

No. 649,067.

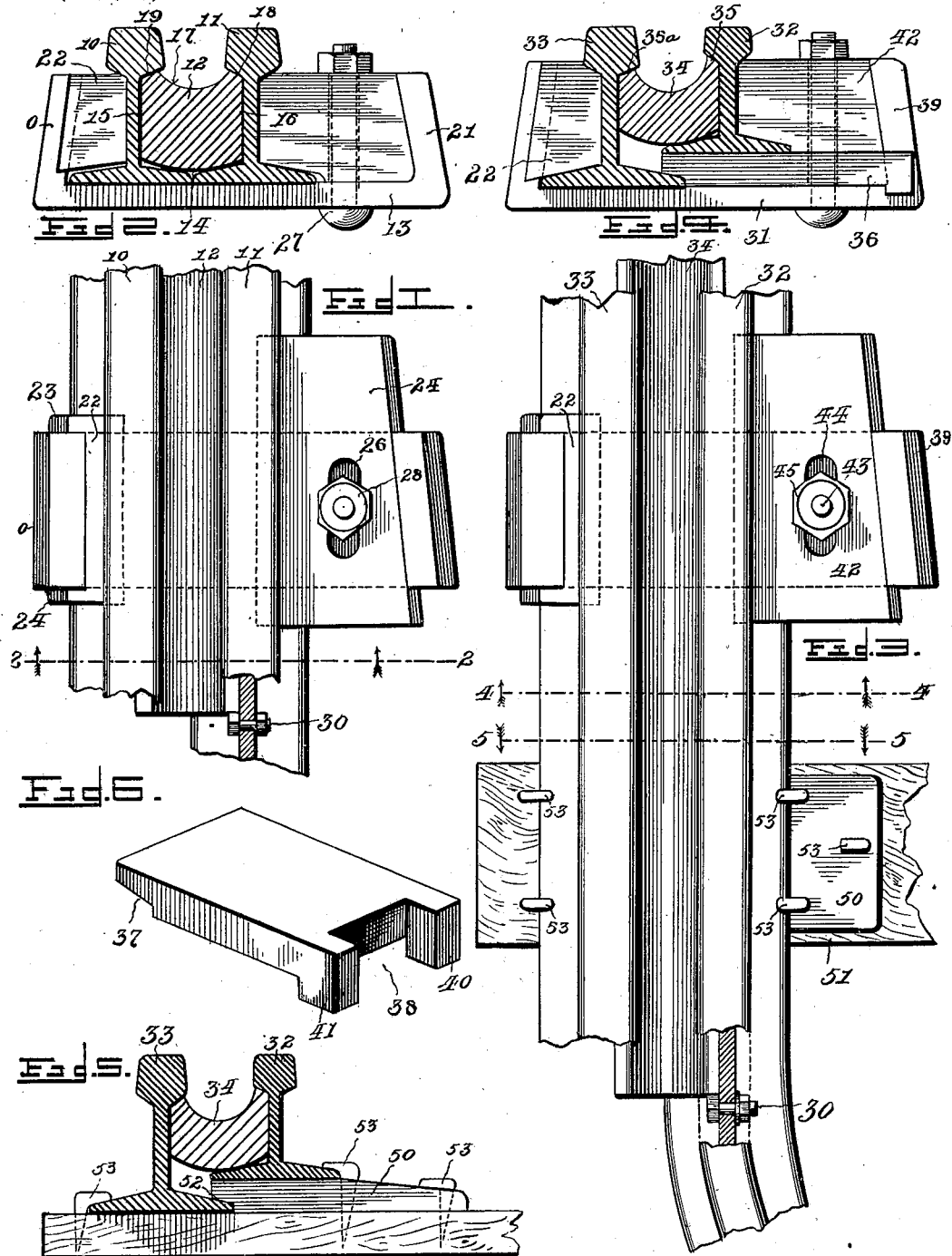
Patented May 8, 1900.

