

No. 749,275.

PATENTED JAN. 12, 1904.

L. DUNN.
SAFETY DEVICE FOR POINT SWITCHES.

APPLICATION FILED FEB. 10, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

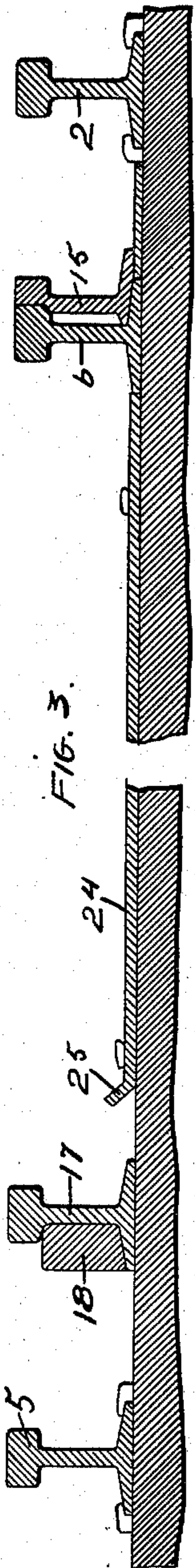


FIG. 3.

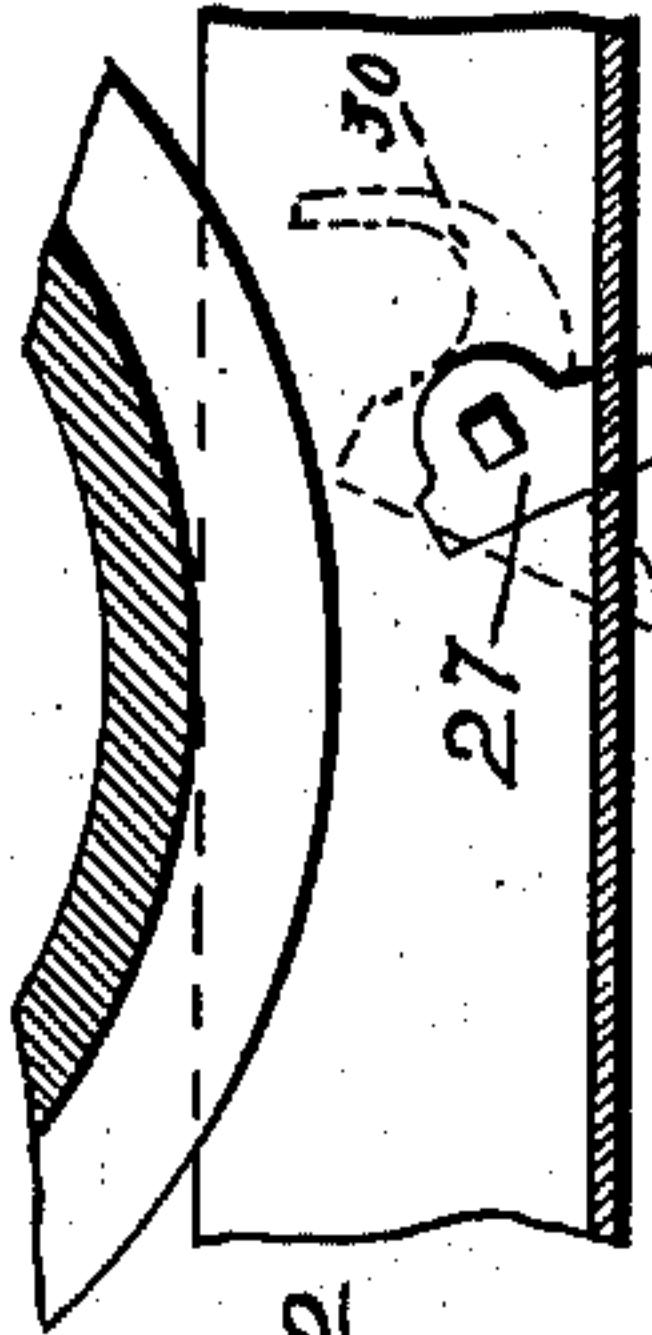


FIG. 12.

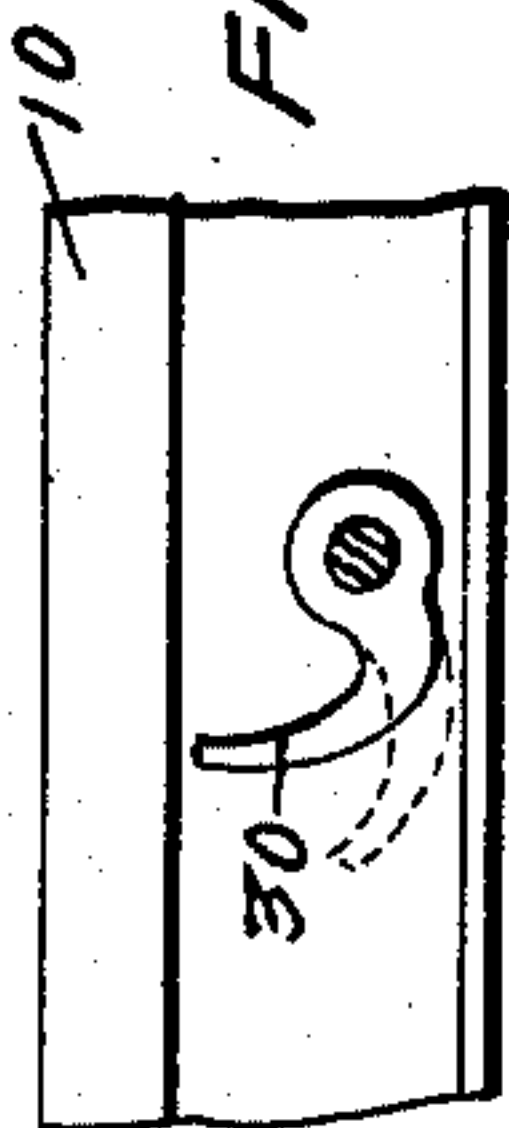


FIG. 13.

