(No Model.)

D. WILLARD.

AUTOMATIC TRACK GAGE.

No. 365,113. Patented June 21, 1887.

Fig. 1.

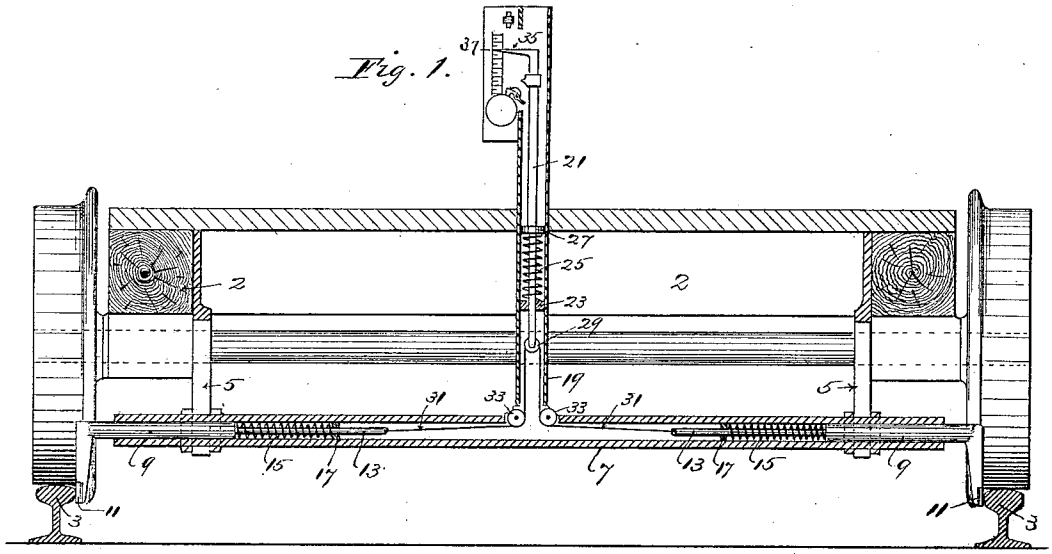


Fig. 2.

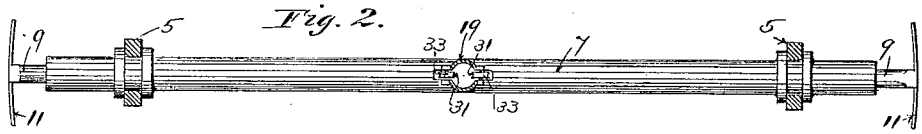
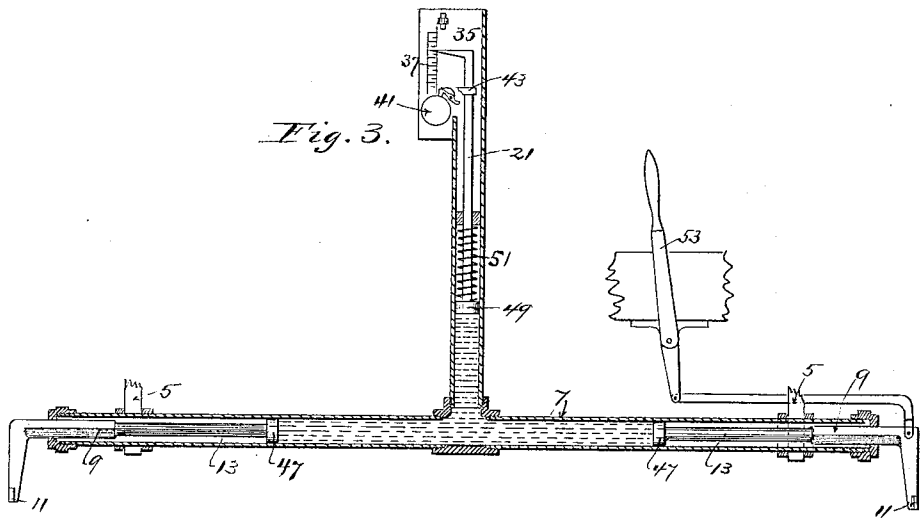


Fig. 3.



Witnesses
A. M. Gaskell
R. H. Sanford.

Inventor
Daniel Willard.
By A. C. Paul.
Atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

DANIEL WILLARD, OF TURTLE LAKE, WISCONSIN.

AUTOMATIC TRACK-GAGE.

SPECIFICATION forming part of Letters Patent No. 365,113, dated June 21, 1887.

Application filed February 7, 1887. Serial No. 226,794. (No model.)

To all whom it may concern:

Be it known that I, DANIEL WILLARD, of Turtle Lake, in the county of Barron and State of Wisconsin, have invented a new and useful Automatic Track-Gage, of which the following is a specification.

The object of this invention is to provide a device that can be attached to a hand-car or any other car and moved with the car over a railway-track, and will at all times indicate the gage of the track or the distance between the rails. It frequently occurs that the rails of railway-tracks become moved laterally out of position from the great strain that is brought upon them, so that there is too great a distance between them, and necessitating the moving and respiking of the rails. It is often difficult to detect the displacement unless the rails have become separated considerably beyond their correct position. It has been customary heretofore for the "section men" to apply a gage-stick to the rails at frequent intervals for the purpose of ascertaining whether the rails are in proper position. This method is slow, expensive, and unreliable, while by using my automatic gage the position of the rails may be determined at every point as the car to which the device is attached is moved over the rails.

