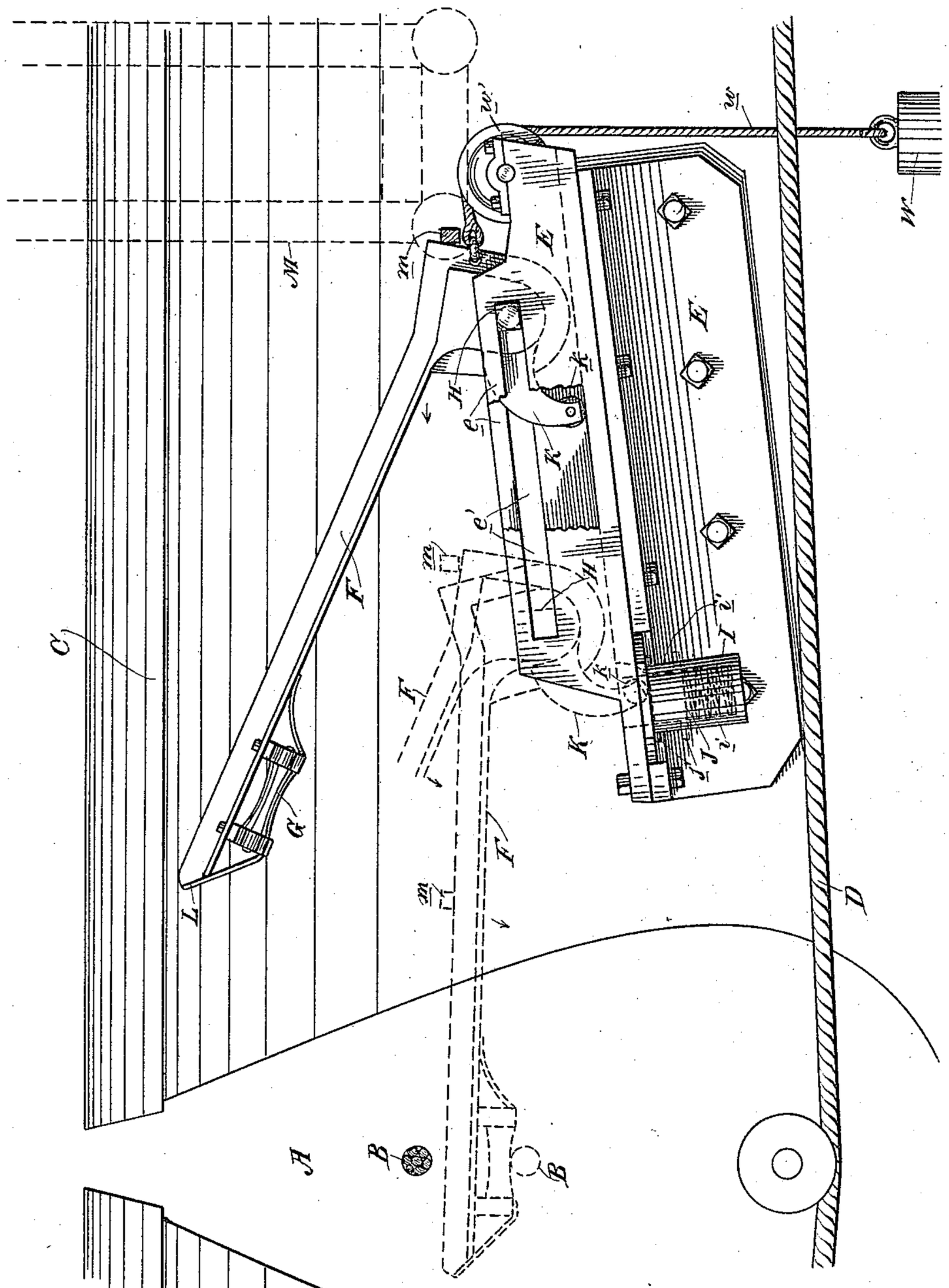
(No Model.)