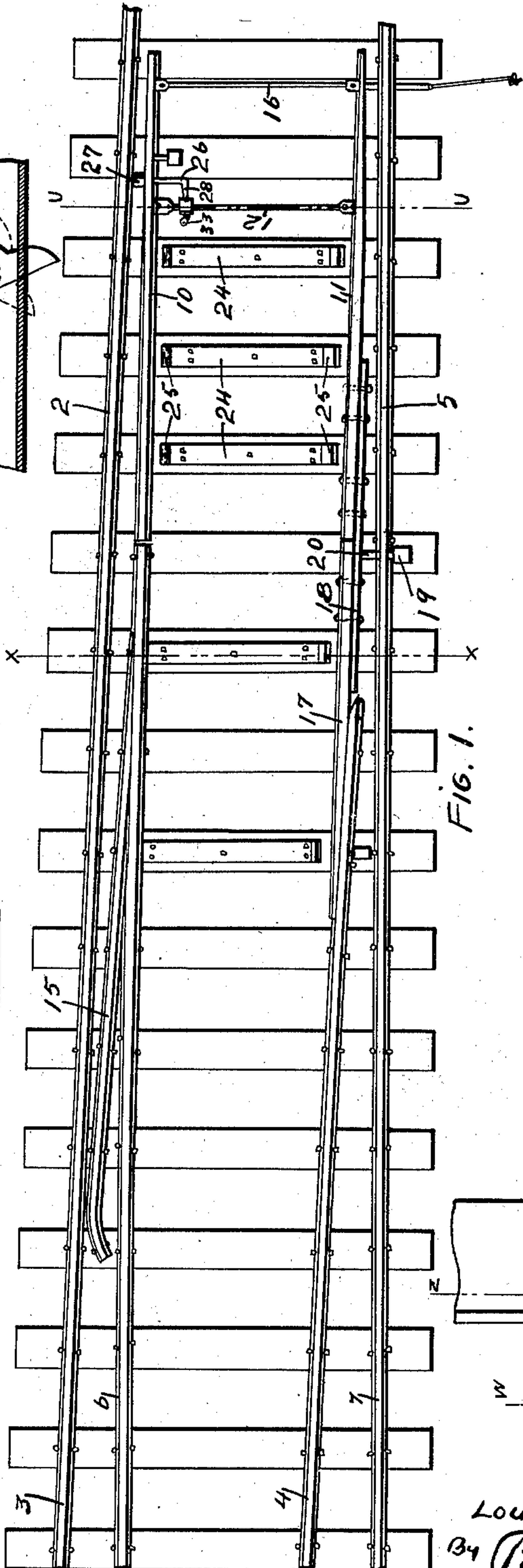


FIG. 1.

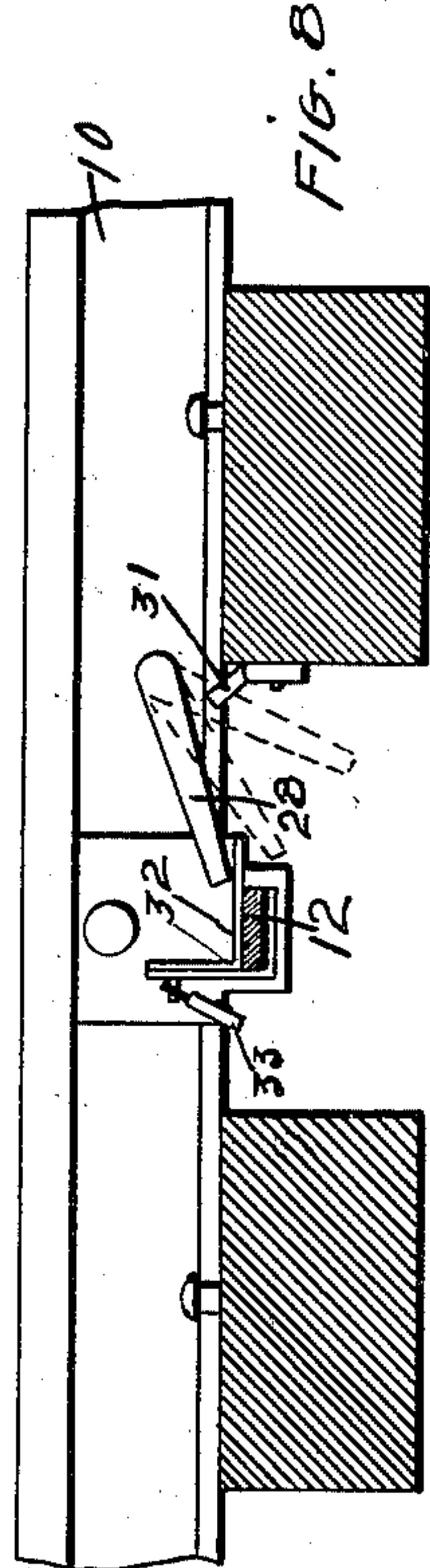


FIG. 8.

