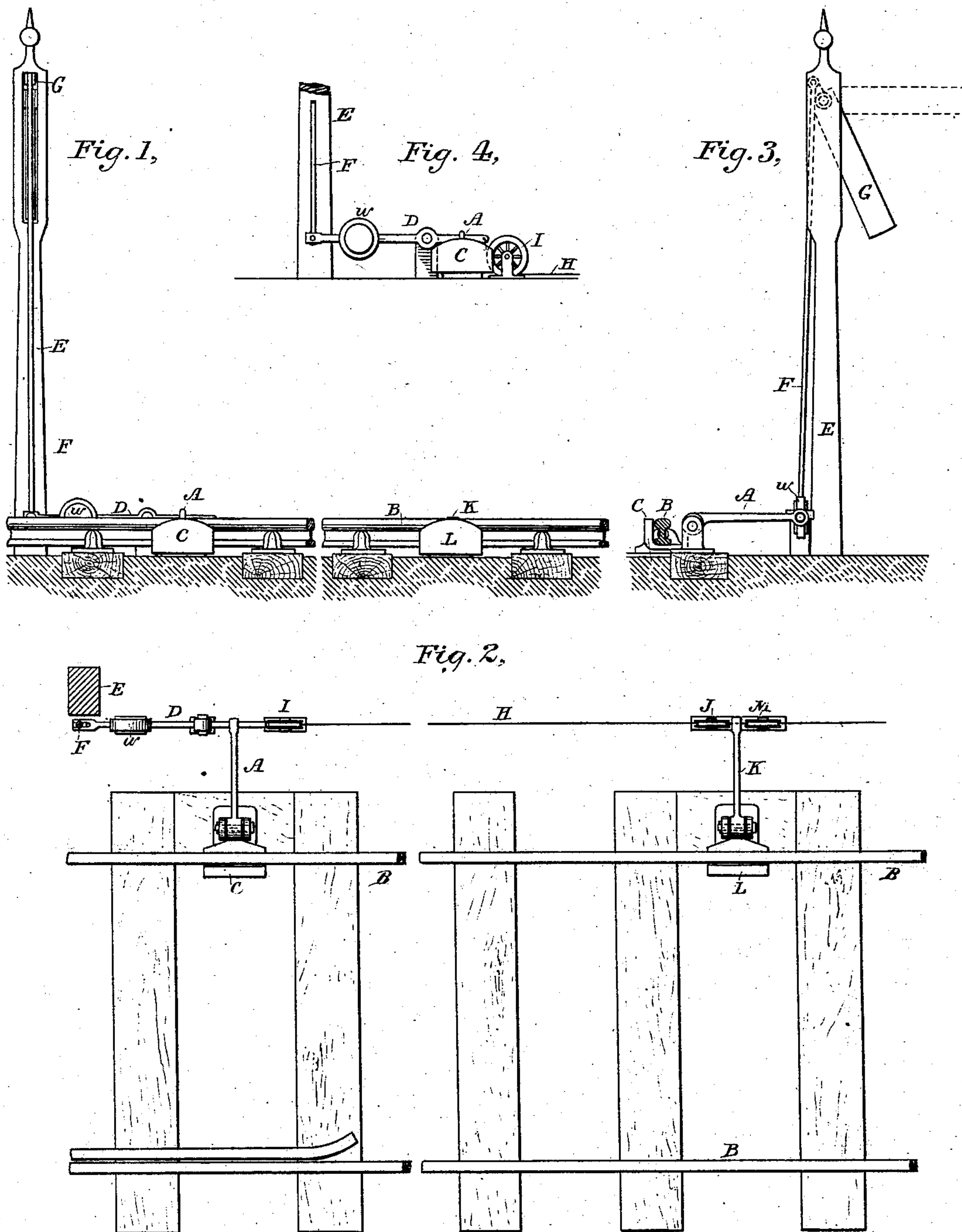


(No Model.)

R. A. & R. STANLEY.
RAILWAY SIGNALING APPARATUS.

No. 260,713.

Patented July 4, 1882.



WITNESSES

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UNITED STATES PATENT OFFICE.

ROBERT A. STANLEY AND ROBERT STANLEY, OF MANCHESTER, COUNTY OF LANCASTER, ENGLAND.

RAILWAY SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 260,713, dated July 4, 1882.

Application filed February 23, 1882. (No model.) Patented in England May 25, 1881, No. 2,297.

To all whom it may concern:

Be it known that we, ROBERT ALFRED STANLEY and ROBERT STANLEY, subjects of the Queen of Great Britain, residing at Manchester, in the county of Lancaster, England, have jointly invented a new and useful Improvement in Railway Signaling Apparatus, (for which we have obtained a patent in Great Britain, No. 2,297, dated May 25, 1881,) of which the following is a specification.

This invention relates to improvements in the construction of "self-acting" railway signaling apparatus for working railways upon the "block system."

