

(No Model.)

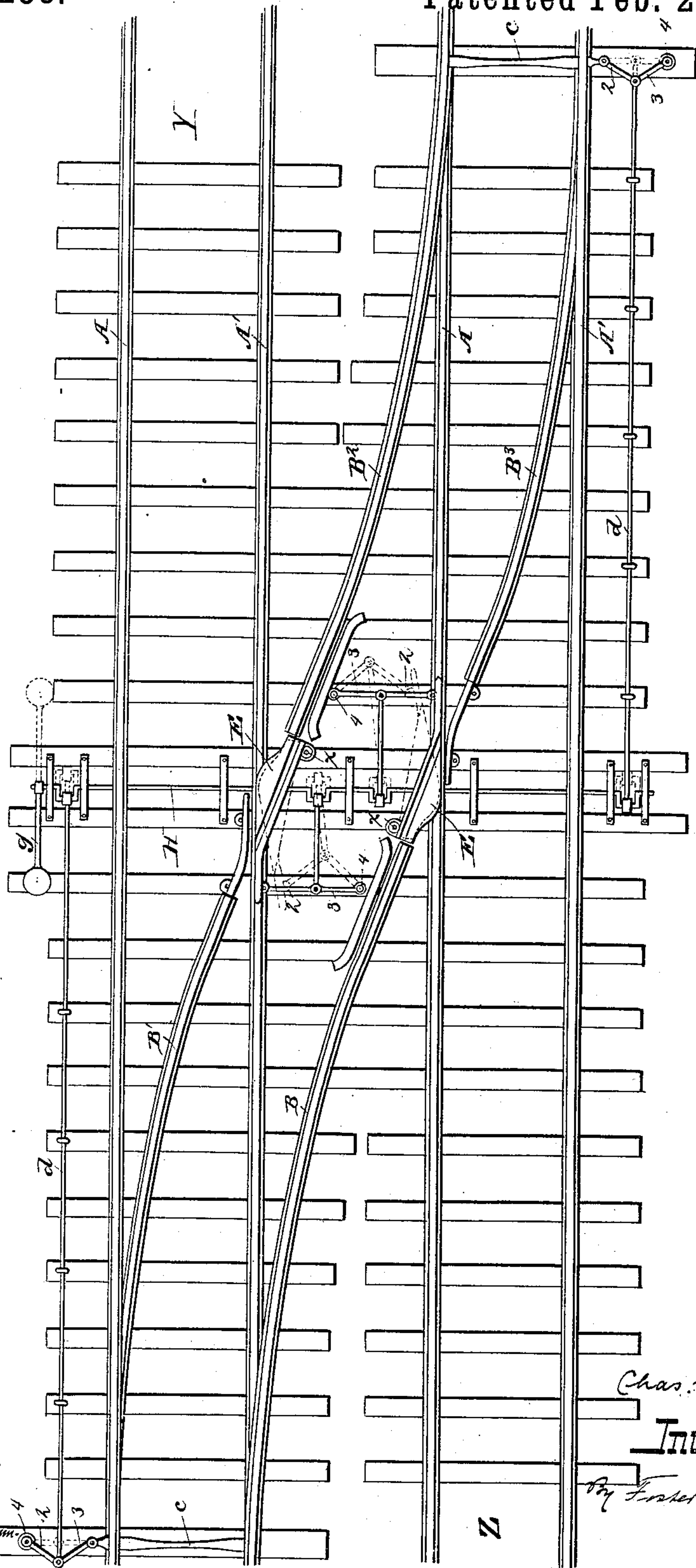
3 Sheets—Sheet 1.

C. B. PRICE.
SWITCHING DEVICE FOR RAILWAYS.

No. 335,238.

Patented Feb. 2, 1886.

Fig. 1.



Attests:
John Hinkley
H. C. Hanson

Chas. B. Price,
Inventor:
By Foster W. Freeman,
attys.

(No Model.)

3 Sheets—Sheet 2

C. B. PRICE.
SWITCHING DEVICE FOR RAILWAYS.

No. 335,238.

Patented Feb. 2, 1886.

Fig. 2.