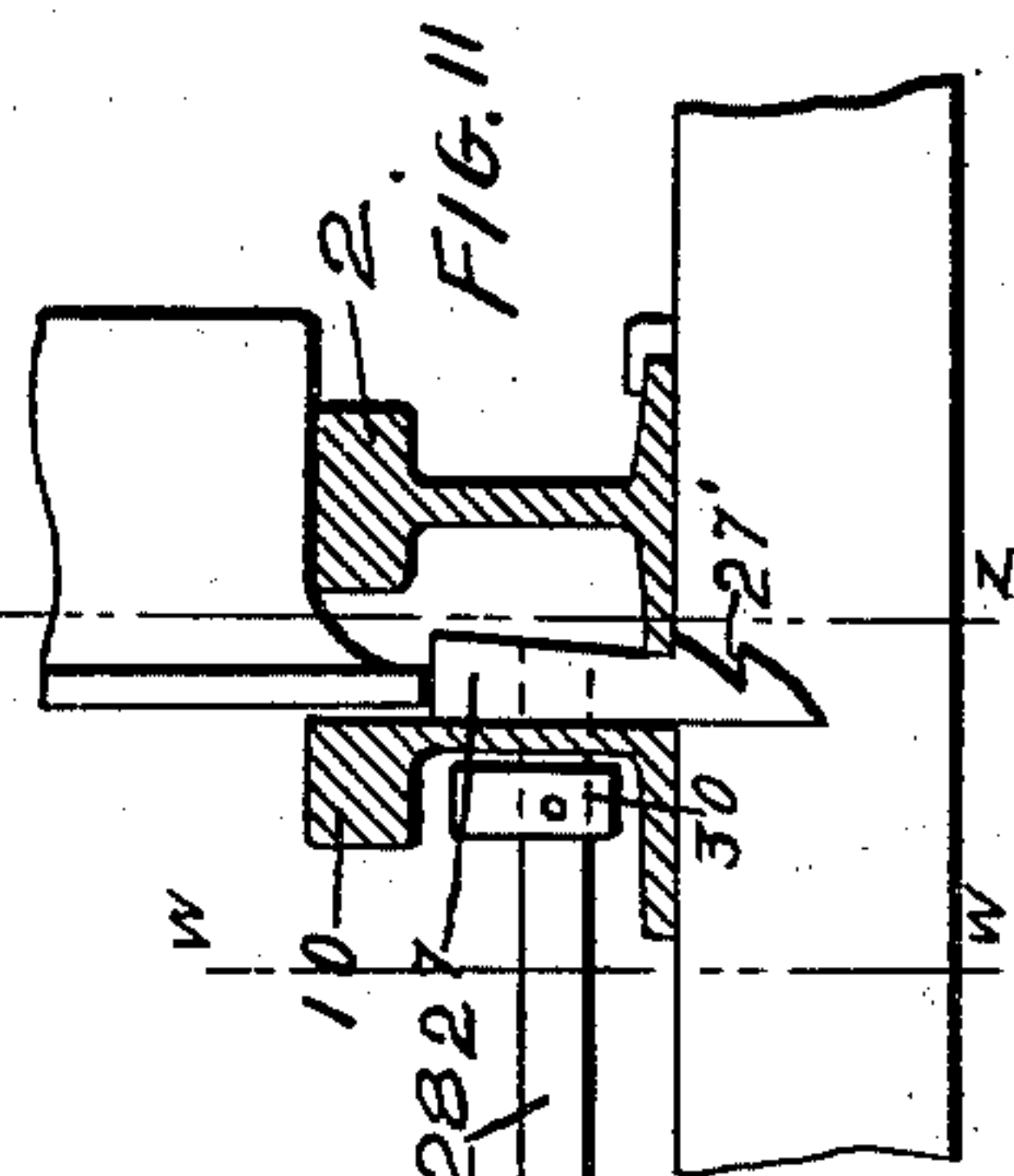


FIG. 11.

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3 SHEETS—SHEET 2.

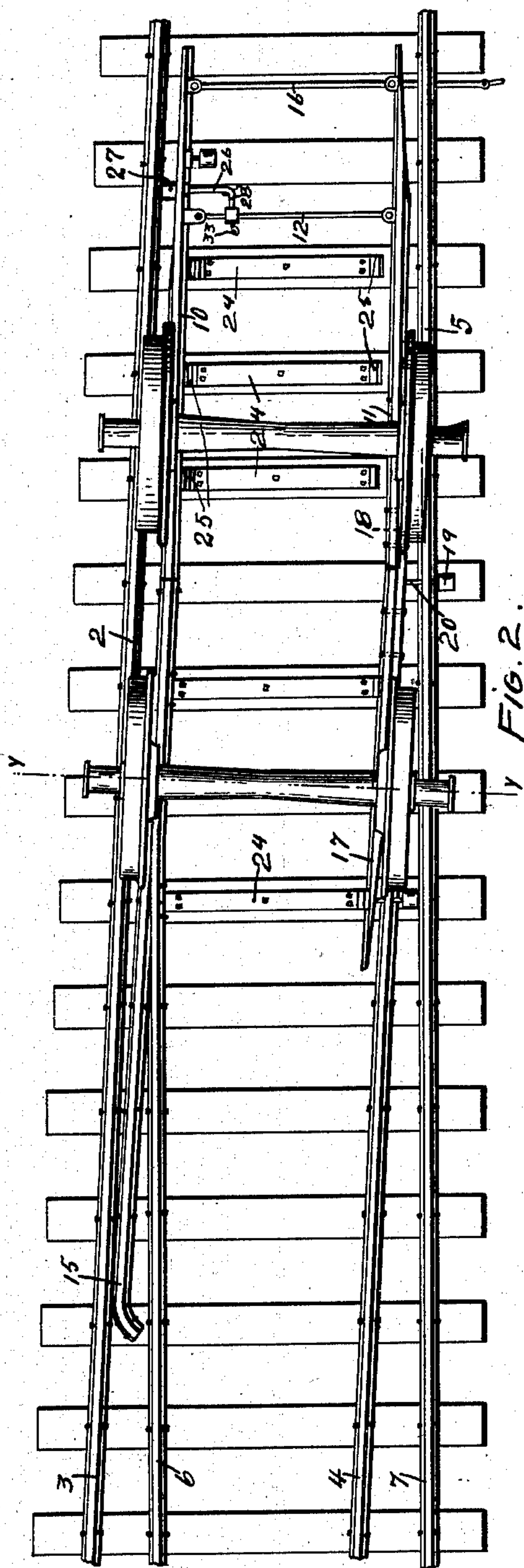


FIG. 2.

