(No Model.)

C. BUHRER.

SAFETY FROG AND SWITCH.

No. 336,549. Patented Feb. 23, 1886.

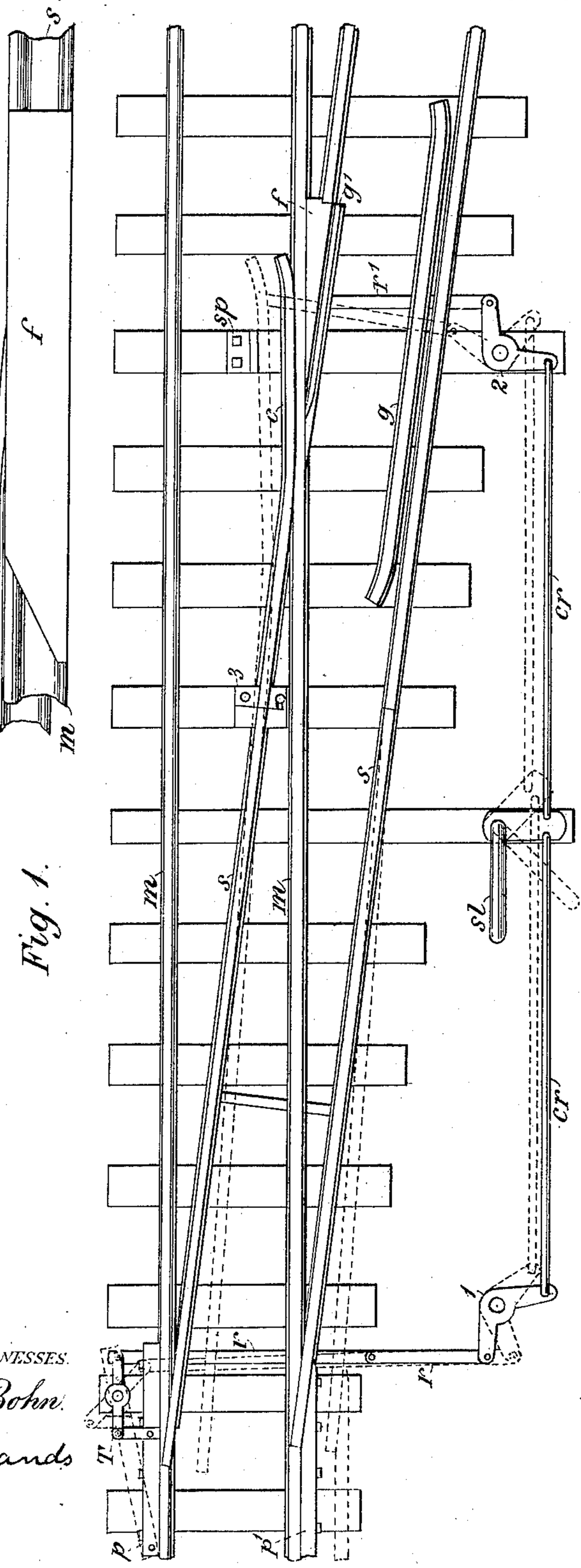

Fig. 1.

Fig. 5.

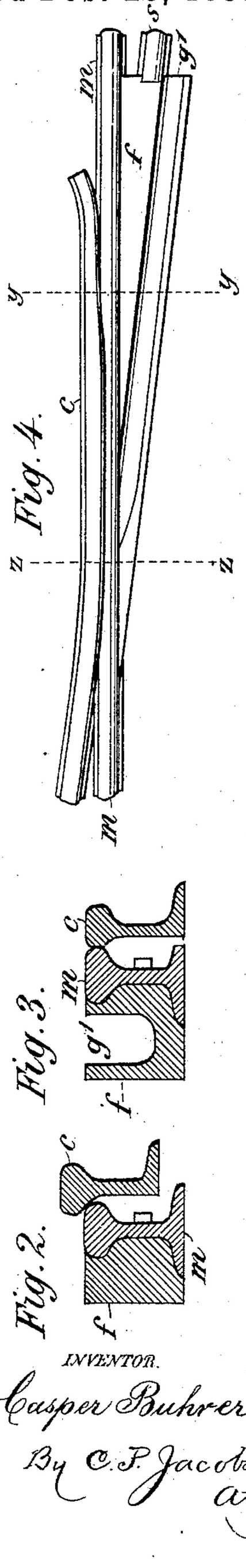

Fig. 4.

Fig. 3.

Fig. 2.

WITNESSES.

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SAFETY FROG AND SWITCH.

SPECIFICATION forming part of Letters Patent No. 336,549, dated February 23, 1886.

Application filed October 12, 1885. Serial No. 179,647. (No model.)

To all whom it may concern:

Be it known that I, CASPER BUHRER, a resident of Cambridge City, Wayne county, Indiana, have made certain new and useful Improvements in Safety Frogs and Switches, a description of which is set forth in the following specification, reference being made to the accompanying drawings, in the several figures of which like letters indicate like parts.

My invention relates to the construction and arrangement of frogs and switch-rails and their connections, and will be understood from the following description.

