

Z. DAVIS.
Railroad Crossing.

No. 227,154.

Patented May 4, 1880.

Fig. 1.

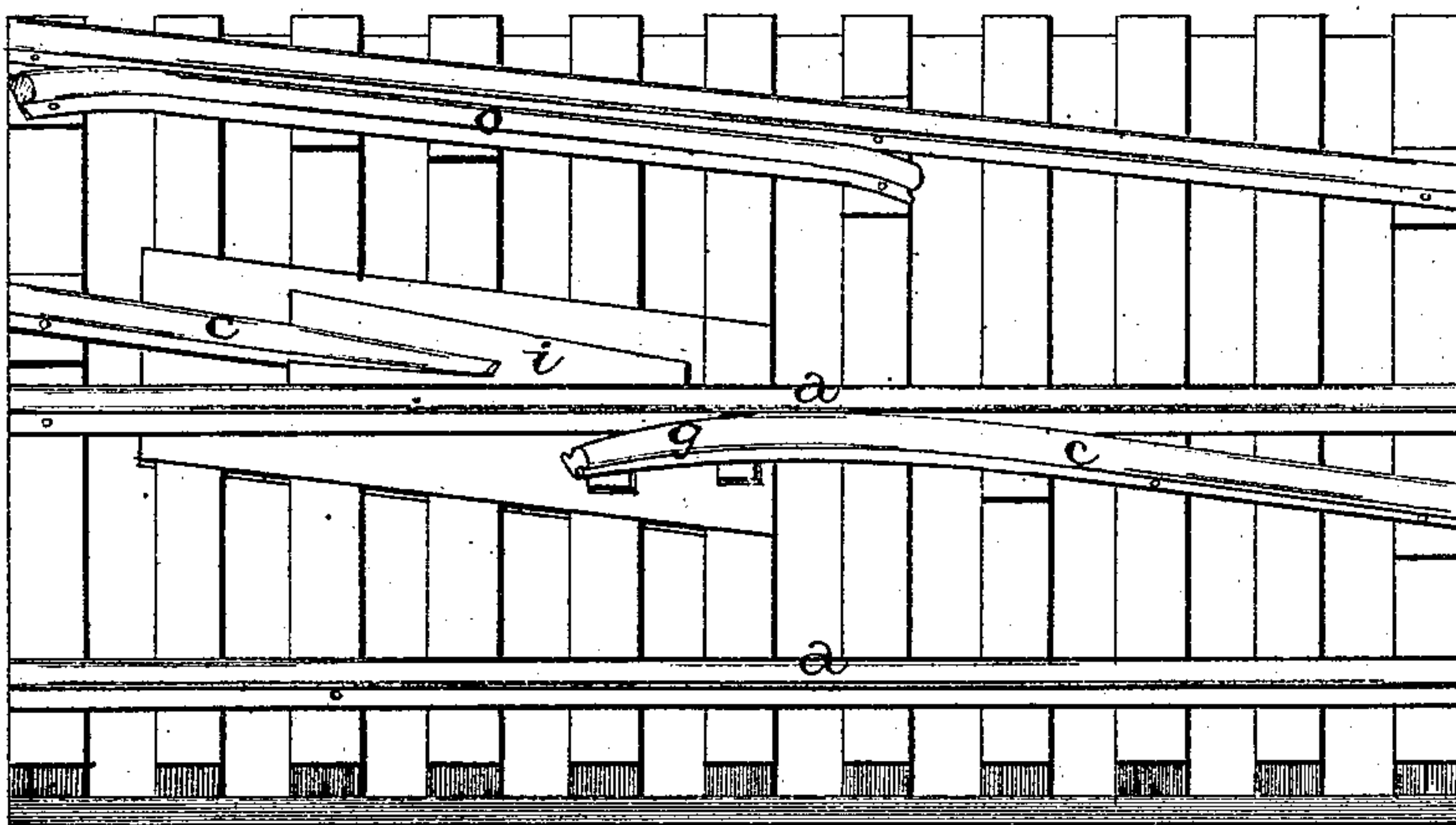
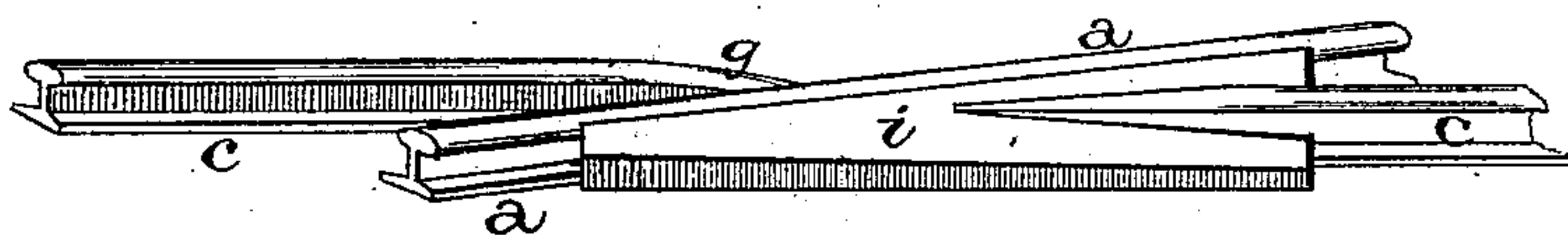