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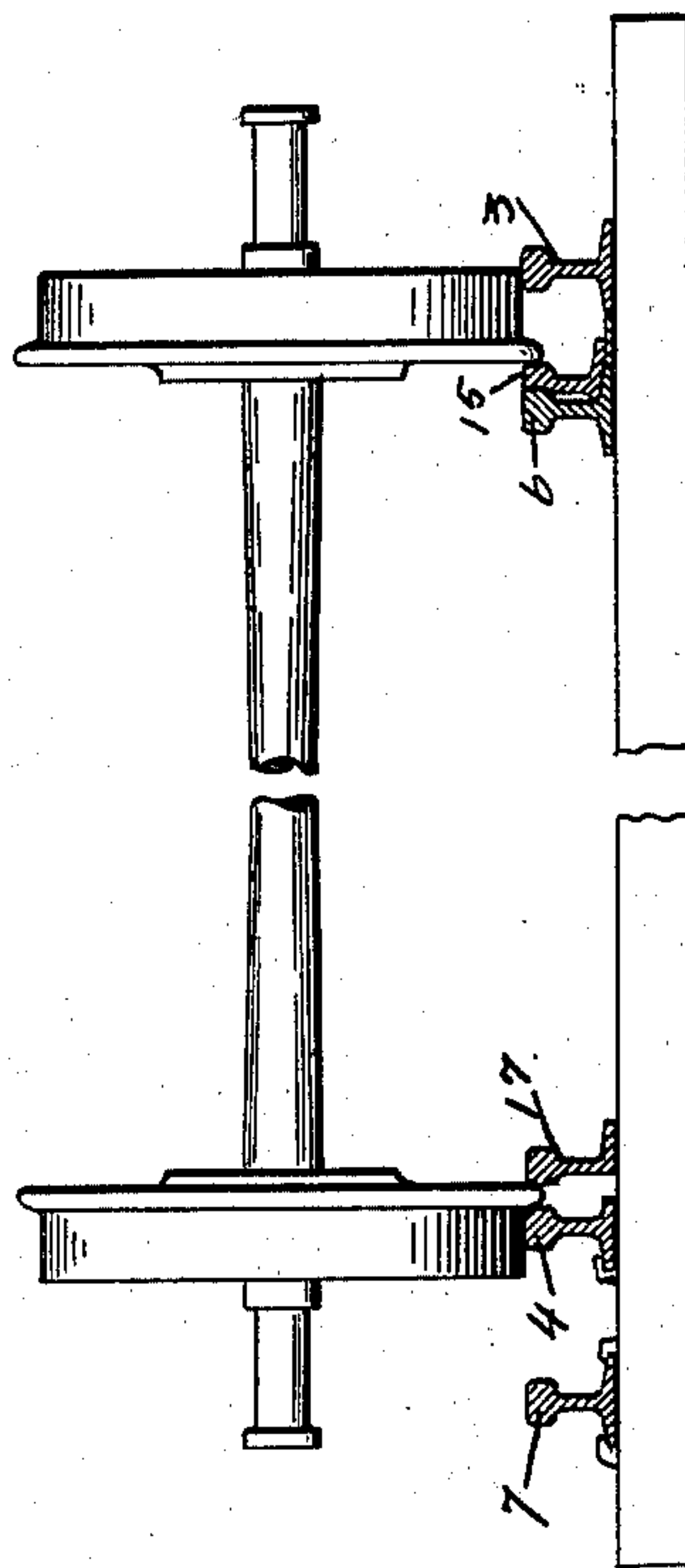


