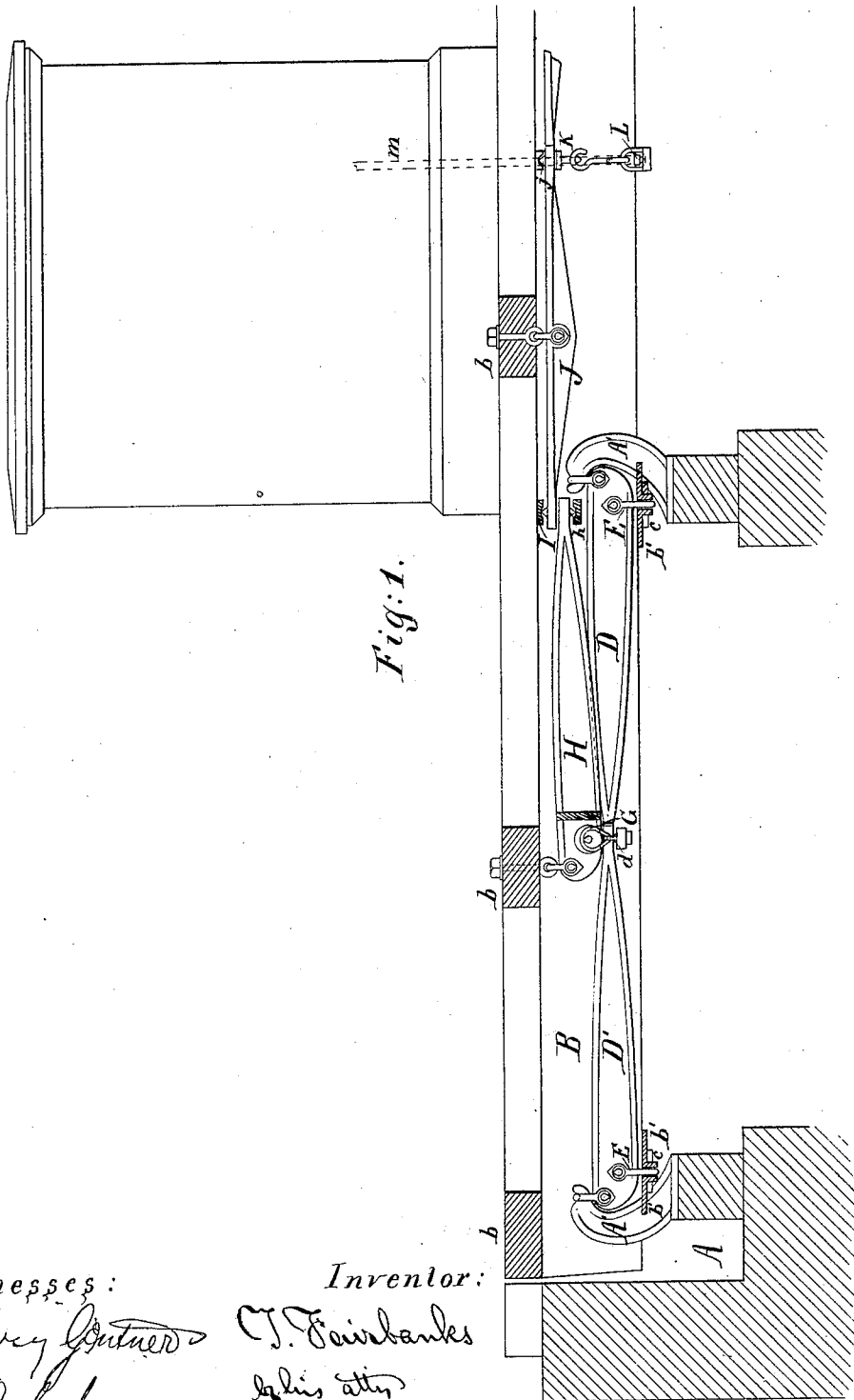


T. FAIRBANKS.
RAILROAD TRACK SCALES.

No. 169,630.