Fig. 2.



Fig. 3.



Witnesses =

W. W. Mortimer.

Chas. H. Isham

Inventor =

J. Davis

per
F. A. Lehmann,
Atty.

UNITED STATES PATENT OFFICE.

ZEBULON DAVIS, OF CANTON, OHIO.

RAILROAD-CROSSING.

SPECIFICATION forming part of Letters Patent No. 227,154, dated May 4, 1880.

Application filed February 9, 1880.

To all whom it may concern:

Be it known that I, ZEBULON DAVIS, of Canton, in the county of Stark and State of Ohio, have invented certain new and useful
5 Improvements in Railroad-Crossings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in railroad crossings or frogs; and it consists in the combination of an unbroken main track, a
15 block that is placed against the outer side of the main track, and siding-rails having inclined ends, whereby the wheels of the cars can pass over the top of the main rail without the necessity of a bridge-rail to carry them
20 over.

It further consists in raising the siding-rails up above the level of the main track, and then either sloping their ends down to the level of the blocks or inclining the outer ends of the
25 blocks down below the tops of the switch-rails, so that the wheels of the cars, in leaving the siding-rails, come so gradually in contact with the tops of the blocks that the cars pass over the tops of the main rails without the slightest
30 jar or vibration, as will be more fully described hereinafter.

The object of my invention is to dispense with the cutting of the rails of the main track, to avoid the use of the usual frogs or switches,
35 and to enable the heaviest trains to pass at full speed over the main track without any strain either upon the rails or rolling-stock.

Figure 1 is a perspective of my invention. Fig. 2 is a vertical cross-section taken through
40 the block. Fig. 3 is a perspective of a modification.

a a represent the rails of an unbroken main track, and *c c* are the siding-rails, which are cut or broken at each point of intersection
45 with the rails of the main track. At each point of intersection with the main track is placed a metallic block, *i*, either of the shape here shown or any other that may be preferred, and which is just thick enough to be flush
50 with the top of the main rail. This block may either be made of steel or of iron, and have a

hardened surface, so that the flanges of the wheels will not cut into it. One end of one of the siding-rails is secured to or embedded in this block in any suitable manner, the rail
55 being raised up on blocks or other suitable supports, so as to have its top surface enough higher than the block and the top surface of the main rail to prevent the flanges of the wheels from touching the block as they ap-
60 proach the block from its outer end.