P. SOMERVILLE.

RAILWAY CABLE CROSSING.

No. 441,040. Patented Nov. 18, 1890.



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UNITED STATES PATENT OFFICE.

PHILIP SOMERVILLE, OF SAN FRANCISCO, CALIFORNIA.

RAILWAY-CABLE CROSSING.

SPECIFICATION forming part of Letters Patent No. 441,040, dated November 18, 1890.

Application filed March 24, 1890. Serial No. 345,142. (No model.)

To all whom it may concern:

Be it known that I, PHILIP SOMERVILLE, a citizen of Great Britain, residing in the city and county of San Francisco, State of California, have invented an Improvement in Railway-Cable Crossings; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates broadly to the class of cable railways, and especially to that class of devices or mechanisms used at points where one cable crosses another for depressing the upper cable, so as to allow the grip of the crossing car to pass it without interference.

My invention consists in the novel constructions, combinations, and arrangement hereinafter fully described, and specifically pointed out in the claims.

The general object of my invention is to provide a mechanism for this purpose adapted to be operated automatically by the grip of the crossing car, whereby the necessity for keeping a man at crossings is avoided.

The particular object is to provide a simple and effective cable-depressing mechanism for use at crossings.

Referring to the accompanying drawing for a more complete explanation of my invention, the figure is a side elevation of my mechanism, showing in full lines its normal or rest position, and in dotted lines its position in action. One of the flanges of the bracket is broken away to show the arm K between them.

A is the tube or tunnel of one cable railway, having within it the cable B, which, having the right of way, is the upper cable.

C is the tube or tunnel of a crossing railway, in which is the cable D, which passes under the cable B. It is obvious that when the car of the crossing road approaches the crossing its grip must release its own cable, and the upper cable B must be depressed so as to allow the grip to pass by it without striking it. To accomplish it I have located in the tube or tunnel C of the crossing railway a bracket E with an inclined bottom, and which may be supported in any suitable position and by proper means. This bracket has on its top the upwardly-extending separated flanges *e*, in the upper portions of which are made the elongated slots *e'*, which have a downward inclination or grade toward their forward ends corresponding to the inclination of the bracket-bottom. Mounted and adapted to slide back and forth between the flanges *e* of the bracket is the depressing-lever F, having at its forward end the depressing-roller G. This lever is pivotally mounted at its rear end upon a shaft H, the ends of which project and are adapted to slide in the inclined slots *e'* of the bracket-flanges. The lever is held back at its extreme and normal limit by means of a suspended weight W, connected with its rear end by a cord *w*, which is guided over a suitable pulley *w'*, mounted in the rear ends of the bracket-flanges.

Depending from the under side of the forward end of the bracket is a tubular housing I, having within it a spring *i*, which carries at its upper end a plate J, which is adapted to fit in a hole in the bracket and normally to lie flush with the upper surface of the bracket, being limited both in its upward and downward movement by means of guide-studs *j*, operating in elongated slots *i'* in the tubular housing I.

The rear end of the depressing-lever is provided with a guide-arm K, carrying in its lower end an anti-friction roller *k*, which travels over the inclined surface of the bracket. The forward end of the depressing-lever at the forward end of the roller is provided or formed with an inclined directing-plane L.

M is the grip of the car of the crossing railway. On one side of this grip is the projecting contact lug or arm *m*.

