EDWARD A. TRAPP.

Improvement in Railway Switches.

No. 121,824. Patented Dec. 12, 1871.

Fig. 1.

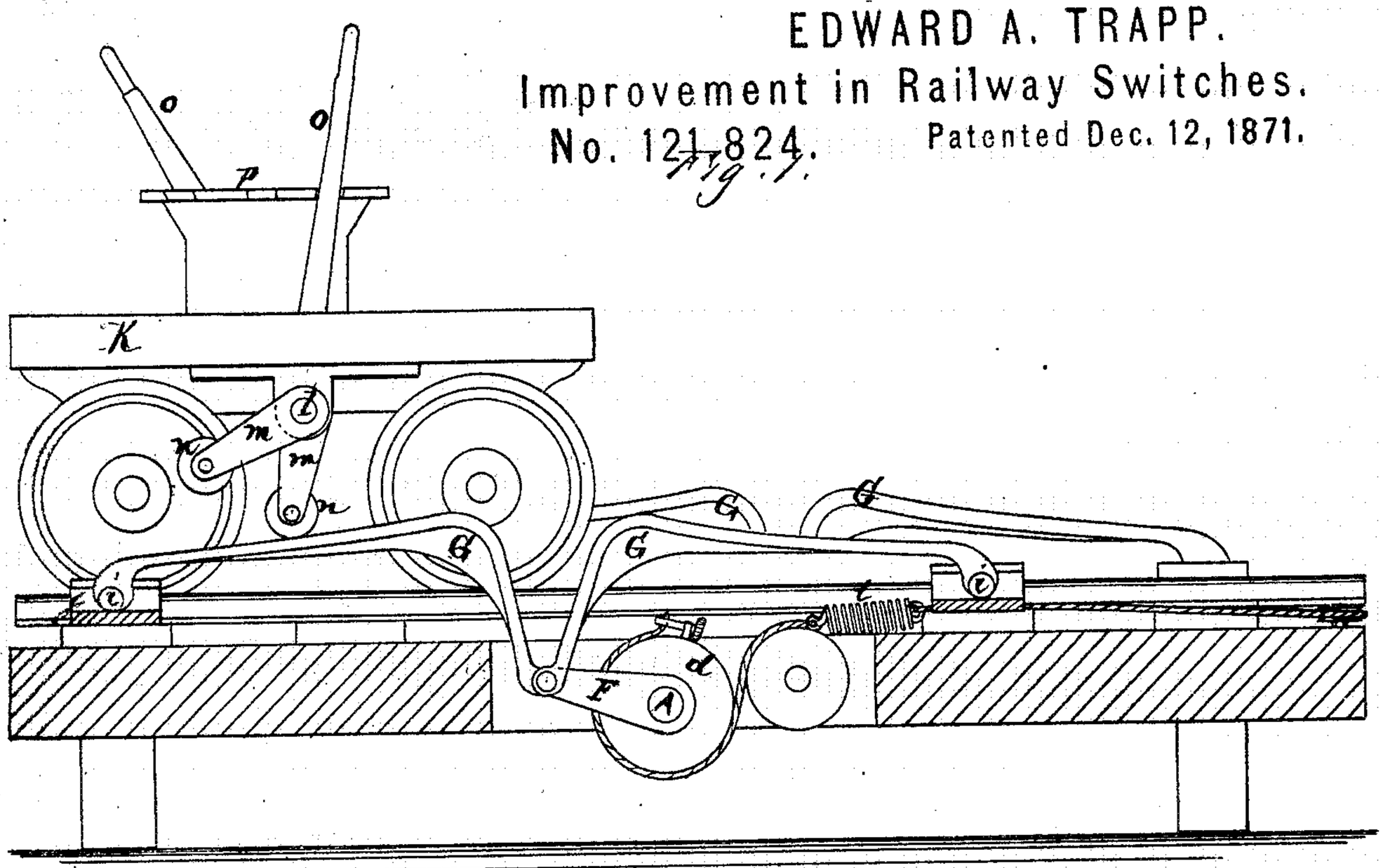
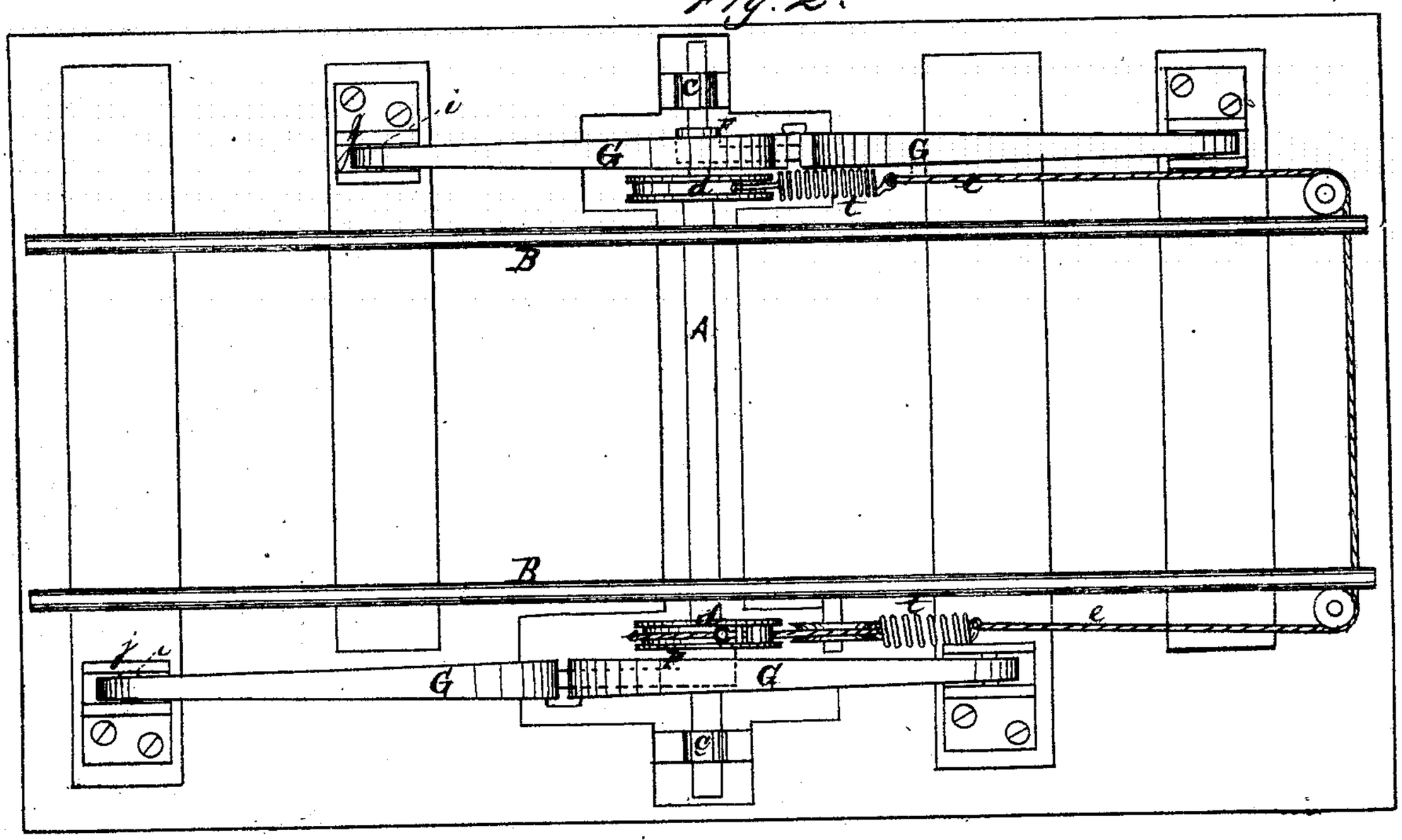


