(No Model.)

H. RICH.

RAILWAY SWITCH.

No. 494,441. Patented Mar. 28, 1893.

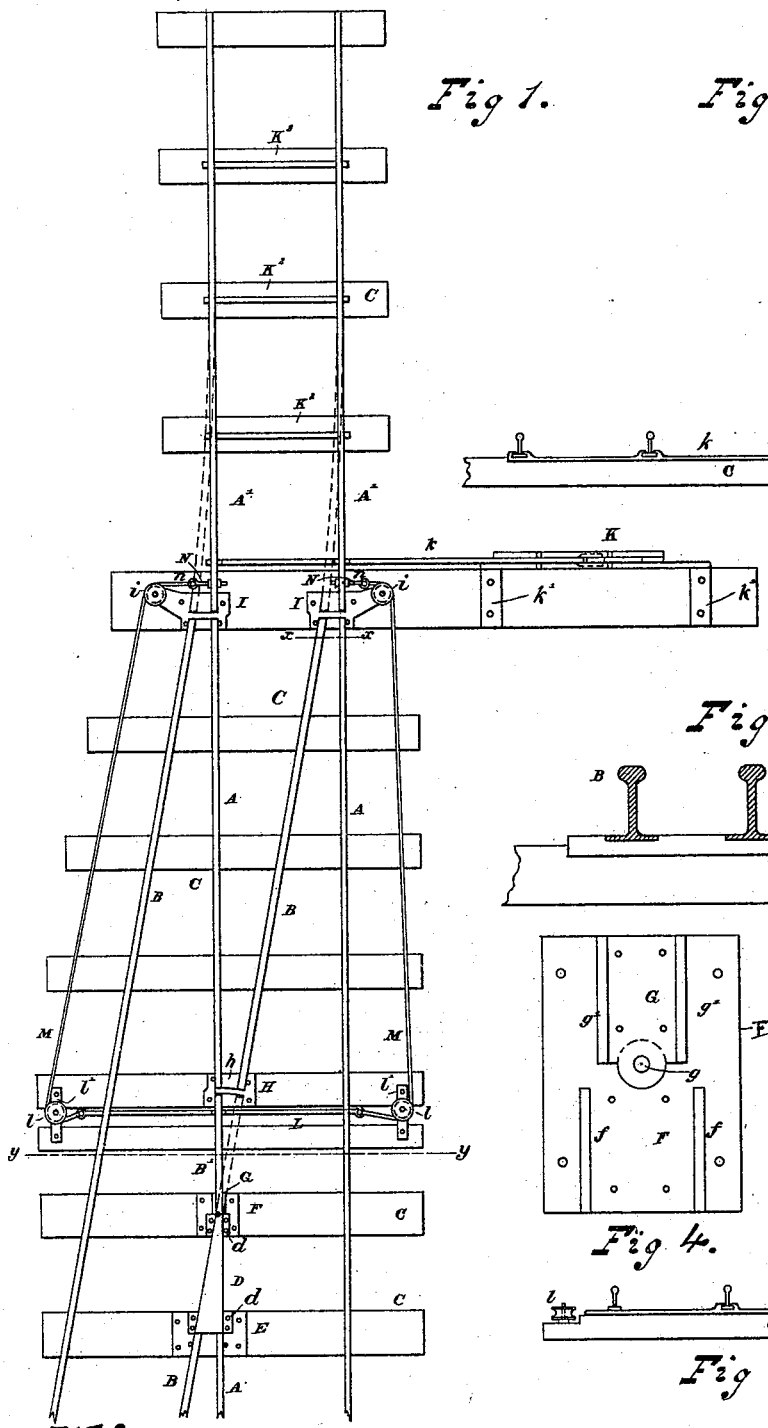

Fig 1.

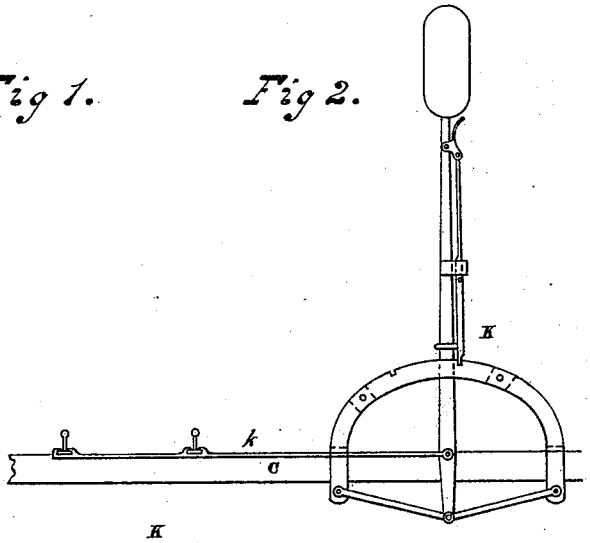

Fig 2.

