

(No Model.)

S. J. AUSTIN.
SCALE BEAM.

No. 521,074.

Patented June 5, 1894.

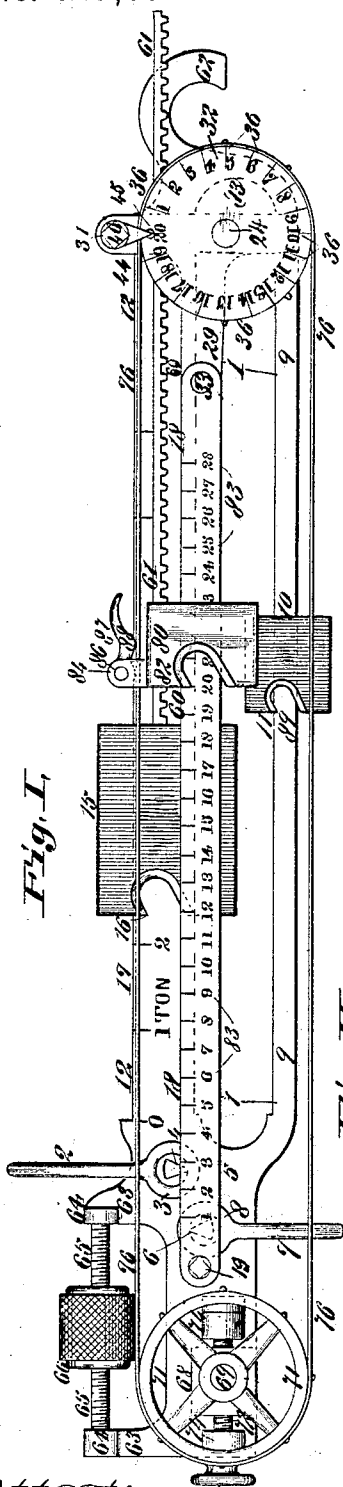


Fig. I.

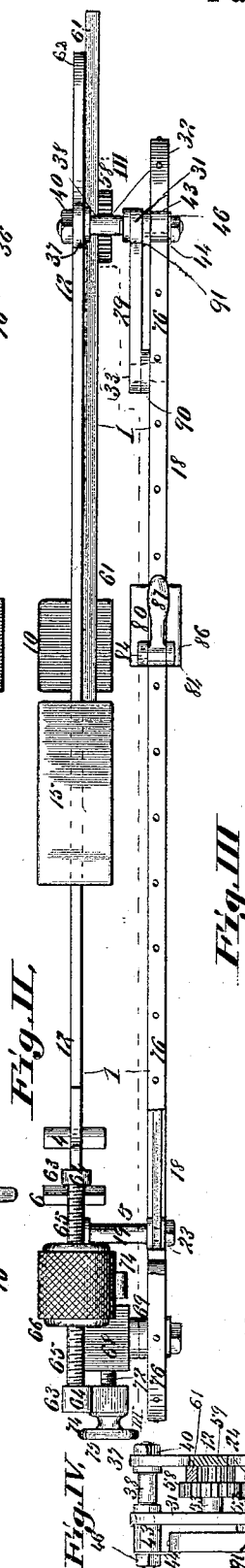


Fig. II.

