

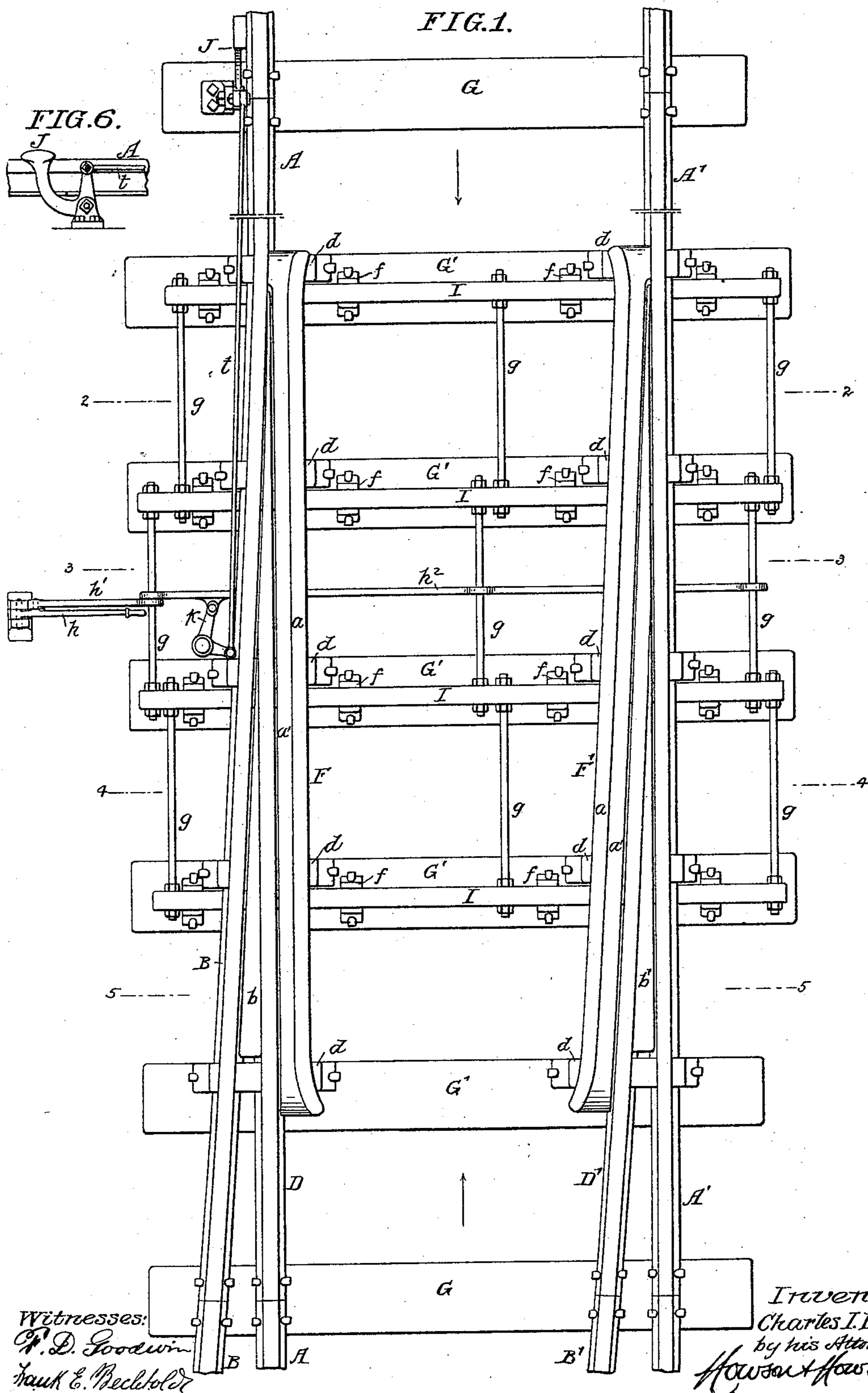
(No Model.)

