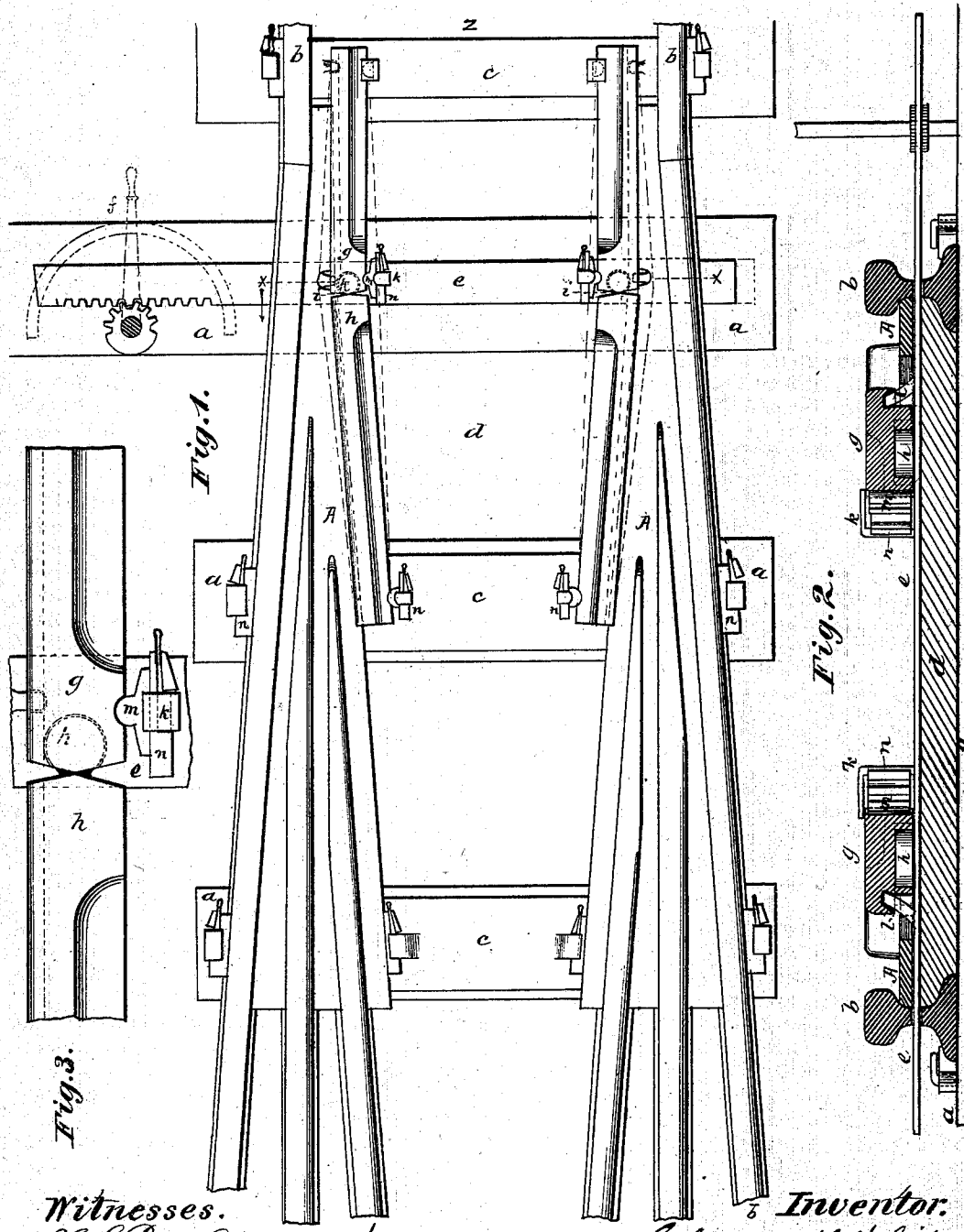


C. H. WHITE.
Railroad Switches.

No. 139,220.

Patented May 20, 1873.



Witnesses.
H. L. Pennell.
L. Hill

Inventor.
Charles H. White
by Geo. W. Rothwell
his attorney.

UNITED STATES PATENT OFFICE.

CHARLES H. WHITE, OF WHITE STATION, MICHIGAN.

IMPROVEMENT IN RAILROAD SWITCHES.

Specification forming part of Letters Patent No. **139,220**, dated May 20, 1873; application filed April 3, 1873.

