(No Model.)

C. C. CHANDLER & C. E. BRIGGS.

TRACK GAGE.

No. 371,303. Patented Oct. 11, 1887.

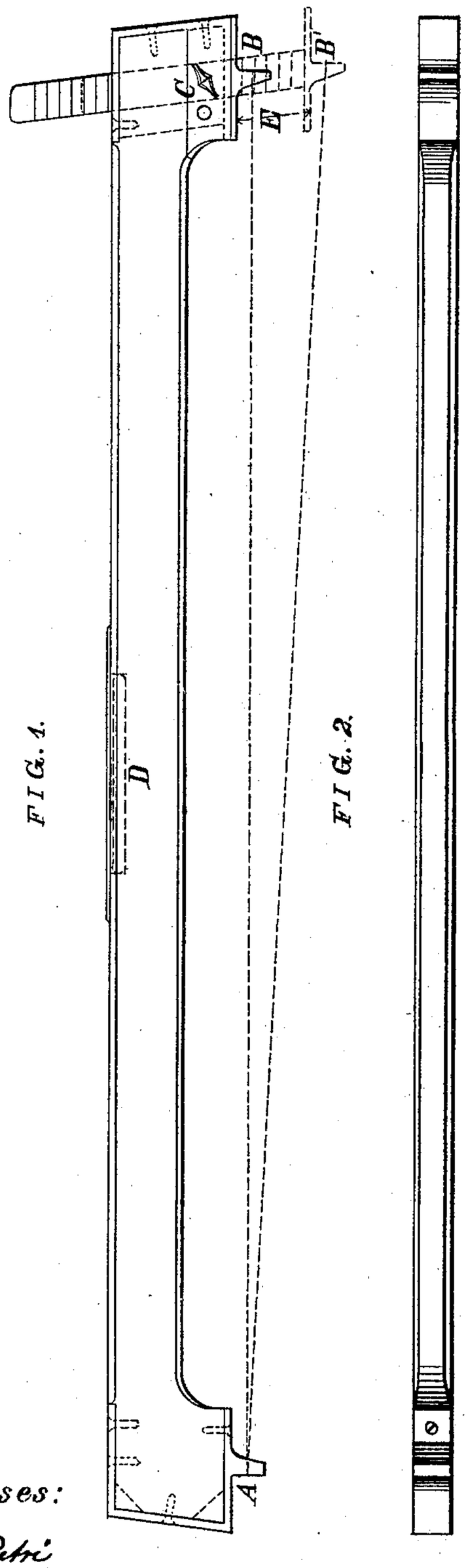

FIG. 1.

FIG. 2.

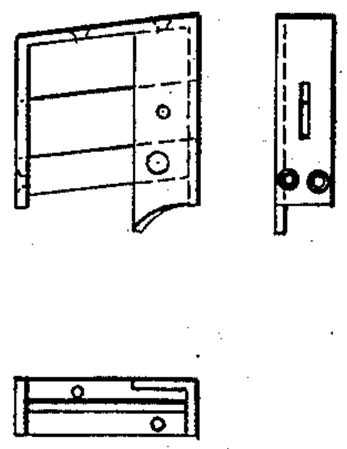

FIG. 4.

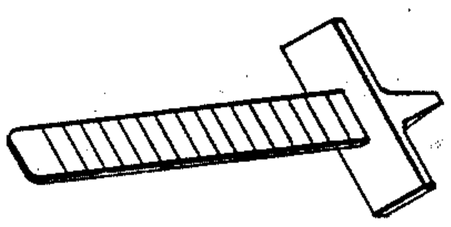

FIG. 5.

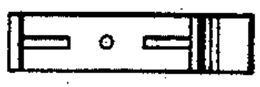

FIG. 3.

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UNITED STATES PATENT OFFICE.

CHARLES C. CHANDLER AND CHARLES E. BRIGGS, OF ST. JOSEPH, MISSOURI.

TRACK-GAGE.

SPECIFICATION forming part of Letters Patent No. 371,303, dated October 11, 1887.

Application filed July 14, 1886. Serial No. 208,040. (No model.)

To all whom it may concern:

Be it known that we, CHARLES C. CHANDLER and CHARLES E. BRIGGS, citizens of the United States, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented a new and useful Tool for Adjusting the Gage and Level of Railroad-Tracks, of which the following is a specification.

It is the usual practice among railroad track-men, in adjusting the gage and surface of track, to make the gage somewhat wider on curved track than on straight track, and to give to the outer rail of the curve a superior elevation to that of the inner rail by amounts which bear a certain relation to the radius of the curve.

