

L. KAYSER.
Railway Gages.

No. 143,287.

Patented September 30, 1873.

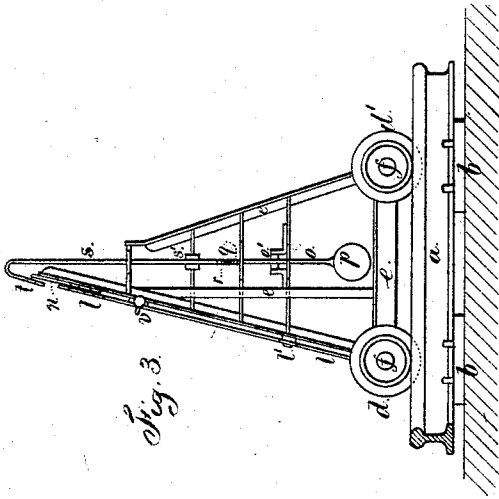


Fig. 3.

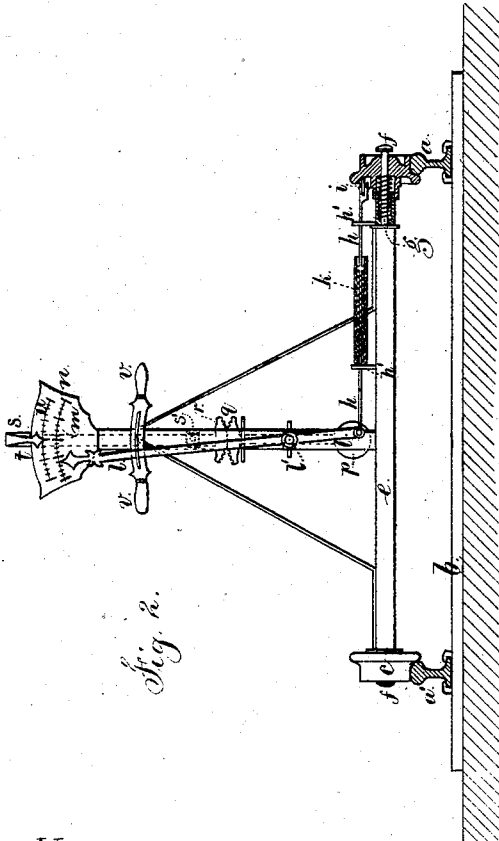


Fig. 2.

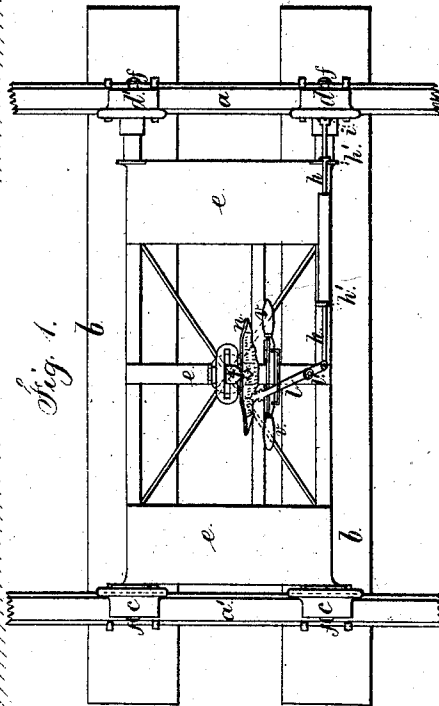


Fig. 1.

Witnesses.
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UNITED STATES PATENT OFFICE.

LEONHARD KAYSER, OF HOMBURG, ASSIGNOR TO JEAN BAPTISTE CHARLES CAMOZZI AND HERMANN JULIUS SCHLOESSER, OF FRANKFORT, GERMANY.

IMPROVEMENT IN RAILWAY-GAGES.

Specification forming part of Letters Patent No. **143,287**, dated September 30, 1873; application filed June 27, 1873.

