No. 779,993. PATENTED JAN. 10, 1905.

D. F. CURTIN.

# WEIGHT INDICATOR FOR WEIGHING SCALES.

APPLICATION FILED NOV. 10, 1903.

Fig 1.

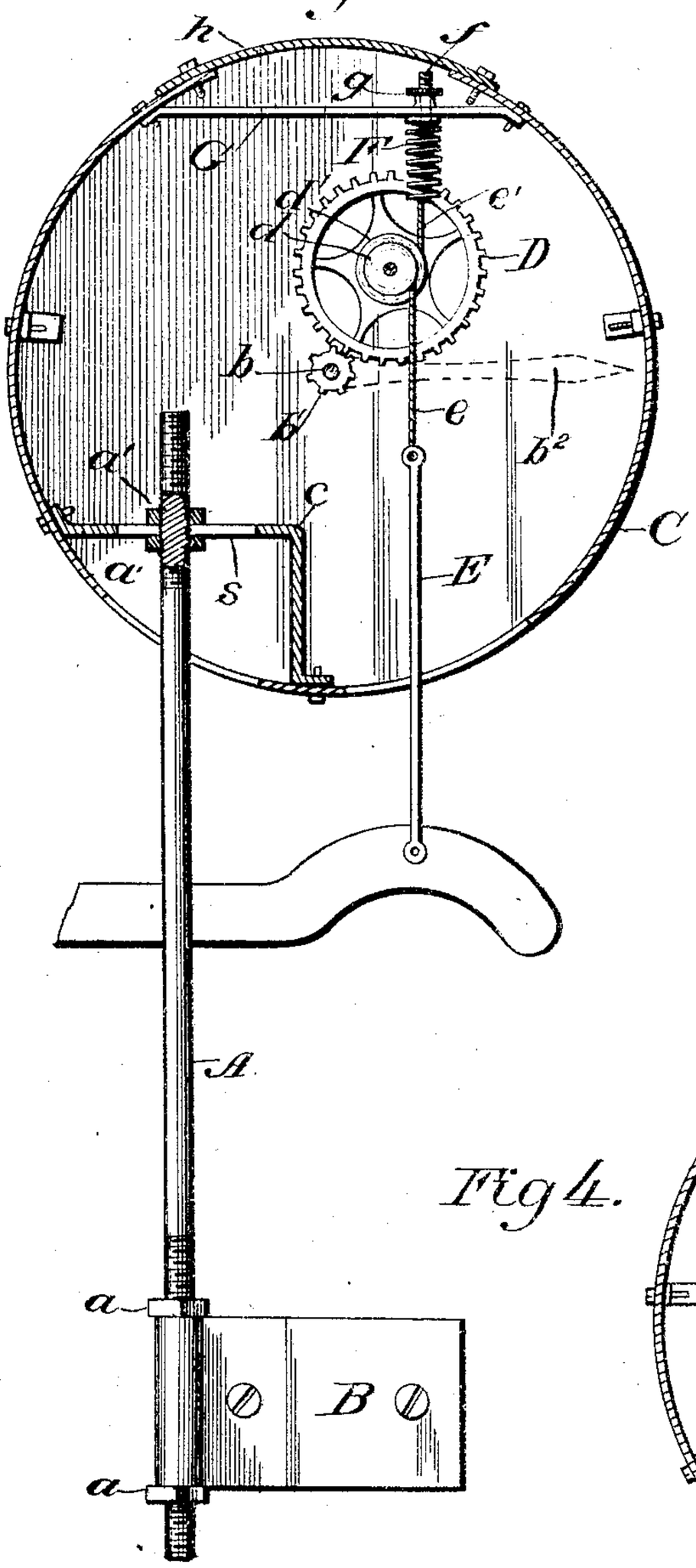



Fig 2

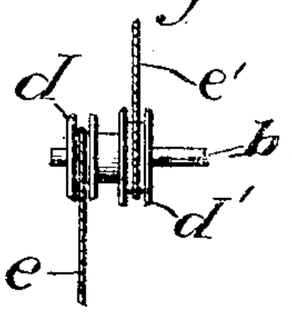



Fig 3.