J. MURPHY.  
GUARD RAIL.

(Application filed Nov. 9, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

*Geo. S. Gondero*

*Geo. A. Chandler*

By *his* Attorneys,

*C. A. Snow & Co.*

*John Murphy*, Inventor

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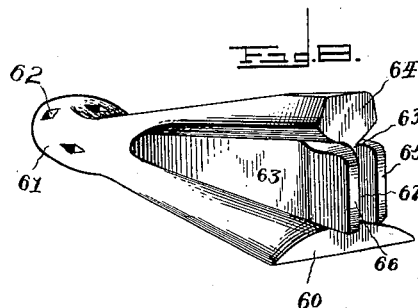
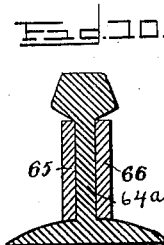
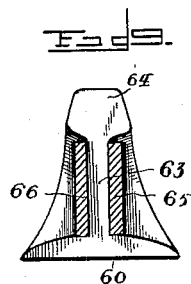
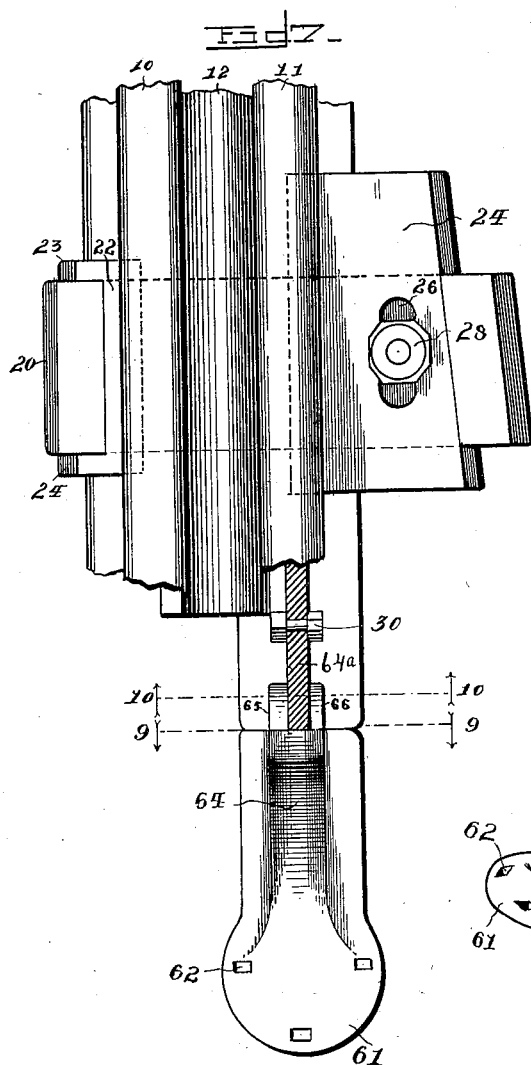
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2 Sheets—Sheet 2.



Witnesses

*Geo. S. Boudero*

*Geo. H. Chanale*

*By* *Trus* Attorneys,

*John Murphy* Inventor

*Chas. Snow*

# UNITED STATES PATENT OFFICE.

JOHN MURPHY, OF SAN ANTONIO, TEXAS.

## GUARD-RAIL.

SPECIFICATION forming part of Letters Patent No. 649,067, dated May 8, 1900.

Application filed November 9, 1899. Serial No. 736,425. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN MURPHY, a citizen of the United States, residing at San Antonio, in the county of Bexar and State of Texas, have  
5 invented a new and useful Guard-Rail, of which the following is a specification.

This invention relates to guard-rails for use in connection with frogs or switches, although it will of course be understood that it may be  
10 employed with equal efficiency upon curves and in other places where guard-rails are commonly used.

One object of the invention is to provide a construction in which the guard-rail will be  
15 firmly held in place, so as not to spread, a further object being to provide a construction in which the loosening of the spikes of the guard-rail, with the dangers incident thereto, will be prevented.

20 An additional object is to provide means for holding the guard-rail against endwise movement and also for providing end pieces therefor which will result in a gradual slope at the ends of the guard-rail to prevent striking of  
25 parts of a moving train thereagainst.

Still another object of the invention is to provide a modification which is particularly adapted for use where the web of the guard-rail is shorter than that of the track-rail and  
30 which construction is employed when the base or flange of the track-rail is so wide as to prevent the guard-rail lying sufficiently close to the tread of the track-rail.

In the drawings forming a portion of this  
35 specification, and in which similar numerals of reference designate like and corresponding parts in the several views, Figure 1 is a plan view showing portions of track and guard rails arranged and connected in accordance  
40 with this invention. Fig. 2 is a section on line 2 2 of Fig. 1. Fig. 3 is a plan view showing a modification of the structure as applied when the guard-rail is of less depth than the track-rail. Fig. 4 is a section on line 4 4 of  
45 Fig. 3. Fig. 5 is a section on line 5 5 of Fig. 3. Fig. 6 is a detail perspective showing the supplemental wedge-block employed in the construction of the modification. Fig. 7 is a  
50 view similar to Fig. 1 and showing the application of the end anchor for the guard-rail. Fig. 8 is a detail perspective view showing the end piece or anchor for the guard-rail.

Fig. 9 is a section on line 9 9 of Fig. 7. Fig. 10 is a transverse section of the guard-rail on  
line 10 10 of Fig. 7 and showing the engage- 55  
ment of the fingers of the end piece or anchor therewith.