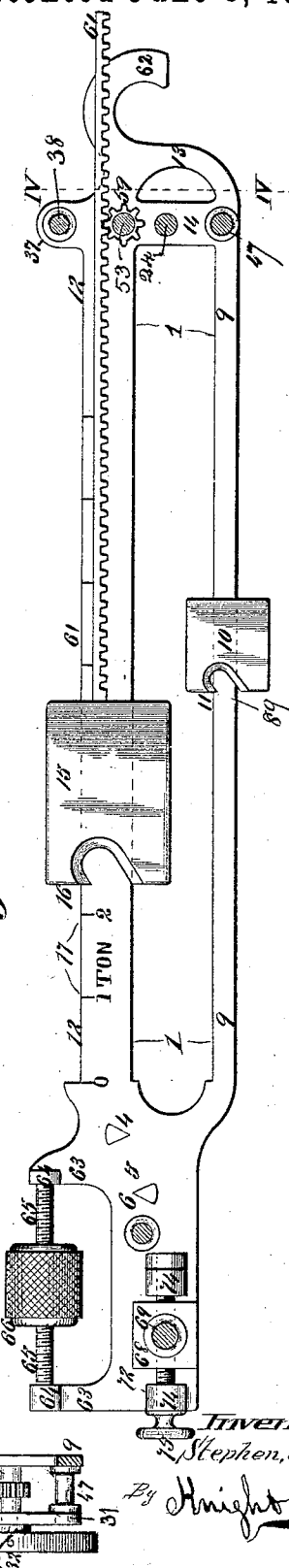


Fig. III.

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STEPHEN J. AUSTIN, OF TERRE HAUTE, INDIANA.

SCALE-BEAM.

SPECIFICATION forming part of Letters Patent No. 521,074, dated June 5, 1894.

Application filed August 28, 1893. Serial No. 484,175. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN J. AUSTIN, a citizen of the United States, and a resident of Terre Haute, in the county of Vigo and State of Indiana, have invented certain new and useful Improvements in Scale-Beams, of which the following is a specification.

The object of my invention is to provide a scale-beam with means for automatically transferring the reading record of the work-arm to the take-up arm of the beam.

My invention consists in features of novel construction hereinafter described and claimed.

In order that my invention may be fully understood I will proceed to describe it with reference to the accompanying drawings, in which—

Figure I is a side view of my improved beam for weighing scales. Fig. II is a top view of the same. Fig. III is a vertical section on the line III—III Fig. II. Fig. IV is a vertical section on the line IV—IV Fig. III.

1 is a beam, 2 the upper clevis, and 7 the lower clevis. The web 5 of the beam is provided with upper knife-edges 4, whereby the beam is supported in the eyes 3 of the upper clevis, and with lower knife-edges 6 engaging the eyes 8 of the lower clevis 7. The beam has three arms extending from the same side of the fulcrum.

9 is a balance-arm carrying a sliding poise 10 having a pointer 11.

12 is the ton or take up arm having an end connection 13 with the balance-arm. The arms are also connected by a web 14 adjacent to the end connection. The take-up arm is marked with numbered graduations 17 and carries a sliding poise 15 having a pointer 16.

18 is the hundred-weight or work-arm of the beam secured at its inner end to a stud 19 located on the web 5 and is retained in position by a screw-bolt 23. The outer end of the work-arm is connected by a pin 33 with a horizontal arm 29 formed on and extending from a vertical bar 31.

24 is a shaft supported in the web 14, and the vertical bar 31 and carrying a disk 32 marked with numbered graduations 36.

30 is a washer located between the outer end of the work-arm 18 and the horizontal

arm 29, and 31 is a washer located between the vertical bar and the disk. The take-up arm 12 is formed with an upwardly projecting lug 37. To this lug is secured by means of a nut 40, a horizontal stud 38. This stud extends through the vertical bar 31 and a washer 43 and carries at its outer end a pointer 44 secured in place by a nut 46.

45 is the zero point.

47 is a stud by which the balance-arm and the vertical bar are braced.

52 is a gear-wheel fixed to the shaft 24, meshed by an intermediate gear-wheel 58 fixed to a shaft 53 supported in the vertical bar and the take-up arm.

59 is a pinion carried by the shaft 53 and meshing with the cogs of a longitudinally moving rack-bar 61, extending from the take-up poise. The take-up arm is formed with the usual weight support 62.

63 are arms projecting upwardly from the web 5 having heads 64, supporting the screw-bar 65 carrying the counterpoise 66.

68 is an adjustable bearing carrying a stud 69 on which is mounted a pulley 71.

72 is a screw by which the bearing is supported and adjusted between the lugs 74, located on the web 5, having a hand-wheel 75.

76 is an endless belt working over the disk 32 and the pulley 71.

