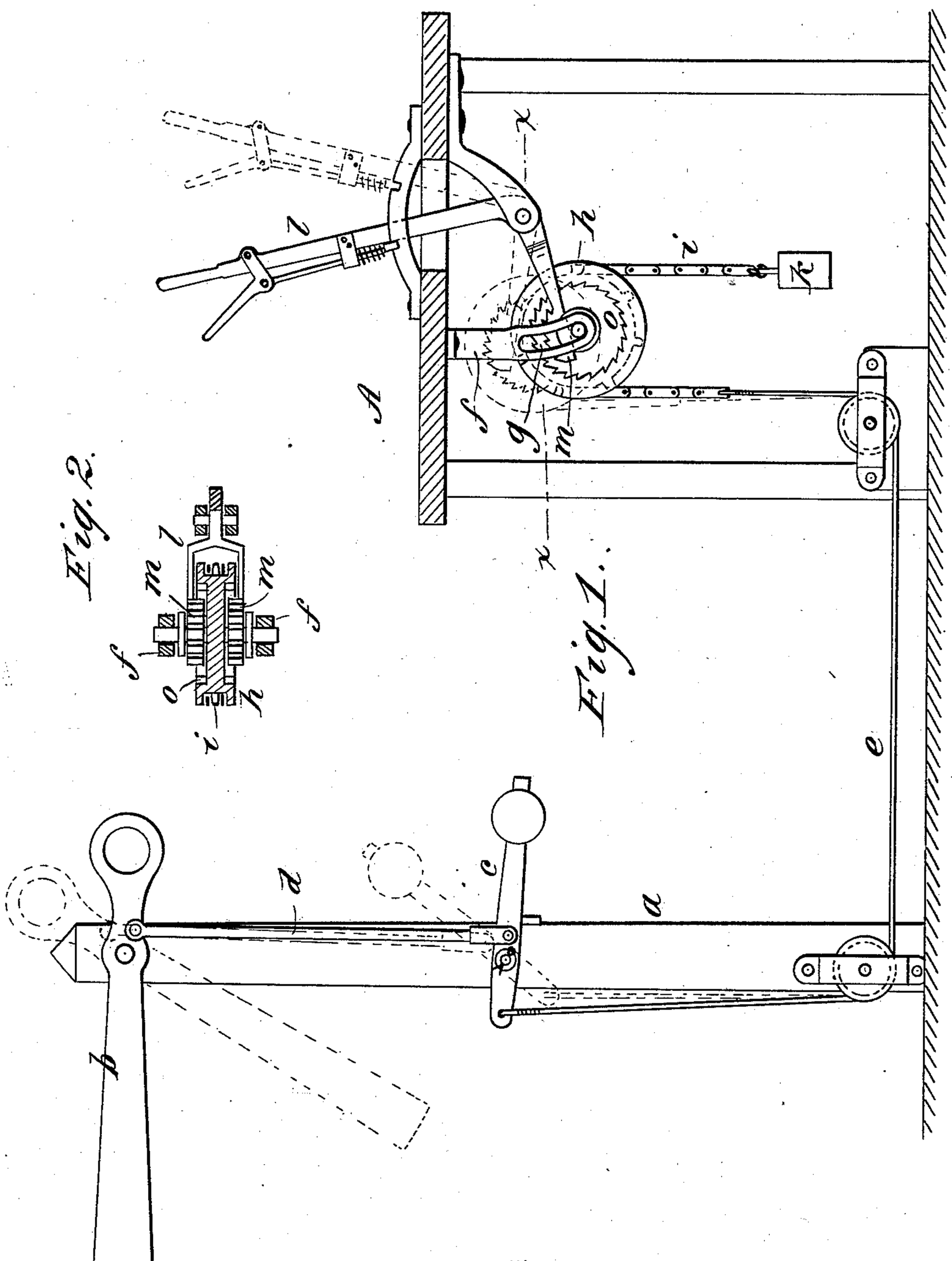
(No Model.)

R. B. IRELAND.

COMPENSATOR FOR WIRE ROPES OR CABLES.