To all whom it may concern:

Be it known that I, LEONHARD KAYSER, of Homburg, Germany, engineer, have invented Improvements in Machines for Verifying the Relative Positions of the Rails of a Railway or Tramway, of which the following is a specification:

The state of the rails composing a railway or a tramway, and more especially their distance apart, is of the greatest importance with reference to the security of a line; and, however carefully and accurately a line may have been laid down in the first instance, the running of the trains in most cases causes an early derangement of the same, which necessitates a constant verification and rectification of the rails. This is generally effected by means of a metallic rod or bar provided underneath with two stops or blocks, placed at the same distance apart as the gage of the rails, and which is lowered from place to place along the line. This operation is laborious, requires much time, and is doubtful as to its accuracy.

To remedy these defects I have invented a simple and inexpensive machine, by which I run over the line very rapidly, and at the same time ascertain not only the exact distance apart of the rails, but also their relative elevation at the curves of the line, such indications being thus obtained in a continuous manner along the entire length of the line, and not here and there, as in the usual manner.

For this purpose I have invented an apparatus mounted on four wheels, divided in pairs, two of which rest on each rail of the line, and which the party employing the same propels along the line by means of handles placed at an appropriate height. Two of these wheels, running on one of the rails, rotate on fixed horizontal trunnions, while the other two, running on the other rail, by the action of springs or weights, are caused to move also horizontally on their trunnions, according to the varying distance apart of the rails; and I place in contact with the inner face of one of these wheels a small roller, turning freely on the outer extremity of a horizontal rod, which slides also freely in bearings mount-

ed on the frame of the machine, and which is constantly driven by a spring in contact with the said inner face of the said wheel. The inner extremity of this sliding rod is jointed to an upright lever hung on the above-mentioned framing, while its upper extremity travels over a scale fixed on the framing, thus indicating exactly and at all times all the inequalities as to distance apart of the rails; and in order, at the same time, to verify the horizontal position or elevation of one rail with reference to the other, I suspend toward the center of the framing a lower vertical lever, the under extremity of which is charged with a weight, while its upper extremity is provided with a curvilinear rack, the teeth of which gear into a similar rack, forming the lower extremity of an upper vertical lever, the upper extremity of which runs over a scale fixed on the plate above mentioned.

In order that my invention may be clearly understood, I will proceed to describe the same conjointly with the three figures of the accompanying drawings, of which—

Figure 1 is a plan; Fig. 2, a front elevation; and Fig. 3, a lateral elevation.

In these figures, *a a'* are the rails, attached to sleepers *b b*; *c c*, the fixed rotating wheels; *d d'*, the rotating and sliding wheels; and *e*, the framing supported on the axes *f f f f* of said wheels, the wheels *d* and *d'* being constantly impelled against the inner face of the rail *a* by internal spiral springs *g*. *h* is the horizontal sliding rod, supported in bearings *h' h'*, provided at its outer extremity with a roller, *i*, which is pressed against the inner face of the wheel *d* by a spiral spring, *k*, the inner extremity of said rod being jointed to the lower extremity of the vertical lever *l*, pivoted at *l'* on the upright framing, while its upper extremity, formed as a pointer, travels over a fixed graduated scale, *m*, engraved on, or fixed to, the stationary plate *n*. *o* is the under vertical and loaded lever, pivoted to the framing at *o'*, provided at its lower extremity with a ball-weight, *p*, and at its upper extremity with a sextant-rack, *q*, the teeth of which gear into a rack, *r*, forming the lower extremity of an upper vertical lever, *s*, pivoted to the

vertical framing at s' , and terminated at its upper extremity with a pointer, t , running over a fixed graduated scale, u , engraved on, or attached to, the stationary plate n . $v v$ are the handles for propelling this species of vehicle along the line.

I claim as my invention—

1. The construction and arrangement of parts d , h , k , and l , for indicating on the graduated scale m the inequalities in the distance apart of the rails $a a'$ while my improved gag-

ing-machine is being propelled along a line, substantially as set forth.

2. The construction and arrangement of parts $p o q r s$, for indicating on the graduated scale u the relative elevations of the rails a and a' while my improved gaging-machine is being propelled along a line, substantially as set forth.

Witnesses:

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LUDWIG BUSCHINSKY.