To all whom it may concern:

Be it known that I, CHARLES H. WHITE, of White Station, in the county of Calhoun and State of Michigan, have invented certain Improvements in Railroad Switches, of which the following is a specification:

This invention relates to improvements in the construction and arrangement of parts, and particularly in the guard or guide-rails, whereby a more simple, accurate, and reliable switch is obtained than heretofore has been in use, and by means of which a train can be moved from any side track to the main track without changing or moving the guide-rails, they being moved only when a train is to be switched from the main to a side track. These improvements consist of guide or guard-rails, made in two parts and jointed; also of peculiar blocks and wedges and tongues for securing them to the moving bar; and also in the construction of the bed for the frogs.

In the drawing, Fig. 1 is a plan view of the switch. Fig. 2 is a cross-section thereof, taken on line *x x*. Fig. 3 is an enlarged view of the joint of the guide-rails showing the wedges or blocks for holding them in place.

The letters *a a* represent ties, preferably of iron, upon which the rails *b* of the main track are secured. *c c* are ties resting on a bed, *d*, of wood upon which the parts of the switch are laid. *e* is the moving bar, which is connected with its operating-lever *f* by any suitable mechanism, as, for instance, a toothed rack and pinion. The wood bed upon which the frogs are laid is fitted snugly between the rails *b b*, as shown in Fig. 2, and is about one-half as thick as the height of the rail. By this means it is necessary to form the frogs only about one-half as thick as formerly, and this I do, using Bessemer steel, whereby a great saving of metal is effected, besides materially reducing their cost. *A A* are the frogs, welded or otherwise formed, as just described, and secured over the bed *d* on ties *c c*. Two rails are shown on these frogs, but of course one or more may be made, if desired. *g h* are the guard or guide-rails, made of two pieces, jointed at *i* by a ball and socket or other suitable connection. When I use the ball-and-socket joint—and I prefer it—I form a recess or socket in the under side of one rail and make the ball or

tongue on the other, so as to fit into this socket. The socket and ball each being of about one-half the thickness of the rails and fitted together, as described, the joint is not exposed on top. In Figs. 1 and 3 this joint is shown in dotted lines, and in Fig. 2, a cross-section of it is shown. The moving bar *e* is arranged underneath this joint, and serves also to keep the rails together—that is, from being detached. Tongues *k k* and *l l* are formed on the bar *e*, the former to receive wedges *n*, and the latter entering notches in the under side of the rails for securing them in place. In order to retain the rails firmly in place, and at the same time allow of their free movement on bar *e*, I provide a block, *m*, and a spring-wedge, *n*, which are placed between the tongues or chairs *k* and the rails. The block *m* is formed with a rounded central lug which fits in a notch in the edge of the rails, and its ends are beveled or inclined from the center outward, as shown in Fig. 3.

The spring-wedges and iron ties to which I refer are fully described in an application for a patent therefor, which I have filed in the Patent Office. The object in beveling the block *m* is to allow the rail to be freely moved, the center lug on it serving as a fulcrum for this purpose. I prefer to use these wedges also for retaining the other rails and frogs in their chairs, and have so shown them in the drawing.

The operation is as follows: If the train is on the track *b b* at *z*, and it is desired to switch it onto track 1, *b*, the guide-rails are brought into the position shown in the drawing, Fig. 1. Between the guide-rail and the points of the frogs, the distance is but, say, half the revolution of a car-wheel, and this fact, in connection with this other, viz., that the guide-rails can be adjusted—that is, the switch operated—within a width of three-fourths of an inch, whereas it formerly took five inches space, renders it much more reliable than switches in ordinary use.

By my improvements the following great advantages are obtained: The use of the wood bed *d* allows the frogs to be made more cheaply, as only about one-half as much metal is used. These frogs also, by their conformation, always direct the train from themselves on to

the main track, the rails on the frogs being so arranged relatively to each other as to render it impossible for the train to get off the track. The blocks *m* and wedges *n* securely hold the guide-rails in place, while serving as their fulcrum, and the wedges also serve in other places as self-locking devices for holding the rails to the ties.

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

1. A railroad switch provided with guide or guard-rails *g h* secured between the rails of the main track, and connected together by means of a ball-and-socket joint, as described.

2. The combination of the wood bed *d* extending across the track from rail to rail, with frogs *A*, ties *c*, and bar *e*, as herein shown and described.

3. The jointed guide-rails secured at the joint to the moving bar, in combination with the block *m*, and a wedge, substantially in the manner and for the purposes set forth.

To the above specification of my invention I have signed my name this 26th day of March, A. D. 1873.

C. H. WHITE.

Witnesses:

W. H. FINCKEL,
A. C. BRADLEY.