No. 308,673. Patented Dec. 2, 1884.



WITNESSES:

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RICHARD B. IRELAND, OF TRENTON, NEW JERSEY.

COMPENSATOR FOR WIRE ROPES OR CABLES.

SPECIFICATION forming part of Letters Patent No. 308,673, dated December 2, 1884.

Application filed October 21, 1884. (No model.)

To all whom it may concern:

Be it known that I, RICHARD B. IRELAND, of Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Compensators for Wire Ropes or Cables, of which the following is a full, clear, and exact description.

My invention relates to a compensator for taking up the expansion and allowing the contraction of wire rope or cable used for operating railway-signals and other mechanism at a distance. In the case of railway-signals the movement to their proper position is prevented by the lengthening and shortening of the ropes under changes of temperature, and the signals are thus liable to be mistaken. To obviate this, fluid compensators have been used, but the fluid, being confined in pipes, does not respond to the changes of temperature as quickly as the wire, and the compensators are therefore not reliable.

The object of my invention is to provide an entirely automatic and positive mechanism for the purpose named; and to that end it consists in a wheel or roller carrying the rope and combined with the operating-lever in such manner that normally the wheel is free and is locked by the movement of the lever, as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is an elevation of a railway-signal provided with the compensator. Fig. 2 is a sectional plan view on line *x x* of Fig. 1, and Fig. 3 is a detail view showing the lock.

The post *a* with its swinging signal-arm *b*, and the weighted lever *c*, connected to the arm by rod *d*, by which the signal *b* is normally retained in the horizontal or "safety" position, are as usual. From lever *c* a rope, *e*, passes beneath guide-rollers to the lower or other place of operation, (represented at A.) To the floor of the tower or other fixed support are attached hangers *f f*, which carry in slots *g* the journals of a grooved wheel or roller, *h*, and over this wheel passes a chain, *i*, that is connected to rope *e*. On the free end of the chain is a weight, *k*, heavy enough to draw down the chain and tighten the rope *e*, but not to cause any movement of the signal.

The usual operating-lever, *l*, has on its lower end a forked arm passing at each side of the wheel *h* behind the hangers, and on the ends of this arm are toothed blocks or segments *m*, which are thus held within internally-toothed flanges *o* on the wheel. The wheel *h* has teeth on the bottom of the groove for engagement with the links of the chain, so that there can be no slip; but the friction of a rope passed over or around the wheels may be depended on in some cases. In the normal position of the lever *l*, as shown by full lines, the segments *m* are free from the flanges of wheel *h*, and the latter is consequently free to turn in its supports, so that if the rope slackens by expansion the weight *k* draws up the slack, and is also pulled up by contraction of the rope, thus keeping the rope at a uniform tension. The first movement of lever *l* to operate the signal carries segments *m* into engagement with the flanges *o* of the wheel, thus locking it, and by the further movement of the lever the wheel is lifted bodily, thereby drawing the rope and moving the signal-arm to the position required. By return movement of the lever the parts are restored to the first position, the extent of pull and movement of the signal being always the same.

I do not limit myself to the special construction and arrangement shown of the locking-segments. Nor do I limit myself to the use of a weight, as a spring may be used to turn the wheel.

It is to be understood that the compensator may be applied to wire rope or cables, all of which are used for operating signals.

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

1. The compensating device for wire ropes consisting of a wheel carrying the rope end and supported in hangers and a lever constructed to lock the wheel and move it bodily, substantially as described.

2. In a compensator for wire ropes, the compensator-wheel, slotted hangers or guides, and lever, combined for operation substantially as specified.

3. The combination of the compensator-

wheel *h*, slotted hangers *f*, lever *l*, and segments *m*, substantially as described, for operation as set forth.

4. The combination of the compensator-wheel *h*, carrying a rope and formed with toothed flanges *o*, and the toothed segments *m*, fitted for movement by a lever, substantially as described.

5. In a compensator for wire ropes, the combination of the grooved and toothed wheel *h* and the chain *i*, connected to the rope, substantially as described.

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Witnesses:
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