No. 619,751. Patented Feb. 21, 1899.

L. HOWARD.

LEVELING APPARATUS FOR RAILROADS.

(Application filed Apr. 20, 1897.)

(No Model.)

Fig. 1.

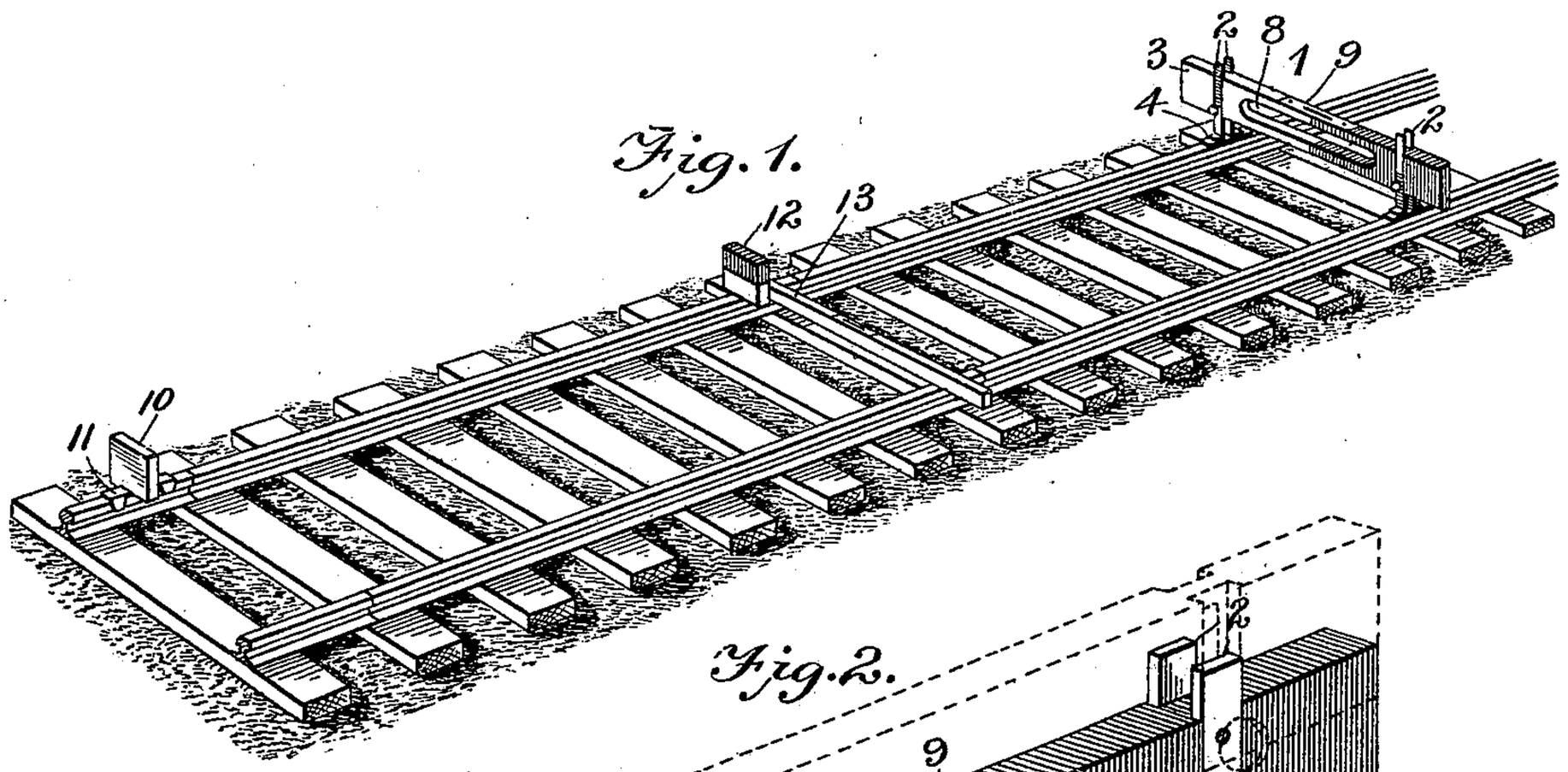


Fig. 2.