FIG. 4

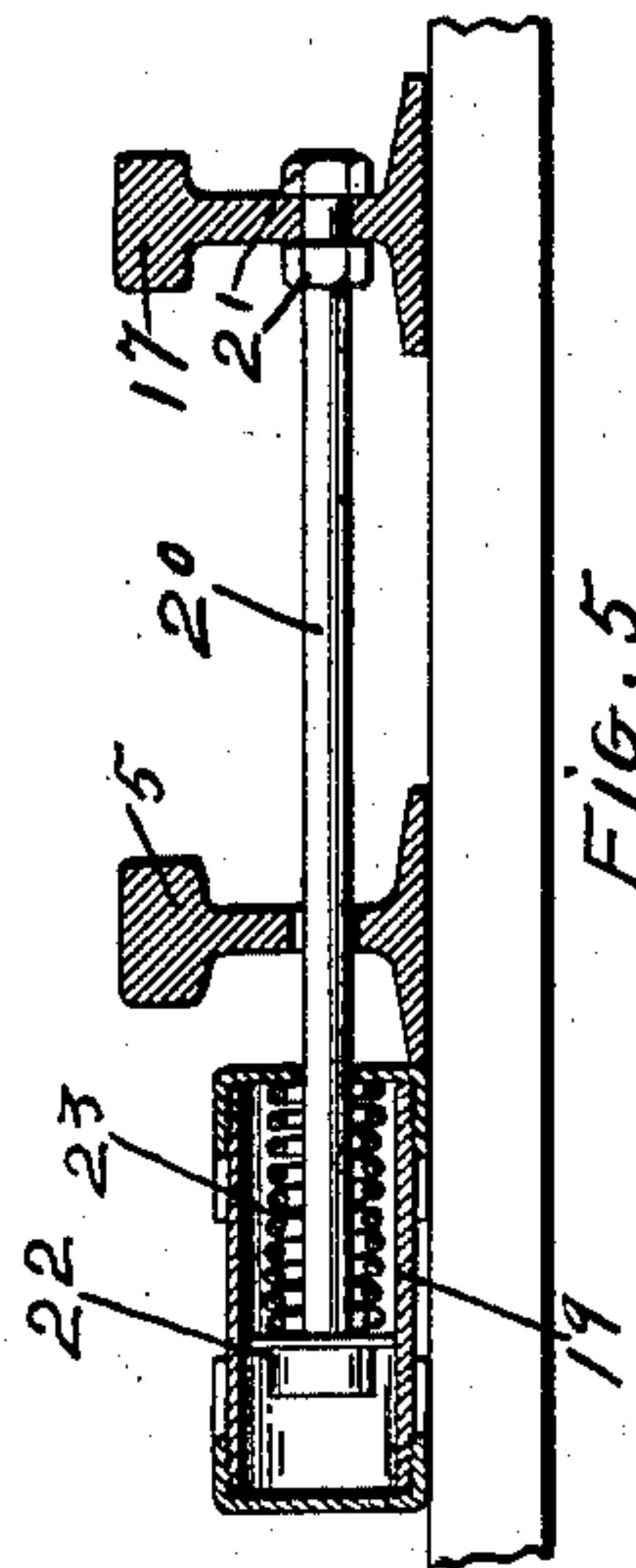


FIG. 5

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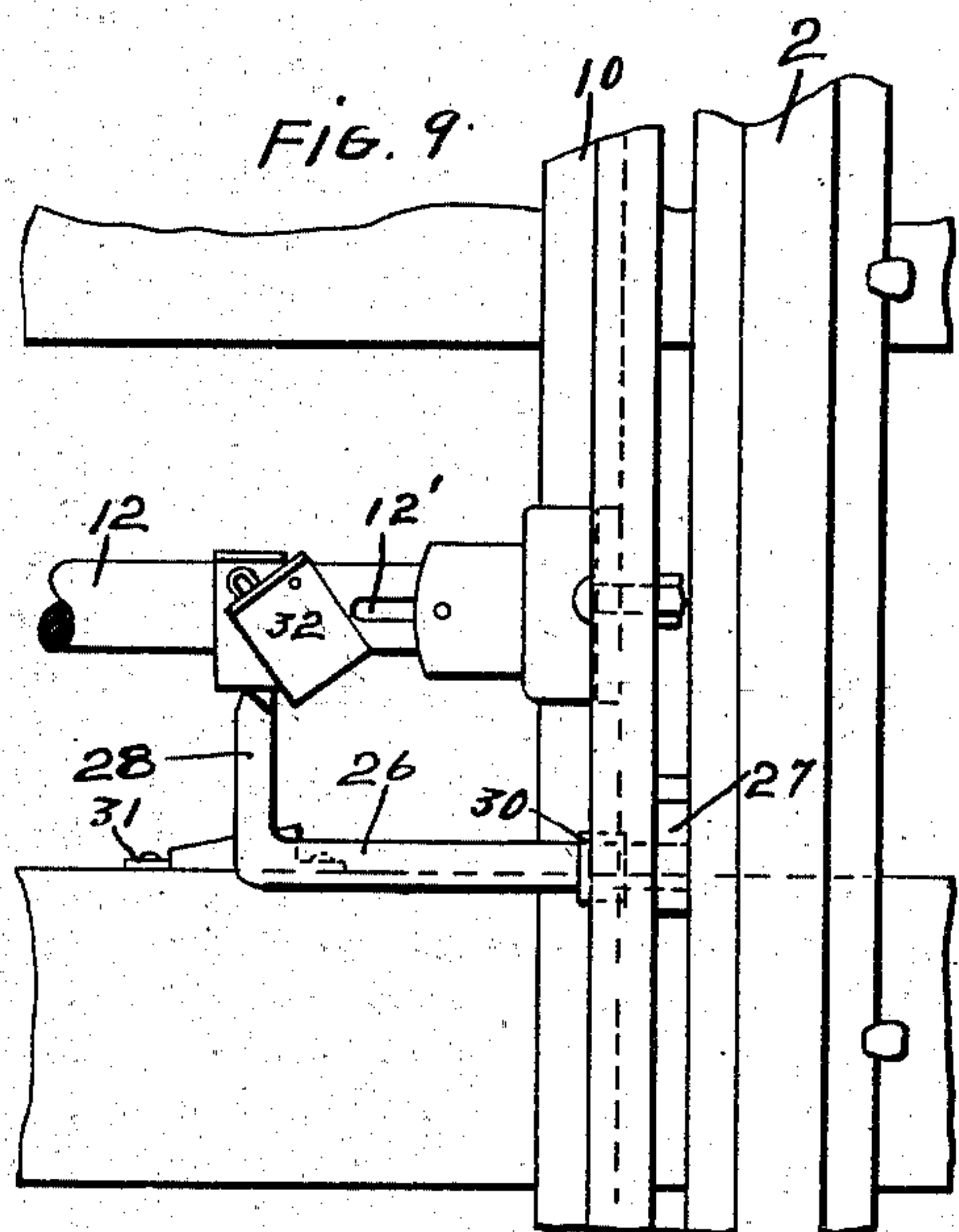
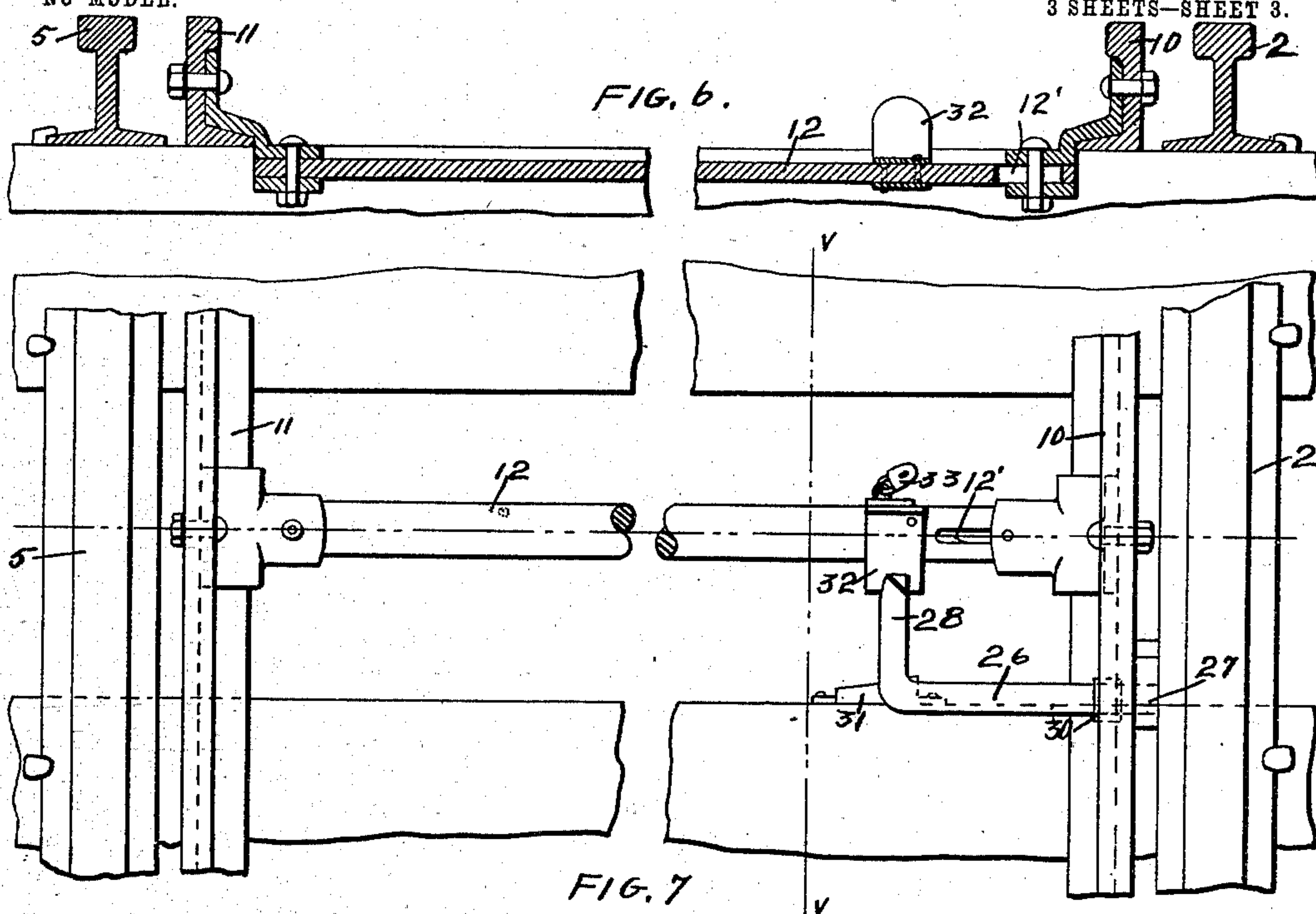
L. DUNN.

