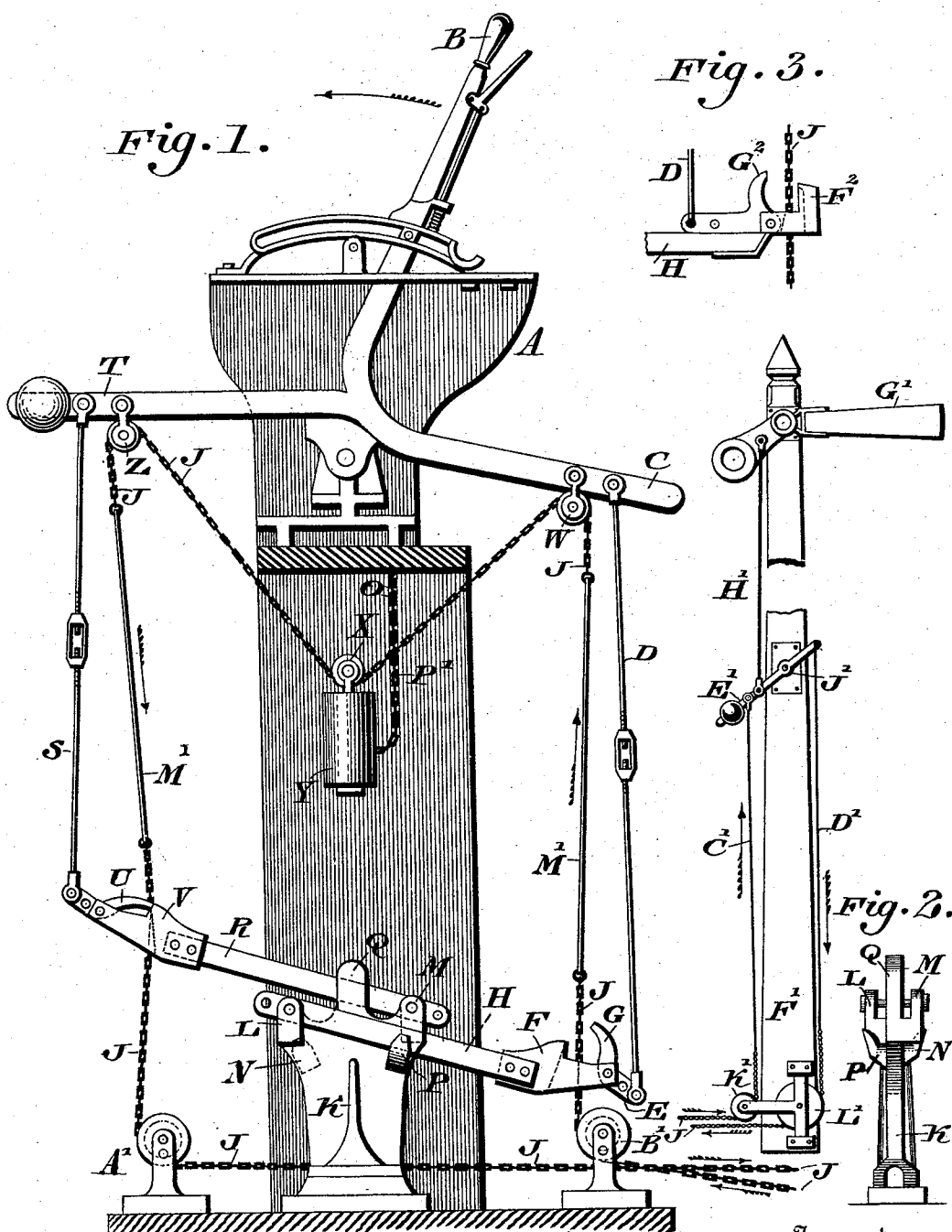


(No Model.)

J. R. JONES.
RAILROAD SIGNAL.

No. 536,033.

Patented Mar. 19, 1895.



Witnesses
O. F. Hagler,
L. Douville.

