

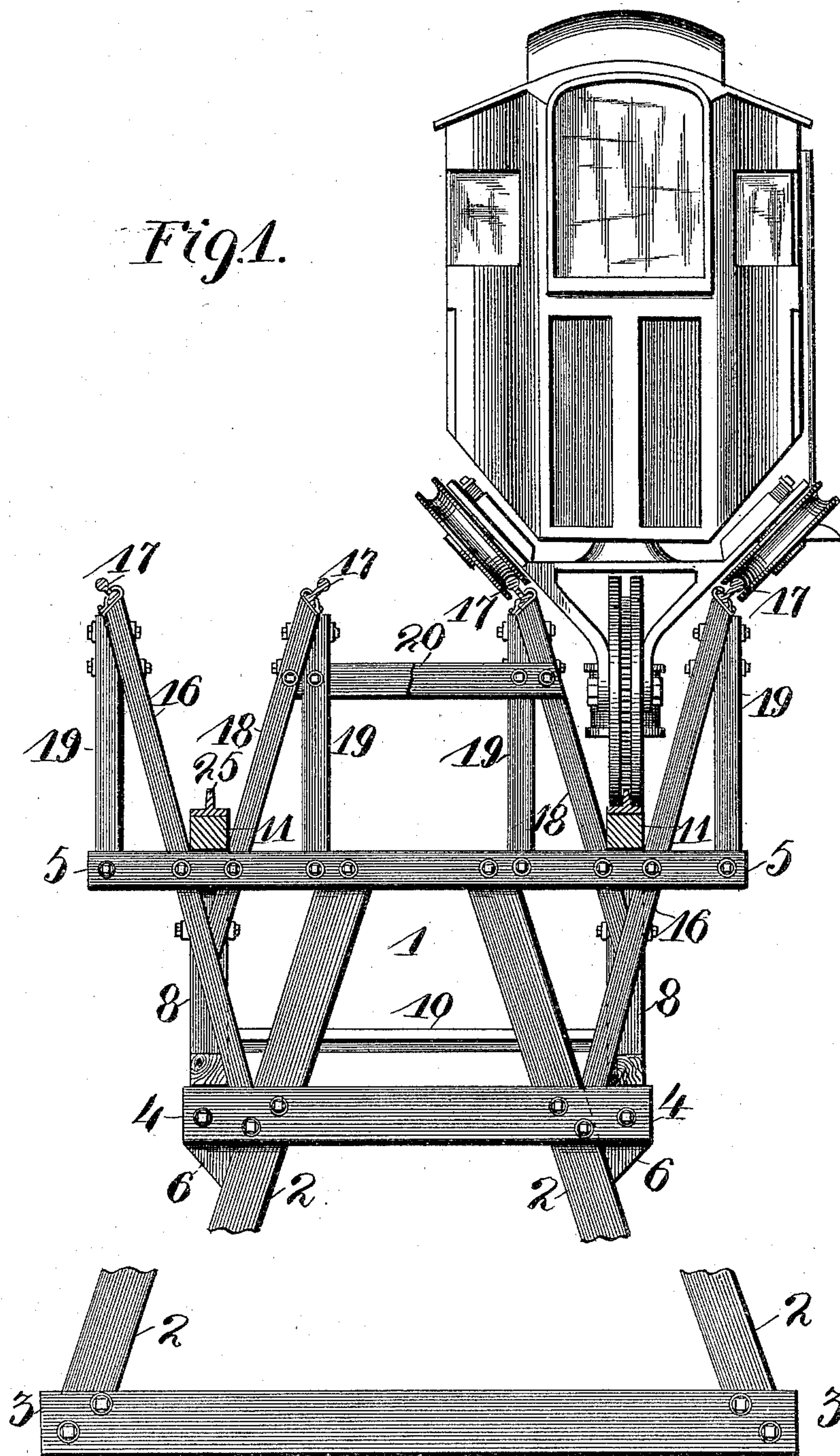
(No Model.)

3 Sheets—Sheet 1.

E. M. TURNER.  
DOUBLE TRACK ELEVATED RAILWAY.

No. 488,157.

Patented Dec. 13, 1892.