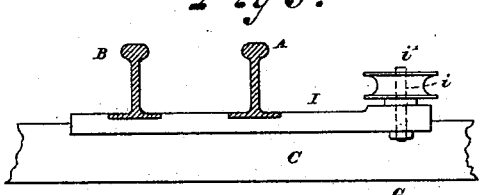

Fig 3.

Fig 4.

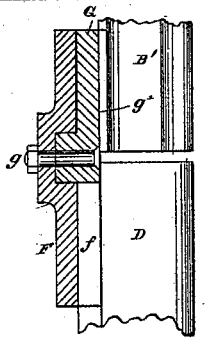

Fig 5.

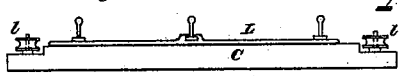

Fig 6.

Witnesses.
Edw. S. Duvall Jr.
Wm. L. Boyden

Inventor.
Harrison Rich
per Fred. G. Fisher. Atty.

UNITED STATES PATENT OFFICE.

HARRISON RICH, OF MUSKEGON, MICHIGAN, ASSIGNOR OF ONE-HALF TO EDWIN RICH, OF SAME PLACE.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 494,441, dated March 28, 1893.

Application filed June 11, 1892. Serial No. 436,373. (No model.)

To all whom it may concern:

Be it known that I, HARRISON RICH, a citizen of the United States, residing at Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Railway-Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improvement in railway switches, the object of the invention being to provide a construction which shall dispense with the expensive frogs and guard rails now in use and substitute in lieu thereof a swinging rail in connection with an angular rail piece securely fastened to the tie so that the switch may be simple in construction and easy in its operation, and the invention therefore consists essentially in a switch having an angular rail piece securely fastened, a swinging rail operated by suitable means and also in numerous details in the construction, arrangement and combination of parts, substantially as will be hereinafter described and claimed.

In the accompanying drawings illustrating my invention: Figure 1 is a plan view of my improved railway switch, delineated in connection with a railway track together with the mechanism for operating the switch. Fig. 2 is a side elevation of the switch stand. Fig. 3 is an enlarged sectional elevation on the line *x x* of Fig. 1 showing more particularly the plate which supports the rails and the rope sheaves. Fig. 4 is a plan view of one of the plates which carries a swinging and a stationary rail thereon. Fig. 5 is a side elevation partly in section of the same. Fig. 6 is a cross sectional elevation on the line *y y* of Fig. 1.

Similar letters of reference designate corresponding parts throughout all the different figures of the drawings.

A A designate the stationary rails of a main line of a railroad track. A′ A′ denote parallel rails likewise belonging to the main track and located in line with the rails A A and arranged pivotally so as to swing to one side or the other for the purpose of enabling them to occupy either the position shown in full lines or that shown in dotted lines in Fig. 1, said rails A′ A′ therefore being that part of the main track which is shifted for connection with the switch track.

B B denote stationary parallel rails of the switch track, said rails being laid as shown and having ends in close proximity to the ends of the rails A A so that the movable rails A′ A′ may be shifted into alignment either with rails A A of the main track or with the rails B B of the switch track as occasion may require and demand.

B′ denotes a short pivoted swinging rail, serving when it is in one position as a part of the main track and when it is in its other position as a part of the switch track and having important functions in connection with the manipulation of the various parts of the switch mechanism, all as will be hereinafter presently explained.

The wooden ties C are arranged in the usual manner so as to support the several rails to which I have already referred, as also to uphold the various plates, &c., belonging to the mechanism of the switch.

D designates an angularly shaped rail, which is at one end of the same width as an ordinary rail while at the other end it is wide enough to connect two rails A and B as shown in Fig. 1, said rail piece having a wedging form, made to conform to the angle of the switch. This angular shaped rail therefore serves as a section of the main track and also as a section of the switch track, because one edge thereof is in alignment with the rails of the main track while the other edge is inclined and is in alignment with the rails of the switch track.