2 Sheets—Sheet 1.

C. I. BISBING.
RAILWAY SWITCH.

No. 569,949.

Patented Oct. 20, 1896.



Witnesses:
H. D. Goodwin
Frank E. Bechtold

Inventor:
Charles I. Bisbing
by his Attorneys
Howson & Howson

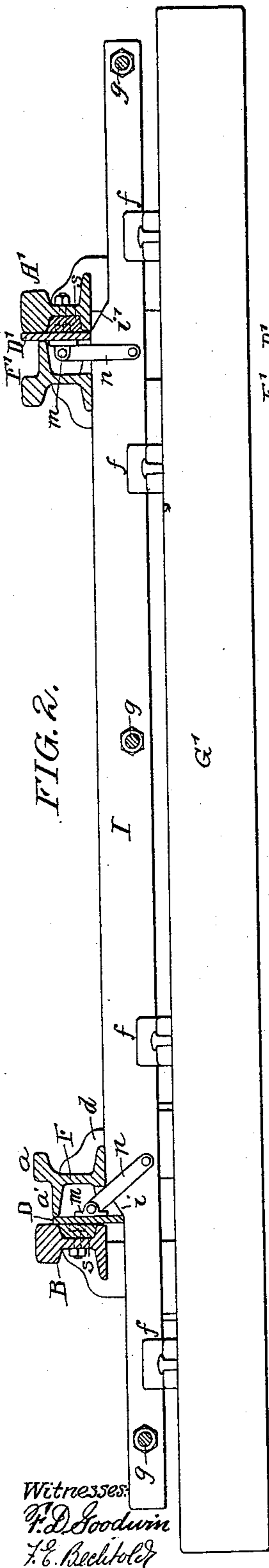
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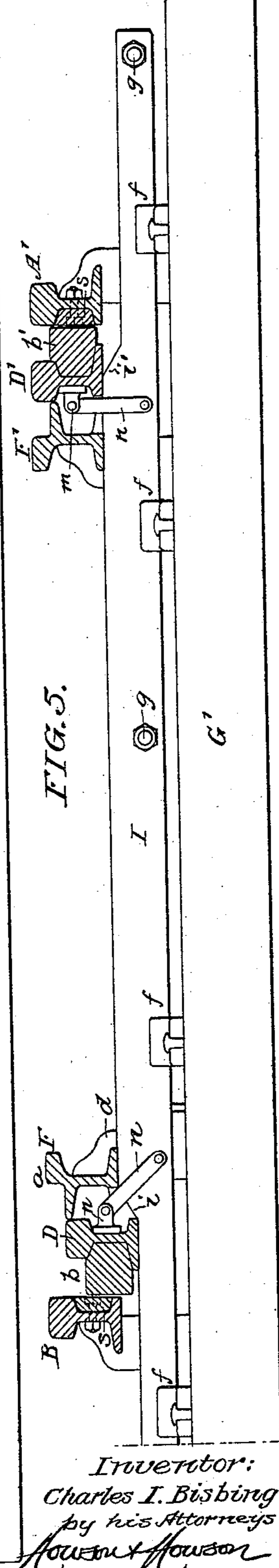
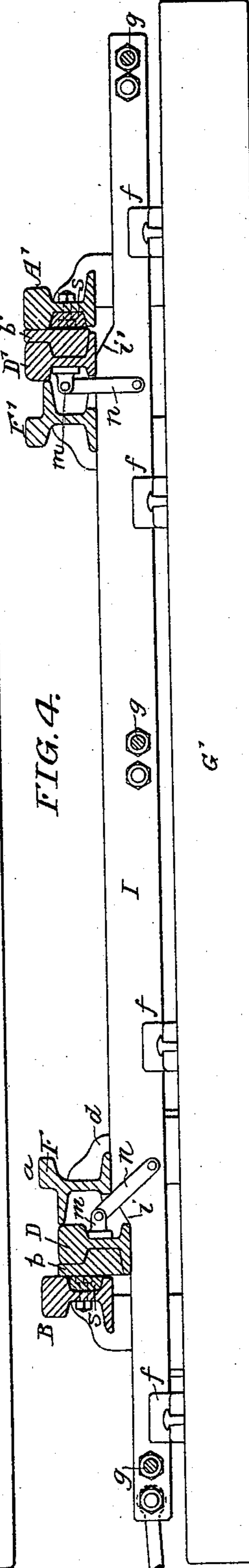
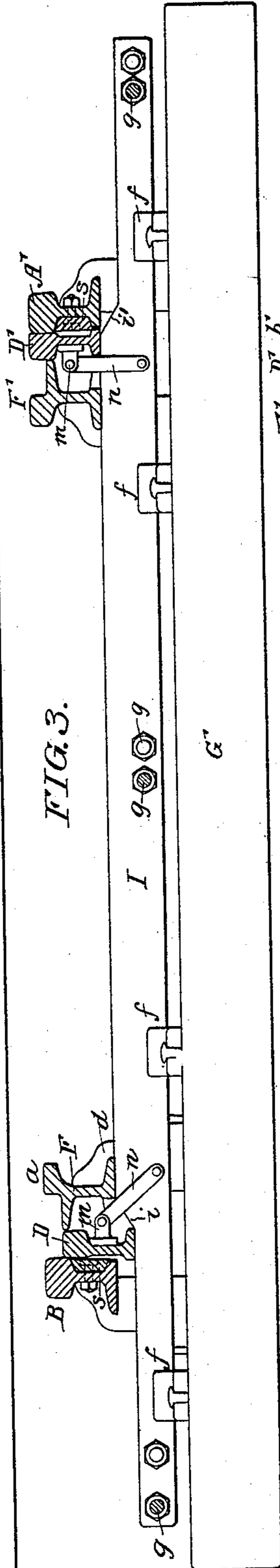
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UNITED STATES PATENT OFFICE.

