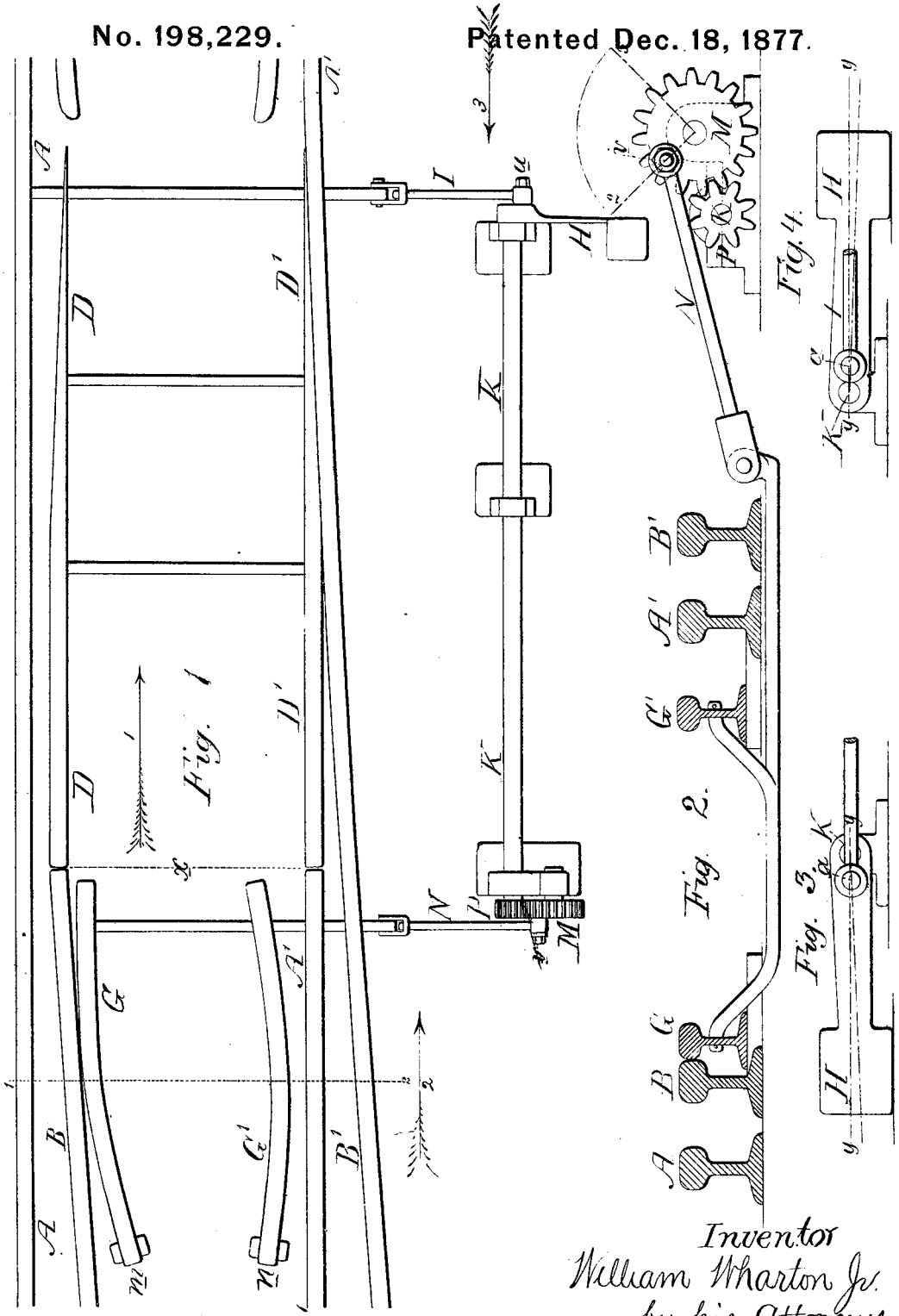
W. WHARTON, Jr.
Railroad-Switch.

No. 198,229. Patented Dec. 18, 1877.



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WILLIAM WHARTON, JR., OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN RAILROAD-SWITCHES.

Specification forming part of Letters Patent No. **198,229**, dated December 18, 1877; application filed October 16, 1877.

To all whom it may concern:

Be it known that I, WILLIAM WHARTON, Jr., of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Railroad-Switches, of which the following is a specification:

My invention relates to improvements in that class of switches in which the switch-rails are operated by a passing locomotive or car before they are loaded by the same; and the main object of my invention is to so connect the device to be operated by the locomotive or car to the switch that the latter can be moved with comparatively slight effort, another object of my invention being to render the switch self-locking in both of its positions.

In the accompanying drawing, Figure 1 is a plan view of a railroad-switch with the improved mechanism for operating the same; Fig. 2, a transverse section, drawn to an enlarged scale on the line 1 2, and looking in the direction of the arrow 2; and Figs. 3 and 4, views of the weighted lever in its two positions, and looking in the direction of the arrow 3.

