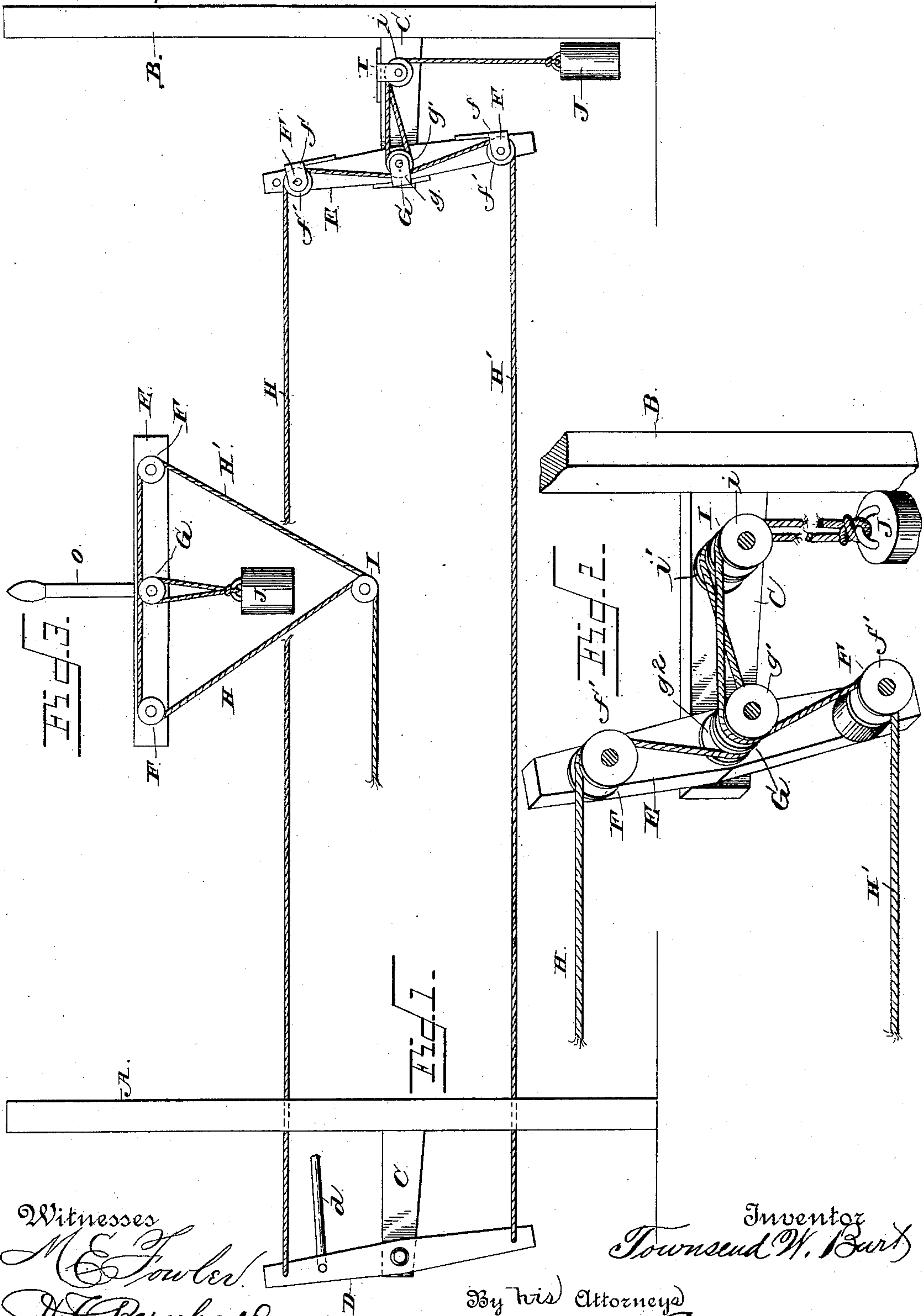


(No Model.)

T. W. BURT.
CABLE TENSION DEVICE.

No. 338,387.

Patented Mar. 23, 1886.



Witnesses
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By his Attorneys

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UNITED STATES PATENT OFFICE.

TOWNSEND W. BURT, OF MINEOLA, NEW YORK.

CABLE-TENSION DEVICE.

SPECIFICATION forming part of Letters Patent No. 338,387, dated March 23, 1886.

Application filed December 26, 1885. Serial No. 186,821. (No model.)