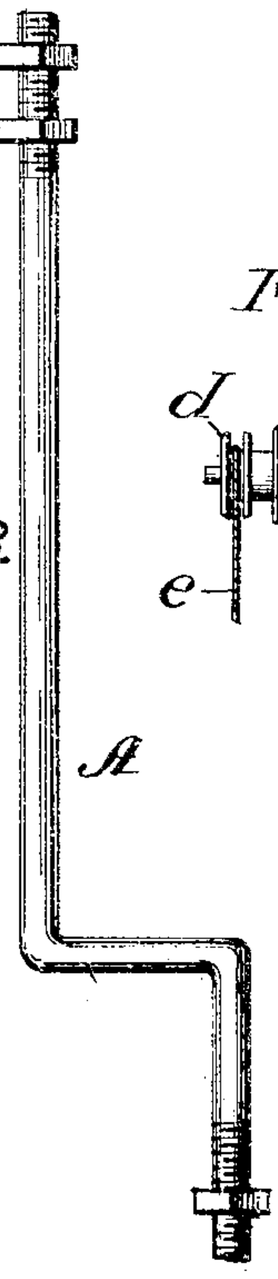
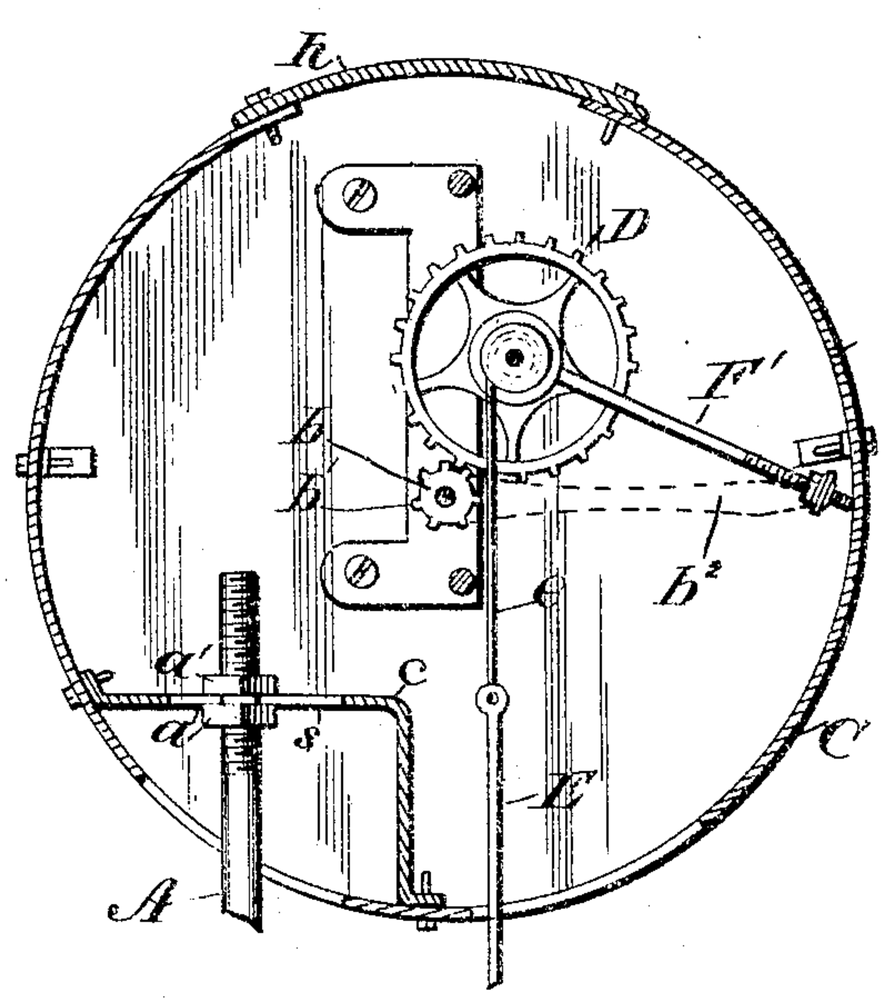



Fig 4.

