

(No Model.)

D. H. RHODES.
RAILWAY TRACK GAGE.

No. 569,587.

Patented Oct. 13, 1896.

Fig. 1.

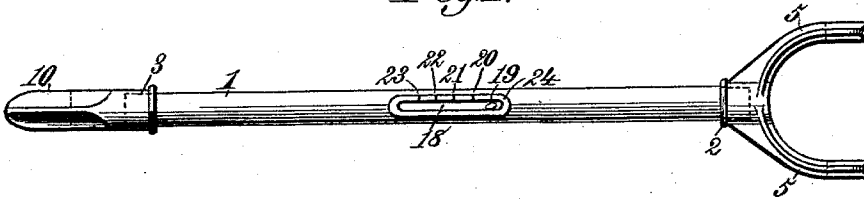


Fig. 2.

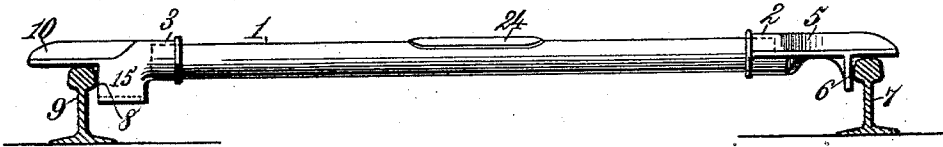


Fig. 3.

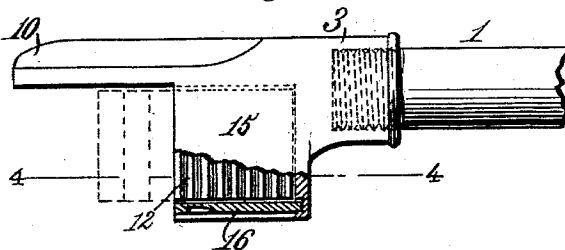


Fig. 4.

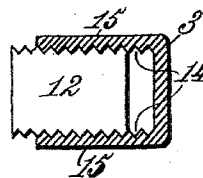
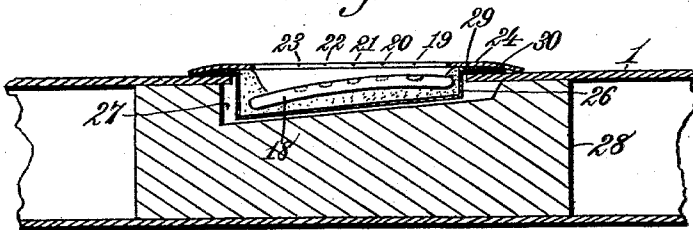


Fig. 5.

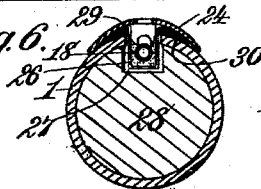


Witnesses.

Robert G. Smith,

Thos. A. Green

Fig. 6.



Inventor.

Daniel H. Rhodes.

By Janus L. Norris
Atty.

UNITED STATES PATENT OFFICE.

DANIEL H. RHODES, OF WELLINGTON, KANSAS.

RAILWAY-TRACK GAGE.

SPECIFICATION forming part of Letters Patent No. 569,587, dated October 13, 1896.

Application filed March 14, 1895. Renewed May 15, 1896. Serial No. 591,716. (No model.)

To all whom it may concern:

Be it known that I, DANIEL H. RHODES, a citizen of the United States, residing at Wellington, in the county of Sumner and State of Kansas, have invented new and useful Improvements in Railway-Track Gages, of which the following is a specification.

It is the practice to widen the gage of railway-tracks on curves relatively to the width of the gage on tangents or straight portions of the track, and also to raise the outer rails on a curved track to give them an elevation in excess of the inner rails of the same curved track.

The instruments for verifying the distances between and the level of the straight portions of the rails of a railway-track and the excess in elevation of the outer rails on a curved track have not been satisfactory, and in their practicable use require much skill and the exercise of great care.