Witnesses  
L. J. Steller  
Ed. A. Langan

Inventor  
Ephraim M. Turner  
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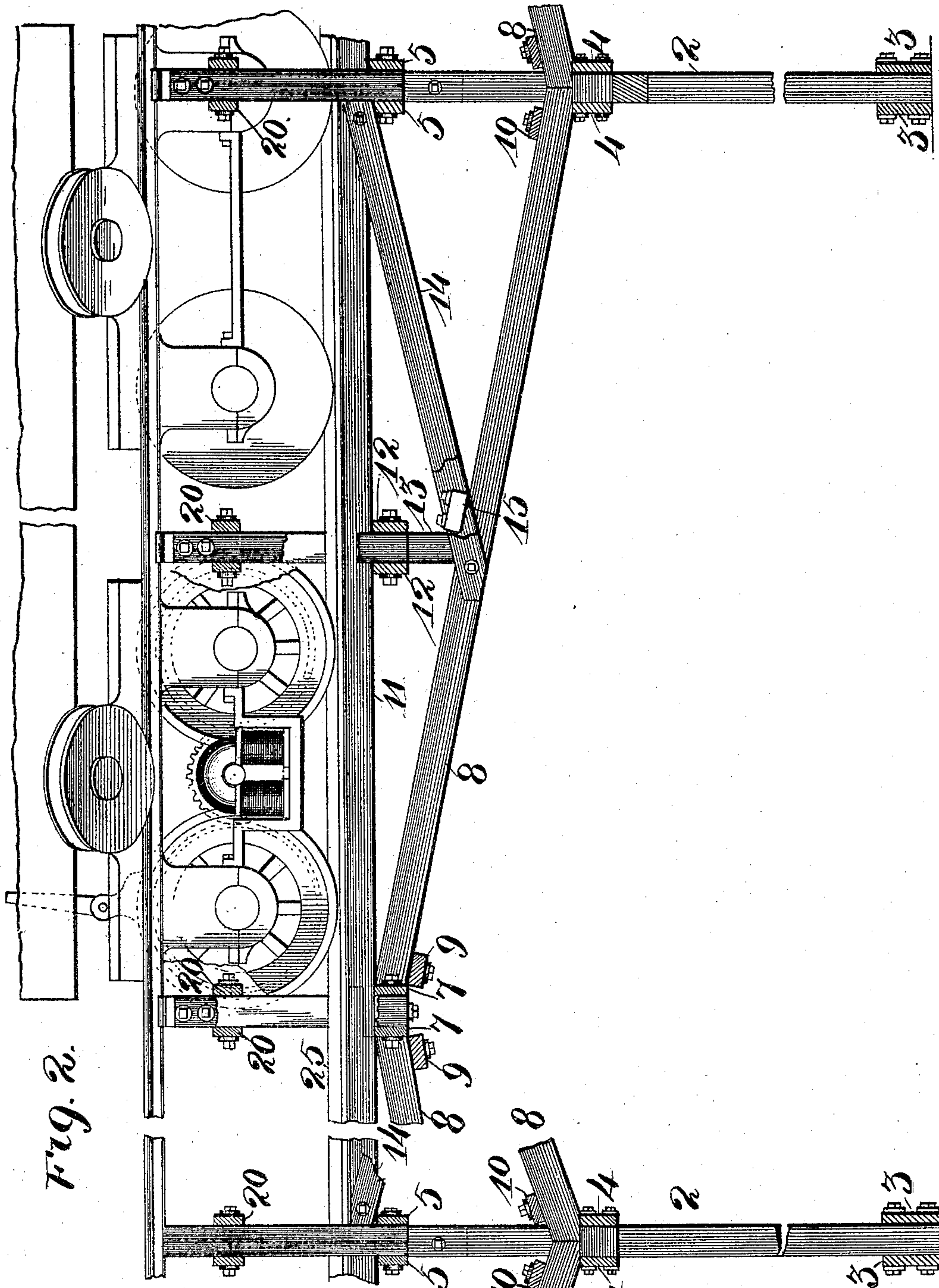


Fig. 2.