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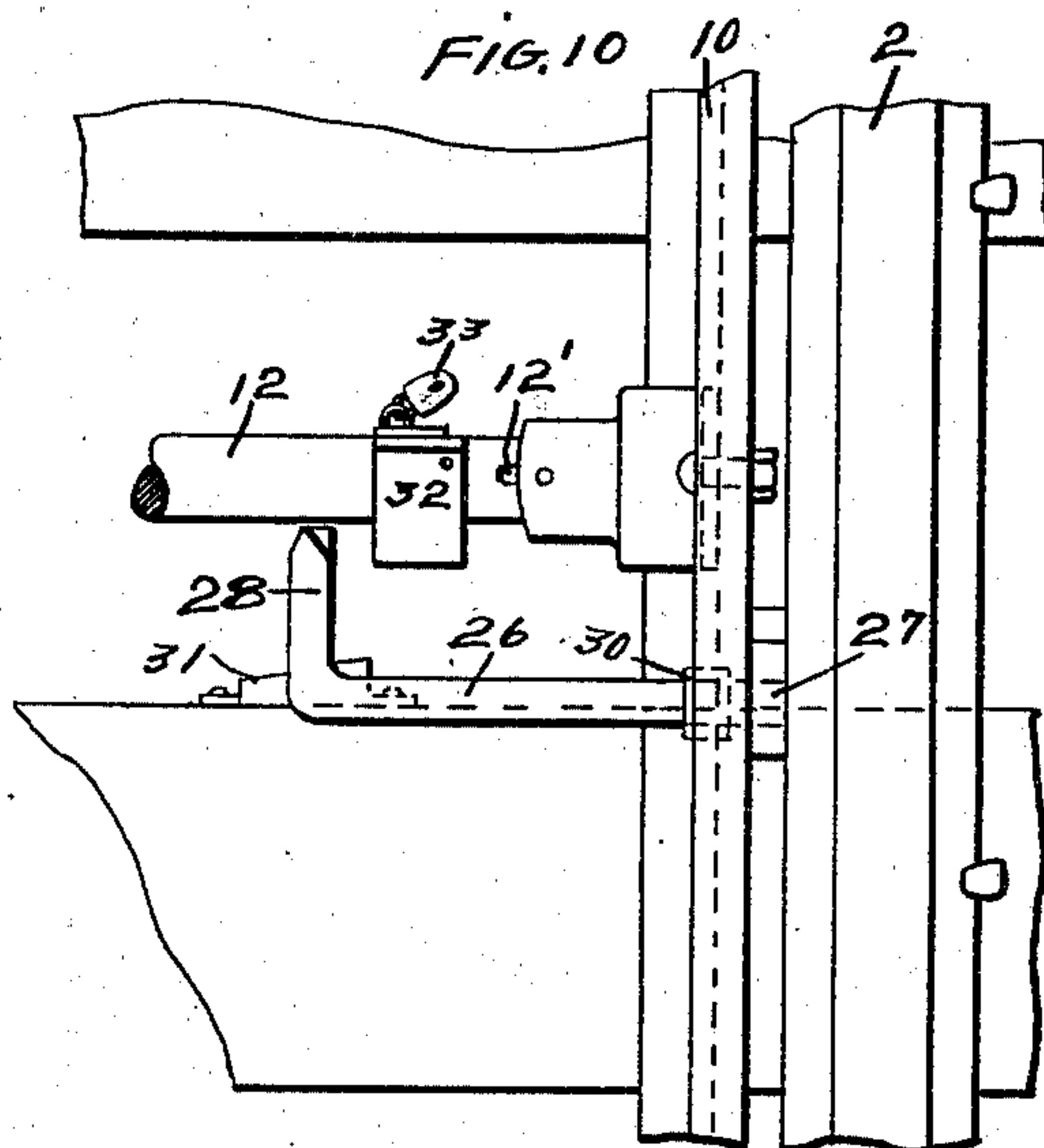
APPLICATION FILED FEB. 10, 1903.