In the ordinary track-gage the lug or similar device can be adjusted to the required position and held by a set-screw, and consequently will serve to verify the gage of straight or curved tracks, but if the lug is set to verify the gage of the straight track it must be readjusted to verify the gage of the curved track. Further, the employment of a set-screw for holding the lug in its adjusted position is objectionable in a measure, in that the screw must be rotated by hand, and unless powerfully tightened the lug will accidentally move or slip from its correct position of adjustment.

The object of my invention is to provide a new and improved railway-track gage which is simple and economical in construction and can be used by unskilled persons for gaging the distance between and the level of the straight portions of the rails of a railway-track and for verifying the necessary super-elevation of the outer rails of a curved track and the varying distance between the rails.

The invention also has for its object to improve that type of railway-track gages wherein a rod is provided at one end with a fork to engage the head of a rail at one side of the track and at the opposite side with an adjustable lug or similar device for engaging the head of a rail at the other other side of the track.

The invention also has for its object to avoid the use of a set-screw for adjusting purposes and to provide a track-gage wherein a supplemental gage-block is adjustably mounted on one of the heads which bear against the inner sides of the heads or treads of the rails, so that such heads do not necessarily require to be adjusted whenever the gage of the track widens, as on curves.

The invention consists, essentially, in a track-gage composed of a rod having heads to bear against the inner sides of the opposite rails of a railway-track, and one of which heads is provided with an adjustable gage-block adapted to be more or less extended to increase or diminish the length of the head on which it is mounted.

The invention also consists in a railway-track gage composed of a rod having at one end a forked shouldered head and at the opposite end a stationary shouldered head, provided with an adjustable gage-block, adapted to be more or less extended to increase or diminish the length of the head on which the block is mounted.

The invention also consists in a railway-track gage composed of a rod having at one end a recessed head adapted to rest upon the head or tread of a railway-rail and provided internally at opposite sides with a plurality of grooves, and a gage-block having opposite sides provided with grooves and adjustably engaging the grooves in the recessed head in such manner that the gage-block can be more or less extended by placing it in the required position and engaging it with grooves in the recessed head, whereby it is impossible for the gage-block to move to the slightest extent longitudinally of the rod after the block has been adjusted to the required position.

The invention also consists in a railway-track gage composed of a rod having a fork at one end adapted to rest on the head or tread of a rail at one side of the track and at the opposite end a recessed head adapted to rest on the head or tread of a rail at the other side of the track and provided internally at opposite sides with a plurality of perpendicular grooves, an adjustable gage-block adapted to fit into said recessed head, and having at its opposite sides a plurality of grooves to engage the grooves of the re-

cessed head for the purpose of adjusting the gage-block to a greater or less extent to meet the conditions required, and a curved or segmental bubble or spirit-level arranged in a chamber in the rod between the forked end and the recessed head thereof, whereby the proper superelevation of the outer rails on a curved track can be conveniently and quickly secured, as will hereinafter appear.

The invention is illustrated by the accompanying drawings, in which—

Figure 1 is a plan view of my improved railway-track gage in position on the rails of a track. Fig. 2 is a side elevation of the same, showing the rails in section. Fig. 3 is a side elevation, on a larger scale, indicating by dotted lines the gage-block in different positions of adjustment in the chambered or recessed head of the rod. Fig. 4 is a detail horizontal sectional view taken on the line 4 4, Fig. 3. Fig. 5 is a broken side elevation of a portion of the rod of the track-gage to more clearly illustrate the bubble or spirit-level, and Fig. 6 is a transverse sectional view taken through the bubble or spirit-level.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates the body of the track-gage, which is preferably, but not necessarily, composed of a tubular cylindrical rod having at each end an exterior screw-thread upon which the heads 2 and 3 are screwed or riveted. I may, however, employ a solid rod of any desired form in cross-section and mount or secure the heads thereupon in any suitable manner.