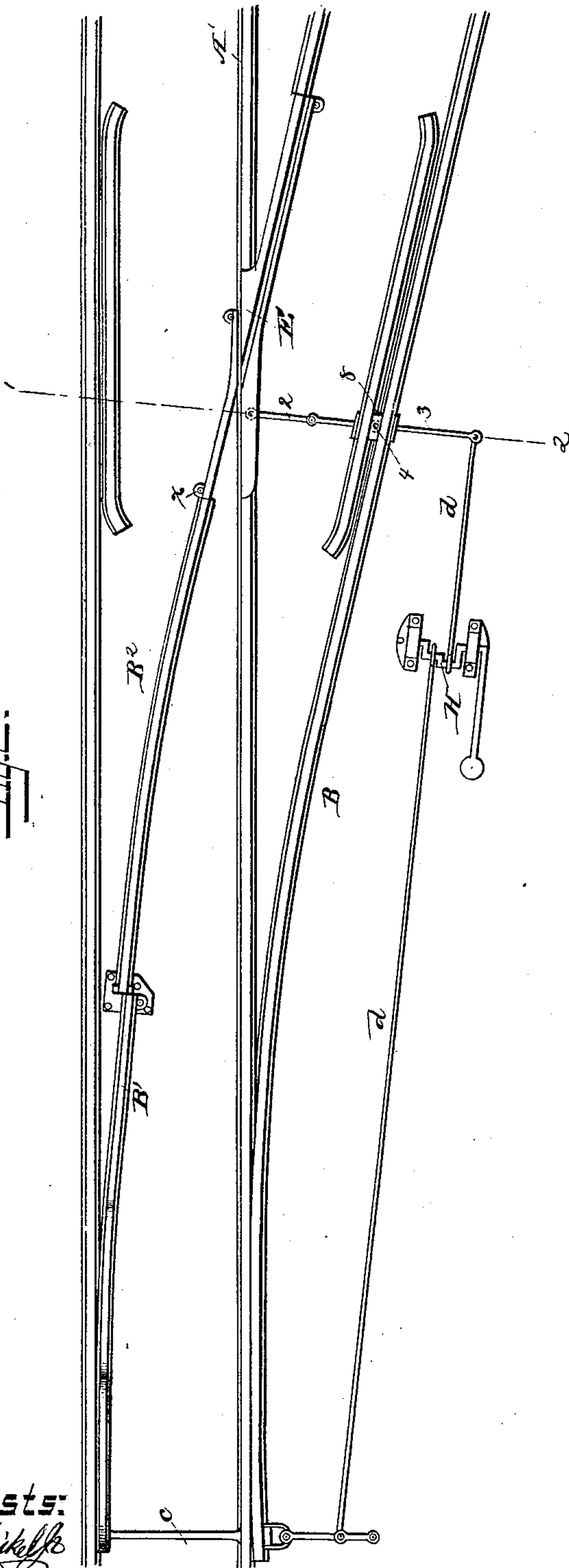
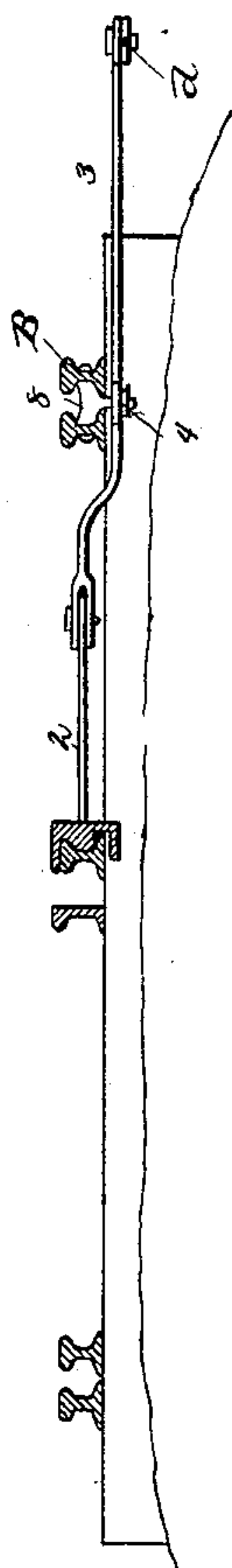


Fig. 3.



Attests:

John H. Kelle

H. C. Hannemann.

Chas. B. Price,

INVENTOR:

By Foster W. Freeman,

Attys.

(No Model.)