Carried by the work-arm 18 is a sliding poise 80, having a pointer 82 directed toward the numbered graduation-marks 83. Surmounting the poise 80 are lugs 84 which support a shaft 86 of a cam-lever 87. The belt is passed over the poise 80 beneath the cam-lever so that when the lever is pulled down the cam 88 bears upon the belt and holds it against the poise so that the belt and poise are bound to move together.

In weighing, the car, or receptacle is balanced by sliding the poise 10 on the balance-arm 9 to the proper place. When the weight of each car is known to be uniform, the position of the poise 10 may be marked on the balance-arm as indicated at 89. The car is next loaded, the poises on the work-arm and on the take-up arm being at zero on their respective arms. The sliding poise 80 on the work-arm is then moved to ascertain the weight of the load, the cam-lever is lowered

so that its cam 88 presses the endless belt 76 with a firm hold against the top of the sliding poise 80, which, with the endless belt 76 is moved back until its pointer 82 points again to zero, and the weight of the load is transferred to the take-up beam in the following manner: The belt being held to the poise 80, the belt necessarily rotates the pulley 71, the disk 32, the gear-wheel 52, the intermediate gear wheel 58 and the pinion 59 which meshes with the cogs of the rack-bar 61 which extends from the poise 15. The rack-bar draws the poise 15 to a correct balance of the beam, thus transferring the weight from the work-arm to the take-up arm. The cam-lever being released leaves the poise 80 free to ascertain the weight of another load which may again be quickly transferred from the work-arm to the take-up arm.

It is the purpose of the devices which connect the poises to move them in distance proportionate to the weight of the poises, thus a ten ounce poise moving ten inches connected to a one hundred ounce poise moving one inch by a ten to one connection would preserve the balance of the beam.

To weigh a parcel or quantity on the work-arm of the beam, no matter what the weight is, it might be nineteen hundred and fifty pounds (a miner's small car of coal), the belt is engaged with the work-poise and pushed back to zero point and the connecting mechanism between the poises is of such multiplication that the take-up poise is drawn forward to a point that just balances the beam again, thus placing the work poise in normal position ready to be moved forward again for ascertaining the weight of the next load.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. A scale-beam comprising a take-up arm and a work-arm extending from the same side of the fulcrum, poises located on said arms, and adjustable independently of each other, and means for connecting said poises, whereby they are moved in opposite directions and the weight taken by the work-arm is transferred to the take-up arm; substantially as described.

2. A scale-beam comprising a take-up arm and a work-arm extending from the same side of the fulcrum, poises of different weight, located on said arms and adjustable independently of each other, and means for connecting the poises whereby they are moved in opposite directions proportionate to the weight of the poises, and the weight taken by the work-arm is transferred to the take-up arm; substantially as described.

3. A scale-beam comprising a take-up arm, a balance arm and a work-arm all extending from the same side of the fulcrum, poises located on said arms and adjustable independently of each other, and means for connecting the poise on the take-up arm with the poise on the work-arm whereby the weight taken up by the work-arm is transferred to the take-up arm; substantially as described.

4. A scale-beam comprising a take-up arm, and a work-arm extending from the same side of the fulcrum, a sliding poise located on the take-up arm, a sliding poise located on the work-arm, having a belt clamping device, an endless belt, a pulley and disk for supporting the belt and gearing connecting the disk with the take-up poise; substantially as described.

5. A scale-beam comprising a graduated take-up arm 12, a graduated work-arm 18, the take-up poise 15 having a rack-bar 61, the work-poise 80 having the cam-lever 87, the disk 32, the pulley 71, the endless belt 76 connecting the disk and pulley, and the geared connection between the disk and the rack-bar; substantially as described.

6. A scale-beam comprising a graduated take-up arm 12, a poise 15, mounted on the take-up arm having a rack-bar 61; the graduated work-arm 18, the poise 80 mounted on the work-arm, having a cam-lever 87 the graduated disk 32, the pulley 71, the adjustable screw 72 for the pulley, the endless belt 76 mounted on the disk and pulley, and the gearing connecting the disk with the rack-bar; substantially as described.

STEPHEN J. AUSTIN.

In presence of—

ELMER F. WILLIAMS,
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