The object of our invention is to provide a tool that may be used on either straight or curved track to adjust the rails to the same elevation or to different elevations, and to such gage as may be required by the circumstances of the alignment, and of such design that the mechanical device by which the level is adjusted to indicate the relative elevation of the rails of any curved or straight track shall indicate, also, the width between the rails which should accompany such adjustment of elevation, and that by means of such mechanical contrivance the tool may be adapted for use as a measure of the proper gage and elevation required in the adjustment of any track, and that, in virtue of such mechanical contrivance, the tool shall, as a gage, necessarily and at all times, under any adjustment for use as a level, be a true measure of the proper width of track which should accompany such adjustment of elevation of rails, the measure of the super-elevation and the measure of the width of track varying simultaneously, so as to preserve at all times the proper relation to each other. This object we attain by the mechanism clearly illustrated in the accompanying drawings, of which the following is a full and exact description.

Figure 1 is a vertical projection of the tool in its natural position when in use. Fig. 2 is a horizontal projection of the tool in the same position. Fig. 3 is the casting at the fixed end of the bar. Fig. 4 is the casting at the other end, through which the graduated arm slides. Fig. 5 is the graduated arm.

When used as an ordinary gage or level on straight track, the sliding arm is maintained in the closed position. (Shown by full lines in Fig. 1.) When used on curved track, where it is desired to give a superior elevation to the outer rail of the curve, the sliding arm is dropped to any position, (shown by dotted lines in Fig. 1,) until the vertical distance E is equal to the super-elevation required. The arm is then securely clamped in that position by means of the thumb-screw C. The shoulder B′ is placed against the inner side of the inner rail. The bar is brought to a horizontal position by means of the level tube at D, and the outer rail of the curve is raised to the shoulder at A. It will be seen, by reference to the different positions of the sliding arm in Fig. 1, that as the position of the arm changes to conform to the required elevation the distance A B between the shoulders also changes, and the level becomes at the same time a gage of varying width. We obtain this result by so adjusting the several parts that the axis of the arm shall be set at the proper angle with the axis of the bar. Having thus introduced the principle referred to above, we secure the proper relation between the super-elevation of the outer curved rail and the gage of the track by graduating the sliding arm, as shown in Fig. 5, to conform to the different amounts of elevation required by curves of different radii, and by setting the arm at such an angle with the bar that when the sliding arm is set to measure the elevation of any curve the distance between the shoulders A B shall be the exact width of gage which the curve requires. This relation between elevation and gage exists, therefore, in whatever position the arm may be placed.

A minor feature of this invention is the method of securing a firm and rigid connection between the bar and the shoulders A B of the gage. This we accomplish by means of the castings shown in Figs. 3 and 4.

The shoulder A for the fixed end of the bar forms a part of the casting, Fig. 3. This casting is made to fit the end of the bar, as shown in Fig. 1, and is provided with two web-pieces that fit into slots in the end of the bar, thus preventing lateral motion of the casting, while motion in the vertical plane of the bar is pre-

vented by wood-screws through the flanges of the casting. The shoulder B forms a part of the sliding arm, Fig. 5. Its position is determined by the amount of elevation required, and is adjusted with unvarying accuracy by means of the casting, Fig. 4. This casting has a web and a side flange. The web being fitted to a slot in the end of the bar, prevents lateral motion of the casting. Motion of the casting in the vertical plane of the bar is prevented by means of rivets through the web re-enforced by wood-screws through the flanges. The graduated arm carrying the shoulder B slides in a slot in the web and in the upper and lower flanges of the casting. This slot is so adjusted in relation to the axis of the bar that the shoulder of the arm as it moves to different positions changes the gage and elevation, which it measures by the relative amounts required, all as shown in the accompanying drawings.

We are aware that there are now in use patented combination track-levels and track-gages to which ours bears a certain resemblance. We make no claim for the combination in a single tool of a track-level and a track-gage of which the body is a straight wooden bar shaped to form a shoulder at each end, with a spirit-level sunk in the upper surface of the bar, and with bearing-plates for gaging a specific and unvarying distance between the rails, affixed or adjusted to the shoulders of the bar. Nor do we claim as our invention any tool, substantially as above described, in which one of the two bearing-plates that engage the rails forms a part of the movable graduated arm running through a slot in the end of the bar, when the said graduated arm, whether curved or straight, is so set with reference to the axis of the bar that in its movement through the slot of the bar substantially no change is made in the distance between the bearing-plates of the gage, any change in this distance being made by a horizontal movement of one of the bearing-plates that sustains no relation to and is unaffected by the vertical movement of the bearing-plate with the graduated arm.

Having thus described and limited our invention, we claim and desire to secure by Letters Patent of the United States—

A wooden bar with a spirit-level in its upper surface, having at one end a metallic attachment constructed in one solid piece, substantially as set forth, and having at the other end a metallic attachment consisting of two separate pieces, one piece being a straight graduated arm with a plate at its lower end set obliquely in one direction with the axis of the arm, and carrying a shoulder or bearing-surface on its under side, the other piece being a frame fitted into and around the edges of the end of the bar, with a slot to receive the graduated arm cut through the web and the flanges of the frame at an oblique angle with the upper and lower flanges of the frame and with the axis of the bar, substantially as specified, for the purpose set forth.

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