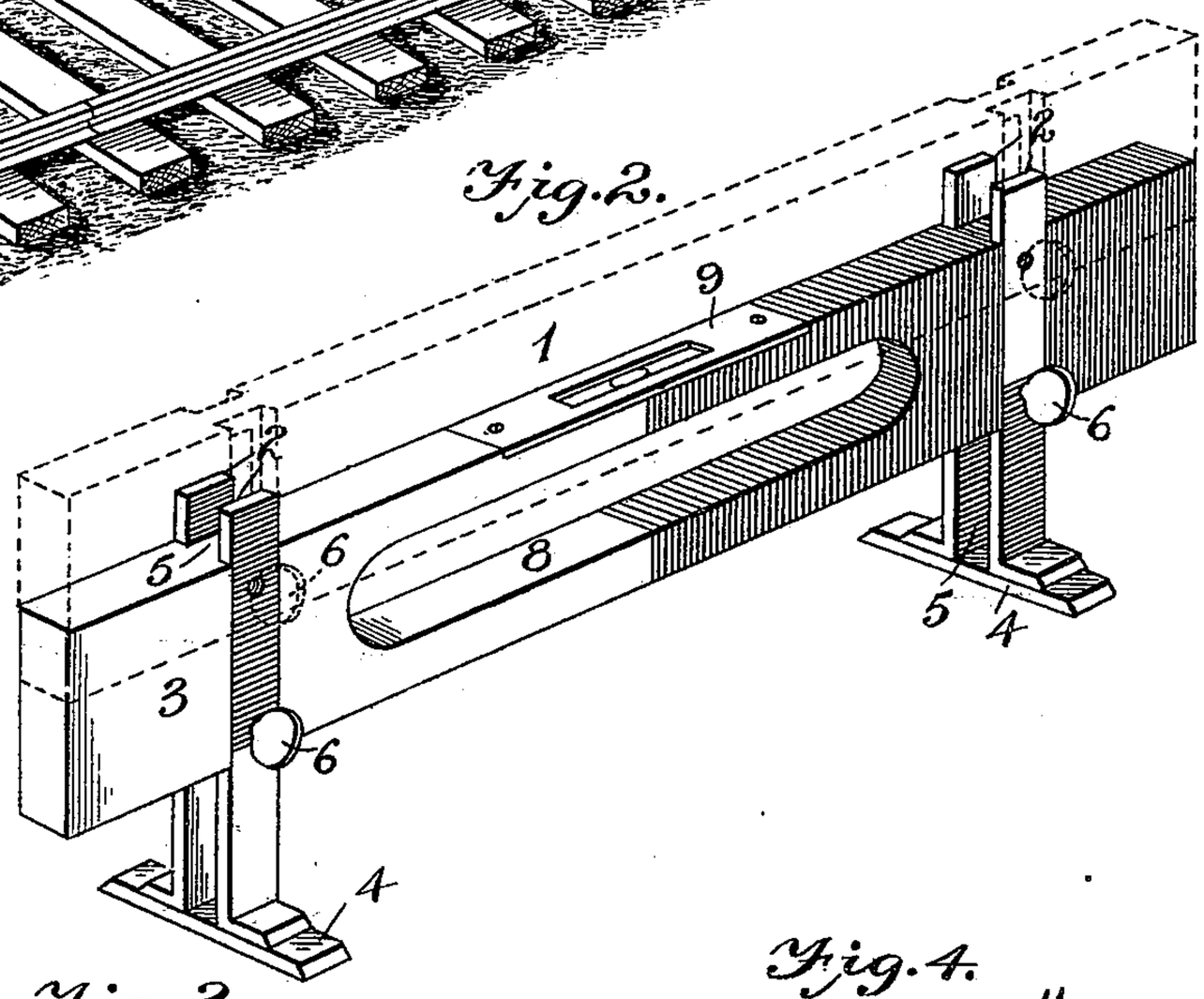


Fig. 3.