My invention consists generally in a gage comprising spring-controlled shoes that are pressed outward against and travel along the inner sides of the track-rails, and an indicating device that is connected with and operated by said shoes.

The invention consists, further, in the construction and combination hereinafter described, and pointed out in the claims.

In the accompany drawings, forming a part of this specification, Figure 1 is a vertical transverse section of a hand-car having my improved device applied thereto. Fig. 2 is a sectional plan of the gage. Fig. 3 is a sectional elevation showing a modified means for operating the indicating device.

In the drawings, 2 represents a portion of an ordinary hand-car, which is adapted to be run upon the rails 3 3.

The automatic gage is secured to the hand-car by any suitable means, as the hangers 5 5. A tube or pipe, 7, (preferably a piece of gas-pipe,) is secured to the lower ends of the hangers 5. This pipe extends preferably nearly the full width of the car. A rod, 9, is arranged in each end of the pipe 7, and is free to move longitudinally therein. Upon each of these rods is a depending shoe, 11, that projects a short distance below the top of the rails upon which the car is placed. A stem, 13, projects inwardly from the rod 9, and is surrounded by a spring, 15, that bears at one end on a collar, 17, fixed in the tube, and at the other on the end of the rod 9. This spring tends to move the rod outward in the tube, and thereby holds the shoe 11 against the inner side of the rail. A vertical tube, 19, is joined to the tube 7 at substantially its central point. A rod, 21, is arranged to move vertically in this tube. A spring, 25, surrounds this rod and bears at its upper end on a collar, 27, fixed on the rod and at its lower end on a fixed bearing, 23. This spring tends to move the rod 21 upward in the tube 19. The lower end of the rod 21 is provided with a pulley, 29. A cord or chain, 31, is connected to each of the stems 13 and passes over the pulley 29. Suitable pulleys, 33, may be arranged at the junction of the vertical pipe with the horizontal pipe, as shown in Fig. 1. The upper end of the rod 21 carries a suitable pointer, 35, which projects through an opening in the side of the vertical tube. A graduated scale, 37, is secured to a plate, 39, upon the side of the tube in such position that the pointer moves over the scale as the rod moves up and down in the tube. This scale may be marked to indicate the amount of variation of the rails from the standard gage. A bell, 41, may be located on the plate and arranged to be operated by a projection, 43, on the rod, so as to sound an alarm when the rails have become so far separated as to render the track dangerous. The shoes 11 are preferably curved on their outer surfaces, as shown in Fig. 2, the radius of the curve being equal to half the length of the tube 7, so that if the car swings a little on the track and the tube 7 does not stand exactly at right angles to the line of the rails the distance between the shoes will not be changed.

The operation of the device will be readily understood. The shoes are pressed against the inner surfaces of the rails, and follow these

surfaces throughout. If either rail is out of line, the shoe will be pressed outward, and the pointer will be drawn down by means of the connection 31. The spring 25 has less power than the spring 15, and it merely holds the rod 21 up and takes up the slack in the cord or chain 31. If the rod 21 is drawn down until the projection encounters the bell-hammer, the alarm will be sounded, and the attention of the persons on the car will be called to the fact that the rails at that point are separated so far as to render the condition of the track dangerous.

Any other suitable means may be used to communicate motion from the shoes to the indicating-rod.

In Fig. 3 I have shown pistons 47 on the ends of the stems 13 that fit closely in the tube. A similar piston, 49, is fitted onto the lower end of the rod 21. The space between these pistons is filled with a suitable fluid. A spring, 51, surrounds the rod 21, and bears at its upper end on a fixed collar in the tube and at its lower end on the piston 49. This spring, through the medium of the interposed fluid, holds the shoes out against the rail and causes the piston 49 to follow the fluid in the tube, thereby moving the pointer in accordance with the variations in the track. The operation of this construction will be seen to be substantially equivalent to that shown, and any other equivalent device may be used for the same purpose.

A lever, 53, may be arranged on the car and connected to the rod 9, as shown in Fig. 3, so that the shoe may be drawn back in passing switches, and at other times, if desired. A separate lever may be used for each shoe, or both might be arranged to be operated by a single lever.

I claim as my invention—

1. The combination, with a suitable car, of an automatic track-gage comprising independent rods 9, mounted on the car, and provided with depending shoes 11, that bear upon the inner surfaces of the rails, means for pressing said rods outward and bearing said shoes against the rails, an indicating device upon said car, and means connecting both of said rods with said indicating device, substantially as described.

2. The combination, with a suitable car, of the tubes 7 and 19, the rods 9, carrying the depending shoes 11, the indicating-rod 21, arranged in said tube 19, means for pressing said shoes outward, and means connecting said rods 9 with said rod 21, substantially as described.

3. The combination, with a suitable car, of the tubes 7 and 19, the rods 9, carrying the depending shoes 11, the spring 15, the rod 21, provided with the pointer 35, the spring 25, and the cords 31, all arranged substantially as described.

4. The combination, with a suitable car, of the spring-controlled shoes 11, the indicating-rod 21, having the projection 43, means connecting said rod with said shoes, and the bell 41, all substantially as described, and for the purpose set forth.

5. The combination, with a suitable car, of a track-gage having a spring-controlled shoe, 11, arranged to bear against the inner surface of the track-rail, and a retracting-lever, 53, connected with said shoe, for the purpose specified.

In testimony whereof I have hereunto set my hand this 2d day of February, 1887.

DANIEL WILLARD.

In presence of—
R. H. SANFORD,
R. PAUL.