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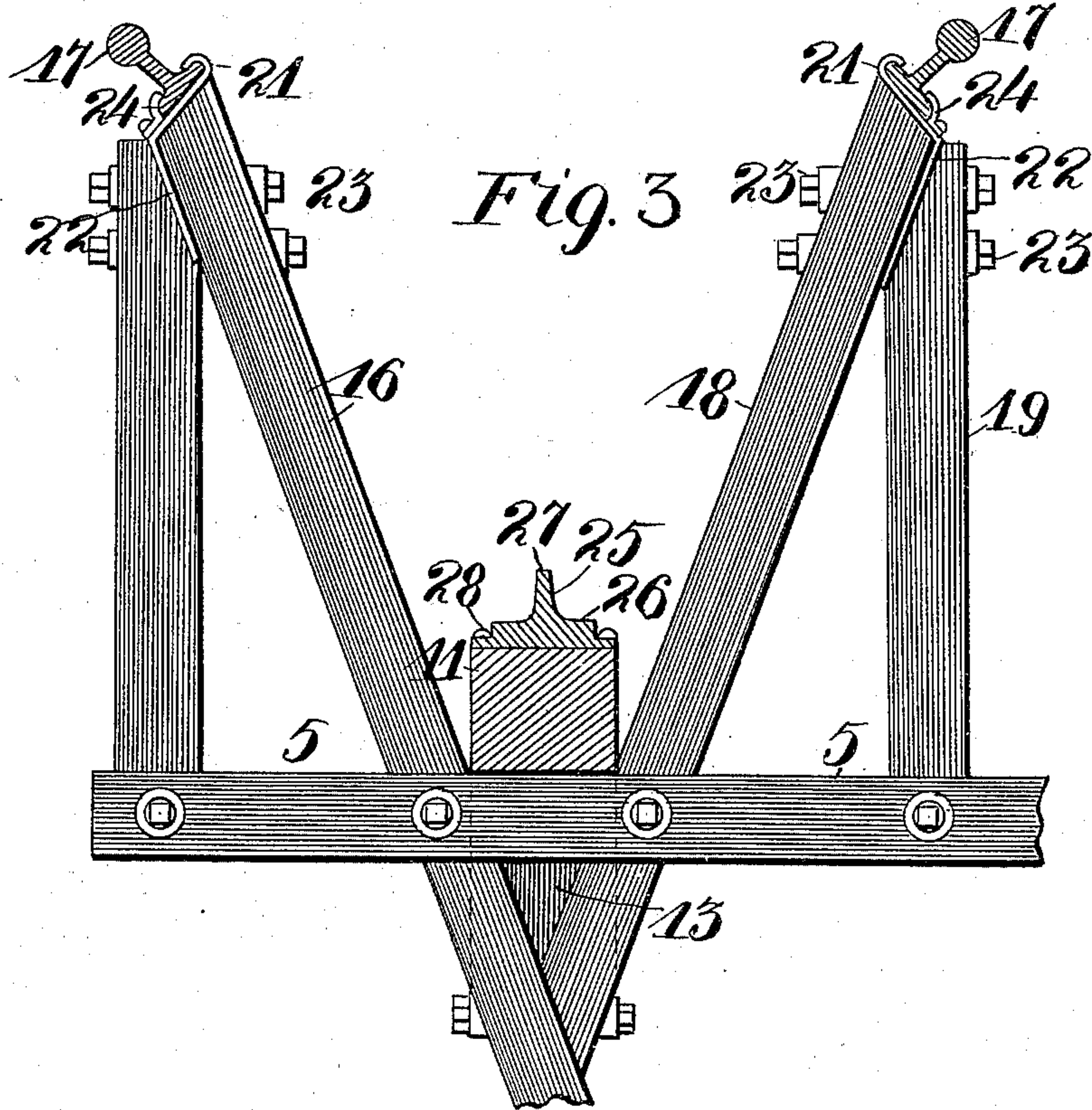
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# UNITED STATES PATENT OFFICE.

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R. E. MADDOX, OF FORT WORTH, TEXAS.

## DOUBLE-TRACK ELEVATED RAILWAY.

SPECIFICATION forming part of Letters Patent No. 488,157, dated December 13, 1892.

Application filed February 15, 1892. Serial No. 421,595. (No model.)

*To all whom it may concern:*

Be it known that I, EPHRAIM M. TURNER, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Double-Track Elevated Railways, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in double-track elevated railways; and it consists in the novel arrangement and combination of parts, as will be more fully hereinafter described, and designated in the claims.

In the drawings, Figure 1 is an end view of the superstructure with a car in position upon the same. Fig. 2 is a side elevation of the superstructure, showing the trucks of the car in position upon the same. Fig. 3 is an end view, somewhat enlarged, showing a portion of the superstructure or one of the tracks of the same.

The object of my present invention is to construct a superstructure that is strong and durable, yet simple in its construction and cheap in its cost as compared with other structures of the same character.

My invention further consists in the employment of a T-rail, which is attached to the stringer of the structure in a manner hereinafter described, whereby the wheels of the vehicle are not only guided in their movement, but more traction-surface obtained for the same, which is very desirable in order to prevent the said wheel from slipping when ascending grades.

Referring to the drawings, 1 represents the superstructure, which is preferably constructed of wood of such a nature as to stand the strain applied to the same.