Our invention consists in an improved semaphore signaling apparatus adapted to be operated by the wheels of passing trains through a novel combination of parts, and constructed so as to work positively and reliably without the aid of springs or other parts liable to get out of order, and so as to transmit impulses to an alarm or recording apparatus at a distance with facility, to attest its working and the condition of the line, as hereinafter described and claimed.

Figure 1 of the accompanying drawings represents a side elevation of two more or less widely separated portions of a railway-track provided with an improved signaling apparatus. Fig. 2 represents a plan view of the same with the semaphore-post in section. Fig. 3 represents a transverse section of the track, showing a side view of the semaphore and adjacent parts; and Fig. 4 represents a view of the latter from the same direction as Fig. 1, with the rails removed to expose the signaling mechanism—like letters of reference indicating corresponding parts in the several figures.

In carrying out our invention we employ a main lever, A, mounted at right angles to the rails B, said main lever having a short end which passes under the near rail, and is so formed that its extremity C projects slightly above the rail and close thereto, presenting a long curved surface to the flanges of the wheels of trains of cars passing over it. The other or longer arm of said main lever is jointed or linked to the shorter arm of a second lever, D, which is mounted parallel to the line of rails, and immediately alongside a semaphore signal-post, E. A rod or wire, F, connects the longer

arm of said second lever with the semaphore-arm, G, which is pivoted, as shown in Fig. 3, so as to be elevated by pulls on said rod or wire. Said long arm of the second lever is provided with a weight, *w*, secured thereon in proper position to counterbalance the semaphore-arm, so that it will remain in its respective positions without the aid of detents. At the same time a flexible wire is sufficient for the connection F, as gravity tends to return the semaphore-arm to its lower position, (indicated by full lines in Fig. 3,) and it is drawn to its elevated position (indicated by dotted lines in Fig. 3) by pulls, as aforesaid. Another wire, H, connected to the opposite end of said second lever, passes downward, and, being carried partly around a grooved deflecting-pulley, I, extends along the line of rails to the next station ahead, and is there connected to a bell, (not shown,) for which any suitable alarm or recording apparatus may be substituted. A simple bell serves to give sonorous indication of the working of the apparatus, so that inoperativeness through the failure of any part can be immediately detected and remedied. On its way to the station said wire H passes under another pulley, J, Fig. 2, similar to I, and is connected to the extremity of the longer arm of a resetting-lever, K, similar to the main lever A, so as to elevate the head L of said resetting-lever when that of the main lever is depressed. From said resetting-lever said wire H passes under another pulley, M, Fig. 2, and thence direct to the station, the signaling apparatus of each block-section of the road being separately connected with the station or stations ahead.

The operation of this apparatus is as follows: Assuming that the flange or head C of the main lever A is in its elevated position and that the arm G of the semaphore-post E is down, as shown in full lines in Fig. 3, which indicates that the guarded section is unoccupied or "open," the first wheel of an approaching train on the near rail of the track B will actuate said main lever by depressing said flange or head C, thus elevating the long end of said main lever and the short end of the second lever, D, depressing the long end of said second lever and pulling the connecting rod or wire F, so as to raise the semaphore-arm to

its elevated position, in which it is shown in dotted lines in Fig. 3, as aforesaid, thus rendering the track "blocked," and at the same time, through the wire H, indicating or recording this act at the station. The succeeding car-wheels, acting on said flange or head C, keep the semaphore-arm in its elevated position against any tendency of the jar of the train to displace it until the last car passes, and the counter-balance *to* adapts the semaphore-arm to maintain the same position until it is lowered by the action of the resetting-lever K, through said wire H, lever D, and connecting rod or wire F, when the flange of said first wheel of the train strikes the head L of said lever K. The latter, left by the train in depressed position, is re-elevated by the next depression of the head of the main lever through the medium of said wire H, and thus the operation proceeds "automatically" and without the aid of springs or other complications.

Having thus described our invention, we would have it understood that we do not claim a semaphore-signal operated by the wheels of

passing trains through levers and connecting media, broadly considered.

We claim as new and of our own invention—

The combination, in a block signaling apparatus for railways, of a main lever, A, mounted at right angles to the track, and constructed with a head, C, adapted to coact with the wheels of passing trains, a second lever, D, parallel to the track, adapted to transmit pulling impulses from said main lever, and provided with a counter-weight, a connecting rod or wire, F, transmitting said impulses to a pivoted semaphore-arm, G, a wire, H, leading from said second lever to a station ahead, a resetting-lever, K, similar to said main lever, and deflecting-pulleys to coact with said wire H, as and for the purpose hereinbefore described and illustrated on the accompanying drawings.

ROBERT ALFRED STANLEY.
ROBERT STANLEY.

Witnesses:

JOHN I. ROYLE,
CHAS. GUEST NORRIS.