E. ATTAWAY.

COMPUTING SCALE BEAM.

APPLICATION FILED SEPT. 20, 1915.

1,180,277.

Patented Apr. 25, 1916.

2 SHEETS—SHEET 1.

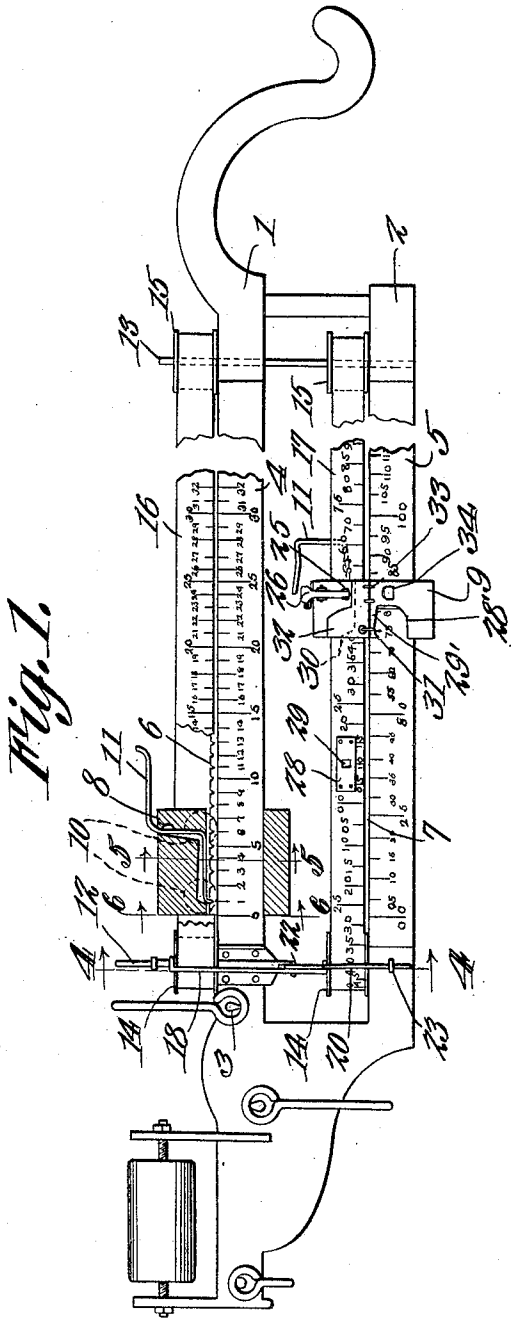


Fig. 1.

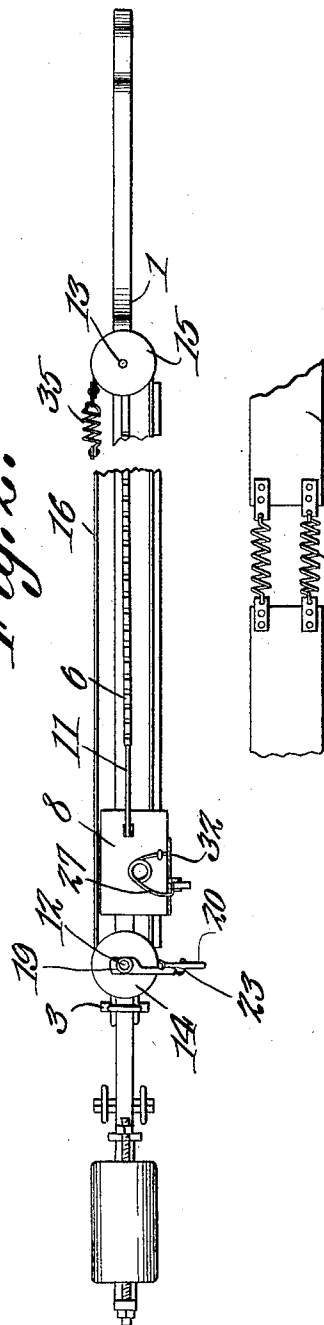


Fig. 2.

