

(No Model.)

D. S. GARDINIER.

COMPENSATING DEVICE FOR SIGNALS.

No. 292,553.

Patented Jan. 29, 1884.

Fig. 2-

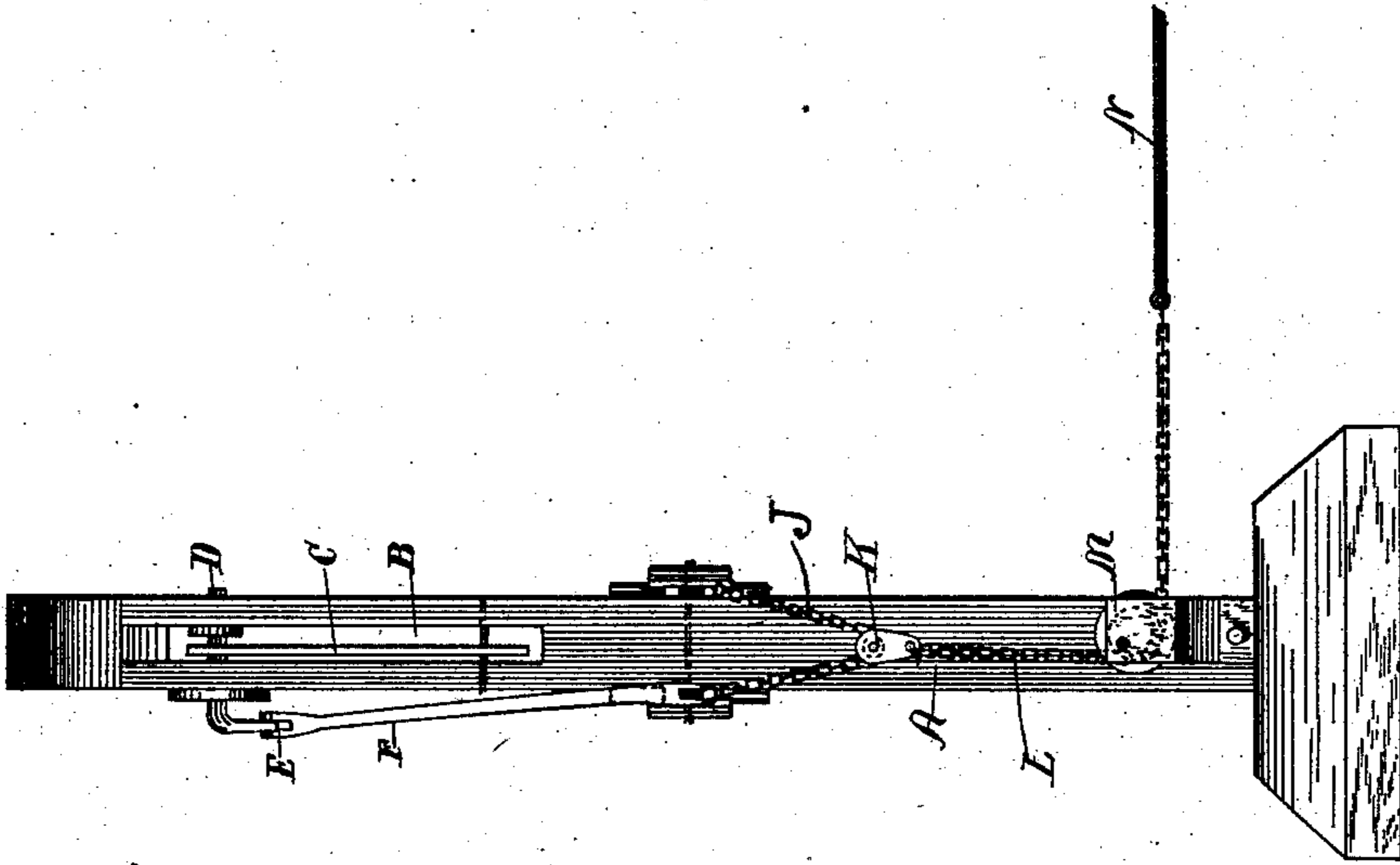
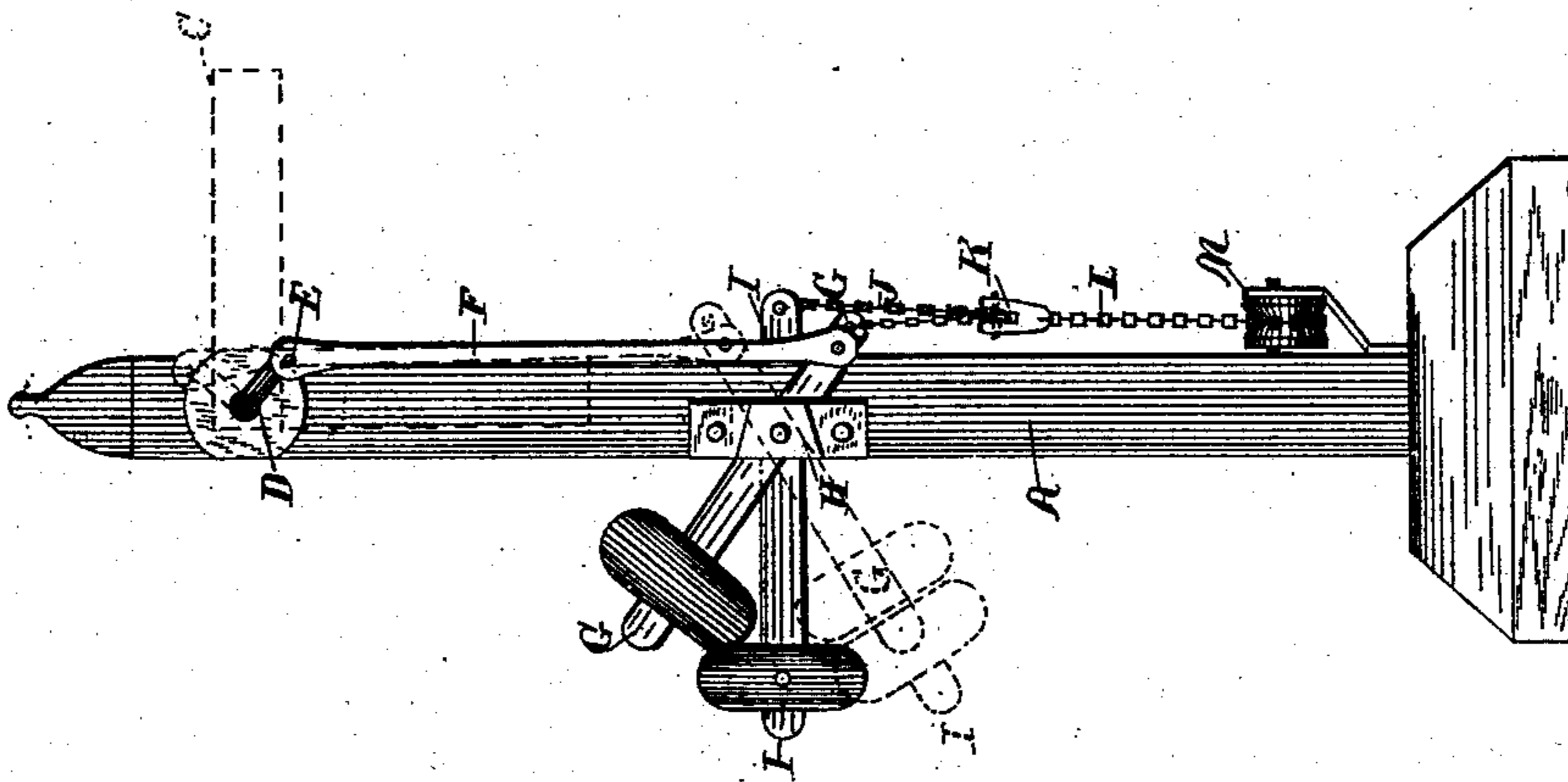