2 represents the supporting-posts, the lower ends of which rest upon or are buried in the ground, as may be desired, and to said lower ends are secured two transverse pieces 3 on either side of the said supports by suitable bolts, the length of said transverse pieces constituting the width of the lower portion of the superstructure. The supports 2 are located any distance apart, reference being had to the length of the road, and are adapted to receive the entire weight of said road.

Referring to Fig. 1 for illustration, it will be

seen that the upper ends of the supports 2 are nearer together than the lower ends. However, the angle or incline given to said support is a matter to be considered, and I therefore do not wish to limit myself to the construction as shown. At a suitable distance from the upper ends of said supports are secured two transverse pieces 4, the ends of which project a suitable distance from said supports and are attached on either side of the said supports, leaving a space between said projecting ends corresponding to the widths of the supports. Located above said transverse pieces 4 and attached to the extreme upper ends of the supporting-posts 2 are two transverse pieces 5, which are a little longer than said transverse pieces 4 and which form the width of the superstructure, the space between said transverse pieces 5 being adapted to receive the various parts, as hereinafter described. Interposed between the projecting ends of the transverse pieces 4 are blocks 6, and which are secured to the same by means of suitable bolts, the said blocks resting upon the supporting-posts 2, whereby the said projecting ends of the transverse pieces are firmly supported and adapted to receive the weight imparted to the same.

7 represents transverse pieces which are located intermediate of the supporting-posts, as shown in Fig. 2, and are held in relation to the superstructure in a manner as hereinafter described. Located between said transverse pieces 7 and the transverse pieces 4 are trusses 8, the lower ends of which rest upon said transverse pieces 4 and the upper ends in contact with said transverse pieces 7. The lower or abutting ends of the trusses 8 meet at the supporting-posts 2, and the construction is carried out the entire length of the superstructure. To the upper ends of the said trusses 8 and to the lower surfaces of the same are secured transverse pieces 9 for holding the same in their proper position, and secured to the lower end and the upper surfaces of the said trusses adjacent to the supporting-posts 2 are secured similar pieces 10, which have the same function, and adapted to hold said end of the trusses in their proper position in relation to the supporting-posts.

Before proceeding further with the descrip-



tion of the superstructure it would be well to state for the sake of clearness that the same is constructed for a double track, and consequently both sides of the same are built in a similar manner, forming two distinct roadbeds for vehicles running in opposite directions.

11 represents two stringers, which extend the entire length of the road and are adapted to rest upon the transverse pieces 5, 7, and 12, the said transverse pieces 12 being located between the transverse pieces 7 and 5.

All the transverse pieces above referred to are of the same dimensions and are attached to the superstructure or parts of the same in a similar manner, leaving spaces between the projecting ends of the same for the insertion of suitable supports, as hereinafter described.

13 represents short posts, the upper ends of which are interposed between the transverse pieces 12 and said upper ends and adapted to partially receive the weight of the stringers, and the lower ends of said posts being adapted to rest upon the upper edges of the trusses 8, and are secured to the same in any suitable manner.

It will be seen from the foregoing description that the trusses 8 receive the crushing weight imparted to the superstructure.

14 represents tension-timbers, the upper ends of which are attached to the longitudinal stringers 11 and the lower ends secured to one side of the trusses 8 and intermediate of the length of the said trusses. To the upper edges of the said trusses 8 and to one side of the posts 13 are secured transverse pieces 15, the ends of which come in contact with the inner surfaces of the tension-timbers 14, whereby the trusses 8 are greatly strengthened and relieve greatly the tension or strain upon the transverse pieces 7, 9, and 10.

Referring to Fig. 1, 16 represents inclined supports, the lower ends of which come in contact with the supporting-posts 2 and between the transverse pieces 4. The said supports pass between the transverse pieces 5 and are secured to the same at that point and project a suitable distance and the upper ends adapted to support the guide-rails 17 for the vehicle.

18 represents a second support, which is inclined at the same angle as the support 16, the upper end of which is adapted to support one of the guide-rails 17 and the lower end passing through the transverse pieces 5 and secured to the same, and the extreme lower end of the said support 18 attached to the support 16 below the said transverse pieces 5 in any mechanical manner, preferably, however, by bolts.

19 represents additional vertical supports, the lower ends of which are interposed between the transverse pieces 5, and also the transverse pieces 7 and 12, and are secured to the same in any mechanical manner.

The vertical supports 19 at the ends of each span of the superstructure are attached to

the V-shaped support and the intermediate supports 19, or, more properly, the upper ends of the same, are adapted to support the guide-rails in a manner as hereinafter described.