CHARLES I. BISBING, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO OSCAR D. HOLMES AND CARLTON J. KIRK, OF SAME PLACE.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 569,949, dated October 20, 1896.

Application filed March 9, 1896. Serial No. 582,407. (No model.)

To all whom it may concern:

Be it known that I, CHARLES I. BISBING, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
5 Improvements in Railway-Switches, of which the following is a specification.

My invention relates to that class of switches in which the switch-rails are moved vertically alongside of the main-track rail instead of being moved laterally from and toward the same,
10 this class of switches having the advantage that they cannot be obstructed by snow or ice, as the vertically-moving switch-rails will displace any accumulations of snow or ice instead
15 of causing a wedging of the same between the switch-rails and the fixed track-rails, as in the case of laterally-moving switches.

The objects of my invention are to provide simple and efficient means for thus elevating
20 and depressing the switch-rails, to provide for the proper guidance of the wheels when a locomotive or car approaches the switch from the rear instead of from the front or directing end, and to insure the automatic closing of
25 the switch (or setting the same for the main track) by a train approaching the switch when the latter is open. These objects I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in
30 which—

Figure 1 is a plan view of a railroad-switch constructed in accordance with my invention. Fig. 2 is a transverse section on the line 2 2,
35 Fig. 1. Fig. 3 is a transverse section on the line 3 3, Fig. 1. Fig. 4 is a transverse section on the line 4 4, Fig. 1. Fig. 5 is a transverse section on the line 5 5, Fig. 1; and Fig. 6 is a side view of one of the elements of the automatic switch-setting device.

40 A A' represent the main-track rails, B B' the rails of the siding, and D D' the switch-rails, the switch-rail D forming a continuation of the main-track rail A and the switch-rail D' forming a continuation of the siding-rail B', both switch-rails being tapered so as
45 to terminate in comparatively sharp points, as is usual in this class of switches.