Fig. 1-



WITNESSES:

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COMPENSATING DEVICE FOR SIGNALS.

SPECIFICATION forming part of Letters Patent No. 292,553, dated January 29, 1884.

Application filed September 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, DAVID S. GARDINIER, a citizen of the United States of America, residing at Hudson, in the county of Columbia, and State of New York, have invented certain new and useful Improvements in Compensating Devices for Signals, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to an improvement in compensating devices for signals; and it consists in the peculiar combination, construction, and arrangement of parts hereinafter described and claimed.

15 In the accompanying drawings, Figure 1 represents a side elevation of a signal with my improvement attached, and Fig. 2 a front elevation.

A is the post or mast, provided with the usual pocket, B, in which works an arm, C, made fast on a shaft, D, passing through the post, and having a crank, E, which crank is connected by the pitman F to a weighted lever, G, fulcrumed at one side of the post at H. On the opposite side of the post is another weighted lever, I, whose weight is at a greater distance from the fulcrum than that on lever G, and whose short or forward end is connected to one end of a chain or cord, J, which passes through a pulley, K, and whose other end is fastened to the short end of the lever G. This pulley is connected with another chain or cord, L, which passes under a pulley, M, fixed at the base of the post, and is connected to the operating rod, wire, or cable N.

20 The operation of the compensating device is as follows: When the arm C is in the pocket, the weighted levers occupy the position shown in full lines—viz., lever G has the weight in its highest position, while the lever I is about horizontal. Should any expansion of the cable N take place, so as to lengthen it, the weight on lever I would descend, thus keeping the chain J taut and leaving the lever G and arm C in its normal position. Substantially the same effect would be produced by a contraction of the cable, only the weight on lever I would rise instead of falling, so that by this means the expansion and contraction of the cable, owing to the atmospheric changes, has no effect on the arm C, which still remains in-

closed in the pocket. This compensating device, however, does not hinder the operation of the arm C by the weighted lever G when the cable N has been loosened by the signalman, because as soon as the lever I has fallen to its full extent it has no further compensating effect, and then, as the chains J L are loosened, the weight on lever G comes into play, and, as it descends, the arm C rises to the "danger" position, as shown in dotted lines. When the cable N is pulled by the signalman to sheath the arm, the chain first operates the lever G, because that is the easiest to move, and when the weight on the latter has risen to its highest point the chain J slips through the pulley K and pulls on the compensating-lever I and raises it to a position where its compensating powers come into play.

The pulley M may be an ordinary pulley when the cable is comparatively short; but if it is very long an eccentric pulley may be used, as shown, in which case a part of the slack will be taken up by the pulley, for in case of contraction of the cable from cold the pulley will be caused to revolve toward its shorter radii, while in case of expansion of the cable from heat the pulley will revolve toward its longer radii, and thus a portion of the variation in length will be taken up by the pulley. From this it will be seen that a perfect compensating device is formed which will always keep the arm C in its proper position, no matter what the amount of variation in the changes of temperature.

I have shown the weights arranged on the levers at different distances from the fulcrum; but it is evident that they may be arranged at the same distance from their fulcrums by using weights of different proportions. It is also evident that springs may be substituted for weights, and that the lever G may be dispensed with altogether by connecting a spring to the arm C in such a manner as to raise the latter when the operating-wire is released. In this case the chain J should be connected directly to the crank E or to the pitman F.

Although I prefer the arrangement shown, in some cases I may mount the compensating device on a post intermediate of the operating-stand and signal post or mast. I should consider such an arrangement as an equivalent of

that shown in the drawings, and the lever thereof as being in combination with the signal post and arm and co-operating therewith.

What I claim as new is—

5 1. The combination, with a signal-post and the arm thereof, provided with means for raising said arm, of a weighted lever, as I, and a chain or equivalent device having one end connected to the weighted lever and the other
10 with the arm C, and running through a pulley connected to the operating wire or cable, substantially as described.

15 2. The combination, with a signal-post and its arm, of two unequally-weighted levers, one of which is connected with the arm, and a chain or equivalent device running from one lever to the other and through a pulley connected to the operating wire or cable, substantially as described.

3. The combination, with the signal-post A, 20 of the pivoted arm C, crank E, pitman F, weighted levers G I, chains J L, pulleys K M, and operating wire or cable N, substantially as described.

4. The combination, with the signal-post A, 25 of the pivoted arm C, crank E, pitman F, weighted levers G I, chains J L, pulley K, operating wire or cable N, passing loosely around the eccentric pulley M, running on a stationary support, all constructed and arranged substantially as and for the purposes specified. 30

In testimony whereof I affix my signature in presence of two witnesses.

DAVID S. GARDINIER.

Witnesses:

ABRAM G. SHARP.
MILLER MICHAEL.