

No. 731,097.

PATENTED JUNE 16, 1903.

A. M. CARLSEN.
TRACK GAGE.
APPLICATION FILED OCT. 13, 1902.

NO MODEL.

FIG. 1.

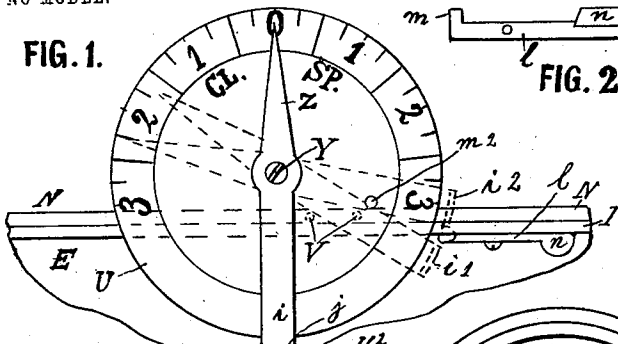


FIG. 2.

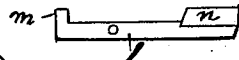


FIG. 3.

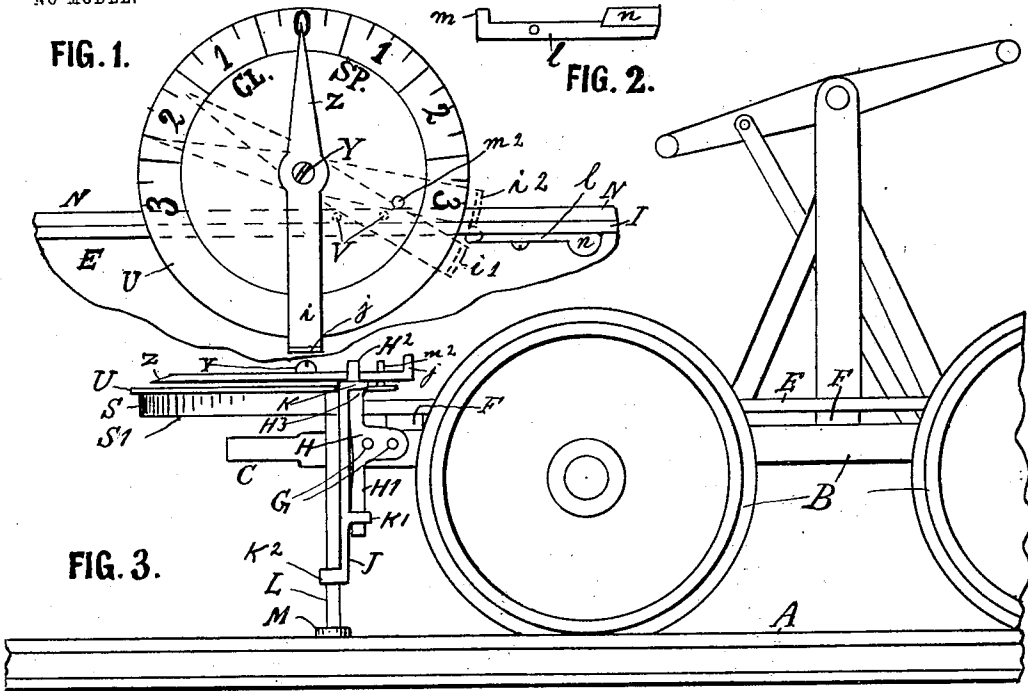


FIG. 4.

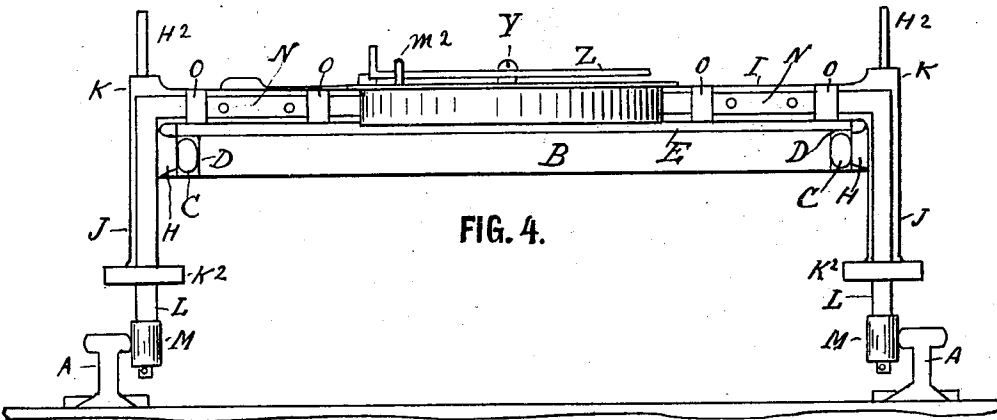


FIG. 5.

