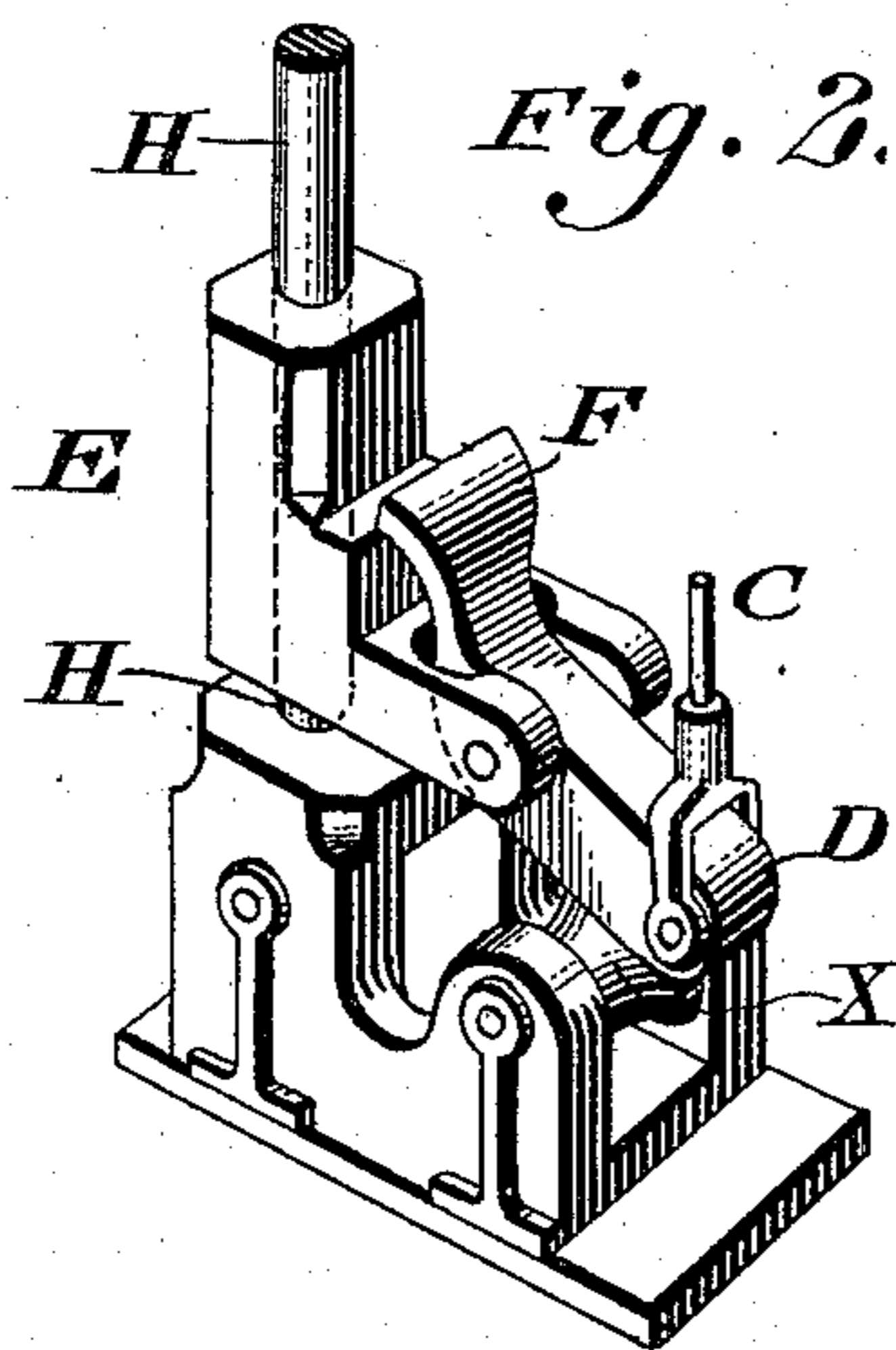
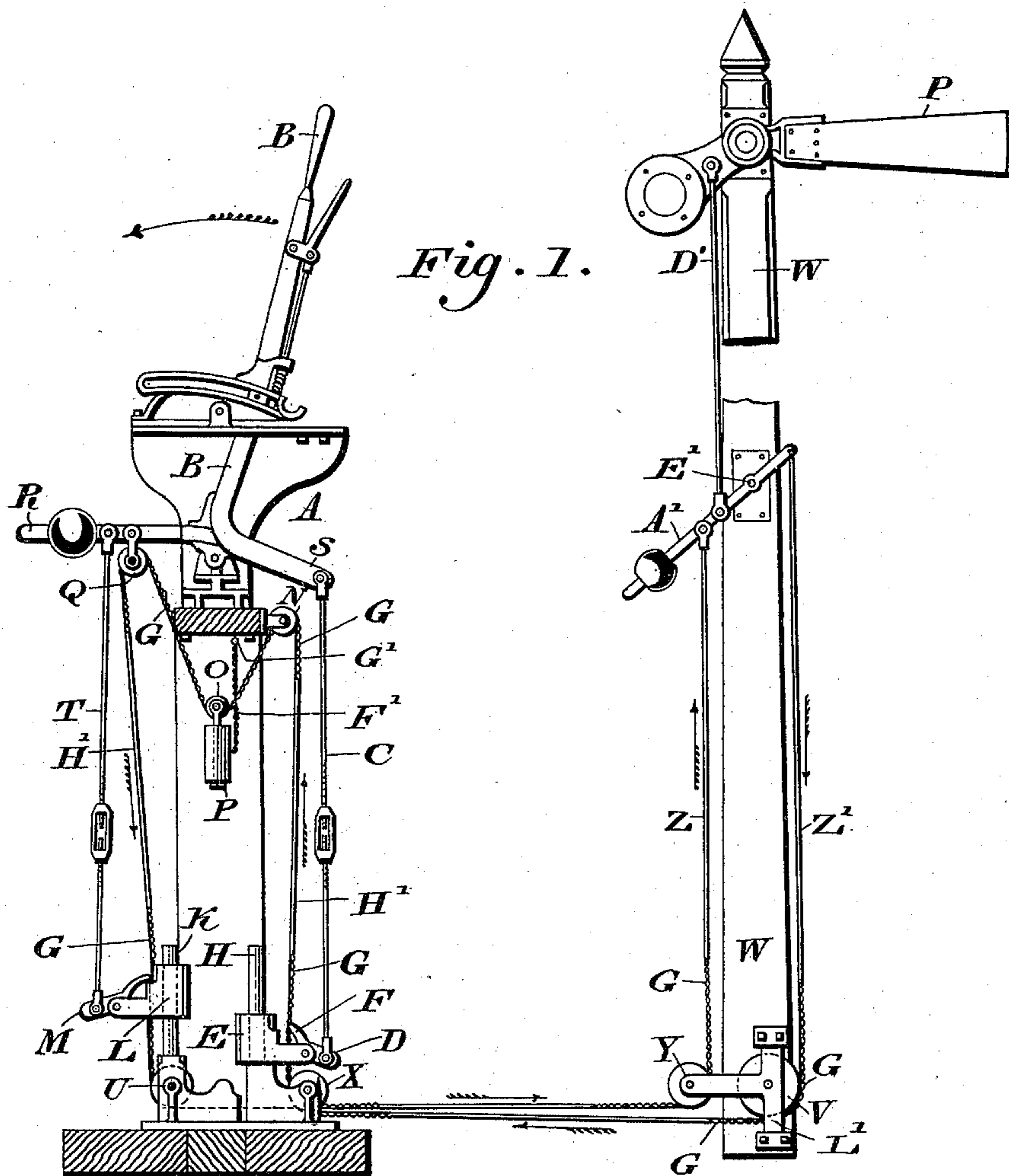


