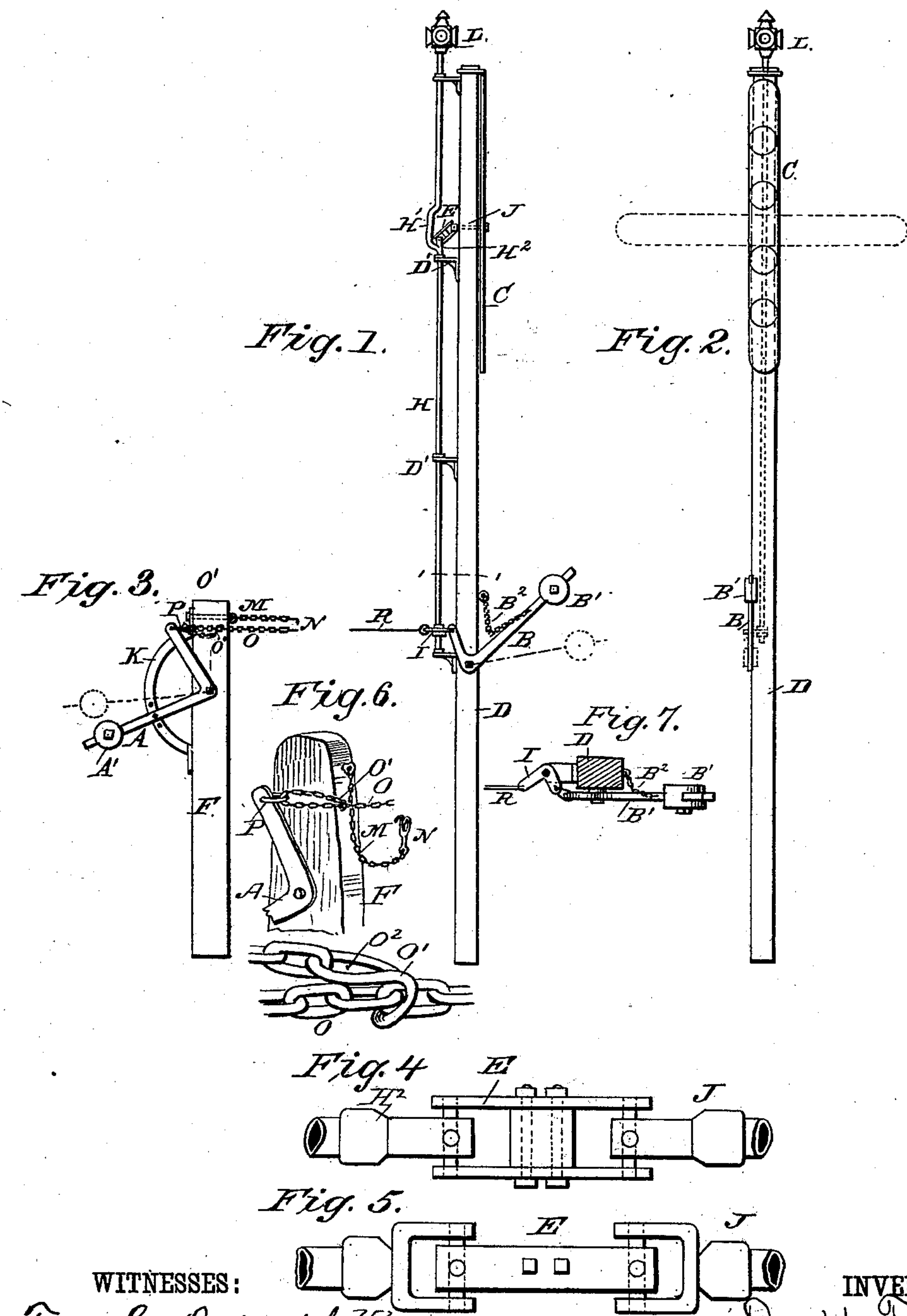


(No Model.)

D. TAPLEY.
RAILWAY SIGNAL.

No. 361,467.

Patented Apr. 19, 1887.



WITNESSES:

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DAVID TAPLEY, OF WOODSTOCK, NEW BRUNSWICK, CANADA.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 361,467, dated April 19, 1887.

Application filed September 24, 1886. Serial No. 214,468. (No model.)

To all whom it may concern:

Be it known that I, DAVID TAPLEY, of Woodstock, New Brunswick, Canada, have invented a new and useful Improvement in Railway-Signals, of which the following is a specification.

My invention consists in certain new and useful improvements in semaphores, which will be hereinafter fully described and claimed.

Referring to the accompanying drawings, Figure 1 is a side view of my improved signal. Fig. 2 is a front view of the same. Fig. 3 is a detail view of the counterbalance-lever at the station, and Figs. 4 and 5 are detail views of the universal joint connecting the lamp-rod and the signal arm or board. Fig. 6 is an enlarged detail view showing lever A and the chains to which the slide-link and grab-hook are secured; and Fig. 7 is a cross-sectional view on line 1 1, Fig. 1, looking down.

The same letters of reference indicate corresponding parts in all the figures.