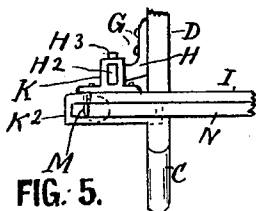
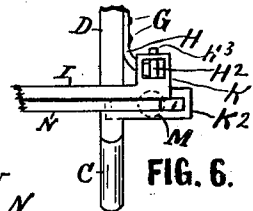


FIG. 6.

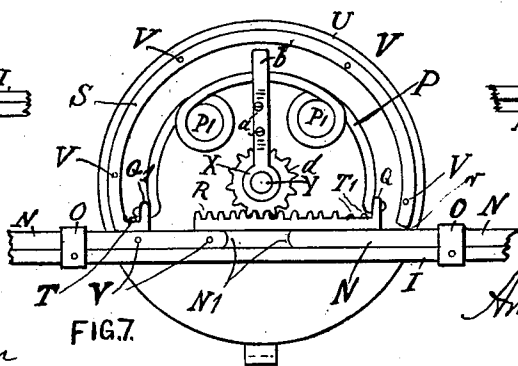


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TRACK-GAGE.

SPECIFICATION forming part of Letters Patent No. 731,097, dated June 16, 1903.

Application filed October 13, 1902. Serial No. 127,045. (No model.)

To all whom it may concern:

Be it known that I, ANDREW M. CARLSEN, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Track-Gages; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in track-gages of the class adapted to be secured to a hand-car for indicating automatically if the rails of the railroad are spread or closed as the hand-car is propelled along the rails in the usual manner; and the objects of my invention are, among others, to provide an efficient, inexpensive, durable, and accurate track-gage of said class, as will be more fully pointed out in the claims.

In the accompanying drawings, Figure 1 is a top or plan view of a small portion of a hand-car with my track-gage secured on it. Fig. 2 is a detail rear elevation of the dog *l* in Fig. 1. Fig. 3 is a side elevation of a hand-car with my track-gage secured upon it. Fig. 4 is a front end elevation of the body of the car in Fig. 3 and the track-gage secured thereon. Fig. 5 is a top view of the end of Fig. 4 directly above it. Fig. 6 is a modified top view of the end of Fig. 4 above it. Fig. 7 is a bottom view of Fig. 1 with the bottom of inclosure *S* and all parts of the car removed or a bottom view of the central portion of the gage as it looks without any covering-plate underneath its mechanism.

Referring to the drawings by letters of reference, *A* designates the rails of a common railway.

B is a hand-car of common construction placed upon the rails.

C represents the handles by which the car is carried by the workmen to and from the track. These handles are usually formed of the projecting ends of the side timbers *D* of the car.

E is the platform of the car, on which the

workmen and section foreman stand and drive the car. This platform is usually elevated some above the side bars *D* by the cross-bars *F*.

At each side of the car I secure by bolts *G* a bracket *H*, preferably to the side bars *D*, some distance back of the handles *C*, so that the latter will not be obstructed. Each bracket is formed with a downwardly-pointing straight arm or horn *H'* and an upwardly-pointing horn *H²*, having a shoulder or recess *H³*.

I is a bar constituting the main frame of the gage. This bar extends across the front end of the car and is at each end provided with a downwardly-hanging arm *J*, provided with three loops *K K' K²*, of which *K'* is let upwardly upon the horn *H'* until loop *K* gets above and drops down about the horn *H²* and resting upon the shoulder *H³* thereof prevents the loop *K'* from getting disengaged from the lower horn until the upper loop is raised by the operator above and disengaged from the upper horn for the purpose of removing the gage from the car, leaving only the brackets *H* on it. The loop *K²* is formed upon the opposite side of the arm *J* near its bottom end and serves to guide the transversely-moving arm *L*, which at its lower end carries a revoluble roller *M*, adapted to roll along the inner edge of the rail. The arm *L* is a vertically-disposed portion of a horizontal bar *N*, sliding in loops or guides *O*, provided upon the frame-bar *I*. The two bars *N* thus slide in line with each other with their adjacent ends *N'*, Fig. 7, some distance apart, which distance is of course decreased or increased according as the rails are closed or spread from their normal position, as the rails, if closed in an inch, for instance, will shorten the distance by closing the rollers *M*, and the spring *P* will spread the rollers, if the rails are spread. Said spring *P* is preferably formed of good spring-wire in a bow shape and with one or more coils *P'* upon its body to give it the necessary flexibility, although the limited space in which it is contained will not permit of making it large. The ends of the spring are preferably hooked into the lips *Q* and *Q'*, of which the former is cast integral with rack-bar *R*, and the latter is formed integral with the body or shell *S* of the inclosure