Referring now to the drawings, and more particularly to Figs. 1 and 2, 10 represents a  
60 track-rail which is spiked to the ties in the usual manner and adjacent which is arranged a guard-rail 11, the dimensions of which are substantially as those of the rail 10 and which  
guard-rail is likewise spiked in position. In  
65 order to hold the guard-rail 11 against displacement—that is, the lifting of one side of its flange from the tie and permitting the  
working of sand and dirt in under the side of the flange to thus hold the supplemental rail  
70 out of its operative position—these rails 10 and 11 are properly spaced and have a spacing-block 12 disposed between them. This  
spacing-block 12 is adapted to hold the rails  
75 against inward movement under the influence of the clamping action of a clamping-chair 13 and which chair and its connected  
parts hold the rails against separation. The  
spacing-block 12 is so shaped that its lower  
80 convexed face 14 will lie upon the webs of the rails 10 and 11, while its side faces 15 and 16 will lie against the inner faces of the webs  
of the rails. The upper face of the block 12  
is concaved, as shown at 17, the chord of the  
concavity being less than the width of the  
85 block to form shoulders 18 and 19, which rest upon the under faces of the treads of the  
rails. The chair 13 is substantially U-shaped,  
with its upwardly-extending sides 20 and 21  
disposed convergingly. Between the up-  
wardly-extending side 20 and the web of the  
90 rail 10 is disposed a clamping-block 22, which is U-shaped in horizontal section, the projecting ends 23 and 24 of this block lying upon  
the opposite side faces of the portion 20, as  
indicated. By this means the block 22 is  
95 held against longitudinal displacement, and when the chair is operated to draw the block 22 beneath the head of the rail 10 said block  
will be held against upward displacement and  
will be fixed in position. To thus move the  
100 chair laterally, the side 21 thereof is disposed at an angle to the side 20, and consequently to the rail 11, and between the side 21 and the web of the rail 11 is disposed a wedge-

block 24, adapted to fit over the flange of the rail 11 and to conform to the shape of the parts against which it impinges. A longitudinal slot 26 is formed in the block 24 and which slot registers with a perforation in the base of the chair 13. Passed upwardly through the perforation and slot is a bolt 27, having a clamping-nut 28, and thus after the wedge-block 24 has been forced in to draw the parts tightly together, as will be readily understood, the nut 28 may be tightened, and the bolt 27 will thus act to hold the parts in position. With this construction it will be seen that the spacing-block 12 holds the rails against inward movement, while the blocks 22 and 24, in connection with the chair 13, hold the rails against outward displacement, the result being an exceedingly-firm structure.

As shown in Fig. 2 of the drawings, in order to hold the wedge-block 12 against longitudinal displacement a bolt 30 may be passed through the web of either of the rails and at each end of the wedge-block, this bolt at each end thus acting as a stop.

Referring now to Figs. 3, 4, 5, and 6, in this construction the chair 31 is the same in form as the chair 13, in this construction, however, the guard-rail 32 being of lesser depth than the rail 33 to permit the flange of the guard-rail to set inwardly over the flange of the track-rail, and thus to bring the heads or treads of the rail into their proper correlative positions. With this construction the spacing-block 34 has lesser depth, while the shoulder 35, which rests against the under side of the tread of the guard-rail, lies in a plane above the plane of the shoulder 35<sup>a</sup>, which engages with the under side of the tread of the track-rail 33. In this construction also there is employed a supplemental wedge-block or support 36, which is adapted to lie upon the upper face of the chair 31 and the forward end of which is cut away at 37 to fit upon the adjacent edge of the flange of the rail 33. The outer end of this block 36 is recessed, as shown at 38, which receives the side 39 of the chair, the ends of the resultant bifurcations 40 and 41 being continued downwardly to further strengthen the structure. Upon this block or rest 36 the guard-rail 32 is seated, while a wedge-block 42 is engaged with the guard-rail and is disposed between it and the side 39 of the chair. This side 39 converges toward the guard-rail in order that the longitudinal movement of the block 42 will have the desired wedging action, and in order to hold the block 42 in position a bolt 43 is passed upwardly through a perforation in the chair 31 and a slot 44 in the wedge-block and is provided with a clamping-nut 45.

It is of course necessary in the use of the smaller guard-rail to provide means for holding it at the proper elevation, and for this purpose a chair 50 is disposed upon each of the ties 51, and this chair has its inner end cut away, as shown at Fig. 52, to receive the edge of the flange of the track-rail 33. Upon

the chair 50 is disposed the guard-rail, the chair being held upon the tie by means of spikes 53, a portion of which are disposed to engage the flange of the guard-rail.

It will of course be understood that in practice the parts of the structure may be made of any suitable material and that the specific shape thereof may be altered to adapt them to different conditions, and also that various other modifications may be made without departing from the spirit of the invention.