Inventor
Joseph R. Jones.
By his Attorney
John A. Dierschke.

UNITED STATES PATENT OFFICE.

JOSEPH R. JONES, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO THOMAS A. JONES, OF SAME PLACE, AND JOSHUA W. JONES, OF HARRISBURG, PENNSYLVANIA.

RAILROAD-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 536,033, dated March 19, 1895.

Application filed July 12, 1894. Serial No. 517,325. (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 that class of railroad signals shown in Letters Patent No. 513,934, granted to me 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, and it consists of the employment of pivoted levers having clutches mounted thereon, in place of the vertically-moving travelers shown in the aforesaid patent, whereby the friction is reduced to a minimum and the construction and operation of the device greatly simplified.

It also consists of a novel manner of supporting the connection of the operating lever and signal arm, as will be hereinafter set forth.

It further consists of the combination and arrangement of parts as hereinafter set forth.

Figure 1 represents a side elevation of a railroad signal embodying my invention, the right hand portion being broken off and shown on a reduced scale. Fig. 2 represents an end elevation of the stand which supports the levers. Fig. 3 represents a modified form of the clutch mechanism to be hereinafter referred to.

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

Referring to the drawings: A designates a stand, and B designates an operating lever mounted thereon. Pivottally connected with the lower end C of said lever, is a rod D, which is itself pivottally connected with the movable member of a clutch or grip E, the latter consisting of an angular or other shaped jaw G, which is attached to the end of the bed or fixed clutch member F, the latter being secured to the lever H, the upper end or limb G of said jaw being so disposed that the chain J may at certain times pass freely through

the space between said limb and the adjacent portion of the block F.

K designates a standard or supporting frame attached to the base of the stand A, and provided with the ears L and M, and the stops N and P, said ears and stops being arranged diagonally to each other, and on opposite sides of the standards K, as seen in Fig. 1.

Q designates an upwardly-extending portion of said standard K, which serves as a guide for and prevents any lateral movement of the levers H and R, which are pivottally attached to the ears L and M respectively.

S designates a rod which connects the arm T, which extends to one side of the lever B, in a direction preferably opposite to the arm C, to the jaw U, which is pivottally attached to the bed V, the latter being secured to the end of the lever R. It is obvious however, that the beds F and V can be made integral with the levers H and R if so desired.

The upper right hand portion of the chain J passes over the pulley W, which is suitably attached to the lower end C of the lever B, thence under the pulley X, to which is attached a weight Y for the purpose of taking up any slack in the chain due to expansion or contraction, or any other cause, said weight having a pendent slack piece P' attached thereto, the other end O being attached to some fixed point, whereby the descent of said weight is limited. The chain J then passes over the pulley Z, which is attached to the weighted arm T, and thence between the jaw U and the bed V, and under the pulley A', which is suitably journaled near the base of the stand A. The right hand portion of said chain J after passing over the pulley W, passes under the pulley B', which is journaled near the base of the stand A.

C' and D' designate rods which are attached at one end to the weighted lever E', and at their other extremities to the ends of the chain J, the rod C' being attached to that portion of the chain which passes under the pulley A', while the rod D' is attached to that part of said chain which passes over the pulley W and under the pulley B'.

K' and L' designate pulleys near the base

of the standard F', under which said chains J pass, the said standard F' having the signal arm G' mounted upon it, near its upper extremity, one limb of said arm having the rod H' connected therewith, the other end of said rod being connected with the weighted lever E', which has its axis J' on the standard F'.

