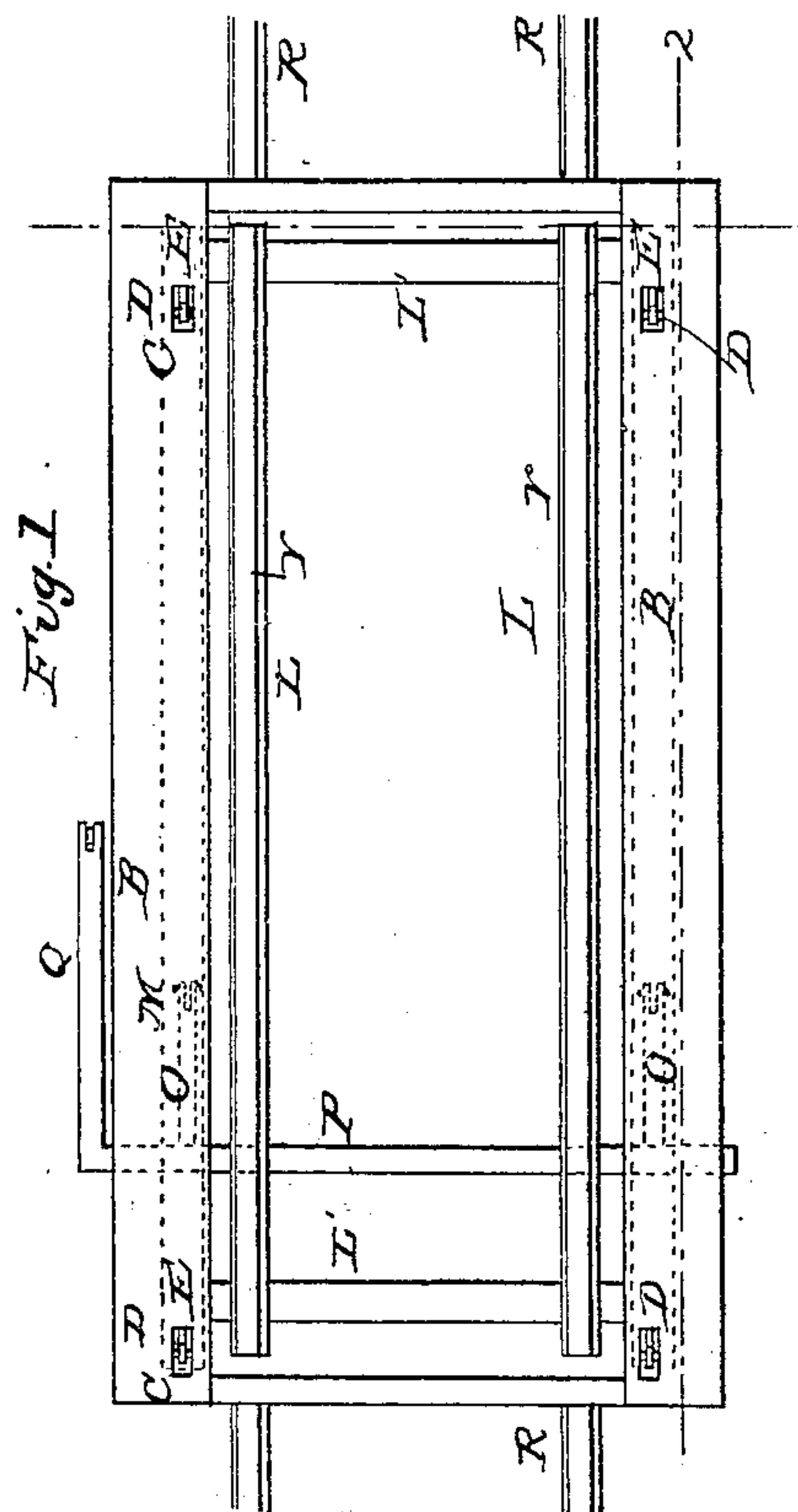
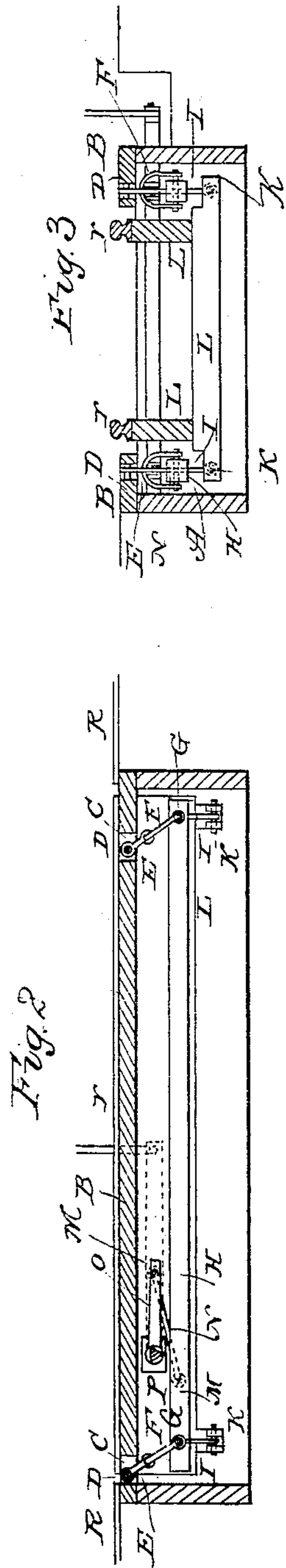