50 On the inner side of the switch-rail D is a guard-rail F, and on the inner side of the switch-rail D' is a corresponding guard-rail F', each of these guard-rails having a verti-

cal flange *a* and a lateral flange *a'*, the vertical flange serving by contact with the flange of the wheel to restrict lateral movement of the same and the lateral flange serving to lift
55 the wheel in the manner described herein-after.

On the outside of the switch-rail D is a projecting plate *b*, and on the outside of the switch-rail D' is a similar projecting plate *b'*,
60 the upper face of each of these plates being beveled or tapered longitudinally, and the plate being of wedge-like form, so as to fill in the space between the switch-rail and the adjacent main rail or siding-rail, the butt or
65 low end of each plate being some distance below the tread of the switch-rail, as shown in Fig. 5, but the upper edge of the plate gradually rising until it is flush with the tread of the switch-rail, as shown in Fig. 4.
70

Certain of these cross-ties G' at each switch are on a lower level than the cross-ties G of the ordinary road-bed, and upon these cross-ties G' the siding-rail B, guard-rail F, main
75 rail A', and guard-rail F' are supported at the proper track-level by means of chairs or shoes *d* or equivalent supports.

In guides *f*, secured to the cross-ties G', are adapted to slide a series of transverse wedge-bars I, these wedge-bars being secured to-
80 gether by bolts *g* or equivalent stays, so as to constitute practically a single rigid structure capable of being moved as a unit by the switch-lever *h* and connecting-rods *h'* *h''*.

Each of the wedge-bars I has oppositely-
85 facing wedges *i i'*, the wedges *i* being adapted to act upon the switch-rails D and the wedges *i'* acting upon the switch-rails D', and the wedges being so disposed that when the wedge-bars are moved in one direction the
90 switch-rail D will be elevated and the switch-rail D' permitted to descend, while when the wedge-bars are moved in the opposite direction a reverse operation will be effected, the switch-rail D' being raised and the switch-rail
95 D permitted to descend.

Positive descent of the switch-rails is insured by connecting to lugs or brackets *m* on each switch-rail the upper ends of links *n*, the lower ends of which are connected to the
100 wedge-bars I, the links being so disposed that when the wedge-bars are moved so as to raise

the switch-rail the links will also exert an upward thrust thereon, while when the wedge-bars are moved so as to withdraw the wedges from beneath the switch-rail the links will
 5 pull the latter downward and thus positively assure the descent of the switch-rails without relying upon the weight of the latter to effect such descent. The links n might be used for effecting both the elevation and depression
 10 of the switch-rails, but the use of the wedges in addition to the links is preferred. In any case the bars I should provide a positive support for the switch-rails when the latter are elevated, in order to relieve the links of the strain exerted upon the switch-rails, when a
 15 locomotive or car is passing over the same.

As shown in the drawings, the switch-rail D is depressed and the switch-rail D' is elevated, the switch being set so as to direct onto
 20 the siding a locomotive or car approaching the switch in a forward direction, that is to say, in the direction of the arrow 1, Fig. 1.

When the switch-rail D is raised and the switch-rail D' depressed, the switch will be
 25 set for the main track, as will be readily understood. When the switch is set for the siding and a locomotive or car on the main track is approaching the switch from the rear, that is to say, in the direction of the arrow 2, Fig.
 30 1, the flange of the wheel running upon the rail A' will engage with the lifter-plate b' of the switch-rail D' and will be lifted thereby so as to pass over said switch-rail, which is in contact with the said main rail A' .

The flange of the wheel traversing the rail
 35 A and switch-rail D will, under the same circumstances, engage with the lateral flange a' of the guard-rail F , and the wheel will be lifted thereby, so that its tread will properly
 40 clear the siding-rail B as the wheel approaches the point of the switch. This is an important function of each guard-rail, since the switch-rail, when depressed, would, in the absence of the lifting-flange of the guard-rail, permit of
 45 the descent of the wheel traversing said switch-rail to a point below the tread of the main or siding rail onto which it had to be directed.