Fig. 3.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 6

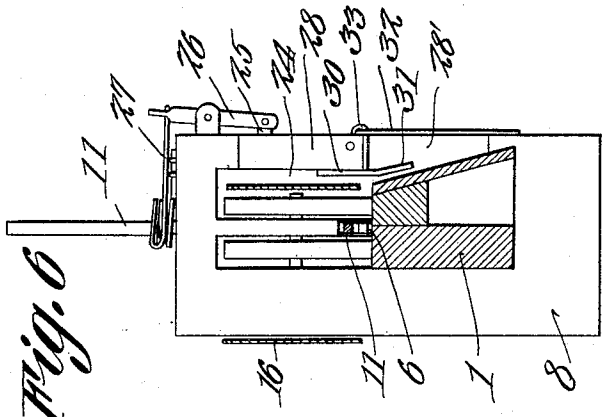


Fig. 7

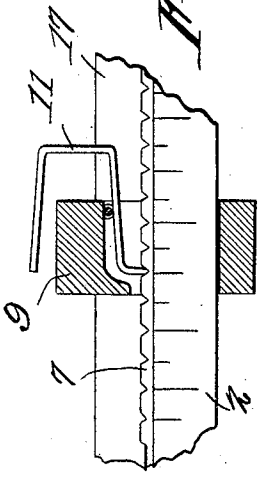


Fig. 5.

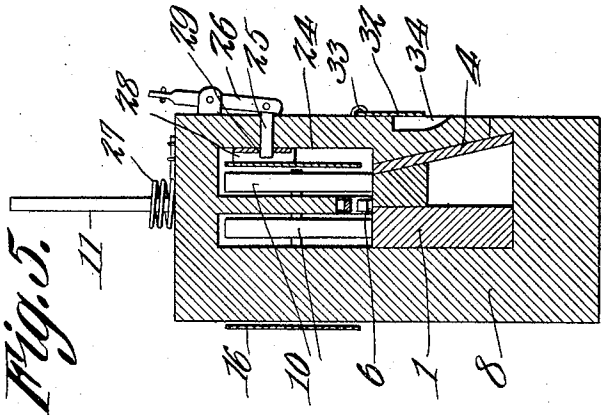


Fig. 8

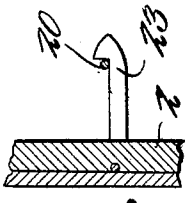
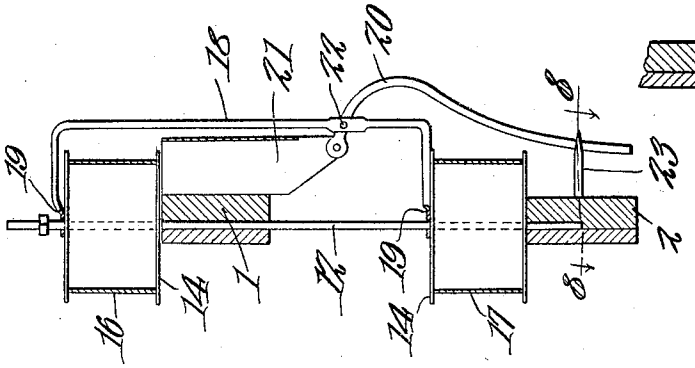


Fig. 4.



Witnesses

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COMPUTING SCALE-BEAM.

1,180,277. Specification of Letters Patent. Patented Apr. 25, 1916.

Application filed September 20, 1915. Serial No. 51,660.

To all whom it may concern:

Be it known that I, ELISHA ATTAWAY, a citizen of the United States, residing at La Fayette, in the parish of Lafayette and State of Louisiana, have invented a new and useful Computing Scale-Beam, of which the following is a specification.

The present invention appertains to scale beams, and aims to provide a scale beam equipped with novel means whereby the tare, gross and net weights may be obtained in a facile and efficient manner.