(No Model.)

J. R. JONES.
RAILROAD SIGNAL.

No. 533,128.

Patented Jan. 29, 1895.



WITNESSES:

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RAILROAD-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 533,128, dated January 29, 1895.

Application filed April 25, 1894. Serial No. 509,011. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH R. JONES, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Railroad - Signals, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to improvements in that class of railroad signals as shown in the Letters Patent No. 513,934, dated January 30, 1894, the same having an operating chain or connection which is independent of the primary lever, and adapted to expand or contract by reason of heat or cold, provision being made to compensate for such variations of temperature, the improvements being herein-after set forth.

Figure 1 represents a side elevation of a railroad signal embodying my invention. Fig. 2 represents a perspective view of a detached portion thereof on an enlarged scale.

Similar letters of reference indicate corresponding parts in the two figures.

Referring to the drawings: A designates a stand, and B designates the lever mounted thereon. Pivotaly connected with the lower end of said lever, is a rod C, which is pivotally connected with a clutch or grip D, the latter consisting of an angular or other shaped block, which is mounted on a traveler E, and having its upper end or limb F so disposed that the chain G may pass freely through the space between said limb and the adjacent side of the traveler.

On the base of the stand A, are suitably secured two posts or standards H and K, on which are fitted the travelers E and L, the traveler L being provided with the clutch or grip M which is similar to the clutch D, both travelers being adapted to be raised and lowered on said standards.

The upper right hand portion of the chain G passes over the pulley N, thence under the pulley O, to which is suitably attached a weight P for the purpose of taking up any slack in the chain, due to expansion or contraction, or any other cause. The chain G then passes over the pulley Q, which is suit-

ably attached to the weighted arm R, which is extended to one side of the lever B, in a direction preferably opposite to the arm S to which said rod C is attached. The rod T connects the arm R with the clutch or grip M of the traveler L.