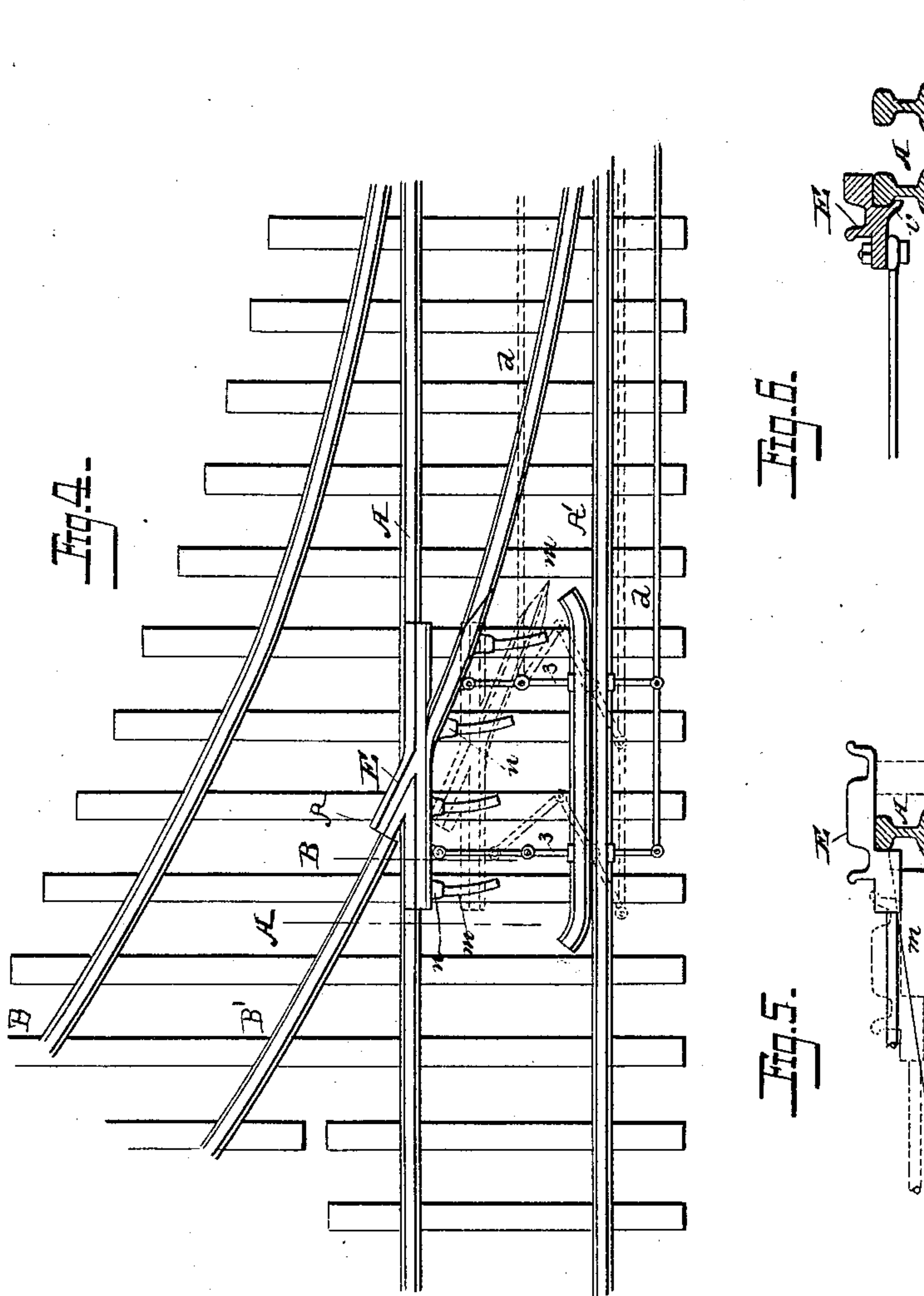
3 Sheets—Sheet 3.

C. B. PRICE.

SWITCHING DEVICE FOR RAILWAYS.

No. 335,238.

Patented Feb. 2, 1886.



Attests:
John H. Hinkle
H. C. J. Hansmann.

Chas. B. Price,
Inventor:
By Fraser & Freeman,
Attys.

UNITED STATES PATENT OFFICE.

CHARLES B. PRICE, OF PITTSBURG, PENNSYLVANIA.

SWITCHING DEVICE FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 335,238, dated February 2, 1886.

Application filed August 10, 1885. Serial No. 174,013. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. PRICE, a citizen of the United States, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Switching Devices for Railways, of which the following is a specification.