To all whom it may concern:

Be it known that I, TOWNSEND W. BURT, a citizen of the United States, residing at Mineola, in the county of Queens and State of New York, have invented a new and useful Improvement in Cable-Tension Devices, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in cable-tension devices, especially adapted for use in connection with the cables of an automatic block signaling apparatus, for which I filed application for Letters Patent on the 20th day of May, 1885, Serial No. 166,078; and the novelty consists of the peculiar construction and combination of parts, substantially as hereinafter set forth, and specifically pointed out in the claims.

Heretofore it has been proposed to allow for the expansion and contraction of a cable in block signaling apparatus and to keep the cable taut at all times by means of a device known as a "compensator," which is very liable to get out of order and break, and requires considerable time, labor, and expense in repairing it.

In my improved device I propose to provide the free ends of the cables with an independent and a common support, and to connect the free ends of said cables to a weight which shall be common to both the cables, the independent supports of the cables being designed to oscillate a device for actuating a signal and moving therewith, while the common support and the weight of the cables remain stationary, all as presently described.

This invention is also adapted for use in connection with a railroad-gate, when the gate is connected with means for automatically operating it by an approaching train, and it is also capable of use between a tower-house and an exposed signal-stand. In fact, it can be used in any relation where it is desirable to connect two distant devices and operate one or both of them by means of cables which shall be automatically held under proper tension and permit of the free and uninterrupted expansion and contraction thereof during the varying stages of the temperature.

In the accompanying drawings I have shown my invention as applied and adapted for use in connection with a block signaling appa-

ratus of the class shown in my prior pending application hereinbefore referred to, in which—

Figure 1 is a view in elevation of a home and distant signal-stand having my improved cable-tension device applied thereto. Fig. 2 is a view in perspective of the oscillating lever that carries the supports for the free ends of the cables. Fig. 3 is a view of another form of the device, in which the position of the oscillating lever is transposed.

Referring to the drawings, in which like letters of reference indicate like parts in all of the figures, A B designate the upright standards or posts of the home and distant signal devices, which are each provided with an outwardly-extending support or bracket, C, suitably secured to said uprights.

D designates a vertical oscillating lever, which is pivoted centrally to the support C, and is moved on its pivot by means of a link, d, that is connected by intermediate lever mechanism with a setting apparatus shown in my pending application hereinbefore referred to.

E designates a similar oscillating lever, which is disposed in a vertical plane and pivoted centrally on the support C of the upright post B of the distant signal. The ends of this oscillating lever are provided with the independent supports F for the cables, and at its middle said lever is provided with the common support G for the cables, which are brought together at this latter-named point, as will presently appear. The independent supports F each comprise a bracket, f, suitably secured to the end of the lever E, and a single friction-roller, f', that is journaled on a pin or stud which bears in the bracket and the end of the lever. The common support G comprises a bracket, g, and two friction-rollers, g' g'', which are loosely mounted on a shaft or pin.

H H' designate the cables, which are disposed one below the other and connect the levers D E of the home and distant signaling devices, and are adapted to operate one or both of the levers. One end of each of the cables is connected to one end of the lever D, and the opposite free ends of the cables H H' pass over the rollers f' of the independent supports F at the ends of the lever E, thence to

and over the pulleys g' g'' of the common support G of said lever E, and thence to friction-rollers i' i'' of a support, I, which is arranged in alignment with the central support, G, after
 5 which they are both connected to a weight, J, which is suspended from the cables at a suitable height above the ground. It will thus be seen that when the lever D is oscillated the cables will be moved in unison therewith
 10 and transmit the movement thereof to the oscillating lever E, and the free ends of the cables being provided with a weight they will be held under proper and equal tension at all times, while they are permitted to have the
 15 necessary expansion and contraction incident upon the changes of the weather. When the lever E is oscillated on its pivot, the independent supports F are carried with the lever in its movements; but the support G, being arranged at the center of the lever, is not affected by the movements thereof. When the cables operate either of the levers, the weighted ends of the cables merely change their relative
 25 points of engagement with the pulleys of the supports F and G without moving said pulleys or the weight J. If the cables expand or contract, the pulleys of the supports F G I move freely on their shafts and elevate or depress the weight, and as the cables expand and contract to an equal extent the weight J holds
 30 them under the same tension, which is important for the successful operation of the device.

The invention as hereinbefore described
 35 is especially adapted for operating the semaphore-signals of the block signaling apparatus shown in my prior application and to the operation of gates at railway-crossings.