Patented Nov. 9, 1875.



Witnesses :

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UNITED STATES PATENT OFFICE.

THADDEUS FAIRBANKS, OF ST. JOHNSBURY, VERMONT.

IMPROVEMENT IN RAILROAD-TRACK SCALES.

Specification forming part of Letters Patent No. **169,630**, dated November 9, 1875; application filed September 1, 1875.

To all whom it may concern:

Be it known that I, THADDEUS FAIRBANKS, of St. Johnsbury, Caledonia county, in the State of Vermont, have invented certain new and useful Improvements relating to Railroad-Track Scales, of which the following is a specification:

My platform is free to swing to a reasonable extent in all directions without abrading the working surfaces or deranging the weighing action. All the levers beyond the first levers, and which serve to communicate the strain to the weighing-beam, are mounted on the platform, so that any settling or movement of the platform is shared by them.

The accompanying drawings form a part of this specification, and represent what I consider the best means of carrying out the invention.

Figure 1 is a central longitudinal section, and Fig. 2 a plan view and horizontal section, some of the top planks of the platform being represented as removed, and others being represented as broken away to exhibit the working parts.

Similar letters of reference indicate like parts in both the figures.

A is the fixed frame-work. B B are the longitudinal timbers of the platform, ordinarily termed "platform-sticks," and *b b* are the cross-planks which form the top. Angle-irons *b' b'* extend across between the platform-sticks B below, and are firmly fixed thereto. They perform the important function of receiving the entire weight, which is placed on the platform, and of transmitting it to the first levers D D through the medium of loops E, which are engaged with the irons *b'*, by means of pins *c*. The short arms of the first levers D are hung by links *f* upon fixed supporting hooks or standards A', which rest on firm supports on the ground below. The several pairs of first levers extend longitudinally of the platform between the longitudinal timbers B B, and as close as convenient to the inner sides thereof—that is to say, there is a first lever D just inside of each longitudinal timber, and standing parallel thereto. I group the first levers in sets of four. One pair, represented by D D, extends longitudinally of the track in one direction, and another pair, rep-

resented by D' D', extends in the opposite direction, and is mounted at the proper distance therefrom, so that the long arms terminate side by side at a little distance apart without touching each other. The vertical motion of these parts in the act of weighing is very slight, but it is important to the perfect freedom required in correct weighing that these parts shall not rub together. The end of each carries a conical point, *d*, extending downward. It may be armed with agate, if desired, but our experience with hardened steel points of a proper angle, shows them capable of enduring all the strains to which they are likely to be exposed. I have now described four first levers, mounted in pairs D D and D' D', with the extremities of the long arms of each lever D lying close along side, but not touching the corresponding extremity of those of the reversed lever D'. The loads are here received in a loop, G, which depends from a knife-edge in a second lever, H. This lever is V-shaped. The divergent ends are suspended from the main platform B, and allowance must be made for that fact in the proportioning of the levers. One of the divergent ends receives the load from the first levers D D' on one side of the track. The other end of the second lever receives the load from the first levers on the other side of the track. Both loads properly reduced by the proportions of the second lever are felt in an effort to depress the angle of the V, which is in effect the long arm of this peculiar V-shaped lever, and will be so denominated. This long arm is equipped with a conical point, *h*, directed downward. The load received from the point *h* is transmitted by a link, I, to one arm of a third lever, J, which is here represented with its arms of equal length, and which I prefer to thus proportion when the loads are not too great, and other circumstance will admit. This third lever J is also suspended from the main platform B, allowance being made as before, for the augmentation of the apparent weight thereby occasioned. The other arm of this lever J extends close along side of a corresponding lever connected with another system, and both transfer their loads by conical points *j*, directed upward, to a flexible loop, K, which also engages under the conical point

on a final lever, *L*, which extends out laterally, and conveys the result of all the strains to the vertical rod *m*, which extends up in the weighing-box, which—as also the weighing-beam (not represented) to which it is connected—may be of any ordinary or suitable character.