The head 2 is forked to provide the branching members 5, each of which is provided on its under side with an approximately perpendicular shoulder, as at 6, located a short distance from the extremity of the branching member, so that the latter can rest upon the top surface of the head or tread of the rail 7, while the shoulder rests against the inner side of the said head or tread of the rail.

The head 3 is chambered or recessed, and constructed with a perpendicular shoulder 8, adapted to rest against the inner side of the head or tread of the opposite rail 9. The head 3 is also constructed with a horizontal extension 10, adapted to rest upon the top surface of the head or tread of the rail 9. The distance between the outer surfaces of the shoulders 6 and 8 can remain constant for the purpose of verifying the standard distance between the rails of straight track. Therefore no adjustment of any part is requisite for the purpose of proving the correctness of the gage of the straight parts of the railway-track.

The gage of railway-tracks is widened on curves, and in order to render the track-gage susceptible of verifying the standard distance between rails on a curved part of the track I arrange an adjustable gage-block 12 within the chambered or recessed portion of the head

3 in such manner that this gage-block can be extended or projected to a greater or less degree to meet the conditions required on curves.

The gage-block is rendered adjustable by providing each vertical side thereof with a plurality of perpendicular grooves adapted to accurately fit perpendicular grooves 14, formed in the inner surfaces of the vertical side walls 15 of the chambered or recessed part of the head 3.

When the track-gage is in use as a gage for straight track, the gage-block is shifted entirely within the chambered or recessed part of the head 3, so that its outer end is flush with the face of the shoulder 8. The gage-block can, however, be more or less extended or projected beyond the face of the shoulder 8 to any required extent for additional width of track on curves by simply slipping the gage-block out from the lower portion of the chambered or recessed part of the head and replacing it one groove in advance, or more than one groove, as the case may require, so that the gage-block will project, say, one-eighth of an inch, more or less, beyond the face of the shoulder 8 to lengthen the gage that amount. Obviously, by repeating this operation any desired extension of the gage-block beyond the face of the shoulder 8 may be obtained. The grooves in the chambered or recessed head and in the sides of the gage-block may be one-eighth of an inch apart, but of course this distance can be varied to suit any required conditions.

To prevent the gage-block accidentally falling out of the chambered or recessed head, I provide the latter with a suitable retaining-cover 16, which may be made in the form of a slide or otherwise constructed and arranged, so that it can be moved out of position for adjusting the gage-block and subsequently moved into position to retain the gage-block within the chambered or recessed head. The cover or slide-plate for retaining the gage-block within the chambered or recessed head of the track-gage is a useful feature of the device, but I do not wish to be understood as confining myself to any particular construction of cover or slide-plate for accomplishing the result stated.

The body 1 of the track-gage is provided at or near the middle of its length with a curved or segmental bubble or spirit-level 18, in juxtaposition to which is arranged a series of divisions or graduations 19, 20, 21, 22, and 23. I prefer to place the divisions or graduations on an arched oblong cover-plate 24, suitably secured to the body 1 and open at its center to render the bubble of the level visible. I prefer to support the curved or segmental level-case, which may be of glass, by placing it in a body 25 of plaster-of-paris in a metallic case 26, arranged in a recess 27, wooden core or plug 28, driven into a tube forming the body or rod 1. The case 26 is preferably provided with a marginal flange

29, bearing on an elastic or flexible cushion 30 of india-rubber, confined in place by the cover-plate 24.

While I prefer to arrange and support the curved or segmental level in the manner described and shown, I do not wish to be understood as confining myself to any particular manner of mounting or supporting the level.

The glass level-tube may be of any desired or suitable dimensions, but preferably it is one-fourth of an inch in diameter and six inches in length. The tube is curved throughout its entire length to any suitable radius, and when the track-gage rests upon the rails, as in Figs. 1 and 2, the bubble of the level stands at 19, which is the zero-point for straight and level track. If the end of the track-gage provided with the chambered or recessed head is elevated and the opposite end remains upon the rail, the bubble will move toward the division 20, and a still further elevation of the track-gage will cause the bubble to move from 20 to 21, and so on to 23. The points are fixed by construction and marked upon the level-tube or upon a suitable part of the track-gage in juxtaposition thereto.

