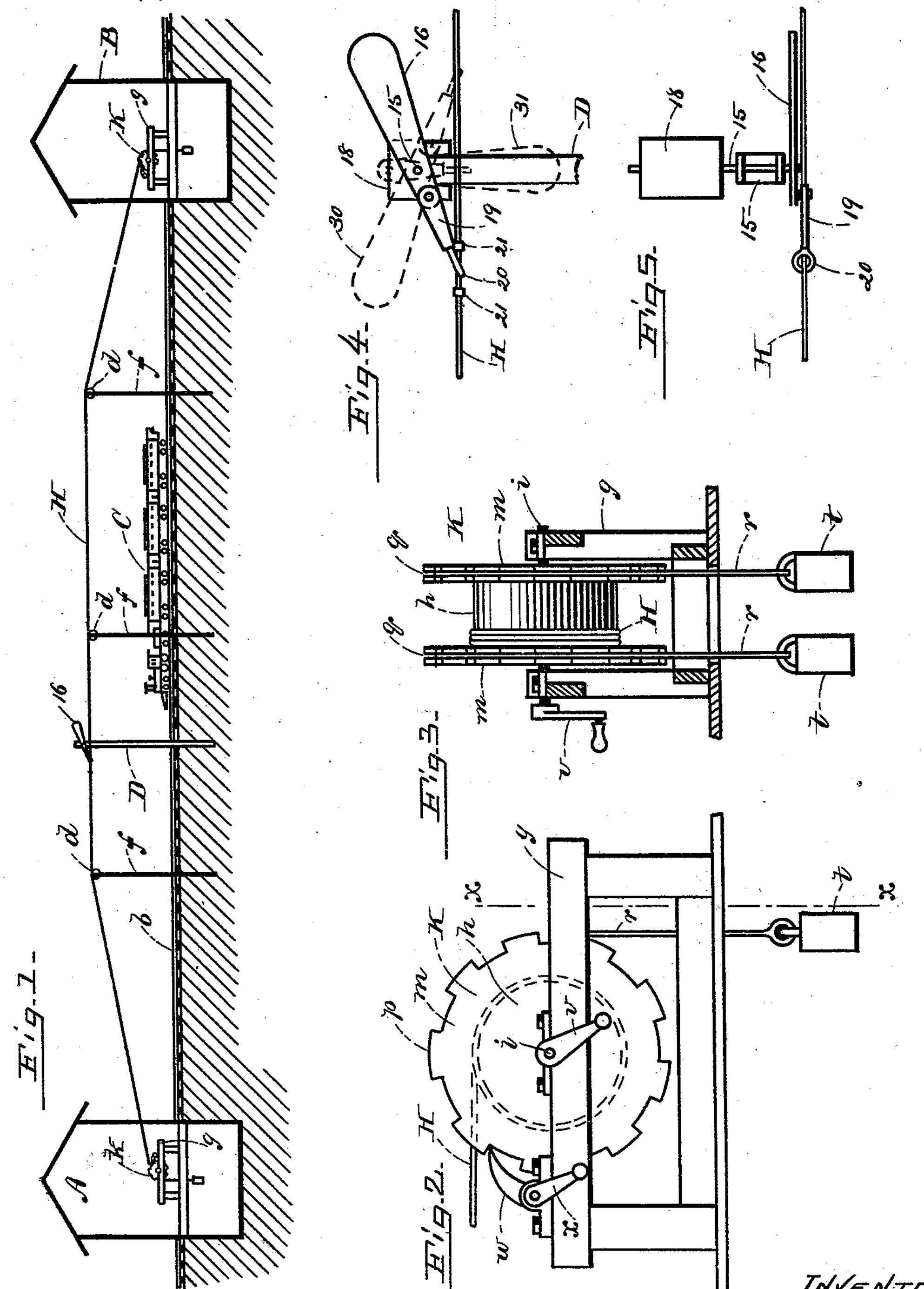
(No Model.)

O. M. WILLIAMS.

RAILWAY SIGNAL DEVICE.

No. 423,651. Patented Mar. 18, 1890.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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RAILWAY-SIGNAL DEVICE.

SPECIFICATION forming part of Letters Patent No. 423,651, dated March 18, 1890.

Application filed November 13, 1889. Serial No. 330,199. (No model.)

To all whom it may concern:

Be it known that I, OWEN M. WILLIAMS, of Wymore, Gage county, Nebraska, have invented certain new and useful Improvements in Railway-Signal Devices, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a sectional elevation showing my improvement in use; Fig. 2, a side elevation of the wire-reel; Fig. 3, a sectional end elevation of the same; Fig. 4, an elevation of the semaphore arm and post; and Fig. 5 a top plan view of the same.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