Referring to the several parts by letter, D represents the main or signal post, which is placed in a suitable position by the side of the railroad-track. This post supports in bearings D' the vertical lamp-rod H, the upper end of which carries the signal-lamp L, of the usual construction. The signal-rod is curved outwardly at a point a little above its mid-length at H', leaving the upwardly-projecting point H², to which is swiveled the lower end of the universal joint E, the upper end of which is swiveled to one end of a short shaft or coupling rod, J, which turns in a transverse aperture in the main post, and is firmly and rigidly secured at its other end to the signal arm or board C, through the center of which it extends. Near its lower end the lamp-rod is provided with a bell-crank lever, I, one arm of which is connected by a short chain to the shorter arm of a counterbalance-lever, B, which is pivotally secured upon the lower part of the signal-post D, as shown, and which carries at its free extremity the adjustable weight B', a chain, B², preventing the weighted arm of this lever from falling too low.

F indicates the post at the station, on which is pivoted near its upper end the counterbalance-lever A, the free arm of which is provided with the adjustable weight A', and travels over a segment, K, secured to the side of

the post F, and having a series of apertures corresponding with an aperture in the free arm of the lever A, so that the said lever may be locked against the side of the segment by means of a key or pin to secure the semaphore in its adjusted position.

The shorter arm of the lever A is provided with the ring P, and one arm of the bell-crank lever I on the lamp-rod H is connected by wire R, of suitable length, and by a chain, O, with the short arm of the lever A, the said chain O passing through the ring P and having on its end a slide-link, O', which will engage with any of its links, as will be hereinafter described.

The signal-post may be set at any distance from the station, as the weighted levers A and B counterbalance one another, and the semaphore may be operated by a boy, even where two thousand feet of wire is used passing around curves from the station to the signal-post D.

To operate the semaphore, it is only necessary to raise the weight A' with the hand, which requires only a slight exertion, as high as is necessary to turn the lamp and signal-board into the desired position, when the weight B' will swing down the long arm of the lever B, thus turning the lamp-rod around in its bearings the requisite distance, and, through the universal joint E, turning the signal-board to correspond with the lamp.

It will be seen that the weighted levers A and B counterbalance each other and prevent all slack wire, at the same time causing the levers and the entire mechanism of the semaphore to work smoothly and evenly without any of that sudden jar and shock which is so destructive and objectionable in the semaphores now in use. The joint E and the short shaft J together form a double universal joint from the lamp-rod to the signal-board and avoid the danger which would attend the use of beveled gear in this connection of freezing up in sleet-storms, &c.

The lamp-rod may be made of one-inch gas-pipe put together at the point where it is connected to the universal joint with one T and three-quarter turns of pipe-couplings, making the rod much easier of construction than if it were made of solid iron.

To the upper end of the post F, at the sta-

tion, is secured one end of a short chain, M, the free end of which is provided with a grab-hook, N. The object of this chain and hook is that when the wire connecting the levers A and B stretches or lengthens in hot weather, or from any cause, it may be shortened readily and easily by one person by first stretching the wire taut by pressing down the free end of the lever A and hooking the hook N into a link of the chain O while the latter is drawn tight, when the lever A may be raised to slack the end of the chain O, while the hook N and chain M will hold the wire tightly stretched, and the slide-link O' may then be drawn back, drawing the chain O through the ring P on the end of the short arm of the lever A and catching the slide-link O' in a link of the chain O when the slack has been taken up. This adjustment of the slide-link O' is accomplished by first pressing its hooked forward end out of engagement with the end of the link against which it bears, so as to bring the chain into the wide opening O², when the link may be moved to any desired position, where it may be secured by bringing the hooked end into the position shown in lower part of Fig. 6. The space between sides of the hooked end is just sufficient to receive a link flatwise, and the hooked end will therefore bear against the end of the next succeeding link, which is about at a right angle to the link straddled by the said hooked end. The hook N is then disengaged from the chain O. The slack can thus be taken up in one minute by one man.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages of my improved semaphore will be readily understood.

It will be seen that it is simple, strong, and durable in construction, and exceedingly efficient in operation.

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

1. The combination, with the post D, the vertical rotatable lamp-rod journaled thereon and having a bell-crank lever, I, on its lower end, and the sign-board pivoted to the said post and operated by the lamp-rod, of the weighted

levers B, pivoted to post D and connected to one arm of the lever I, the post F, the weighted adjustable bell-crank lever A, pivoted thereon, and the connection between the said lever and the lever on the lamp-rod, substantially as set forth. 55

2. The combination, with the post and the vertical lamp-holding rod mounted to turn on said post, curved outwardly between its ends and having an upwardly-projecting point where the said curve begins, of the sign-board at the opposite side of the post from the rod and having a journal extending transversely through the post, and a universal joint connecting said sign-board journal with the said upwardly-projecting point on the lamp-rod, substantially as set forth. 60 65

3. The combination of the lamp-rod carrying the signal-lamp and having the bell-crank near its lower end, the double universal joint, the signal-board, the weighted counterbalancing-levers, and the connecting wire and chain, substantially as set forth. 70

4. The combination of the lamp-rod carrying the signal-lamp and having the bell-crank lever near its lower end, the double universal joint, the signal-board, the weighted counterbalancing-levers, the connecting wire and chains, and the short chain having the hook at its free end, as and for the purpose herein set forth. 75 80

5. The combination of the lamp-rod carrying the signal-lamp and having the bell-crank lever near its lower end, the double universal joint, the signal-board, the weighted lever pivoted to the main post, and the chain for regulating the fall of the same, the weighted lever pivoted to the station-post and having the ring at the end of its short arm, means, substantially as described, for securing this lever in its adjusted position, the connecting wire and chain having the slide-link at its free end, and the short chain having the hook at its free end, all constructed and arranged to operate in the manner and for the purpose herein set forth. 85 90 95

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Witnesses:

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