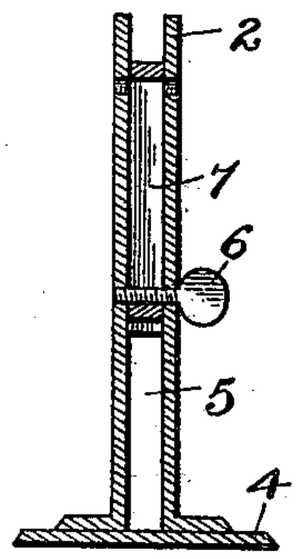
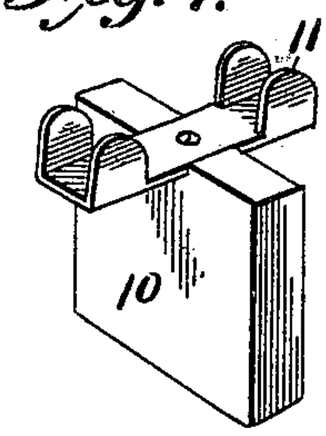


Fig. 4.



Witnesses
Edwin G. McKee

Inventor
Lewis Howard

By his Attorneys,

Howson & Howson.

UNITED STATES PATENT OFFICE.

LEWIS HOWARD, OF MARSHALL, MINNESOTA, ASSIGNOR OF ONE-THIRD TO JAMES C. LAWRENCE, OF SAME PLACE.

LEVELING APPARATUS FOR RAILROADS.

SPECIFICATION forming part of Letters Patent No. 619,751, dated February 21, 1899.

Application filed April 20, 1897. Serial No. 633,002. (No model.)

To all whom it may concern:

Be it known that I, LEWIS HOWARD, a citizen of the United States, residing at Marshall, in the county of Lyon and State of Minnesota, have invented a new and useful Leveling Apparatus for Railroads, of which the following is a specification.

My invention relates to a leveling or surfacing apparatus particularly adapted for use in connection with railway-tracks, and has for its object to provide a simple and efficient construction and arrangement of parts for facilitating the raising of the grade of a track without the necessity of depending upon sighting along the rails, such apparatus being specially designed for use by all track foremen.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of an apparatus constructed in accordance with my invention applied in the operative position to a railway-track. Fig. 2 is a detail view in perspective of the target. Fig. 3 is a vertical sectional view of the same, taken in the plane of one of the uprights. Fig. 4 is a detail view in perspective of the sighting-block inverted.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the target, which comprises uprights 2, connected by a target-board 3, the interval between the uprights being equal to that between the rails of the track, whereby the feet 4 are adapted to rest upon the rail-treads, as illustrated in Fig. 1. The uprights are preferably bifurcated or vertically slotted, as shown at 5, to receive the reduced portions of the target-board, the reduction of the target-board being formed by vertical grooves in opposite sides thereof to receive the sides or cheeks of the guides forming the body portions of the uprights, whereby lateral displacement of the uprights is prevented, while permitting the vertical adjustment of the board with relation to the uprights, and hence with relation to the plane of the track. The space between the sides or cheeks of each guide is open at its upper end to allow the target-board to be adjusted upwardly to such a point as to cause its upper edge to occupy a position above the upper ends of the uprights, as indicated in dotted lines in Fig. 2, and, furthermore, by reason of the upper ends of the sides or cheeks of the guides being unconnected said sides or cheeks are adapted to yield toward and from each other to provide for clamping the target-board at the desired vertical adjustment. The means which I have illustrated in the drawings for thus adjusting the sides or cheeks of the guides to clamp the target-board consist of thumb-screws 6, each of which extends loosely through an opening in one side or cheek of a guide and is threaded into a registering opening in the opposite side of said guide, and I preferably employ a plurality of these registering openings for engagement by the thumb-screws, whereby when an upward adjustment of the target-board in excess of the length of the slot 7, which is formed in the target-board to receive the thumb-screw, is required the thumb-screw may be engaged with the upper registering openings. It will be understood that the slots 7 provide for a vertical adjustment of the target-board equal in extent to the length of said slots without disengaging the thumb-screws from the guides; but when further adjustment than that allowed by the length of said slots is necessary the thumb-screw may be withdrawn and engaged with the upper openings of the guides, still, however, passing through the slots in the target-board. (See Fig. 3.)