My invention relates to means for signaling moving railway-trains from the stations; and it consists in certain novel features hereinafter fully set forth and claimed, the object being to produce a simpler, cheaper, and more effective device of this character than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A B represent railway-stations, C the train, and D the semaphore-post. The post D is situated at one side of the track *b* at such place on the railway-line between two stations as it is desired to indicate to the engineer of a passing train that the line is clear or unobstructed to the next succeeding station. A wire H connects the stations A B and passes over pulleys *d* on the top of supporting-poles *f*. In each station A B a reel K is journaled in a suitable frame *g*. The reel consists of a barrel *h*, mounted on a shaft *i*, journaled centrally in said frame, said barrel being provided at each end with a ratchet-wheel *m*, having flat rectangular teeth *p*, as shown in Fig. 2. Each wheel *m* is grooved peripherally at *q*, and a rope or chain *r* is disposed therein, said chains having weights *t*, secured to their outer ends and acting as a counter-balance for the reel. The reels are provided with a crank *v*, and the ends of the wire H are wound onto said reels until said wire is drawn tightly over its supporting-pulleys *d*, between the stations. A chain may be attached to the ends of the wire, if desired, as it will wind more readily onto the barrel. A pawl or click *w* is pivoted on the frame *g* in engagement with the teeth of the ratchets, and is provided at its pivot with a crank-handle *x* for disengaging it therefrom. A shaft 15 is journaled in the top of the post D, and the semaphore-arm 16, which may be of any suitable form, is mounted therein. A weight 18 is mounted on the opposite end of said shaft. A supplemental arm or lever 19 is pivoted to the short end of the semaphore-arm, and is provided at its outer end with an eye or loop 20, through which the wire H passes. At each side of said eye a shoulder or boss 21 is formed on said wire to engage and move the signal when the wire is moved.

In the use of my improvement the wire H is drawn tightly between stations A B by means of the reels, as shown in Fig. 1. The semaphore-arm 16 is projected at one side of the post D, indicating to the engineer of the train C that the way is clear and he has possession of the line from station B to station A. To change the signal and indicate that the way is clear from station A to B, the operator in station A releases the reel from its click *w* by means of the crank *x*, and operates the reel-crank *v* to overcome the counter-balance *t* and slack the wire H. This causes said wire to move in the direction of station B, carrying with it the supplemental pivoted arm 19 and moving the semaphore sufficiently on its pivot to throw it to the opposite side of the post D into the position shown by dotted lines 30 in Fig. 4. The semaphore-arm may also be moved in like manner until it assumes a vertical position, (shown by dotted lines 31 in Fig. 4,) this being employed to indicate that the line is blocked in both directions. After the train has passed the semaphore the operator at the station just passed tightens the wire H by means of the reel that it may become operative when slacked from a connecting-station.

The supplemental arm 19 enables the semaphore-arm to be inverted without binding, and the counterbalance-weights *t* aid in preventing the wire from unreeling too rapidly.

Having thus explained my invention, what I claim is—

1. In a signal device, the combination of a semaphore-post, an arm pivoted thereon, a supplemental arm pivoted to said semaphore-arm, a wire attached to said supplemental arm and connecting adjacent stations, and reels at said stations for regulating the tension on said wire, whereby the semaphore-arm may be adjusted, substantially as described.

2. In a signal device, a semaphore provided with a pivoted arm, in combination with a line attached to said arm and connecting adjacent stations, reels in said stations for adjusting the tension on said wire, and posts provided with pulleys for supporting the wire, substantially as and for the purpose set forth.

3. In a signal device, the combination of a wire connecting adjacent stations and passing over pulleys on supporting-posts, mechanism in said stations for regulating the tension on said wire, a semaphore-post provided with a pivoted signal-arm, and a supplemental arm pivoted to the signal-arm and attached to said wire, whereby the position of the signal will be changed when the tension on said wire is lessened at a station, substantially as set forth.

4. In a signal device, a wire connecting adjacent stations, in combination with reels for said wires provided with grooved ratchets, chains in said grooves provided with counterbalance-weights, and a post provided with a pivoted semaphore-arm attached to said wire, substantially as and for the purpose set forth.

5. In a signal device, the combination of a line connecting adjacent stations and passing over pulleys on supporting-posts, with reels at said stations provided with a barrel for said line and pawl and ratchet, said ratchets being grooved to receive a counterbalance-chain, and a semaphore-post provided with a pivoted signal-arm attached to said line, substantially as described.

6. In a signal device, the combination of the wire H, connecting the stations A B, the supporting-posts *f*, having pulleys *d*, the semaphore-post D, provided with the pivoted arm 16, the supplemental arm 19, attached to said wire, and mechanism at said stations for adjusting the tension of the wire, substantially as and for the purpose set forth.

7. In a signal device, the post D, pivoted arm 16, and supplemental arm 19, in combination with the wire H, passing through the arm-loop 20 and connecting adjacent stations, substantially as and for the purpose set forth.

8. The reel K, mounted in the frame *g* and provided with the grooved ratchets *m*, lines *r*, having weights *t*, in combination with the click *w*, having the crank *x*, a semaphore, and a line connecting said wheel and semaphore, substantially as and for the purpose set forth.

9. The combination of the post D, the pivoted arms 16 and 19, the wire H, connecting the stations A B and attached to said arm 19, and the reels K, disposed at said station and provided with grooved ratchets *m*, and counterbalance-weights and cords *r t*, substantially as and for the purpose set forth.

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Witnesses:
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