of the mechanism. This body-piece is secured by the screws or rivets T to one of the guide-bars N, while the rack R is secured upon the other bar N by the screws or rivets T'. The dial-plate U is secured by screws V to the shell S and to the bar N, that is secured to said shell. The shell may also preferably be cast integral with the dial and its numbers and graduations and secured to one of the bars N, and the bottom plate S' secured to the shell after the mechanism is put in, or, what is equal thereto, the shell and its bottom may be formed in one piece, secured in place, mechanism put in, and finally the dial and the pointer Z put on.

X represents a suitable frame in which is journaled the arbor or shaft Y, which projects upwardly through the dial and carries secured to its top the dial-finger Z. The frame X may be secured to either the top or the bottom of the shell. In the present instance it is shown as secured by screws *a* to the dial forming the top of the shell, and it is formed with a supporting-arm *b* for the spring P to rest on, which is especially necessary, if the shell is made without the bottom plate S'.

Upon the shaft Y is secured a cog-wheel *d*, meshing with the rack R.

Upon the right and left halves of the dial are provided graduated and numbered scales increasing in opposite directions from the central point (marked "O,") and marked one of them "Spread" and the other "Closed," or on the drawings "SP" and "CL," respectively, which refer to an abnormal spreading or closing of the rails of the road, while "O" indicates the normal position of the rails.

Secured to the dial-shaft Y, or preferably formed integral with the dial-finger, is a lever *i*, having at its free end an upward projection *j*.

*m*² is a stop or pin projecting upwardly from the dial.

m is a dog or lever (best shown in Fig. 2) pivoted near its middle to the frame-bar I, though it may as well be pivoted to the dial, and having at one end an upwardly-projecting tooth *m*, and at the other end a side projection *n*, forming also a weight to hold normally down that end of the lever.

The operation of the device is as follows: The spring P presses the rollers M at all times against the rails, and as long as the latter are in their normal position the dial-finger remains at "O." If the track is much curved to one side or the other, one roller will be pressed inwardly some by the outer rail and the opposite roller will be pushed outwardly to the same extent; but this motion will not affect the dial-finger, since it and the entire mechanism in that case simply moves with the two bars N; but if the rails are closed the rollers M will compress the spring P and cause either the rack R to roll the cog-wheel *d* or the cog-wheel to roll on the rack, (because it is mounted on a shaft journaled in a shell secured on one of

the sliding bars N.) The inward motion of either one or of both of the rollers M will thus throw the dial-finger toward the word "Closed," and if spreading of the rails permits the spring P to force one or both rollers in an outward direction the rack and cog-wheel will act in the opposite direction and throw the dial-finger or pointer toward the word "Spread," and the scales will indicate the extent of the closing or spreading, preferably in inches, half-inches, and quarter-inches of actual spreading or closing of the rails, though the scales on the dial may be much magnified, so as to be easier to read. When the car passes over a switch, the man attending to the gage puts his foot against the projection *j* of the lever *i* and holds the latter against the projection *m* of the dog, as in dotted lines *i'*, thereby preventing the spring P from spreading any of the rollers M into the switch, and if the car is going over a road-section recently examined the operator swings the dog *l* so as to let the lever *i* pass beyond and be locked by the tooth *m* of the dog, as in dotted lines *i''*, thereby holding the rollers slightly away from the rails, so as not to wear their bearings unnecessarily nor impose unnecessary resistance to the moving of the car. When the gage is again to be thrown into operation, the operator simply puts his toe under and raises the weight *n* of the dog, so that the tooth *m* gets below the lever *i*, which is then thrown to its normal position by the spring P.

