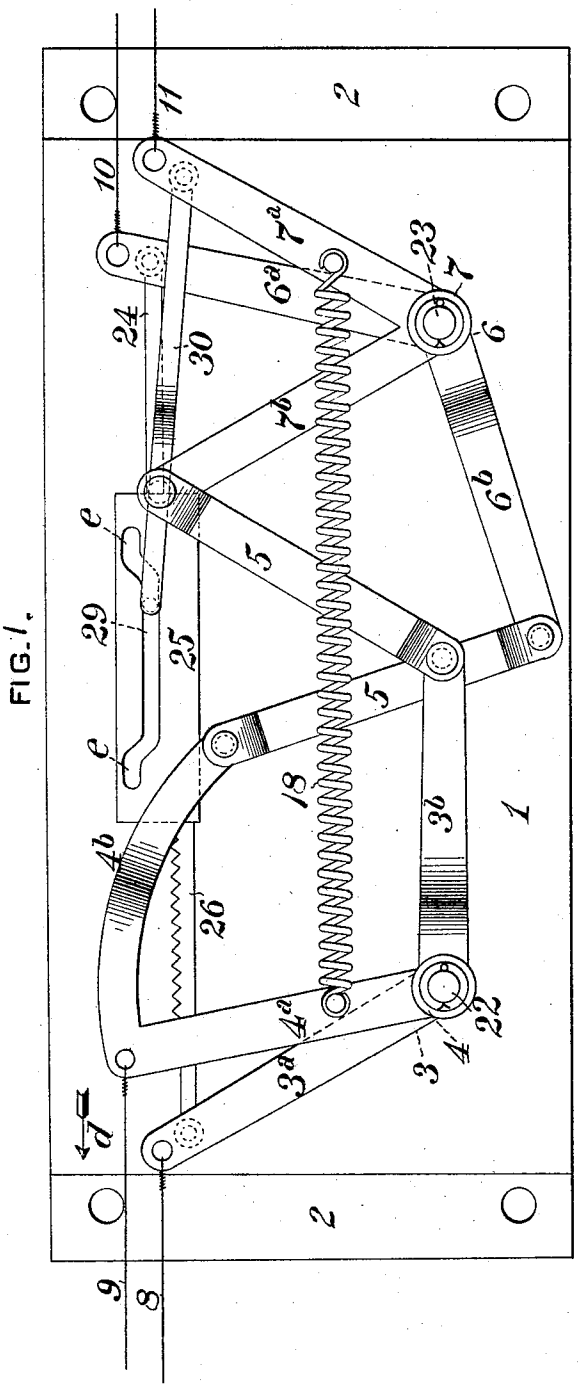
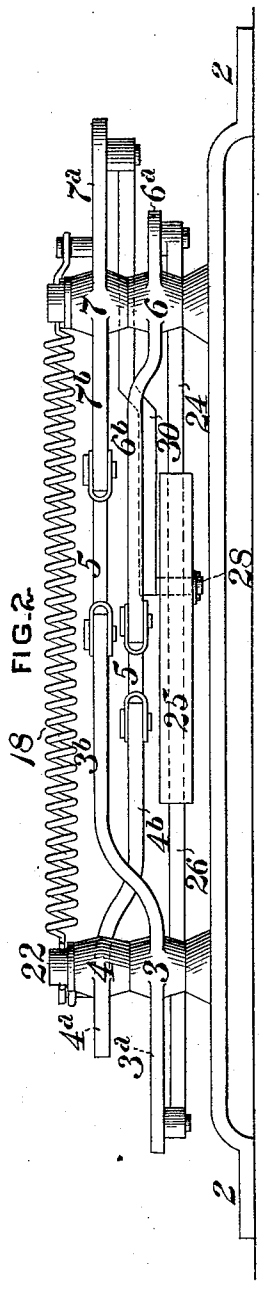
(No Model.)