In the drawings, Figure 1 represents a plan view of the main track, side track, and switch embodying my device. Fig. 2 is a cross-section on the line *z z*, Fig. 4. Fig. 3 is a cross-section on the line *y y*, Fig. 4. Fig. 4 is a top view of the frog where it meets the main-track and side-track rails, and Fig. 5 is a side view of the same.

In detail *m m*, are the main-track rails, which are continuous and unbroken through the switch.

s are the switch-rails.

c is a curved rail pivoted at one end to a chair, 3, and abutting against the end of one of the switch-rails, the other end of this rail *c* being curved; and at the point where it meets the main rail it is elevated to rise above the main rail, as shown in Fig. 2, and from thence slopes down, as shown in Fig. 5, and at its curved end is lower than the main-track rail, and is connected near this end with the rod *r'*, which is in turn pivoted to the crank-lever 2, from which a connecting-rod, *cr*, leads to the switch-lever *sl*.

f is the frog, having one straight side, which fits up snugly against the main-track rail, as shown in Fig. 4. This frog has a central triangular tongue, and opposite it a groove, *g'*, to receive the flange of the car-wheel, as shown in Figs. 3 and 4.

sp is a stop bolted to a tie for limiting the lateral movement of the rail *c* on that side.

On the opposite side of the switch-lever is another connecting-rod, *cr*, leading to a crank-lever, 1, to which is pivoted the rod *r*, connected to the switch-rails *s* in the usual manner. This rod *r* extends under and beyond the main track, and is fastened to a T-lever, which is centrally pivoted, and to the other arm of this T-lever is fastened a piece connecting such arm with a plate, *p*, which is pivoted on top of a cast-iron support bolted to the ties alongside the main-track rail. This plate is made thick enough, so that it rises a little above the main-track rail, and its object is to receive the tread of the car-wheel and form a rise to the junction of the switch-rail, so as to prevent the car-wheels from battering the thin end of the latter. When the main-track rail is to be used, the withdrawal of the switch-rail throws this plate *p* away from the main-track rail, and it takes the position shown in the dotted lines in Fig. 1. When the switch-rail is thrown over against the main-track rail, the plate *p* is drawn up against the main-track rail and in position to receive the car-wheel. A similar arrangement is made on the opposite side. The plate *p'* is bolted at one end to the side of the switch-rail, and its other end is pivoted to a support alongside the main-track rail, just beyond or a little distance beyond the junction of the two rails; and the movement of opening the switch throws the plate *p'* away from the main-track rail, and the closing of the switch throws the plate back against the main-track rail.

When the switch is set for the siding, and in the position shown in the full lines in Fig. 1, it is obvious that a car passing over the frog from the side track toward the switch will pass over the main-track rail, the tread of the wheel catching the rise of the rail *c* before it entirely leaves the tongue of the frog; and if the switch be set to the main line, the rail *c* taking the position shown by the dotted lines in Fig. 1, the flange of one wheel moving in the groove *g'*, and the flange of the other held between the guide-rail *g* and the opposite rail, S, of the side track, the tread of the wheel as it leaves the frog *f* will yet catch the face of the curved rail *c* and pass safely on along the rails S without being thrown off at the frog. The rise of the rail *c* is gradual, but so as to clear the flange of the wheel from contact with the frog. If the car be coming from the left toward the frog, and the switch be set for the siding, the wheel will pass over the main-track rail diagonally and upon the frog, the flange of the wheel entering the groove *g'*. This device leaves the main track entirely unbroken through the switch.

The frog-piece *f* may be used without the groove *g'*, if desired; but the groove is preferable.

I am aware that switches have been used in which the main track has been left continuous, and that lifting-rails allowing the car-wheel to clear the main track in passing over it diagonally are also well known, and do not broadly claim the same as my invention.

What I do claim, and desire to secure by Letters Patent as my invention, is the following:

1. The frog-piece *f*, its inner side parallel with the line of the main-track rail, its outer inclined thereto at an acute angle, provided with the groove *g'*, substantially as described.

2. The frog-piece *f*, provided with a groove, *g'*, having its inner side parallel with the line of the main-track rail, its outer inclined at an acute angle thereto, bolted to the main-track rail *m*, in combination with such main-track rail, substantially as described.

3. The frog-piece *f*, provided with a groove, *g'*, its inner side parallel with the main-track rail, its outer inclined at an angle thereto, in combination with the main-track rail, to which it is firmly secured, and the movable curved rail *c*, pivoted as shown, substantially as described.

4. The frog piece *f*, provided with a groove, *g'*, bolted to the main rail *m*, in combination with such main rail, the curved rail *c*, pivoted at one end and its opposite end raised to lift the tread of the wheel over the main rail, and connected by suitable rods and levers to the switch *sl*, all combined substantially as described.

5. The switch-lever *sl*, connected by suitable rods and levers at one end to the switch-rails *s*, and by means of similar mechanism at the other end to the pivoted curved rail *c*, one end of which is raised, as herein described, in combination with such switch-rails, and the frog-piece *f*, provided with the groove *g'*, bolted to the main rail, substantially as described.

In witness whereof I have hereto set my hand this 10th day of October, 1885.

CASPER BUHRER.

Witnesses:
C. P. JACOBS,
GUSTAVUS BOHN.