E. SAMPSON.
Platform Scales.

No. 22,244.

Patented Dec. 7, 1858.



UNITED STATES PATENT OFFICE.

ELNATHAN SAMPSON, OF ST. JOHNSBURY, VERMONT.

PLATFORM-SCALE.

Specification of Letters Patent No. 22,244, dated December 7, 1858.

To all whom it may concern:

Be it known that I, ELNATHAN SAMPSON, of St. Johnsbury, in the county of Caladonia and State of Vermont, have invented a new and useful Improvement in Railroad and other Platform-Scales; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification.

Figure 1, is a top or bird's-eye view of a railroad scale constructed after the improved plan. Fig. 2, is a longitudinal section of ditto, at the line 1, 2, of Fig. 1. Fig. 3, is a transverse section of ditto, at the line 3, 4, of Fig. 1.

Similar letters in the figures refer to corresponding parts.

This invention relates to that class of scales known as platform scales for weighing railroad cars, coal carts, hay wagons and other heavy objects, and its principal features consist in dispensing with the lower cross bars and their attachments, heretofore employed for sustaining the platform, and indicating the weight of objects brought upon the same, and substituting therefor a more simple and economical combination and arrangement of parts, which shall not only render the scale more effective and sensitive in its operation, but also less liable to get out of order from the constant traversing of cars and other objects over its platform.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

The lower parts of this scale are arranged in a suitable well, formed beneath the line of the railroad track, when the scale is designed for railroad purposes, and along the top of the side walls A, of this well are secured two horizontal longitudinal timbers B, one on each side of the line of the track, in which, and near the ends of the same, are formed oblong slots C, transversely in which are secured knife edge or V-shaped journals D, over the bearing edges of which pass the upper end of steel links E, which extend downward therefrom, at an angle of about sixty degrees (more or less) with a

horizontal plane. Through the lower ends of these links E, pass the upper bent portions of steel yokes F, so as to form bearings upon them, the lower parts of which yokes pass downward on the same or nearly the same, angle of inclination, and are bent at their lower ends, so as to form loops through which pass, and against which rest, the V-shaped or knife edge journals of horizontal shafts or bars G, which pass through horizontal longitudinal beams or timbers H, arranged immediately below the side timbers B, at the sides of the well, and extending nearly the full length of the said well. These horizontal shafts or bars G, are situated near the ends of the beams or timbers H, and their V-shaped or knife edge journals project the required distance from the sides thereof to admit the attachment of the looped ends of the yokes F, to these parts. They pass through slots formed in the timbers or beams H, and at the portions within them they are formed into other V-shaped or knife edge journals on which rest the upper looped ends of vertical links I, on the lower looped portions of which rest V-shaped or knife edge journals K, secured in slots at the ends of transverse timbers L', at either end of the well, to which are secured at the required distance apart, longitudinal timbers L, on which the track rails of the scale platform are secured. In the horizontal timbers or beams H, a short distance from the slots at one of their ends, are formed other slots in which are affixed other V-shaped or knife edge journals M, around which are passed the looped ends of links or bars N, whose opposite looped ends are passed around and attached to V-shaped or knife edge journals M', affixed to the extremities of radial bars or arms O, secured on a horizontal transverse shaft P, passing through roomy openings in the longitudinal timbers L, on which the platform scale rails are secured and resting upon the sharpened edges of bearings at their ends, fixed in the side walls of the well. These links or bars N, incline from the ends of the radial bars or arms O, to which they are attached, under the transverse shaft P, in a reverse direction to the inclination of the links E, and

yokes F, at an angle of about five degrees with a horizontal plane, and the sharpened edges of the V-shaped or knife edge journals P, are situated in such relation to the looped ends of the said inclined bars or links N, and the line upon which the bearing strain is exerted by the same, as to properly receive the force thus exerted, upon the least possible degree of bearing surface, and in fact this desirable relative arrangement of the bearing parts, is observed throughout the whole construction of the scale.

