

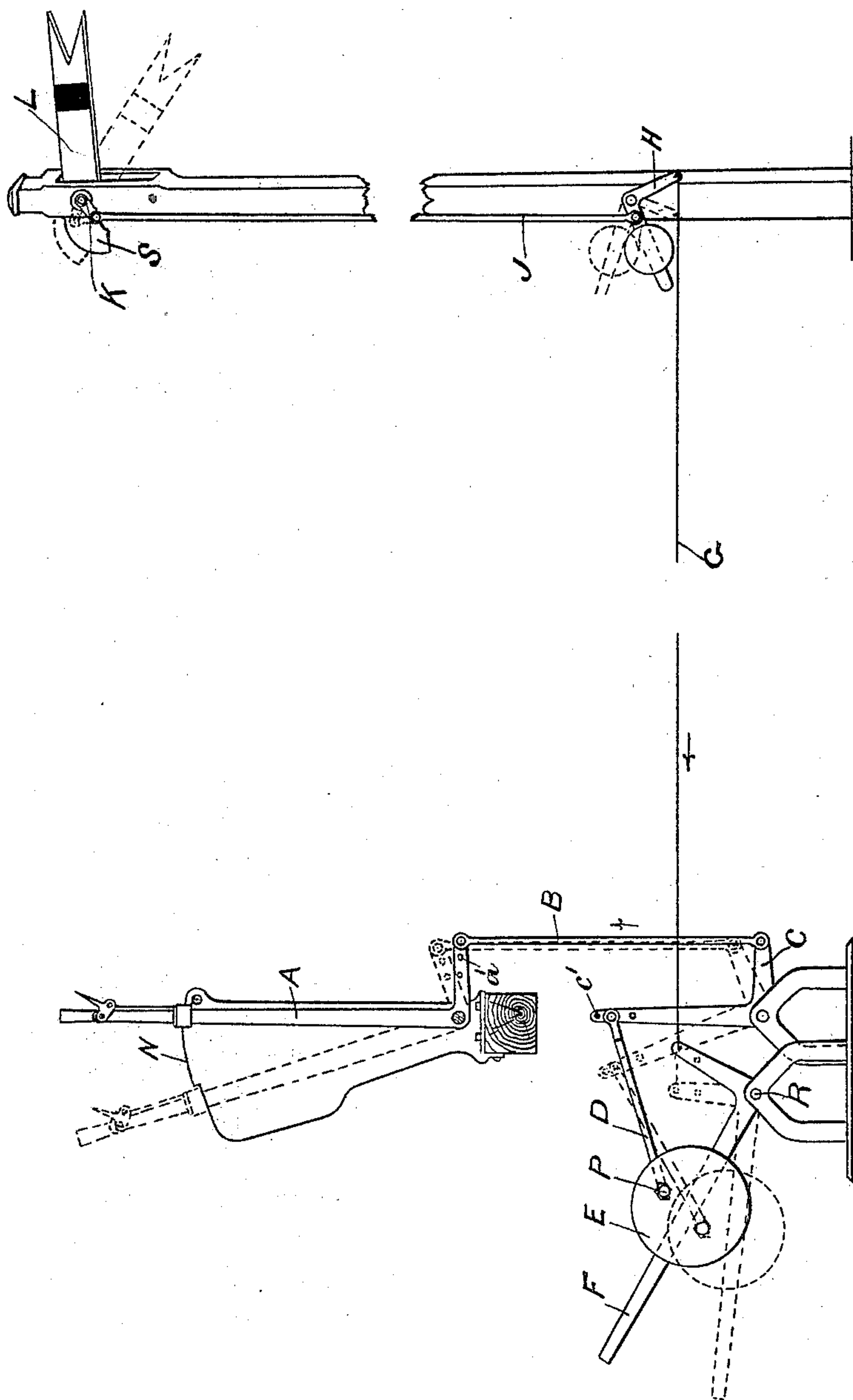
(No Model.)

J. LEDBROOK.

COMPENSATOR FOR RAILROAD SIGNAL CONNECTIONS.

No. 421,291.

Patented Feb. 11, 1890.



*Witnesses*  
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# UNITED STATES PATENT OFFICE.

JOHN LEDBROOK, OF BIRMINGHAM, COUNTY OF WARWICK, ENGLAND.

## COMPENSATOR FOR RAILROAD-SIGNAL CONNECTIONS.

**SPECIFICATION** forming part of Letters Patent No. 421,291, dated February 11, 1890.

Application filed September 30, 1889. Serial No. 325,592. (No model.) Patented in England January 24, 1889, No. 1,309.

*To all whom it may concern:*

Be it known that I, JOHN LEDBROOK, a subject of the Queen of Great Britain, residing at 25 Golden Hillock Road, Smallheath, Birmingham, in the county of Warwick, in England, have invented a new and useful Automatic Apparatus for Adjusting the Wires of Distant and other Railway-Signals, (for which I have obtained a patent in Great Britain, No. 1,309, bearing date January 24, 1889,) of which the following is a specification.

My invention has reference to apparatus for counteracting or compensating the effect of the variations of temperature in railway-signal wires. It insures that the wire or chain between the semaphore or other arm and the signal-man's lever, by which the signal is operated, shall be kept "taut," so that the semaphore and the lever are practically always in the same position relatively with each.

The accompanying drawing illustrates the application of my apparatus, the rod B working direct off the lower part of the lever.

A is the lever in the signal-cabin, set apart for working the distant or other signals.

B is a downright rod connecting the tail of the lever to a vertical crank c.

D is a connecting-rod from the crank c to a sliding weight E.

F is a vertical lever or crank, upon the longer arm of which the weight E slides. It is obvious this lever F may be straight as well as cranked.

P is the center pin connecting the weight E to the rod D.

G is the wire connecting the balance-weight lever H on the signal-post to the short arm of the vertical lever or crank F.

J is the usual upright rod working the signal-arm L through the half-crank K.

The action of my apparatus is as follows: When the wire G expands, the weight E deflects slightly the lever F, the said weight accommodating itself by sliding on the longer arm of the lever F. The crank c is held sta-

tionary by the lever A being normal. Should the wire contract, the longer arm of the lever F is raised, the weight E again accommodating itself by slightly sliding on the said longer arm. The action of my invention is thus automatic, requiring no adjustment in its action. Should, however, more or less expansion or contraction require to be provided for, it is obtained by moving the connections of B with the tail of the lever A and with the crank c into the next holes a' on the said levers, and moving the connecting-rod D into another hole c' in the crank c.

The method of actuating the signal-arm L is as follows: When the signal-man works his lever, the various connections assume the dotted positions, as shown, the arrows showing the direction of working. The crank c forces the weight E along the longer arm of the lever F, and the weight then, acting with increased leverage, overbalances the weights directly connected to the semaphore and permits it to fall. In replacing the arm A to its original position the weight E is traveled inwardly upon the arm, and the weight of rod J and the weights connected directly to it restores the semaphore to its original raised position.

What I claim is—

The combination, with a pivoted semaphore provided with weights normally holding it in its raised position, of the pivoted lever F, a wire connecting said lever with the semaphore-operating lever, a heavy weight sliding on lever F and always keeping the said wire taut, a hand-lever provided with a locking device, and intermediate lever mechanism connecting the hand-lever with the weight, whereby said weight may be slid upon lever F to permit the lowering of the semaphore, substantially as set forth.

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