When the device is employed for operating
 40 railway-gates, the setting apparatus shown in an application filed even date herewith is placed alongside of a track, to be actuated by the wheels of a passing train, and the lever D connected to the movable rod of the setting
 45 apparatus by intermediate lever mechanism, and the lever E is connected by the cables H H' with the lever D, and to the said gates by mechanism which shall simultaneously raise or lower the gates when the setting apparatus is
 50 actuated by the wheels of the train.

When the device is employed to connect an exposed signal-stand with a tower-house, the arrangement shown in detail in Fig. 3 of the drawings may be employed. In this device
 55 the oscillating lever E is disposed within the tower-house and has an operating handle or lever, O, and said lever E is arranged in a horizontal position with the independent cable-supports F at the ends, the central common
 60 support, G, having the weight J suspended therefrom. The cables run near the ground and pass over the support I, which is located beneath the weight, thence to the independent support F, thence to the common support G,
 65 and then have the weight J connected to their depending ends. The operation of this de-

vice is similar to that device shown in Figs. 1 and 2. The cables are operated by the lever D, and they oscillate the lever E, which in turn operates the mechanism of the signaling
 70 device that exposes and conceals the signal. The cables may run parallel or be crossed, and in lieu of the oscillating lever D a pulley may be employed, in which case the ends of the cables may be secured thereto, or the cable be
 75 in one piece and pass around the pulley.

The important result gained by my invention lies in the fact that the cables are held under an equal and a proper degree of tension, which is necessary for the successful operation
 80 of the device, while at the same time the expansion and contraction of the cables are permitted without danger of breakage to the parts, thus enabling the apparatus to work with certainty and effectiveness in all kinds of
 85 weather. The means by which these results are attained are very simple and durable in their construction, and they can be manufactured at a very small cost.

I do not desire to limit myself to the exact
 90 arrangement and construction of parts herein shown and described, as I am aware that many changes therein can be made without departing from the principle of my invention.

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

1. In a tension device, the combination of the cables, means connected at one end of the cables for actuating the same, and an oscillat-
 100 ing lever having the independent and common supports, the free ends of the cables passing from the common support, and having a weight, substantially as described.

2. A tension device having the free ends of
 105 its cables weighted and connected to a lever provided with independent supports for the cables and a common support therefor, substantially as described.

3. In a tension device, the combination of
 110 the cables, a lever to which the cables are connected, a weight suspended from the free ends of the cables, and means for actuating the cables and lever, substantially as described.

4. The combination of the cables, a lever to
 115 which the cables are loosely connected, and a weight connected to the free ends of the cables, whereby the cables are held under equal tension and expansion and contraction thereof are permitted independent of any movement of
 120 the lever, substantially as described.

5. The combination of the cables, an oscillating lever or device provided with independent supports for the cables at or near its ends, and a common support therefor between
 125 the independent supports, and a weight connected to the free ends of the cables, substantially as described.

6. The combination of the cables, an oscillating lever provided with independent sup-
 130 ports at its ends, each carrying a friction roller, and a common support at its center

having a friction-roller for each cable, an exterior support, I, and a weight for the free ends of the cables, substantially as described.

7. The combination of the oscillating lever 5 D, the cables connected thereto, a lever, E, having the end and central supports, F G, an independent support, I, over which the ends of the cables are passed, and a weight suspended from the free ends of the cables, substantially as described. 10

8. In a tension device, the combination of the cables, an oscillating lever provided with a central support to which the cables are connected, and a weight secured to the free ends 15 of the cables, whereby the lever is permitted to oscillate without operating the weight, and the cables can expand and contract to adjust the weight vertically independent of any movement of the lever, substantially as described. 20

9. In a tension device, the combination of the cables, an oscillating lever having independent and common supports for the cables, a support, I, arranged in alignment with the

common support of the lever, and a weight 25 suspended from the free ends of the cables, whereby when the lever is oscillated the weight will remain stationary, and the cables are permitted to expand and contract without moving the lever, substantially as described. 30

10. In a cable-tension device, the combination of the cables, an oscillating device on which the free ends of the cables are loosely supported, and a weight connected to the free 35 ends of the cables beyond their point of support on the oscillating device, whereby the cables are held under equal tension, and expansion and contraction thereof are permitted independent of any movement of the oscillating device, substantially as described. 40

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of three witnesses.

TOWNSEND W. BURT.

Witnesses:

E. G. SIGGERS,
H. T. BERNHOLD,
WM. H. MOORE.