In Figs. 7, 8, 9, and 10 of the drawings there is shown the end piece or anchor employed to prevent longitudinal movement of the guard-rail. This anchor or end piece comprises a flanged base 60, one end of which is enlarged and flattened, as shown at 61, and is provided with spike-receiving openings 62. Upon the base 60 is a web 63, which supports the tread 64, similar to the tread of the guard-rail, and which tread projects rearwardly in the direction of the base and meets the base at the enlarged end 61. Extending from the web 63, longitudinally thereof and mutually parallel, are fingers 65 and 66, which are separated by an interspace 67, equal in width to the web 63, which is equal in width to the web 64<sup>a</sup> of the guard-rail. The height of the end piece or anchor at its highest end, where the fingers are located, is equal to the height of the guard-rail, and in the application of this device it is so disposed that the ends of the tread portion 64 and web 63 and the base 60 will lie closely against the corresponding portions at the end of the guard-rail and with the fingers 65 and 66 lying closely against the web of the guard-rail. In this position the fingers hold the end piece or anchor against lateral displacement at one end, while lateral displacement at the other end and longitudinal displacement of the end piece or anchor is prevented by spikes which are driven through openings 62 and into the tie.

With the above construction it will be seen that while the clamp hereinbefore described holds the guard-rail against spreading with respect to the track-rail the anchor or end piece holds the guard-rail against longitudinal movement, and at the same time its slanting construction presents a gradual incline from the tie-surface of the tread of the guard-rail, so that a brake-beam or other portion of the train in striking this end piece will ride upwardly and onto the guard-rail without injury and without displacing any of the parts.

What is claimed is—

1. The combination with a track-rail and a guard-rail, of a spacing-block disposed between the webs of the rails, a chair comprising a web portion disposed beneath the rails and having upturned converging sides, a block disposed between a side of the chair and the adjacent rail, a slidable wedge-block having a vertical opening and disposed between the opposite side of the chair and the second rail, and a bolt passed through the opening in the slidable block and engaging the base of

the chair, said bolt having a nut for engaging the block to hold it in its wedging position.

2. The combination with a track-rail and a guard-rail, of a spacing-block disposed between the rails, a chair comprising a web passed beneath the rails and having upturned converging sides, a block disposed between one of the sides and the adjacent rail, a tapered block disposed between the opposite side and the second rail and adapted for slidable movement to exert gripping action, a vertical perforation in the tapered block, a bolt passed through the perforation and engaging the base of the chair, and a clamping-nut upon the bolt for clamping the tapered block in position.

3. The combination with a track-rail and a guard-rail, of a chair disposed beneath the rails and having upwardly-extending sides, a block disposed upon the chair and directly receiving the guard-rail, said block having bifurcations inclosing the sides of the chair, a spacing-block between the rails, and means for holding the rails and wedge-block in relation to the chair.

4. The combination with a track-rail and a guard-rail, of a chair disposed beneath the rails and having upwardly-extending sides, a block disposed upon the chair and directly receiving the guard-rail, said block having bifurcations inclosing a side of the chair, a spacing-block between the rails, a block between one of the sides and the adjacent rail, and a tapered wedge-block between the opposite side of the chair and the second rail and adapted to exert a gripping action.

5. The combination with a track-rail and a guard-rail, of a spacing-block disposed between the rails, means for clamping the rails inwardly against the block, and separate stops passed through the web of a rail at the ends of the spacing-block and in the path of longitudinal movement thereof to hold the latter against displacement.

6. An end piece for rails comprising a base, a web upon the base, and a tread upon the web and disposed slantingly to the base.

7. An end piece for rails comprising a base, a web upon the base, and a tread upon the web and disposed slantingly to the base, said end piece being adapted for connection with the end of a rail.

8. The combination with a track-rail and a guard-rail, of means for clamping the guard-rail against outward movement from the track-rail, and end pieces engaging the guard-rail and adapted for attachment to the ties.

9. An end piece for guard-rails, comprising a tapered block having a tread, said block also having fingers adapted to receive the web of the rail.

10. An end piece for rails, comprising a base adapted for attachment to a tie, a tread disposed convergingly with respect to the base, and spaced fingers adapted to receive the web of a rail between them.

11. An end piece for rails, comprising a base, a tread disposed convergingly with respect to the base, a web connecting the tread and base, spaced fingers carried by the web and adapted to receive the web of a rail between them, and means for holding the end piece against displacement.

12. An end piece for rails, comprising a base having an enlarged and perforated portion, a tread disposed convergingly with respect to the base, a web connected with the base, and the tread, and spaced fingers carried by the web and adapted to receive the web of a rail between them.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN MURPHY.

Witnesses:

E. J. LOTHROP,  
B. W. MASTERSON.