The target-board is preferably cut away, as shown at 8, between the uprights to provide a suitable handhold to reduce the weight thereof and also to provide less surface to be affected by wind-pressure, and thereby reduce the risk of the target being displaced when in use. Also in the upper edge of the target-board I preferably arrange a spirit-level 9 of the ordinary or any suitable construction to provide for leveling the target-board upon the rails or "grade-stakes."

In connection with the above-described tar-

get I employ a sighting-block 10, which is provided with a spring-clamp 11 to engage the tread of a track-rail at the starting-point, from which the operation of leveling is commenced, said block being disposed transversely with relation to the rail and serving as a means over which the operator may sight the upper edge of the target-board. Also as another member of the sighting devices for coöperation with the target I use a gage-block 12, adapted to be arranged upon the tread of a rail contiguous to that end which is to be elevated by a jack or suitable tool, said gage-block being held in an upright position by resting against an ordinary form of track-level 13, which, however, is not shown in detail in the drawings, as it forms no part of my present invention, the function of said level being merely to maintain the opposite rails in their proper relative positions.

In operation the target is placed transversely of the track, with the feet of the standards resting upon the treads of the rails at a considerable distance in advance of the point at which the elevation of the rails is to commence, while the sight-block is arranged at the starting-point. The target-board is adjusted in the guides to a height corresponding with the desired rise to be given to the grade, the range of adjustment of said board being from one to fourteen inches or more, according to the relative lengths of the slots in the target-board and the intervals between the openings which are engaged by the thumb-screws. The gage-block is then disposed upon a rail contiguous to a track-joint at the distance of approximately one length of rail from the sight-block, and with an operator sighting along the upper edge of the sight-block toward the upper edge of the target-board the end of the rail upon which the gage-block is resting should be elevated by means of a jack or equivalent appliances until the upper edge of said gage-block is in the line of sight of said operator. The gage-block is then moved forward, with the track-level, to the next joint, and the above operation repeated until the target is reached, when a repetition of the above-described arrangement of the parts, including the target, sight-block, and gage-block, will enable the operator to continue the leveling of the track for the desired distance.

The target-board is painted different colors at different points, as indicated by the shading, to enable the operator to distinguish the same against backgrounds of different colors, and in the same way the gage-block is differently colored at opposite edges for a similar purpose.

The advantage derived from the use of a target provided with a leveling device and so constructed as to be adjustable at both ends with relation to the standards resides in the fact that in case the track-rails should be out of level at the point selected for arranging the target the upper or sighting edge of the target may be leveled independently of the standards to secure the desired position without "blocking up" either the depressed rail or the standard which is arranged thereon.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. In an apparatus of the class described, a target having supporting devices including clamps having yielding sides or cheeks, a target-board fitted for vertical adjustment between the sides or cheeks of the clamps and having slots parallel with said sides or cheeks, the sides or cheeks being provided with a plurality of registering openings, and thumb-screws adapted to engage registering openings in the sides or cheeks and extending through the slots in the target-board, whereby the board is capable of a limited adjustment without removing the thumb-screws, substantially as specified.

2. In an apparatus of the class described, a target having spaced uprights including guides having parallel sides or cheeks separated at their upper ends and provided with a plurality of registering openings, a target-board fitted for adjustment between and grooved to receive the sides or cheeks of the clamps and adapted to be adjusted at its upper edge above the plane of the upper ends of said clamps, and thumb-screws adapted to engage registering openings in the sides or cheeks and extending through the slots in the target-board, substantially as specified.

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

LEWIS HOWARD.

Witnesses:
J. W. HUMPHREY,
R. R. BUMFORD.