The end of the rail *c* that is secured to the block is beveled away, so as to gradually run down to the level of the block, so that wheels moving toward the main track from the outer end of
65 the block will have their flanges so gradually brought down upon the block that when their treads no longer bear upon the top of the rail their flanges alone support the wheels upon the top of the block, and this change of bearing
70 from the tread to the flange is so gradually effected that no jolt or jar is felt in the car. Instead of having this end of the rail embedded in the block, and having its end run down to a level with the top of the block, the block
75 may be beveled toward its outer end, as shown in Fig. 3, so that as the flanges of the wheels run down this inclined end of the block they will be gradually lowered down upon the top
80 of the rail.

Whether the rail or the block is inclined at one end, the change of bearing from tread to flange or flange to tread is gradually effected, so as not to cause any jolt or jar in the cars. Either one of these methods may be used; but
85 the inclined end of the rail is preferred for several reasons, one of which is, that where the block is beveled the flanges in traveling it, either up or down, according to the direction in which they may be moving, raise or
90 lower the side of the car they support, and thus, throwing it from a level, bring a considerable twisting strain to bear upon its frame and connecting parts, whereas with the two inclined or beveled rails only the comparatively few flangeless wheels of locomotives
95 (which having no flange to gradually change the bearing from the tread to the flange, and vice versa) depart much from a plane parallel with the face of the unbroken siding-rails. These wheels, in traveling the inclines of the
100 elevated rails, are so gradually lowered to and

lifted or raised from the top of the block as to prevent any jar or concussion, although whenever, as is sometimes the case, flangeless wheels are not used the ends of the elevated rails need not be thus beveled to a level with the main rail and block; but, if preferred, these ends may be left standing above the main rail and block, as it is obvious that after the flanges are lowered to and bear upon the block from either direction the tread of the wheel quits the incline, the rest of which, if descending to the level of main rail and block, would not be traversed, and therefore of no service in preventing any jar or shock which might result from abruptness of contact.

The end *g* of the adjoining siding-rail on the other side of the main rail from the block is also beveled away, so as to also be level with or slightly below the level of the main-track rail. The end of this rail is so placed in relation to the block and main rail that as the wheels of the cars move across the block toward it, or along this rail toward the block, the flanges of the wheels do not run upon the top of the main rail, but touch it at one edge only. If the wheels are moving across the block toward the end *g*, their treads run upon the rail *g* and begin to lift the flanges upward just as the flanges run upon the top of the main rail, and when the wheels are approaching the block from the end *g* the treads of the wheels remain upon the end of rail *g* long enough to carry the flanges across the main track before the flanges come in contact with the block. In this manner the flanges are lifted across the top of the main rail, so that it is never touched by them, or only at one edge.

By thus having the ends of the siding-rails inclined downward to a level with or below the top of the main rail, and having the rails *c* raised above the main rails and the block a distance somewhat greater than the depth of the flanges of the wheels, the largest and

heaviest cars can run at full speed across the main track without experiencing the shocks or jars, and without the great strains upon the cars and rails, that are felt where cut rails are used.

Opposite the block, and placed inside of the outer siding-rail, is the guard-rail *o*, which keeps the wheels on that side of the cars safely on the track, while the wheels on the other side of the cars are crossing the main rail and have nothing to guide them.

All spring or latch railroad-frogs, however near they may close the large gap or opening of the older styles, invariably necessitate one or more joints, breaks, or moving parts in or of the main rail at the point of crossing, causing a jump or surge of the cars as their wheels pass over the insecure parts, whereby the wheels are in danger of being broken, and a great strain brought to bear on all of the machinery. All of these defects are overcome by my stationary block and elevated side rails having beveled ends.

Having thus described my invention, I claim—

1. The combination of a main or unbroken rail, a block or bed-plate, and the raised siding-rails having inclined ends, substantially as described, and for the purpose set forth.

2. The elevated side-track rails having inclined ends and arranged on each side of a main-track rail, substantially as set forth.

3. The combination of the guard-rail, elevated siding-rails having inclined ends, bed-plate or block, and main rail, substantially as specified.

In testimony that I claim the foregoing I have hereunto set my hand.

ZEBULON DAVIS.

Witnesses:

W. L. ALEXANDER,
HENRY A. WISE.