If for a certain degree of curvature it is advisable to elevate the outer rail of a curve three-quarters of an inch, and supposing the bubble of the level to be at the division 19, one end of the track-gage is raised three-quarters of an inch and the proper mark is made in coincidence with the center of the bubble. The elevating and marking can be continued until the maximum elevation is indicated in such manner that each position of the bubble, as marked, gives an absolute elevation, and it is only necessary that the curve of the level-tube be such as to give a proper distance between the successive positions of the bubble. The elevations and corresponding marking of the level-tube are established by construction, thus enabling a corresponding elevation of the outer rail of a curved railway-track to be secured by simply placing the gage on the rails, as for gaging, and elevating the outer rail until the bubble stands at the proper division mark on the glass or in juxtaposition thereto. This secures an elevation absolutely correct.

I prefer to secure the bubble or spirit-level in a metal casing set into the body or rod 1 and secured in position by soldering or by any other means suitable for the purpose.

The glass level-tube is preferably set in plaster-of-paris or other suitable plastic material, and may be cushioned with rubber, so as to aid in protecting the glass from being broken by violent shocks.

The distance between the outer end or face of the block 12 and the outer face of the shoulder 6 is the standard distance between opposite rails of straight track, and this distance is made fixed and permanent by mak-

ing the heads 2 and 3 immovable, or rigid attachments of the body or rod 1.

My invention entirely dispenses with the use of a set-screw for adjusting a part of a track-gage, which screw is not entirely satisfactory, in that it must be rotated by hand and requires to be powerfully tightened in order to prevent movement or slipping of the part which is adjusted on the body or rod of the gage.

The number of divisions in juxtaposition to the bubble or spirit-level may be increased or diminished to meet any and all conditions required.

I have shown the gage-block 12 of a length exactly coequal with the length of the chamber or recess in the head 3; but I propose to make the block slightly longer than the length of the chamber or recess, so that when the block is shifted to the limit of its inward adjustment, with its inner end abutting the inner end of the chamber or recess, the outer end of the block will slightly project beyond the shoulders 8. This is desirable where the track-gage is largely used on tangents or straight track.

In my improved track-gage the heads employed to verify or establish the standard gage of straight track do not require to be adjusted, while the gage can be employed to establish or verify the distance between and also the superelevation of the outer rails of curved track by simply adjusting the gage-block to the required extent in the chambered or recessed head of the instrument and elevating the chambered or recessed end of the rod until the bubble of the level stands at the proper division for the curve to be adjusted.

Having thus described my invention, what I claim is—

1. A railway-track gage, consisting of a rod having at one end a recessed head and provided internally at opposite sides with a plurality of grooves, and a gage-block having opposite sides provided with grooves and adjustably engaging the grooves in the recessed head.

2. A railway-track gage, consisting of a rod having heads at its end portions, and one of the heads provided internally with a plurality of grooves, a grooved gage-block engaging the grooved head and adapted to be extended the required amount for any additional width of track on curves, and a curved or segmental bubble, or spirit-level mounted on the rod for establishing or verifying the necessary superelevation of the outer rails of curved track.

3. A railway-track gage, consisting of a rod having a forked, shouldered head at one end, and a chambered, or recessed head at the opposite end, provided internally with a plurality of grooves, an adjustable gage-block having a plurality of grooves engaging the grooves of the chambered, or recessed head

for adjusting the gage-block to a greater or
less extent, and a curved or segmental bubble,
or spirit-level arranged in a chamber in
the rod between the forked, shouldered head
5 and the chambered, or recessed head, for establishing or verifying the necessary super-elevation of the outer rails of curved track.

In testimony whereof I have hereunto set
my hand in présence of two subscribing witnesses.

DANIEL H. RHODES.

Witnesses:

FRANK H. GILMORE,
C. D. BENTON.