I have, in a patent to me dated May 11, 1875, described a scale of moderate length, adapted for weighing hay and analogous purposes, possessing some of the features of the scale now described; but in that scale the entire weight was received at four points, and there was no provision, and could not be without a reconstruction of the entire arrangement for combining sets, so as to allow the weight to be received from the platform by the first levers at a greater number of points. My present invention attains that end, and receives the weight upon eight points instead of four points—that is to say, upon one pair of first levers *D D* and another pair of first levers *D' D'* at each end of a long track-scale.

I believe that the present arrangement may be used with some success with short scales, using only one of the sections or ends here represented. It has been perhaps sufficiently explained that while my drawings show only one set of four first levers, *D D D' D'*, connected to a peculiar *V*-shaped second lever, *H*, which is a double lever at its commencement, and terminates as a single lever in the center of the track, and while this lever *H* communicates its load to a single lever, *J*, there is another set of levers which are precisely identical with these, but standing in a reversed position under the other half of the long platform *B*, so that the last lever *L*, which reaches out under one of the platform-sticks *b*, carries the result, not only of the loads received and transmitted through the aid of the series of levers here shown, but also of those received from another precisely equal series, which is only represented here by a portion of the end of the lever corresponding to the lever *J*.

The mounting of the levers *H* and *J* on the platform *B* not only, as above explained, fortifies the construction against danger of derangement from unequal settling and analogous disturbances in the position of the parts, but allows us to manufacture scales in a more advanced state of completion at the shop, and to ship them to distant points in a condition which will require little skill and labor in setting up.

I propose to use check-rods, (not represented,) performing their usual functions of restraining the horizontal motion of the platform. Such rods are, almost necessarily, a little loose. My arrangement of levers, although apparently complex, will, I believe,

keep in perfect adjustment for an unusually long period, and it allows the swinging of the platform in every possible direction. The platform may swing longitudinally by the longitudinal swinging of the first loops *f* *E*. The platform may swing from side to side to any extent permitted by the check-rods, by a rolling motion of the first loops *f* upon the supporting-hooks *A'*. The necessary lateral vibration or lateral rocking of the first levers is perfectly accommodated by the fact that the strain is transmitted therefrom through conical points, which may rock to the required extent without affecting their bearing.

The third lever *J*, in addition to its function of forming a convenient means of communicating the load from the long arm of the second lever *H*, performs the important function of reversing the direction of the strain, so that it is in condition to be transmitted in the usual manner through the last lever *L* to the weigh-rod *m*.

In the manufacture of the scale sound cross-planks are provided, equipped with the proper fastenings, and shipped with the scale, to support the second and third levers *H* and *J*. The other planks for the top of the platform *B* may be supplied by any ordinary carpenter where the scale is set up for use.

The loop which receives the levers *J* in turning on different centers is subject to a slight twisting motion, which may be allowed for either by the compounding of the link, as shown, or by allowing the lower end to turn under the conical point in the last lever. A corresponding provision is made, if desired, to accommodate the much less but possibly appreciable twisting motion of the several loops *G*.

The bearings for the conical points are formed with shallow conical recesses having a more flaring form than that of the hardened steel points which they are to receive.

I claim as my invention—

1. The combination of a pair of first levers, *D D*, with a corresponding pair, *D' D'*, mounted in a reverse position, and both arranged between the platform-sticks *B*, and extending longitudinally thereof, as and for purposes set forth.

2. The *V*-shaped second lever *H*, in combination with the reversed pairs of longitudinal first levers *D D'*, and with a third lever, *J*, which reverses the direction of the strain in communicating it to the last lever *L*, as and for the purposes herein specified.

In testimony whereof I have hereunto set my hand this 25th day of August, 1875, in the presence of two subscribing witnesses.

THADDEUS FAIRBANKS.

Witnesses:

ELIJAH D. BLODGETT,
WM. P. FAIRBANKS.