the arm thereof carrying the semaphore transversely of the track so as to display the danger semaphore or signal to any train proceeding toward the block onto which the first mentioned train just entered. When the train passes off of the block it performs the same operation on the signal opening trip which moves the three arm lever in the opposite direction and swings the semaphore shaft in the

opposite direction so as to move the semaphore to the position parallel with the track, and hence not visible to approaching trains. This operation also raises the pivoted links of the semaphore setting trip so that it is in position for the next train. It should be observed that the trips are located at the outer edges of the rails so as to be operated by the treads of the wheel and not by flanges.

The various connections extending parallel with the railroad track and otherwise can be inclosed in suitable housings and suitable adjustable couplings interposed to take up slack.

It is evident that various changes might be made in the forms, arrangements and constructions of the parts described, without departing from the spirit and scope of my invention. Hence I do not wish to limit myself to the exact construction herein set forth, but consider myself entitled to all such changes as fall within the spirit and scope of my invention.

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

1. The block system comprising the vertical semaphore shaft having the horizontal arm, the vertical tube in which said shaft is arranged, a casing at the lower end of the tube, the lateral arms on the shaft in the casing the semaphore loosely hung from said arm, the trips at opposite portions of the block respectively connected to said arms to swing said shaft in opposite directions.

2. The combination of the vertical semaphore shaft passing into a box, and a vertical tube at its lower end secured to the box and extending upwardly around the shaft, a suitable support, a shaft provided with a rigid collar inclosing the upper end of the tube, a horizontal arm from the upper portion of the shaft and a semaphore hung loosely from said arm.

3. In a railroad block signal system, the combination of the semaphore shaft having lateral arms, the three armed lever arranged opposite the same with its two opposite arms connected respectively with said arms of the shaft, a trip at the entrance to the block, a vertically movable bell crank lever connected with and operated by the same, a horizontal bell crank lever connected with said trip lever, the short lever fulcrumed between its ends and having one end connected to said second bell crank lever and its opposite end connected to the third arm of said three armed lever, the trip at the rear end of the block, and the bell crank levers and connections therefrom to the said third arm of the three armed lever.

4. The trip comprising the two links pivoted together a support on which their inner ends slide and are confined, a guard flange or rail at the outer sides of said links, and a vertical movable head on which the inner ends of the two links both rest.

5 5. The combination of the two links pivoted together and arranged beside the rail, the casing therefor, the vertically movable head on which the ends of said links rest and the vertically movable bell crank lever having its horizontal arm passed loosely through the same, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN T. CARTER.

Witnesses:

O. E. DUFFY,
C. M. WERLE.