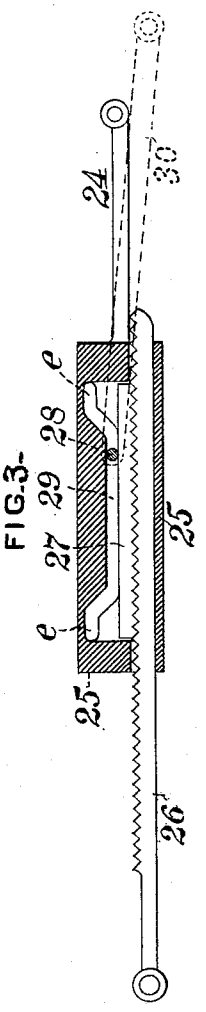
J. J. TURNER.

COMPENSATOR FOR SIGNALS.

No. 479,380. Patented July 19, 1892.







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UNITED STATES PATENT OFFICE.

JAMES J. TURNER, OF PITTSBURG, ASSIGNOR TO THE UNION SWITCH AND SIGNAL COMPANY, OF SWISSVALE, PENNSYLVANIA.

COMPENSATOR FOR SIGNALS.

SPECIFICATION forming part of Letters Patent No. 479,380, dated July 19, 1892.

Application filed February 11, 1892. Serial No. 421,165. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. TURNER, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered a certain new and useful Improvement in Compensators for Signals, of which improvement the following is a specification.

The invention described herein relates to certain improvements in the form of compensators for signals described and claimed in Letters Patent No. 470,148, granted March 1, 1892.

The invention set forth in said patent consists, generally stated, in two shafts connected, respectively, to an operating-lever and to a signal, mechanism for transmitting rotary motion from one shaft to the other, means for holding the connections from the operating-lever and signal under constant tension, and connections between said shafts whereby horizontal movement is transmitted from one shaft to the other.

The invention described herein has for its object certain further and additional improvements in compensators for signal connections; and in general terms the invention consists in the construction and combination, substantially as hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan view of another form of compensator. Fig. 2 is an elevation of the same, and Fig. 3 is a sectional detail of the locking mechanism.

The bed-plate 1 of the compensator is provided at its ends with suitable flanges or feet 2, whereby it may be secured to the track, ties, or any other suitable foundation. Bell-crank levers 3 and 4 are pivotally mounted on the bed-plate in suitable relation to each other and have their arms 3^b and 4^b connected by links 5 to corresponding arms 7^b and 6^b, respectively, of bell-crank levers 6 and 7, also pivotally mounted on the bed-plate in suitable relation to each other and to the levers 3 and 4. The arms 3^a and 4^a of the levers 3 and 4 are connected by wires 8 and 9 or other suitable means to an operating-lever, and the arms 6^a and 7^a of the levers 6 and 7 are connected by wires 10 and 11 to the signal, or vice versa, the levers 3 and 4 being connected to the signal and the levers 6 and 7 to the operating-lever. As the connections to lever and signal are flexible, it will be evident by reference to Fig. 1 that the motion imparted to the lever 4 by a pull on the wire 9 must be transmitted to the lever 7 in order to pull the wire 11, as the lever 6 is so shifted by the lever 4 when actuated by a pull on the wire 9 as to exert a push on the wire 10 and will not, therefore, operate to actuate the signal. A similar movement of the lever 3 to shift a signal must be transferred to the lever 6.

In order to transmit motion from the levers 3 or 4 to the levers 7 and 6, respectively, said levers are arranged and connected as shown in Figs. 1 and 2—*e. g.*, the levers 3 and 4 are mounted on a common pivot-pin 22, and the levers 6 and 7 are similarly mounted on a pin 23, the levers 3 and 6 being in or approximately in the same plane, as are also the levers 4 and 7. The arm 3^b of lever 3 is connected by a link 5 to the arm 7^b of lever 7. The lever 4 is constructed as shown in Figs. 1 and 2, with only one arm 4^a projecting from the hub, the other arm 4^b projecting from the arm 4^a at or near its outer end. This arm 4^b is connected by a link 5 with the arm 6^b of the lever 6. As the levers 3 and 7 lie in different planes, as do also the levers 4 and 6, the arms 3^b and 4^b of the levers 3 and 4 are so bent that the outer ends of said arms will lie in the planes of the arms 7^b and 6^b of the levers 6 and 7, as shown in Fig. 2. If the arm 4^b be pulled by the operating-lever (not shown) in the direction of the arrow *d*, the arm 6^a of lever 6 will be shifted to the right; but as the connections 8, 9, 10, and 11 to the operating-lever and signal are flexible it is evident that the movement of the arm 6^a to the right will only slacken the wire 10. It is therefore necessary that the arm 7^a must be shifted to the left in order that a pull may be exerted on the wire 11 to shift the signal.