The rail piece D is provided with the necessary flanges *d d* whereby it may be easily and securely fastened to the plates which are located beneath it and secured to the ties C C. E denotes one of these plates and F the other. The plate E is simply a cast plate which supports the wider end of the rail piece D and also the ends of the stationary rails A and B, as shown in Fig. 1. This plate is secured to

the tie by means of drift bolts or other suitable means, the rails being also secured to the tie in the same manner by bolts that pass through the plate. F denotes the other similar cast plate, located beneath and upholding the smaller end of the rail piece, said plate F being provided with one set of upwardly projecting flanges or ribs *f f*,—see Fig. 4—placed parallel to each other and at a suitable distance apart to receive the flanges *d d* of the rail piece D easily between them. The bottom portion of plate F is formed with a circular recess into which fits the plate G which is fastened to the plate F by means of the bolt *g*, whereby it is pivoted and made free to move from side to side. The plate G is also provided with the upright parallel flanges *g' g'*. One end of the swinging rail B' is fitted between the flanges *g' g'* and securely riveted to the plate G. The plate F is fastened by means of drift bolts or other suitable means to the tie. Plate F is shown in enlarged plan view in Fig. 4, the flanges *f f* as well as the plate G and its flanges being clearly delineated in the same figure.

H denotes an ordinary chair or plate provided with a bridge *h*—see Fig. 1—for the purpose of keeping the ends of the rails A and B apart. The ends of said rails A and B are fastened to one side of this chair H, while the end of the swinging rail B' is supported on the other portion of the chair H. Plate H is secured to the tie by means of suitable bolts or in any other desired manner. Thus it will be seen that the movable rail B' is pivotally connected at one end to the plate F, while its other end rests upon and is free to move from side to side upon the plate H so that said movable end can be placed contiguous either to the end of rail A or of rail B, which rails have their ends supported on the plate H as aforesaid.

I I also designate chair plates similarly provided each with a bridge and fastened to one of the ties in the same manner as the plate H is secured. Each of the plates I is provided with a horizontal sheave or small pulley *i*, pivoted on the pivot pins or journal pins *i'* which are supported in the outer ends of the plate I as clearly shown in Figs. 1 and 3. Each of the plates I supports one end of one of the movable rails A' and one end of a stationary rail A and of a stationary rail B, said ends of the stationary rails A and B being close to each other upon the plate I and separated only by a short bridge or dividing piece. Thus the ends of the swinging rails A' slide freely upon the plates I I so as to be shifted into proximity either with the rails A A of the main track or with the rails B B of the switch track.

K designates a switch stand of the ordinary and usual construction, which is operated for the purpose of shifting the swinging rails A', from one position to the other. This stand is located at a suitable point alongside of the rails of the main track and is connected to the rails by the ordinary means, consisting of the bridle *k*. Stand K is generally secured to the tie by right angled flanges as *k'*. The long swinging rails A' are connected together in the ordinary way by means of bridles k^2, a portion of said swinging rails which is not connected by bridles K^2 being held in a stationary position.

To the rail B' is connected a bridle L, by means of which it is moved. This bridle is connected near its middle point with the rail B'. Each end of the bridle L is provided with an eye, to which is firmly secured by means of a clamp or otherwise, one end of each of the ropes M M, the other ends of said ropes being attached to the eye-bolts N N which pass through the ends of the swinging rails A' and are provided with nuts on each side thereof for the purpose of enabling the ropes to be tightened up to their proper tension. These ropes M M or cables or cords, as the case may be, pass around the sheaves *i i* which we have already seen are supported upon the plates I I, and they also pass around other similar sheaves *l l* supported by means of the plates *l'* which are fastened to the ties.

By referring to Fig. 1 we shall observe that the rails are shown in position for use on the main track. When it becomes necessary to use the switch, the long and short swinging rails A' A' and B' are moved from the position shown in full lines into the position shown in dotted lines in the same figure, said movement being accomplished by manipulating the switch stand lever, which moves the rails A' A' toward the left while the connection of the ropes M M between said rails A' and the swinging rail B' causes the said swinging rail B', to be moved to the right or in the opposite direction. Other methods of moving the swinging rail simultaneously, might obviously be constructed and applied for use in connection with the parts of my improved switch, but I have represented these rope connections as preferable and convenient means for providing the necessary connections between the parts to accomplish the purposes in view, but I reserve the liberty of varying from the exact details and features of construction shown in the present case without departing from the invention.

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

1. In a railroad switch, the combination with the angular rail piece D serving as a portion of the main track and as a portion likewise of the switch track, of the supporting plate E for one end thereof and the supporting plate F for the other end, said plate F having the parallel flanges *f f*, the plate G pivoted to said plate F and provided with parallel flanges *g'* and the swinging rail B' secured to plate G between its flanges, substantially as described.

2. In a railroad switch, the combination of the stationary rails A A, the stationary rails B B, the swinging rails A′ A′ and the short pivoted swinging rail B′, the ropes or cables M M passing around suitable sheaves and pulleys, connected to the bridle fastened to the rail B′ and said ropes being likewise connected to the rails A′, a bridle also connected to the rails A′ all arranged to operate, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HARRISON RICH.

Witnesses:
ROBERT WEIR,
EDWIN RICH.