It is also within the scope of the invention to provide a computing scale beam of the nature indicated which is improved generally in its construction and details to enhance the utility thereof.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is ilustrated in the accompanying drawings, wherein:—

Figure 1 is a front view of the improved scale beam, portion being broken away. Fig. 2 is a top view of the device, portions being broken away. Fig. 3 is an enlarged fragmental view of one of the belts or ribbons illustrating the elastic connection between the ends thereof. Figs. 4, 5 and 6 are enlarged cross sectional views taken on the respective section lines 4—4, 5—5 and 6—6 of Fig. 1. Fig. 7 is an enlarged fragmental section of the auxiliary or lighter poise. Fig. 8 is a sectional detail taken on the line 8—8 of Fig. 4.

In carrying out the invention, the beam embodies a pair of parallel upper and lower lcngitudinal bars 1 and 2, and a fulcrum 3. Graduated strips 4 and 5 are secured upon the front sides of the bars 1 and 2, respectively, the upper or main strip 4 being graduated to indicate hundreds of pounds, while the lower or auxiliary strip 5 is graduated to indicate five pounds to each notch, although the graduations of the two bars may be varied according to the use to which the beam is put. The beam may be used upon various scales, such as car, wagon, warehouse and wharf scales. The upper and lower bars 1 and 2 have upstanding longitudinal ribs or flanges 6 and 7, respectively, along their upper edges, and said ribs or flanges are notched so that there is one notch for each graduation of the respective strip.

A main or heavy poise 8 is slidable or movable along the bar 1 and its strip 4, and an auxiliary or lighter poise 9 is movable or slidable along the bar 2 and its strip 5 according to prevailing practice, it being understood that the poise 8 is set to indicate hundreds of pounds, while the poise 9 is set to indicate the fractions of one hundred pounds. The heavy poise 8 is preferably provided with two pairs of rollers or wheels 10 traveling upon the bar 1 at the opposite sides of the rib 6, whereby the poise 8 will move easily in spite of its weight. The lower poise 9 need not be provided with wheels or rollers, since it will slide easily along the bar 2 due to the lighter weight of the poise 9.

Each of the poises 8 and 9 have a catch 11 in the form of a lever pivoted thereto, the catch 11 of the poise 8 being engageable with the notches of the rib 6, and the catch 11 of the poise 9 being engageable with the notches of the rib 6 whereby each poise 11 will be held in its adjusted position until the respective catch 11 is released by hand to allow the poise to be slid along the beam. The catches of the two poises are of slightly different formation as will be evident by comparing Figs. 1 and 7, but the function of the two are identically the same, so that the two catches need not be described in detail.

Vertical rods or spindles 12 and 13 are secured to the bars 1 and 2 adjacent the opposite ends thereof, the rod or spindle 12 being located adjacent the fulcrum 3 of the beam, while the rod or spindle 13 is located adjacent the free end of the beam. A pair of pulley wheels 14 are mounted rotatably upon the spindle 12 above the respective bars 1 and 2, and a pair of similar pulley

wheels 15 are mounted rotatably upon the spindle 13 above the two bars 1 and 2, the pulleys seating upon the bars. Upper and lower belts or ribbons 16 and 17, respectively, are trained or passed around the upper and lower sets of pulley wheels 14—15 above the respective bars 1 and 2, these belts or tapes being constructed of flexible sheet metal or other suitable flexible and wear-resisting material. The forward and backward runs of the belts or ribbons 16 and 17 are graduated to correspond with the graduations of the respective bars 1 and 2.

In order to hold the pulley wheels 14 against rotation, to thereby prevent the movement of the belts when not desired, a vertical yoke 18 has its angularly extending limbs or end portions 19 slidably embracing or engaging the spindle 12 immediately above the respective pulley wheels 14, whereby the limbs 19 can bear tightly upon the pulley wheels 14. The yoke 18 is actuated by means of a resilient or spring lever 20 fulcrumed to a member 21 attached to the upper bar 1, and pivoted, as at 22, to the yoke 18 between the ends thereof. A catch 23 is carried by the lower bar 2 for the engagement of the free terminal of the lever 20 when said lever is swung downwardly to bring the limbs 19 of the yoke 18 tightly upon the pulley wheels 14, the lever 20 being sprung into engagement with the catch 23, whereby the tension of the lever 20 will tightly hold the limbs 19 upon the pulley wheels 14 to prevent the rotation of said pulley wheels. Consequently, the friction between the pulley wheels 14 and belts 16 and 17 will prevent the belts from moving.