20 represents short transverse pieces, the ends of which are secured to the inner supports 18 and 19 of the two adjacent guard-rails for holding the same in proper alignment with one another. Of course the intermediate transverse pieces 20, or those located between the supports or columns of the superstructure, are attached only to the supports 19, as shown in Fig. 2.

Referring to Fig. 4 for illustration, 17 represents the guide-rails, which are of the ordinary construction and are secured to the upper ends of the supports 18 and 16 in a manner as I shall now proceed to describe.

21 represents flanged plates, the extensions 22 of which are interposed between the supports 18 and 19, and are locked between the said supports by means of bolts 23, passing through the same. (See Fig. 3.) 24 represents plates which are removably secured to the said plates 21, and when the said plates are united, as shown in Fig. 4, the said guide-rails 17 are rigidly locked to the upper ends of the supports 16 and 18. The supporting-rail which I employ is especially constructed for the purpose and is adapted to be secured to the upper surface of the stringer 11 in a manner as I shall now proceed to describe.

25 represents the supporting-rail, which is approximately T-shaped in cross-section, but is attached to the stringer 11 in an inverted position. The parallel flat surfaces 26 receive the weight of the vehicle, and the tapering intermediate extension 27 acts as a guide for the wheels of the vehicle. The said supporting-rail is reduced, as shown at 28, Fig. 3, upon both of its edges, and through said portions nails or spikes are adapted to be passed for attaching the said rail to the stringer 11.

Having fully described my invention, what I claim is—

1. The herein-described superstructure for double-track elevated railways, consisting of supporting-posts and transverse pieces for strengthening the same, V-shaped supports consisting of timbers 16 and 18, united below the rail-bed, and their upper ends adapted to support suitable guide-rails on each side and above the supporting-rail, substantially as described.

2. The herein-described superstructure for double-track elevated railways, consisting of supporting-posts, the lower ends of which are fastened by suitable transverse pieces 3, transverse pieces 4, also secured to the said posts a suitable distance from the ends of the same, transverse pieces 5, secured to said ends of the posts, V-shaped supports comprising supports, such as 16 and 18, the uniting portions of which are below the said transverse pieces 5, and the lower ends of the said supports 16 in contact with the said supporting-posts 2,



stringers adapted to rest upon the said transverse pieces 5 and in the forks of said V-shaped supports, and supports—such as 19—for additionally supporting the said V-shaped supports, substantially as described.

3. A double-track elevated railway comprising a superstructure consisting of supporting-posts 2, the lower ends of which are connected by transverse pieces 3 and the upper ends leaning toward one another at a suitable angle, transverse pieces 4, secured to said posts at a suitable distance from the upper ends of the same, upon which the abutting ends of the trusses 8 are adapted to rest, supports—such as 16 and 18—united below the transverse pieces 5, the lower ends of said support 16 in contact with the said posts 2, stringers 11, located between the said supports and adapted to rest upon the transverse pieces 5, additional supports attached to the said transverse pieces 5, the upper ends of which are united to the said support for strengthening the same, short transverse pieces 20, attached to the adjacent supports, and tension-timbers, such as 14, one end of which is attached to the stringers and the opposite end attached to the said trusses intermediate of their length, substantially as described.

4. A double-track elevated railway consisting of supporting-posts 2, transverse pieces 4, secured to the same, transverse pieces 5, secured to the upper ends of the said posts on either side of the same, V-shaped supports located between said transverse pieces 5, the lower ends of which are adapted to rest against the posts 2, additional supports, such as 19,

the lower ends of which are also interposed between the said transverse pieces 5 and the upper ends of the same adapted to support the said V-shaped support, transverse pieces 7, located under the stringers 11 between the said posts 2, trusses 8, one of the ends of which is adapted to rest against the said transverse pieces 7 and their abutting ends resting upon their transverse pieces 4, short posts—such as 13—for additionally supporting the said stringers, the lower ends of which rest upon the said posts, transverse pieces 12, secured on either side of the said posts 13 for strengthening the same, and tension-timbers—such as 14—attached to the said stringers and also to the said trusses for partially relieving said trusses of the weight imparted by the posts 13, substantially as described.

5. A superstructure for double-track elevated railways having V-shaped supports, additional supports—such as 19—for supporting the upper ends of the said V-shaped supports, plates—such as 22—interposed between the said upper ends of the V-shaped supports and the upper ends of the additional supports 19, and plates—such as 24—adapted to be attached to the said first-named plates for holding the guide-rails firmly in position upon the upper ends of the said V-shaped supports, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EPHRAIM M. TURNER.

Witnesses:

C. F. KELLER,  
E. E. LONGAN.