NO MODEL.

3 SHEETS—SHEET 3.



Witnesses
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UNITED STATES PATENT OFFICE.

LOUIS DUNN, OF ST. PAUL, MINNESOTA.

SAFETY DEVICE FOR POINT-SWITCHES.

SPECIFICATION forming part of Letters Patent No. 749,275, dated January 12, 1904.

Application filed February 10, 1903. Serial No. 142,798. (No model.)

To all whom it may concern:

Be it known that I, LOUIS DUNN, of the city of St. Paul, county of Ramsey, State of Minnesota, have invented certain new and useful
 5 Improvements in Safety Devices for Point-Switches, of which the following is a specification.

The invention relates to improvements in safety devices for use in connection with a point or split switch for the purpose of preventing
 10 derailment of trains running toward the point when the switch, for any reason, is in a neutral or partially-open position.

The invention is designed as an improvement
 15 over devices shown and described in Letters Patent of the United States issued to me August 7, 1894, and April 22, 1902, and numbered, respectively, 524,273 and 698,108.

The primary object of my present invention
 20 is to improve the construction of the safety device shown and described in said last-named patent by avoiding the necessity of having the car-wheel ride or pass over the top of the rail in passing onto the main track.

Other objects of the invention will appear
 25 from the following detailed description.

The invention consists generally in various constructions and combinations, all as hereinafter described, and particularly pointed out
 30 in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view of a point-switch constructed in accordance with my invention. Fig. 2 is a similar
 35 view showing the position of the car-wheel as it passes over the device onto the main rail. Fig. 3 is a sectional view on the line *xx* of Fig. 1. Fig. 4 is a similar view on the line *yy* of Fig. 2. Fig. 5 is a detail section of the
 40 spring mechanism for holding the main-line point against the filler and the main-line rail. Fig. 6 is a detail section taken on the line *uu* of Fig. 1, showing the rail-points and the slotted
 45 view of the parts shown in Fig. 6. Fig. 8 is a detail section on the line *vv* of Fig. 7, and Figs. 9 and 10 are detail plan views. Fig. 11 is a detail section showing the means for locking the points in a neutral position by the pas-
 50 sage of a truck. Fig. 12 is a detail section on

line *zz* of Fig. 11. Fig. 13 is a detail section on line *ww* of Fig. 11.

In the drawings, 3 and 4 represent the rails of the main track, and 6 and 7 the corresponding rails of the side track. These rails are
 55 fixed in the usual manner and converge toward each other in the usual way.

2 and 5 represent the outer or stock rails. The rail 2 is in line with the outer rail 3 of the main track, and the rail 5 forms a continuation
 60 of the rail 7 of the side track.

10 and 11 represent the movable switch-points, arranged in the usual manner and connected together by the usual head-rod 16 and the
 65 bridle-rod or tie-bar 12, having the slot 12', which allows lateral movement of the point without breaking the tie-rod.

15 is a guard-rail provided between the rails 3 and 6, as in my former patent. When the points are in position with the point 11 against
 70 the side of the rail 5, the switch will be set for the main track and will direct a train passing toward the points along the main track. When the point 10 is against the side
 75 of the stock-rail 2, the switch will be set for the side track and will direct a train passing toward the points onto the side track.

The switch is shown in Fig. 1 in its open or neutral position, and in my Patent No. 698,108 I have fully described the way a train may be
 80 derailed in passing over a switch of the ordinary construction set in this position, and I have also explained the various ways in which the switch-points may be accidentally or
 85 intentionally displaced to cause such derailment, and I will not, therefore, in this application enter into a detailed description of the defects in an ordinary switch and the way derailment is prevented by the use of my safety
 90 device, but will confine myself to the improvement which forms the subject-matter of my present invention.

17 is a rail-point that abuts and forms a continuation of the point 11 and laps by the end of the rail 4. The points 11 and 17 may be
 95 made in one piece, if preferred.

18 is a filler arranged to lap by the abutting ends of the points 11 and 17 and secured there-
 100 to and abutting the end of the rail 4.

19 is a cylinder provided outside the rail 5

and having a rod 20, that passes through the rail 5, the filler 18, and the point 17 and secured to the latter by nuts 21. A follower 22 is provided on the outer end of the rod 20, 5 between which and the end of the cylinder is a spring 23, that tends to draw the point 17 toward the rail 5. The tapered end of the point 17 is yieldingly held in contact with the rail 4 by a spring mechanism similar to the one 10 described, except that the rod 20 is shorter, the device being placed between the rails 4 and 7. A similar spring mechanism is provided on the inside of the point 10 and has the same functions as the similar device shown 15 in my Patent No. 698,108, above referred to.

Between the rail-points 10 and 11 upon the ties I arrange plates 24, having upwardly-turned ends 25, which are made to correspond to the wheel-gage and serve to limit the lateral 20 movement of said points, and between the point 17 and the rail 6 I provide similar plates corresponding to those between the points 10 and 11, except they are preferably turned up only at the ends adjacent to the 25 point 17, the other ends being flat and in engagement with the base of the rail 6, which at that point has no lateral movement.