The ends of the rails *r*, of the scale platform track, are arranged in immediate connection with the ends of the main permanent rails R of the track, over which the cars are to be brought on to the scale to be weighed, and a sufficient space is left between the ends of the two sets of rails, and the ends of the longitudinal timbers L, and the end walls of the well, to admit of the slight longitudinal movement of the scale platform required.

One of the ends of the transverse shaft P, projects beyond the side wall of the well, and is provided with a radial arm Q, to the outer end of which is secured a V-shaped or knife edge journal to which the indicating scale beam is attached by a suitable rod, link and V-shaped or knife edge journal, or in any other convenient manner.

Operation: After the car to be weighed is drawn upon the scale and the several parts properly adjusted, the weight of the said car is at once indicated by the usual movement of weights upon the graduated weighing beam, or lever, or by any other convenient and approved method of ascertaining the upward force of the end of said weighing lever of beam. The manner in which the several parts operate to produce this result is as follows: When the weight of the car is thus brought upon the platform track 1, the whole force is sustained by the longitudinal timbers H, to which the said track platform is suspended by the steel links I, bearing against the V-shaped or knife edge journals G, K. These longitudinal timbers or beams H, are sustained by the inclined steel links E, and yoke bars F, with looped lower ends which extend downward from slots in the upper longitudinal timbers C, at an angle of about sixty degrees therefrom, and bear respectively upon the V-shaped or knife edge journals G affixed to the longitudinal timbers H, and by the bars or links N, whose bearing ends are situated the same distance from each other as the V-shaped or knife edge journals D, G, against which the bearing points of the links and yokes E, F, rest, and which act against the V-shaped or knife edge journals M, M', at a reverse angle of about five degrees with a horizontal plane. It follows therefore

that the downward pressure exerted upon the track platform, will be sensitively and accurately indicated by the depression of the end of the radial bar or arm O, through the slightly downward and longitudinal movement of the longitudinal timbers or beams H, to which the said platform scale is suspended, and which with its attachments is sustained by the links and yoke bars E, F, acting on the V-shaped or knife edge journals D, G, at their angle of 60 degrees with a horizontal plane, and by the bars or links N, acting on the V-shaped or knife edge journals M, M', attached respectively to the timbers or beams H and the end of the radial bar or arm at its reverse angle of 5 degrees with a horizontal plane. This reverse action of the pressure exerted upon the links and yokes E, F, and bars or links N at different reverse angles, divides the weight of the car being weighed, between the two, the pressure upon the end of the radial bar or arm O, being almost lengthwise through it, and nearly on a line with the center of its shaft P, and the V-shaped or knife edge journal M', at its end allowing only the slightest possible longitudinal movement to the beams or timbers H, L with the depression of the said end, while the pressure of the car upon the links and yokes E, F, at the different angles causes them to compensate in their increased proportionate downward and longitudinal movement, for the slight movement of the arms O.

The relative effects produced by the object being weighed upon the links and yokes E, F, and radial bars or arms N, not only insure a perfectly accurate weighing apparatus, without the cumbersome and complicated mechanism heretofore employed, but the peculiar combination and arrangement of the parts employed, also render its action more sensitive, and enable nearly the whole weight of trains of cars passing over the scale track, to be brought upon the suspension links I, without producing any serious effect upon the V-shaped or knife edge bearings D, G, M, M', and their attachments, through which the weighing is mainly effected, thus rendering the scale more durable and less likely to get out of order.

Instead of attaching the ends of the longitudinal beams or timbers to the top timbers B, by the links and yokes E, F, these latter may be dispensed with and inclined bars or beams, having V-shaped or knife edge projections at their ends, may be placed below the timbers or beams H, with their sharpened ends resting against suitable bearings on the under surfaces of the beams or timbers H, and a corresponding bearing on the bottom surface of the well, at such an angle of inclination in relation to the inclination of the bars or links N, to act in a correspond-

ing manner, and produce the same effect with the bars or links N, as the links and yokes E, F, do.

What I claim as my invention and desire
5 to secure by Letters Patent, is—

The arrangement of the stationary frame B, descending and sliding platform L, L', rising frame H, descending arm O, and weighing beam, when the whole is combined

by means of links E, E, I, N, and knife edge 10 bearings D, G, M, M', K, and arranged in the manner and for the purposes as herein described.

ELNATHAN SAMPSON.

Witnesses:

S. H. WALES,

MICH. HUGHES.