Each poise is provided with an opening 24 through which the forward run of the respective belt passes, and a catch 25, in the form of a pin, is slidable through the front wall of each poise, a lever 26 being fulcrumed or pivoted to each poise and to the catch or pin 25. The lever 26 of each poise is normally swung by means of a suitable spring 27 to move the catch 25 toward the respective belt. A bowed sheet metal keeper 28 is terminally secured to the front run of each belt, and is provided with an aperture 29 between its ends for the reception of the respective catch or pin 25, whereby the belt is normally movable with the poise. Each poise is also provided with a recess 28′ in its front wall or side facing the fulcrum end of the beam, and extending above and below the upper edge of the respective bar. A horizontal partition or plate 29′ is secured to each poise so as to project within the recess 28′ between the upper and lower ends thereof and approximately flush with the upper edge of the respective bar, the partition 29′ being provided at its free end with upwardly and downwardly projecting pointers 30 and 31, respectively, coöperating with the corresponding belt and bar, respectively. A wing or cover 32 is hinged, as at 33, to the front wall or side of each poise and to the outer edge of the respective partition 29′, so that the wing 32 can be swung upwardly and downwardly to cover either the upper or lower portion of the respective recess 28′. The front side of each poise has a thumb or finger notch 34 whereby when the wing 32 is in a pendant position, the thumb or finger may be inserted into the notch 34 to enable the wing to be swung upwardly readily.

The ends of each of the belts are connected by elastic springs 35, whereby the belt is held taut. The keeper or plate 28 and springs 35 of each belt are arranged directly opposite to one another, and counter balance each other so that the shifting of the belt will not affect an unbalancing of the scale beam.

When the scale beam is at rest, the two poises are moved back to the zero graduations of the bars 1 and 2, and the belts 16 and 17 are also moved back to bring their zero graduations into register or alinement with the zero graduations of the bars, the catches 25 of the poises being engaged in the apertures 29 of the keepers 28.

Supposing it is desired to obtain the tare, gross and net weights of a wagon of coal, the empty wagon is first drawn onto the platform (not shown) of the scales to which the beam is connected in the ordinary manner, and the poise 8 is first set to the proper position, after which the poise 9 is set upon the bar 2, if necessary, to balance the beam and to obtain the weight of the wagon, which is the tare. When the poises 8 and 9 are moved, the forward runs of the belts will be moved therewith. Supposing the weight of the empty wagon is 1560 pounds, the lower pointer 31 of the poise 8 would be on the graduation 15 of the strip 4, and the lower pointer 31 of the poise 9 would be on the graduation 60 of the strip 5. Furthermore, the zero graduations of the upper and lower belts 16 and 17 would register or aline with the said graduations of the strips 4 and 5, since the upper pointers 30 of the poises are normally upon the zero graduations of the belts, the upper and lower pointers 30 and 31 of the two poises being in alinement. Now, after the wagon has beeen weighed, it is filled with coal, and the operator then proceeds to obtain the gross and net weights. This is accomplished by first swinging the lever 28 downward into engagement with the catch 23 to hold the pulley wheels 14 against rotation, whereby the belts are prevented from further movement, the pulley wheels 14 having been previously permitted to rotate, and the catch 25

of the upper poise is then released from the respective keeper 28 to allow the poise 8 to be moved farther along the bar 1 without moving the belt 16 with it. After the poise 8 has been properly adjusted, the catch 25 of the poise 9 is released from the respective keeper 28, and the poise 9 is then adjusted along the bar 2 to obtain a balance of the beam. Now, if the total weight of the wagon and coal, which is the gross weight, is 2780 pounds, the pointer 31 of the upper poise 8 will be on the graduation 27 of the strip 4, while the pointer 31 of the lower poise 9 will be on the graduation 80 of the strip 5. During the second adjustment of the poises 8 and 9, the poises are moved relative to the front runs of the belts, and the pointers 30 of the poises will therefore be brought to certain graduations of the belts. In the present case, the pointer 30 of the poise 8 would be on the graduation 12 of the belt 16, while the pointer 30 of the poise 9 would be on the graduation 20 of the lower belt 17. The tare, gross and net weights are thus indicated simultaneously upon the beam, since the zero graduations of the belts will indicate upon the graduations of the strips 4 and 5, the tare weight, which is 1560 pounds, and the pointers 31 of the poises will indicate upon the strips 4 and 5 the gross weight, which is 2780 pounds, while the pointers 30 will indicate upon the belts the net weight, which is 1220 pounds. In the foregoing manner, the beam may be manipulated for obtaining the tare, gross and net weights of various objects and for various purposes, it being possible to obtain the gross weight first, instead of the tare weight, for example, the coal and wagon are weighed first after which the wagon is weighed alone.