The operation of the mechanism is as follows: The depressing-lever is held back to its extreme and normal limit by the weight, and its outer or roller end is in an elevated position, being held up by the guide-arm K on its rear end. In this general position it will be seen that said lever and the entire mechanism are completely out of the way of the grips moving on the first line of railway A. When a car on the crossing railway C approaches the mechanism, the projecting lug or arm *m* of its grip comes in direct contact with the rear end of the depressing-lever at a point a short distance below the upper edge of said lever. As the car moves along, the grip, by reason of its contact with the depressing-lever, carries it forwardly, and at the same time

said lever is moving bodily to a lower plane by reason of its arm K traveling over the inclined surface of the bracket and its shaft moving down in the inclined slots. Therefore when the lever reaches a position at its forward limit it has come to a sufficiently-low plane to carry its rear end below the level of the contact-arm *m* of the grip. Its position at this time is such that the depressing-roller at the end of the lever is in a plane above the upper cable, and the guide-arm K at its rear end is directly above the movable spring-controlled or yielding plate J. The contact arm or lug *m* of the grip, being now free of the rear shoulder of the arm, begins to travel over and ride down said lever, which thereby is depressed, so that its roller comes down upon and depresses the upper cable. The arm K in this movement forces down the plate J. The inclined plane L at the forward end of the depressing-lever is to prevent the liability of an abutting contact of said lever with the cable, and as soon as the grip passes beyond the depressing-lever the spring-plate J throws it up again to its normal position and the suspended weight draws it back to its initial place.

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

1. In a cable-railway crossing, a depressing-arm movably supported at the crossing to move longitudinally along the conduit and vertically in relation to the cable and acting directly upon the same, the grip arranged to strike said arm and move it, and means for returning the arm to normal position after the grip has passed, substantially as described.

2. In a cable-railway crossing, the combination of the swinging depressing-lever having the roller at its outer end adapted to be brought down on the upper cable, a sliding shaft on which said lever is mounted, whereby it may move to and from the plane of the upper cable, and the weight for returning the lever to its initial position, substantially as herein described.

3. In a cable-railway crossing, the combination of the bracket, the swinging lever pivotally connected therewith by a sliding connection and lying in the path of the car-grip, whereby its movement toward the plane of and down upon the upper cable is effected, and the depressing-roller in the end of the lever, substantially as herein described.

4. In a cable-railway crossing, the combination of the bracket, the swinging lever pivotally connected therewith by a sliding connection and lying in the path of the car-grip, whereby its movement toward the plane of and down upon the upper cable is effected, and a weight for returning the lever, substantially as herein described.

5. In a cable-railway crossing, the combination of the bracket having the downwardly-inclined slots, the slide-shaft in said slots, the lever pivoted upon said shaft, and having its rear end in the path of and adapted to receive the contact of an arm of the car-grip, whereby said lever is pushed forward to the plane of the crossing cable and downwardly in the bracket to permit the grip-arm to ride down said lever and depress it, and the roller in the free end of the lever for depressing the upper cable, substantially as herein described.

6. In a cable-railway crossing, the combination of the inclined surfaced bracket, the lever pivotally connected therewith by a sliding connection and lying in the path of the moving car-grip, whereby its forward-and-downward movement is effected, the roller in the free end of the lever, and the guide-arm at the rear end of the lever, adapted to travel over the inclined surface of the bracket to hold the lever up until its forward limit is reached, substantially as herein described.

7. In a cable-railway crossing, the combination of the inclined surfaced bracket having at its lower end the spring-controlled yielding plate and the inclined slots in its sides, the sliding shaft in said slots, the lever pivotally connected with the sliding shaft and lying in the path of the moving grip, whereby its forward-and-downward movement is effected, the guide-arm at the rear end of the lever, traveling over the inclined surface of the bracket and adapted to press down the yielding plate, and the roller in the free end of the lever, substantially as herein described.

8. In a cable-railway crossing, the combination of the inclined surfaced bracket having the inclined slots and the spring-controlled yielding plate in its lower end, the slide-shaft in the slots, the lever pivoted on the slide-shaft and adapted to receive the contact and pressure of the arm of the moving grip, whereby its forward-and-downward movement is effected, the guide-arm at the rear end of the lever, the roller at its forward end, and the weight for returning said lever, substantially as herein described.

In witness whereof I have hereunto set my hand.

PHILIP SOMERVILLE.

Witnesses:
S. H. NOURSE,
H. C. LEE.