Among other modifications which I may make without diverging from the spirit of this invention I may in a cheap grade of the device dispense with the dog *l* and simply use a pin *m*² in the dial or other point to limit the throwing of the lever *i* when coming to a switch. I may also drop the loops K and K' all upon the upper horns H², which for that purpose may be made higher, and the whole gage above the handles C may then stand higher up, and by making the downward extensions J of the frame-bar with rearwardly-projecting ribs *q* (shown in dotted lines in Fig. 3) the lower horns H' may be dispensed with. The loops K may be wide, as in Fig. 6, to allow endwise motion of the frame-bar where such motion is desired. In the present construction, and perhaps in all gages having a similar frame-bar, the play in at least one of the end loops will enable the brackets H to be readily secured and used upon hand-cars varying considerably in width. The rack R may be secured to the bar N outside the shell S and only have its toothed portion projecting into the shell through a narrow opening, like *r*, so that the mechanism is closely covered against flying sand, snow, rain, &c. The guiding-loops K², besides guiding the arm L against flapping back and forth, also regulate the extent of spreading and closing of the arms, so that when the lever *i* is held sidewise while going through a switch one roller will not get all the inward action

of the lever while the other roller may run into the switch, because when one arm L is drawn by the lever *i* to the inner end of the loop K² the other arm L is bound to furnish the rest of the inward movement demanded by the lever *i*. The last-named object may also be attained by pins *l* in the sliding bars (see Fig. 3) adapted to stop against the loops O on the frame-bar. The spring P may be of any other suitable construction than that shown.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a track-gage adapted to be carried by a car, the combination with brackets securable to the car and having downwardly and upwardly projecting horns, of a track-gage having upon its frame loops adapted to be passed upwardly upon the lower horns, and upper loops adapted to thereafter go upon the upper horns, and suitable means supporting the gage at proper height and preventing the upper loops from going so far down as to bring the lower loops below the lower horns.

2. The combination with a hand-car, of brackets secured to the sides of the car, and having vertically-disposed arms or horns, a track-gage having upon its frame loops adapted to embrace the horns, said loops having a play on the horns in transverse direction of the car to allow for variation in the width of cars.

3. In a track-gage of the class described, the combination with a frame-bar adapted to be secured in transverse position upon the car, and having the downwardly-projecting end arms J with the elongated guiding-loops K² thereon, of outwardly spring-pressed arms guided in said loops and having their lower ends adapted to move along and in contact with the inner edges of the rails, and an indicator operatively connected with the upper ends of the arms, to indicate closing and spreading of the rails.

4. In a track-gage of the class described, the combination of a frame-bar securable across the end of a car and having at each end a downwardly-projecting arm with the guiding-loop *k* thereon, and upon its main body the guiding-loops O, of two sliding bars N, sliding in the loops O and having downwardly-projecting arms L guided in the loops

K², and extending to the inner edges of the rails, a spring pushing said bars N outwardly to hold the arms in contact with the rails; the rack R carried by one of the bars N, the graduated dial U carried by the other bar N, a cog-wheel meshing with the rack and having its shaft rotating in journals or bearings carried with the dial, a dial-finger or pointer secured on said shaft above the dial, substantially as and for the purpose set forth.

5. In a track-gage of the class described, and suitably framed, the combination with two sliding spring-spread bars adapted to engage the inner edges of the rails, a graduated dial and a dial-finger carried by one of said bars, a cog-wheel secured on the shaft of the dial-finger, a rack carried by the other sliding bar and meshing with the cog-wheel; said dial-finger being formed on the other side of its pivot or shaft into a foot-lever *i* having the projection *j*, and means for limiting the motion of said lever when the bars are partly retracted from the rails.

6. In a track-gage of the class described, and suitably framed, the combination with two sliding, spring-spread bars adapted to engage the inner edges of the rails, a graduated dial and a dial-finger carried by one of said bars, a cog-wheel secured on the shaft of the dial-finger, a rack carried by the other sliding bar and meshing with the cog-wheel; a lever or arm, *i*, secured to the shaft of the cog-wheel, and a stop and a locking device for holding the lever *i* to one side against the force of the spring when so desired, for the purpose set forth.

7. In a track-gage of the class described, the combination with a pair of arms spring-pressed against the inner sides of the rails, an indicator operated by said arms to show the spread or closed condition of the rails, and a foot-operated lever operatively connected with the arms to prevent their spreading when so desired and a foot-operated weighted dog to hold the lever against the force of the spring, for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ANDREW M. CARLSEN.

Witnesses:

JOHN R. ROWLEN,
FRED E. MAHLER.