The chain G after passing over the pulley Q, passes down under the pulley U, suitably journaled near the base of the post K, and thence under the pulley Y, which is journaled near the base of the standard W. The right hand portion of the chain G, after passing over the pulley N, passes under the pulley X, which is suitably journaled near the base of the post H, thence under the pulley V, which is journaled near the base of the standard W, adjacent to the pulley Y.

Z, Z', designate rods which are attached at one end to the weighted lever A', and at their other extremities to the ends of the chain G, the rod Z being attached to that portion of the chain, which after passing over the pulley Q, passes under the pulley U, while the rod Z' is attached to that part which passes over the pulley N, thence under the pulleys X and V.

The standard W has the signal arm P mounted upon it, near its upper extremity, one limb of said arm having the rod D' connected with it, the other end of said rod being connected with the weighted lever A', which has its axis E' on the standard W.

In Fig. 2, is shown an enlarged perspective view of the right hand traveler E, and its post H, the traveler being stair-shaped, so that the chain G passing by the same, may be firmly gripped by the teeth or angles presented by said traveler, when the clutch or grip D is moved toward the same.

L' designates a pivoted frame in which are journaled the pulleys Y and V. In case the chain G should become broken from any cause, near the pulleys Q or N or elsewhere, the pulley O and the weight P are prevented from dropping to the ground by the chain F', which is suitably secured thereto at one end, while the other end G' is suitably attached to the stand A.

I have shown the rods H', H', connecting

the upper and lower portions of the chains G, but it is obvious that the chains may be continuous if desired, and also in lieu of the chains, I may use wires or cords, where the former are employed.

The operation will now be apparent, the normal position of the parts being shown in Fig. 1. When the lever B is moved in the direction of the arrow, the rod C is raised, whereby the head F of the clutch D moves toward the chain G, and the latter is held tightly against the traveler E. As the clutch rises with the rod C, the traveler E is also raised, and the chain as clutched is carried up, whereby the said chain will pull the right hand rod Z' in the direction of the arrow, thereby lowering the signal arm P, and any slack in the chain above the traveler E will be taken up by the weight P, the chain always being kept taut.

When it is desired that the parts should be returned to the positions shown in Fig. 1, the lever B is moved in a direction opposite to the arrow, the limb F of the clutch D releases the chain G from the traveler E, while the clutch block M is pressed toward the traveler L, holding the chain G tightly against the same, said clutch and traveler being now near the base of the post K, whereby as the rod T rises, the clutch M, and that portion of the chain G engaged between it, and the traveler L, will be caused to rise, and the rod Z and the arm A' will be drawn downwardly, and the arm P raised to danger, as shown in Fig. 1.

The upper portion of the chain G always hangs loose between the pulleys N and Q, and carries thereon the weight P, and as the chain is continuous, and passes freely through the travelers, uncontrolled by either of the said travelers or their clutches, it will always be kept taut by the said weight, and a compensation is thus made for expansion or contraction, due to variations of temperature, strain is removed from the parts with which the chain is connected, and liability of breakage of the same is reduced to a minimum.

Should any of the chains or connections be cut or broken, when the signal arm is at danger, the said arm does not change its position, and should the signal arm be lowered and any of the connections cut or broken, the

weighted arm will set said arm at danger, the effect of which is evident.

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

1. A signal arm and an operating lever, compensating connections for the same, and clutch mechanism for said connections adapted to be operated by said lever, said connections being continuous or endless, and having a common weight, said parts being combined substantially as described.

2. A signal arm and an operating lever, compensating connections for the same, and clutch mechanism for said connections adapted to be operated by said lever, said connections being continuous or endless, said parts being combined substantially as described.

3. A signal arm, an operating lever, clutch mechanism connected with said lever, and a continuous chain attached at its ends to a weighted lever, which latter is connected with said signal arm, said parts being combined substantially as described.

4. A chain or its equivalent attached to the connections of a signal arm, a weight suspended therefrom for the purpose described, and a pendent slack piece having one end attached to some part of said weight, and the other end secured to some suitable point, whereby the descent of the weight is limited, substantially as described.

5. A signal arm and an operating lever, connections intermediate of the same, and clutch mechanism for said connections, a chain or its equivalent common to said connections as continuities thereof, a weight on said chain for the purpose described, and means whereby the descent of said weight is limited, substantially as described.

6. A signal arm, an operating lever, clutch mechanisms connected with opposite limbs of said lever, an endless chain connected with said signal arm, and a weight movable on said chain, said chain passing over a pulley on one limb of said lever, said parts being combined substantially as described.

JOSEPH R. JONES.

Witnesses:

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E. H. FAIRBANKS.