It is to be understood that when the poises 8 and 9 are at rest, the catches 11 in engaging the respective notches of the ribs 6 and 7 will prevent the accidental movement of the poises, and it is necessary to release the catches 11 before the poises can be shifted. The wings 32 normally hang over the lower portions of the recesses 28 to hide the lower pointers 31, while the upper pointers 30 are visible, thus enabling the readings upon the belts to be taken without interference. When the wings 32 are swung upward, the upper pointers 30 are concealed, while the lower pointers 31 are rendered visible so that the readings upon the strips 4 and 5 can be taken readily. This permits the gross and net weights to be determined conveniently, and reduces the liability of confusion to a minimum.

In smaller platform scales, where but a single poise is used, it is only necessary to use a single belt, the second poise, belt and accompanying parts being eliminated.

When the bar 2 and belt 17 are used, the graduations thereon are decimals, to indicate fractions of the units of the graduations of the bar 1 and belt 16.

Having thus described the invention, what is claimed as new is:

1. In a scale beam, a graduated bar, a graduated belt movable longitudinally relative thereto, a poise movable along the bar and having pointers coöperable with the graduations of the bar and belt, and releasable means for preventing the movement of the belt.

2. In a scale beam, a graduated bar, a graduated belt movable longitudinally relative thereto, a poise movable along the bar and having pointers coöperable with the graduations of the bar and belt, and releasable means for preventing the movement of the belt, the poise and belt having interengageable means whereby the belt may be moved with the poise and whereby the poise can be released and moved by itself.

3. In a scale beam, a graduated bar, a pair of pulley wheels adjacent the ends thereof, a graduated belt trained around said pulley wheels, a poise slidable along the bar and having pointers coöperable with the graduations of the bar and belt, and releasable means coöperable with one of said pulley wheels for preventing the rotation thereof to hold the belt stationary.

4. In a scale beam, a graduated bar, a pair of pulley wheels adjacent the ends thereof, a graduated belt trained around said pulley wheels, a poise slidable along the bar and having pointers coöperable with the graduations of the bar and belt, and means coöperable with one of said pulley wheels for preventing the rotation thereof to hold the belt stationary, the poise and belt having interengageable means whereby the belt may be moved with the poise and whereby the poise can be released and moved by itself.

5. In a scale beam, upper and lower graduated bars, vertical spindles attached to the bars adjacent the opposite ends thereof, upper and lower pulley wheels upon the spindles and seating upon the bars, graduated belts trained around the upper and lower pulley wheels above the respective bars, a poise adjustable on each bar and having pointers coöperable with the graduations of the respective bar and belt, a yoke having its limbs slidably engaging one of said spindles and seatable upon the respective pulley wheels, and a spring lever pivoted to said yoke and fulcrumed to one of said bars, the other bar having a catch for the engagement of said lever.

6. In a scale beam, a graduated bar, a graduated belt movable therealong, and a poise movable along the bar and having a recess and a partition within the recess be-

tween the bar and belt, said partition having oppositely extending pointers coöperable with the graduations of the bar and belt.

7. In a scale beam, a graduated bar, a graduated belt movable therealong, a poise movable along the bar and having a recess and a partition projecting into the recess between the bar and belt, said partition having oppositely projecting pointers coöperable with the graduations of the bar and belt, and a wing hinged to said poise and partition thereof and swingable to conceal either pointer and to expose the other.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ELISHA ATTAWAY.

Witnesses:
J. C. ROBERTS,
W. S. HENNING.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."