With the device here shown, if the points are for any reason left in neutral position and 30 a train travels along the track toward the points the flanges of the wheels will enter the space between the points and the stock-rails 2 and 5. The flanges of those wheels that enter the space between the point 10 and the rail 2 35 will cause the point 10 to be moved against the upwardly-turned ends 25 of the plates 24, which will prevent further lateral movement of said point, but the wheels traveling on the rail 2 cannot leave the same, for when the inner 40 surface of the flange of each wheel is against the outer surface of the point 10 there will be a sufficient portion of the tread of the wheels resting upon the rail 2 to support the wheels. The wheels on the other side upon leaving 45 the rail 5 will pass onto the filler 18 and roll over the same while the opposite wheels are resting on the rail 2, with their flanges bearing against the outside of the point 10. As soon as the flanges of the wheels traveling 50 on the rail 2 are engaged by the diagonal guard-rail 15 the wheels will be forced toward said rail 2, and the flanges on the opposite wheels entering between the end of the rail 4 and the point 17 will move the point later- 55 ally against the tension of the spring mechanism and allow the wheels to pass onto the main-track rail 4 without riding over the top of it. During the passage of the wheels past the points 11 and 17 their inward lateral 60 movement will be limited by the upwardly-turned ends of the plates 24, and after the flanges of the wheels have passed from between the point 17 and the rail 4 the spring mechanism will return the said points to their 65 normal position.

The operation of the mechanism for conducting a train in safety over the switch-points when they are in a partially open or neutral position is substantially the same as described in detail in the specification of my patent last referred to, the improvement in this case consisting in taking the wheels through the main-track rail instead of over it, and hence avoiding the necessity of using expensive sections of rails that were found necessary where the wheels were rolled directly across the head of the rail. 70 75

In my former patent, No. 698,108, and in a Mexican patent granted to me on the 14th day of October, 1902, I have shown and described a device for preventing some of the 80 wheels from passing onto the side track while others remain on the main track, in case the head-rod between the points and stand should be broken or should the stand be 85 turned so as to partially open the switch. As set forth in the said patents, I provide in connection with the point 10 a short axle 26, adapted to oscillate in bearings in the said point and provided on its end between the point 90 10 and the stock-rail with a wedge-shaped bar 27, that I have termed a "plunger." This plunger is provided with a wedge-shaped lower end having offsets or shoulders 27'. When 95 in its normal position, the upper end of the plunger is somewhat below the top of the point 10, as indicated by the dotted lines in Fig. 11. The inner end of the axle 26 is formed with a hook or lug 28, and just inside of the point 10 is a stop-collar provided with a curved lug 30. 100 An inclined plate 31 is arranged below the axle 26, being secured upon one of the ties, and a pivot-plate 32 is secured upon the bridle-rod 12 and is adapted to be locked into position by a suitable padlock 33. When in normal 105 position, the plunger 27 will stand in the position indicated by dotted lines in Fig. 11 and the hook 28 will occupy the position shown by full lines in Fig. 8. Any tendency of the axle to turn, so as to depress the plunger, 110 is prevented by the lower part of the hook 28 in contact with the surface of the plate 32. The lug 30 on the stop-collar will at this time be in engagement with the base of the point or rail, thereby preventing the top of the 115 plunger from being brought above its normal position. Should, however, the points be in a neutral position, as shown in Fig. 1 of the drawings, the flanges of the wheels passing 120 into the space between the points and the stock-rails will press the points and move them toward each other and move the plate 32 and the hook 28 in opposite directions. As the lower end of the hook 28 normally rests 125 upon the surface of the plate 32, when the plunger is in its elevated position, thereby holding said plunger in such position, it is evident that as soon as the plate 32 and the hook 28 are moved a sufficient distance to clear 130 each other the plunger and the hook will both

drop down, so that the former will occupy the position shown by full lines in Figs. 11 and 12, and the point 10 will be prevented from moving into position to set the switch for the side track. When the train has passed, the compression is removed from the points, and they will resume their normal position, and the plate 32 will assume a position over the hook 28, and said hook and plunger can only be lifted by unlocking said plate and swinging it to one side, as shown in Fig. 9. Should, however, a train pass over the track in an opposite direction, so as to move the points to set the switch for the main track, the hook 28 will engage the end of the inclined plate 31, and will thereby lock the switch to the main track.

I claim as my invention—

1. In a switch, the combination, with a rail, of a point lapping by the end of said rail and yieldingly held toward the same, and a filler secured to said point and having its end abutting the end of said rail.

2. In a switch, the combination, with the movable points arranged to permit the wheels to pass outside of both points when the switch is partially open or in a neutral position, a rail arranged to lap by the end of one of said points, means for yieldingly holding the point in contact with said rail, a filler secured to said point and abutting the end of said rail, and means for limiting the lateral movement of said points.

3. The combination, with the stock-rails, and the rails of the main and side tracks, of the movable points, one of said movable points

lapping by the end of one of the main-track rails, means for limiting the lateral movement of said points, and a filler secured to said main-rail point and having its end abutting the end of said rail, for the purpose set forth.

4. The combination, with the stock-rails, and the rails of the main and side tracks, of the movable points arranged to permit the wheels to pass outside of both points when the switch is partially open or in a neutral position, and means for conducting the wheels on one side from the stock-rail past the adjacent point to the main-line rail without crossing said main-line rail.

5. In a switch, the combination, with the movable points 10 and 11, of a point 17 forming a continuation of one of said first-named points, a rail arranged to lap by the end of said point 17, a filler secured to said points 11 and 17 and abutting the end of said rail, means for yieldingly holding said point 17 toward said rail, and means for limiting the lateral movement of said points.

6. In a switch, the combination, with the movable points, of a filling-piece secured to the outer side of one of said points, and the plates 24 provided between said points and having upwardly-turned ends, for the purpose specified.

In witness whereof I have hereunto set my hand this 29th day of January, 1903.

LOUIS DUNN.

In presence of—

RICHARD PAUL,
C. G. HANSON.