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD A. TRAPP, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN RAILWAY SWITCHES.

Specification forming part of Letters Patent No. 121,824, dated December 12, 1871.

To all whom it may concern:

Be it known that I, EDWARD A. TRAPP, of San Francisco, county of San Francisco, State of California, have invented Improvements in Operating Railroad Switches and Signals; and I do hereby declare the following description and accompanying drawing are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvement without further invention or experiment.

My invention relates to improvements in apparatus for throwing the switch-rails of a railroad switch to any desired point by the locomotive or engine as it passes along the track previous to its arriving at the switch or after passing it, and at the same time operating a signal, which indicates the position of the switch or throw-rails; and is an improvement upon Letters Patent No. 119,672, which were granted to me on the 3d day of October, 1871. My present device relates only to that part of the apparatus which is located at a distance from the switch along the track, and which, in connection with a mechanism on the locomotive or car, is employed for operating the worm-gear and throw-lever below the switch.

In order to more fully illustrate and describe my invention, reference is had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a side view with a section of part of the device. Fig. 2 is a plan view.

A represents a shaft, which is placed in a transverse channel or excavation below the track B B, at the desired distance from the switch. This shaft extends a short distance upon each side of the track, and its opposite ends bear in boxes *c*, which are conveniently fixed for the purpose. Just outside of the rails B a pulley, *d*, is fixed upon the shaft A, to which a wire-rope or other cord, *e*, is secured in the manner hereinafter described for operating the worm-wheel and lever beneath the switch. Outside of the pulleys *d* an arm, *f*, is fixed upon the shaft at each end, one of which points toward the switch, while the one on the opposite end points in an opposite direction. G G are inclined levers, which are arranged in pairs upon each side of the track and in line with it. Each one of these levers consists of a casting which is provided with a long and a short arm at right angles to each other. The extremity of the long arm is provided with a pin or lug, *i*, upon each side, which serves with the boxes *j* as journals, about which the levers G can move when the opposite end is raised or depressed, and which is channeled horizontally in the manner of constructing a slide. The extremity of the short arm of the lever is secured by a rivet or bolt to the extremity of one of the arms *f*. As before mentioned, two of these levers are employed at each side of the track, being arranged so that the end of the short arm of both will be attached to the end of the same arm *f*. By this means an inclined plane will be presented in both directions and upon both sides of the track. The wire-rope or other cord *e* is attached to one of the pulleys *d* and passes once around it. Thence it passes forward to and around the wheel which operates the worm-gear and lever under the throw-rails. It is then carried back upon the opposite side of the track to the opposite pulley *d*, around which it is wound in an opposite direction to that in which it was wound around the first pulley, thus causing it to travel in reverse directions, according to the revolution of the shaft A and pulleys B. In order to avoid any trouble from the expansion and contraction of the rope *e* spiral or other springs *t* can be inserted at some convenient point in its length. The locomotive or car K is provided with a short shaft, *l*, upon each side, which turns in a box on the under side of the floor or platform. To the outer end of this shaft a downward-projecting arm, *m*, is fixed, and a friction-roller, *n*, is placed at its lower end. A lever, O, is secured to the inner end of the shaft *l*, and rises up through a slot in the car-floor, by which the lever O can be adjusted as desired. In order to more readily set the lever-arm *m* to the desired position a rack-plate, *p*, is employed, in the edges of which two or more depressions are made, according to the number of throws the switch is capable of making, and into which the lever-handle can be set as required to operate the switch.

As the locomotive approaches the switch the lever O upon each side is set by the engineer or other person whose duty it may be, so as to give the proper throw. The friction-roller *n* of the lever-arm *m* will then strike the inclined lever G, and, by depressing the proper one, wind the

rope *e* upon the pulleys and set the switch, as above described. After passing the switch the same operation can be repeated upon levers on the other side of the switch, so as to leave the switch in any desired position.

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

1. The shaft A with its pulleys *d* and arms *f*, in combination with the operating levers G, substantially as and for the purposes above described.

2. The inclined levers G, consisting of a long and a short arm at right angles with each other, substantially as and for the purpose above described.

3. In combination with the levers G provided with pins *i*, the box *j*, constructed in the manner and for the purpose specified.

In witness whereof I have hereunto set my hand and seal.

EDWARD A. TRAPP. [L. S.]

Witnesses:

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