My invention relates to switch devices for railway-tracks; and my invention consists in combining with the switch-rails and their operating appliances certain movable frogs, whereby a continuous track is secured along each main track when the cars are not to be switched, and whereby the switching is effected without cutting the main-track rails.

My invention further consists in means described hereinafter for operating the movable portions of the switch devices and in the arrangement of the latter.

In the drawings, Figure 1 is a plan view of a cross-over switch illustrating my improvements. Fig. 2 is a plan of a side switch, showing the improvements applied thereto. Fig. 3 is a section on the line 1 2, Fig. 2. Fig. 4 is a plan illustrating one arrangement of movable frog and means for sliding the same. Fig. 5 is a section on the line A, Fig. 4. Fig. 6 is a section on the line B, Fig. 4.

Y and Z are the parallel main tracks, consisting each of continuous rails A A', and B B'. B² B³ are the switch-rails of a cross-over switch, each switch-rail being secured to the ties at its inner end and being movable at the outer end, and the outer ends of the rails B B' being connected by a cross-bar, c, a similar cross-bar connecting the outer ends of the rails B² B³. All the above-described parts are arranged as usual in cross-over switches.

In place of the ordinary fixed frogs at the points where the cross-over rails cut the main rails, I use movable frogs E, each of which may be pivoted at x, adjacent to the termination of one of the switch-rails, or may be arranged to slide bodily, as hereinafter set forth, and is otherwise so constructed, as set forth in Letters Patent granted to me on the 13th day of January, 1885, No. 310,613, that when it is in the position shown in Fig. 1 in full lines the cars may pass back and forth from one main track to the other over the switch-rails

and above the inner rails of the main tracks, while trains may also pass along either main track and over the wing portion of the frog lying upon the main rail. By turning the frogs to the position shown in dotted lines, Fig. 1, both of the main tracks are left unobstructed. It is essential, however, that when the frogs are in the position shown in full lines the switch-rails shall be brought to such a position as to carry trains approaching the switch upon either main track onto the other main track, and that when the frogs are set to the position shown in dotted lines the switch-rail shall be carried away from the rails of the main track.

While any of the ordinary arrangements of rods and levers or cranks may be used for connecting the movable frogs with the movable switch-rails to insure a simultaneous adjustment, I prefer to use the arrangement illustrated in Fig. 1, in which a single crank-shaft, H, is provided with four cranks, the two outer cranks being connected to operate the two pairs of switch-rails, and each inner crank being connected to operate one of the movable frogs. The crank-shaft H is provided with an operating-handle, g, so that by swinging the latter from one side to the other all the parts may be operated simultaneously.

Crank-levers have heretofore been used in devices for communicating motion from sliding rods to switch-rails; but I have substituted therefor connected links or toggle-levers, which serve as a ready means of communicating motion and to lock the parts in positions in which it is most important to hold them immovable. Thus, as it is most important that the switch-rails should be maintained from the main-track rails, the two links 2 3 are set as shown in Fig. 1, one link, 3, being pivoted to a stationary pivot, 4, and the other link, 2, being pivoted to the link 3, and also to the end of the cross-bar c.

The sliding rod d is connected at one end to the joint of the links 2 3, and at the other to one of the outer cranks of the shaft H.

It is most important that the movable frogs should be securely held when in position extending over the main rails. For this reason the links 2 3 are arranged as shown, each pair of links being connected at its joint to a con-

necting-rod, *d*, attached at its other end to one of the inner cranks. With the parts thus arranged the turning of the handle *g* of the crank-shaft to the left will break the line of the toggles connected with the switch-rails and carry the latter close to the main rails and hold them firmly in position; but when the handle is thrown to the right, as shown in dotted lines, the links connected to the switch-rails will be brought into line, so that it will be impossible to carry the switch-rails against the main rails while the parts are thus arranged. At the same time that the switch-rails are thus locked in their position away from the main rails the frogs will be carried away from the main rails by breaking the line of the toggles connected with the frogs, which latter can have but little tendency to recover their position improperly, while the reverse movement of the crank-shaft, throwing the movable frogs onto the main rails, will bring the links into line and lock the parts securely in place at a time when it is most essential that the frogs shall be held immovable.