In Fig. 3, the parts which constitute the clutch mechanism are reversed from the positions shown in Fig. 1, the stationary portion or bed F² being at the extreme end of the lever H, the jaw G² being pivoted thereto at a point between said extremity and the fulcrum of the lever. I have shown rods M', connecting the upper and lower portions of the chains J, but it is obvious that said 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 is as follows, the normal position of the parts being shown in Fig. 1, the lever H resting on the stop P: When the operating lever B is moved in the direction of the arrow, the rod D is raised, whereby the head G of the clutch E moves toward the chain J, and the latter is held tightly against the bed F. As the clutch rises with the rod, the lever H is also raised, and the chain as clutched is carried up, whereby the said chain will pull the right hand rod D' downwardly in the direction of the arrow, thereby lowering the signal arm G', and any slack in said chain above said lever H will be taken up by the weight Y, the chain being thus always kept taut. When it is desired that the parts should be returned to the positions shown in Fig. 1, the operating lever B being now in its extreme left hand position, is moved in a direction opposite to the arrow, the limb of the clutch E releasing the chain J from the bed F, while the jaw U is pressed toward the bed V, holding the portion of the chain J therebetween tightly against the same. Said clutch mechanism and lever being now near their extreme lower position, the lever R leaves the stop N, whereby as the rod S rises, the clutch and that portion of the chain engaged thereby will be caused to rise also, and the rod C' and the lever E' will be drawn downwardly and the arm G' raised to danger, as seen in Fig. 1.

By attaching the pulley W directly to the lower portion C of the lever B, the latter is more evenly balanced than heretofore, and since the upper portion of the continuous chain J always hangs loose between the pulleys W and Z, and has the weight Y attached thereto, said chain will always be kept taut by said weight, since it passes freely through the clutches, since a compensation is thus made for expansions and contractions, due to any cause, and liability of breakage is reduced to a minimum.

Should any of the chains or connections be cut or broken, when the signal arm is set at danger, the latter does not change its position,

and should said signal arm be lowered, and any of the connections cut or broken, the weighted arm will set said signal arm at danger, the effect of which is evident.

By the employment of the pivotally mounted levers H and R, having the clutch mechanism at their extremities, the construction and operation of the actuating mechanism are greatly simplified, friction is reduced to a minimum, and less power is required to set the signal arm, and by means of the guide Q and the stops N and P on the standard which carries the levers, the action of the latter is made positive, and the extent of their movement limited, as is evident.

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

1. In a railway signal, pivoted levers having clutch mechanisms therein, an operating lever, a signal arm, chains attached to said signal arm and passing over pulleys on limbs of said operating lever and adapted to be engaged by either of said clutch mechanisms, and means connecting said limbs and said pivoted levers, said parts being combined substantially as described.

2. In a railway signal, a support with stops thereon, levers pivoted to said support and limited in their downward movements by said stops and pivoted clutch mechanisms on said levers, said parts being combined substantially as described.

3. In a railway signal, the combination of a support having ears thereon on opposite sides thereof, with levers pivoted to said ears, a guide continuous of said support between said levers, and stops on said support below said levers, substantially as described.

4. In a railway signal, an operating lever with limbs having pulleys thereon, two pivoted levers each having a pivoted clutch mechanism thereon, means substantially as described connecting said limbs with said pivoted levers, a continuous chain passing over said pulleys and adapted to be engaged by either of said clutch mechanisms, a weight on said chain between said pulleys, and stops limiting the movement of said pivoted levers, said parts being combined substantially as described.

5. A signal arm, and an operating lever, connections intermediate of the same, and clutch mechanisms for said connections pivotally secured to a suitable fixed point, 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 pivotally supported and connected with opposite limbs of said lever, an endless chain connected with said signal arm, and a weight movable on said chain, the latter passing over pulleys attached to said op-

positely-extending limbs of said operating lever, said parts being combined substantially as described.

7. A signal arm, an operating lever, clutch
5 mechanisms connected with opposite limbs of said lever, an endless chain connected with said signal arm, and a weight movable on said chain, the latter passing over pulleys attached to said oppositely-extending limbs of
10 said operating lever, said parts being combined substantially as described.

8. A signal arm, an operating lever, clutch

mechanisms pivotally supported and connected with opposite limbs of said lever, and an endless chain connected with said signal 15 arm, said chain passing over pulleys attached to said oppositely-extending limbs of said operating lever, said parts being combined substantially as described.

JOSEPH R. JONES.

Witnesses:

JOHN A. WIEDERSHEIM,
A. P. JENNINGS.