In order to effect the simultaneous but opposite movements of the levers 3 and 7 when the levers 4 and 6 are shifted, and vice versa, the arm 6^a is connected by a rod 24 to a box or sleeve 25, and the arm 3 is connected to one end of a rod 26, whose opposite end passes through the block or sleeve 25, as shown in

Figs. 1 and 3. The upper edge of the rod 26 is provided with serrations, with which serrations on the lower edge of a block 27 engage, said block being arranged in the box or sleeve 25. The block 27 is adapted to be held against the rod 26, so as to lock the rod to the box by a pin 28, projecting into the box through a cam-slot 29, formed in the side thereof. This pin is attached to one end of a rod 30, whose opposite end is connected to the arm 7^a of the lever 7. The several parts of this locking device are so constructed and adjusted that when the signal is at either "danger" or "safety" position the pin 28 will be in the portions *e* of the slot 29, so that the block 27 is free to move away from the rod 26, which can then move independent of the box, or vice versa. As the arm 6^a moves to the right, as stated, the box 25 will move therewith, causing the pin 28 (the arm 7^a being stationary) to be shifted to the horizontal portion of the slot 29, thereby locking the block 27 and box 25 to the rod 26, so that said rod and the arm 3^a, connected thereto, will move to the right with the arm 6^a. This movement of the arm 3^a to the right will cause the arm 7^a to move to the left, thereby exerting the desired pull on the wire 11, leading to the signal. If the arm 3^a of the lever 3 (the lever being in normal position, the pin 28 being in the left-hand portion *e* of the slot 29) should be moved to the left, the arm 7^a of lever 7 will be moved to the right, thereby causing the pin 28 to enter the straight portion of the slot and locking the box 25 to the rod 26 and causing it and the arm 6^a to move to the left, as desired.

As shown in Figs. 1 and 2, the arm 4^a of the lever 4, which is one of the connected pairs of levers, is connected by a spring 31 to the arm 7^a of the lever 7, (a member of the other pair of connected levers,) thereby placing the wires 8, 9, 10, and 11, connected with the arms of the several levers, under a tension, so that in case of expansion of said wires the arms of the several levers connected to the wires will be drawn in toward each other and in case of contraction of the wires said arms will move out. As the bar 26 is released from engagement with the box 25 when the signal is at "safety" as well as "danger," the locking of the pairs of levers together, as hereinbefore described, will not interfere with a proper compensation.

I claim herein as my invention—

1. In a compensator for signals, the combination of two pairs of connected bell-crank levers, one member of each pair being connected to an operating-lever and the other member of each pair to a signal, and mechanism whereby motion is transmitted from the lever-operated member of one pair to the signal-operating member of the other pair, substantially as set forth.

2. In a compensator for signals, the combination of two pairs of connected bell-crank levers, one member of each pair being connected to an operating-lever and the other member of each pair to a signal, mechanism whereby motion is transmitted from the lever-operated member of each pair to the signal-operating member of the other pair, and a spring connected to one member of the lever-operated pair and to the signal-operating member of the other pair, substantially as set forth.

3. In a compensator for signals, the combination of two pairs of connected bell-crank levers, one member of each pair being connected to an operating-lever and the other member of each pair to a signal, mechanism whereby motion is transmitted from the lever member of each pair to the signal-operating member of the other pair, a spring connected to one member of the lever-operated pair and to the signal-operating member of the other pair, and a lock for securing the synchronous movement of all the members of both pairs, substantially as set forth.

4. In a compensator for signals, the combination of two pairs of connected levers 3 7 and 4 6, a box having a cam-slot formed therein and connected to one arm of the lever 6, a serrated or toothed rod connected to the lever 3 and projecting into said box, a toothed or serrated block arranged in the box and adapted to engage the serrated rod, and a pin operated by the lever 7 for forcing the block into engagement with the serrated rod, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JAMES J. TURNER.

Witnesses:
DARWIN S. WOLCOTT,
R. H. WHITTLESEY.