When a locomotive or car running on the
 50 side track is approaching the switch from the rear, the wheel running on the switch-rail D' will be properly directed onto the main-track rail A' and the flange of the wheel running on the siding-rail B will engage with the lifting-plate b of the switch-rail D and will be
 55 thereby directed onto the top of the same.

When the switch-rails are set for the main track, that is to say, in the reverse position from that shown, the functions of the guard-rails F F' and lifting-plates b b' will be like-
 60 wise reversed.

The rails A' and B are preferably provided on their inner sides with filling-blocks s disposed at appropriate intervals so as to provide
 65 suitable bearing-faces for the outer sides of the switch-rails or their lifting-plates b b' . The connections g between the wedge-bars I

do not offer any material resistance to the lateral movement of said wedge-bars even when the track is covered by snow, and, as before
 70 stated, any interference with the proper operation of the switch-rails by snow or ice is prevented, owing to the displacement of said snow or ice by the vertical movement of said switch-rails.
 75

In order to provide for the automatic closing of the switch by a locomotive or car approaching the switch in the direction of the
 arrow 1, I provide the devices shown in Figs. 1 and 6, and comprising a lever J , located
 80 alongside one of the main-track rails, say the rail A , at any desired distance from the switch, said lever being connected by a rod t to a lever K , which is in engagement with a lug on the switch-operating rod h^2 .
 85

When the switch is open, that is to say, is set for the siding, as shown in the drawings, an arm of the lever J , which is located close
 alongside of the head of the rail A , is raised some distance above said head, as shown in
 90 Fig. 6, so that it will be struck and depressed by the projecting tread of the wheel of a locomotive or car approaching the switch, so as to effect the automatic shifting of the rod
 95 h^2 and the closing of the switch or setting of the same for the main track, it being understood that the switch-lever connection h h' is such as not to preclude such automatic operation of the switch. By this means running
 100 into an open switch is rendered impossible.

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

1. The combination of the rails of the main track and siding, the switch-rails mounted so
 105 as to be vertically movable alongside of the fixed rails of the track, means for supporting said fixed rails above the level of the cross-ties, and a series of transverse wedge-bars connected by longitudinal stay-bars so as to
 110 move in unison and having wedges for acting upon said vertically-moving switch-rails so as to effect the depression of one simultaneously with the elevation of the other, said wedge-bars being seated but free to slide in
 115 shoes mounted upon and secured to the tops of the depressed cross-ties, whereby rigid vertical support is provided for each wedge-bar, substantially as specified.

2. The combination in a railway-switch, of
 120 the rails of the main track and siding, switch-rails mounted so as to be movable vertically alongside of the fixed rails of the track, means for supporting said fixed rails above the level of the cross-ties, and a series of transversely-
 125 movable switch-operating bars mounted on said ties and each connected to the switch-rails by means of links, the rails or bars being connected so as to move in unison whereby when said bars are moved one switch-
 130 rail will be positively elevated and the other will be positively depressed, the raised rail being supported upon the operating-bars, substantially as specified.

3. The combination in a railway-switch, of
the rails of the main track and siding, switch-
rails mounted so as to be vertically movable
alongside of the fixed rails, means for sup-
5 porting the fixed rails above the cross-ties, a
series of transversely-movable wedge-bars
mounted on said cross-ties and connected so
as to move in unison, and links connecting
said wedge-bars with the switch-rails whereby
10 the movement of the switch-rails is due to
the conjoint action of the wedges and links,
substantially as specified.

4. The combination in a railway-switch, of
the rails of the main track and siding, with

switch-rails mounted so as to be vertically 15
movable alongside of the fixed rails, said
switch-rails having laterally-projecting ta-
pered blocks, serving to lift the wheels of a
locomotive or car approaching the switch
from the rear, substantially as specified. 20

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

CHAS. I. BISBING.

Witnesses:

WILL. A. BARR,
JOS. H. KLEIN.