A is the permanent continuous rail of the main track, and A′ the opposite rail of the same track. B and B′ are two rails of the siding or turn-out, the rail B′ merging into the rail A′ of the main track at or near the point of the switch-rail D′, which is connected to the track on or near the line *x*, the switch-rail D being a continuation of the rail B of the siding, and the switch-rail D′ a continuation of the main rail A′, and each switch-rail terminating, in the present instance, in a comparatively sharp point.

G is a movable guard-rail, arranged near the rail B, and connected to the track at *m*, and G′ is a similar movable guard-rail, arranged near the rail A′, and connected to the track at *n*, and to the rail G, so that both guard-rails must move together.

The guard-rails and switch-rails are connected together in the manner described hereinafter, so that when the switch-rails are set for travel on the main track, as shown in Fig. 1, and a locomotive or car is traversing the rails B B′ of the siding in the direction of the arrow 1, the first wheel on one side of the locomotive or car will move the guard-rail G toward the center of the track, and this movement will be imparted to the switch-rails, so that before the locomotive or car reaches these rails they will be in a proper position for travel from the siding to the main track. In like manner, when the switch-rails are set for travel from the siding to the main track, and a locomotive or car is traversing the latter in the direction of the arrow 1, the guard-rail G′, in conjunction with the appliances described hereinafter, will be the medium through which a wheel of the locomotive or car is caused to properly adjust the switch-rails for the cars to continue their course along the main track. In other words, no matter what may be the position in which the switch-rails have been left, a locomotive or car, whether it traverses the main track or siding, in the direction of the arrow 1, will always properly adjust the switch if it has been left wrong.

It is important that the switch, when adjusted to either of its two positions, should be so locked that it cannot be disturbed by any force applied to the switch-rails themselves.

This desired locking is effected by the weighted lever H on the operating-shaft K, which is adapted to suitable bearings on one side of the track.

The switch is connected by a rod, I, to a crank-pin, *a*, on the weighted lever, the locking duty of which will be best understood by reference to Figs. 3 and 4 of the drawing.

When the switch has been adjusted for travel on the main track, the weighted lever will be in the position shown in Fig. 3, the center of the pin *a* being in or slightly below a horizontal line, *y*, drawn through the center of the shaft K, so that any attempt to move the switch from the position, Fig. 1, will only result in forcing the weight of the lever down on its support.

In like manner, when the switch has been adjusted for travel from the siding to the main track, the weighted lever will be in the position shown in Fig. 4, and all attempts to dislodge the switch from this position by pressure on the switch-rails must result in a thrust on the rod I, which forces the lever onto its support.

In other words, no matter which of the two positions the switch occupies, the crank-pin *a*

is always on or below the dead-center, and therefore locks the switch-rails.

In order to change the switch from one extreme position to the other, the weighted lever must move to the extent of at least one-half of a circle, and the greater portion of this movement must be effected by the wheel of a locomotive or car through the medium of the guard-rails, part of the movement—that is, the completion of it being effected by the weight of the lever itself.

The movable guard-rails cannot be connected to a single crank on the operating-shaft K for the purpose of automatically operating the switch in both directions, for the necessary extent of the movement of the crank in operating the switch in one direction forbids its use as a medium for transmitting movement to the switch-rails in the opposite direction, the necessary movement of the crank being to the extent of half a circle or more; hence I connect the movable guard-rails by a rod, N, to a crank-pin, *v*, on a wheel, M, which gears into a pinion, *p*, on the shaft K, the relative sizes of wheel and pinion being such that while the movement of the crank-pin *v*, derived from the movable guard-rails, is less than half a circle, that of the shaft will be so much more that the weighted lever, attached to the said shaft, will have the movement necessary for locking the switch in both positions.

The wheel is so much larger than the pinion that the movement of the former by the guard-rails to an extent indicated by the dotted radial lines 2 and 3, Fig. 2, will insure such an extended movement of the pinion as will meet the required movement of the lever.

Owing to this limited movement of the wheel, its crank-pin must always be in an advantageous position for receiving the thrust on the guard-rail G, or the pull on the guard-rail G′, and hence comparatively little exertion will be required to operate the guard-rails and switch.

The mechanism described may be used in connection with any arrangement of switch-rails which are to be operated by the locomotive or cars, and may be applied to switches which have to be automaticnlly moved in one direction only, and the mechanism may be combined with any object which admits of being operated by a passing locomotive or car. Loose rails, to be depressed in place of being moved laterally, may, for instance, be connected to the pin *v* of the wheel M.

I claim as my invention—

1. The combination of the two movable guard-rails G and G′, connected to the pin *v* of the wheel M, with the operating-shaft K, connected to the switch and carrying a pinion, P, geared to the wheel, all substantially as described.

2. The combination of the shaft K with the weighted lever connected to the switch, and admitting of being moved to the extent described, so as to lock the said switch in its two positions, with a pinion, P, and wheel M, the latter being connected to the device to be operated by a passing locomotive or car, all substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM WHARTON, JR.

Witnesses:
RICHARD L. GARDINER,
HARRY SMITH.