While I have shown in Fig. 1 the jointed links in connection with the parts of a cross-over switch, they may be used in connection with ordinary turn-outs or switches, whether or not the movable frog be employed. Thus in Fig. 2 I have shown an ordinary turn-out switch in connection with a movable frog and with links 2 3, connected to the movable frog and switch-rails, and by rods *d* to a double-crank shaft, H. In this case, in order to properly adjust the movable frog E, the link 3 is extended beyond its pivot-point 4, to constitute a lever connected at its outer end to the rod *d*.

As it is most important to secure a firm pivot or bearing, 4, which has to resist the thrust upon the frog, I use a block, 8, adapted to fit between one of the rails B and the guard-rail C, and with a downwardly-projecting pin constituting the pivot 4, upon which the lever or link 3 swings. This block 8 is bolted or otherwise secured between the rails, thereby affording an immovable support for the link or lever.

While I have described the movable frogs as pivoted and as arranged outside the main rails, they may slide bodily, and may be arranged between the main rails, the surface of each frog being varied, so as to afford a continuous bearing for the wheels both upon the main and branch tracks when the frog is thrown over the main rail to coincide with the siding-rail.

In Figs. 4 to 6 the frog E is arranged to move outward from within the main track, but to slide bodily instead of swinging on a pivot. To properly guide the frog, it rests upon guides *m m*, preferably curved as shown, and secured to the cross-ties. Each guide is inclined upward toward the main rail A, so that the frog is raised to bring it above the main rail as it approaches the latter, and is

depressed as it is withdrawn, the two positions being shown in full and dotted lines, Fig. 5. To aid in holding the frog in place upon the main rail, the frog is provided with a curved lip, *v*, Fig. 6, which extends beneath the head of the rail A, and prevents the frog from rising.

The movement of the frog is preferably effected by means of toggle-levers or pivoted links, as before described, and I use two pair of links to each frog, as shown in Fig. 4, when the frog is to slide instead of swinging, thereby imparting a parallel motion, the actuating-rod *d* being connected either to the outer ends of the links 3 3 or to the pivot-point *y*, as shown in dotted lines.

It will be obvious that the two sets of jointed hubs may be used with other arrangements of frogs or switch-rails.

It will be obvious that the jointed links or toggles may be differently arranged, according to the situations in which they are placed and the parts to be moved, and that any suitable appliances may be used for reciprocating the sliding rod *d*.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. The combination, with the main tracks Y Z, having continuous rails, of cross-over switch-rails and movable frogs provided with wings, and each constructed to form a communication between the sections of the cross-over rail over the main-track rail without obstructing the latter, and connected to be carried to and from the main-track rail, substantially as set forth.

2. The combination of the main tracks Y Z, having continuous rails, cross-over switch-rails connected to form movable switches, movable bridge-frogs provided with wings and constructed to transfer cars over the continuous main rails, and a switch handle or lever and connections for operating simultaneously therefrom both frogs and both switches, substantially as set forth.

3. The combination, with movable frogs and switches of a cross-over switch, of joint-links connected in pairs to the switches and frogs and operating-rods *d*, connected to the links, the links connected to the switches being arranged to assume positions at angles to each other when the switch-rails are set for siding and when the links connected to the frogs are in line, substantially as and for the purpose set forth.

4. The combination, with the rails and frog of a railway, of two pairs of links and an operating-rod, substantially as described, whereby the frog is carried back and forth by the action of the links, substantially as set forth.

5. The combination of the main and siding rails and a frog guided to slide bodily to and from the unbroken main rail and constructed to overlap the latter, and operating devices for carrying the frog back and forth, substantially as described.

6. The combination of the main and siding rails, a sliding frog, and guides inclined substantially as and for the purpose described.

7. The combination, with the switch-rails 5 and frog, of a sliding rod, a crank-shaft, and jointed levers or links connected at their joint to the rod, to operate substantially as set forth.

8. The combination of jointed links connected to the movable portion of a switch or frog 10 and a pivot connected to one of the links and supported by and below the rails of the track, substantially as set forth.

9. The combination of jointed links connected to the movable portion of a switch or 15 frog, and a pivot for one of the links, and a

block supporting the said pivot and clamped between the track-rail and guard-rail, substantially as set forth.

10. The combination, with the movable switch-rails and frogs, of jointed links connected to said movable parts and pivoted to 20 stationary pins, and sliding operating-rods connecting the links, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two 25 subscribing witnesses.

CHARLES B. PRICE.

Witnesses:

C. S. McCARGO,

WM. K. McELROY.