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# UNITED STATES PATENT OFFICE.

DAVID F. CURTIN, OF BUTTE, MONTANA.

## WEIGHT-INDICATOR FOR WEIGHING-SCALES.

SPECIFICATION forming part of Letters Patent No. 779,993, dated January 10, 1905.

Application filed November 10, 1903. Serial No. 180,554.

*To all whom it may concern:*

Be it known that I, DAVID F. CURTIN, a citizen of the United States, residing at Butte, in the county of Silverbow and State of Montana, have invented a new and useful Improvement in Weight-Indicators for Weighing-Scales, of which the following is a specification.

My invention is in the nature of a simple attachment for weighing-scales for the use of grocers and others, which shall give notice when the approximate quantity of merchandise has been placed on the scales, so that the further addition of material to bring it up to the required quantity may be carefully regulated to avoid getting an overplus of material on the scales.

It consists in the novel construction and arrangement of parts of such attachment which I will now proceed to describe with reference to the drawings, in which—

Figure 1 is a side view, partly in section; Fig. 2, a detail in side view of the pulley; Fig. 3, a side view of a modified form of the supporting-standard, and Fig. 4 is a modification of the indicator mechanism.

In the drawings, A represents a vertical supporting-standard which may be straight, as shown in Fig. 1, or may be made with an offset, as shown in Fig. 3, to suit various applications of it. This standard is to be mounted on some stationary part of the weighing-scales to which it is to be attached by a screw plate or plates B, which embrace the lower end of standard A and sustain it by the aid of two screw-nuts *a a*, turned onto the threaded end of the standard on opposite sides of the plate B. This gives an adjustment to the standard up or down and also around its vertical axis to suit various applications of the indicator carried on the upper end of said standard.

As shown, the indicator comprises a flat circular case C, containing the mechanism, and it is attached to the standard by a right-angular bracket-piece *c*, screwed to the inside of the case and having a slot *s*, through which the upper threaded end of the standard is passed and to which it is secured by clamping-nuts *a' a'* on opposite sides of the bracket. The slot *s* and clamp-nuts *a'* permit a horizontal adjustment of the indicator on the standard to increase its range of adaptability to different weighing-scales.

In the center of the case C is mounted in bearings a shaft *b*, to which is rigidly attached outside the case an index-hand $b^2$, arranged to traverse a dial-face graduated into any desirable number of subdivisions. Inside the case this shaft has rigidly attached to it a small pinion *b'*, that meshes with a relatively large toothed wheel D. This wheel has on the same axis with itself a double pulley *d d'*. In the groove of the pulley *d* there is secured the upper end of a line or cord *e*, whose lower end is attached to the suspended operating-rod E. Around the other groove of the pulley *d'* is wound another line or cord *e'*, whose upper end is fastened to the lower end of a helical spring F. This spring at its upper end is attached to a screw-stem *f*, which passes through a cross-bar G and receives a small screw-nut *g*. By turning this screw-nut the tension of the spring F may be adjusted. In the top of the case immediately above the nut *g* there is a door *h*, which may be opened to give access to the screw-nut.

In operation the attachment is by its several adjustments mounted upon some stationary part of the scales and the suspended rod E is fastened to some portion of the scale-beam. In all good scales the beam does not commence to move till the amount being weighed comes within a fraction of an ounce of the required amount and practically moves when the full amount is on the scales and balances the weight on the beam. Now the object of my device is to give greater notice by making the beam commence to move at a greater distance from the required amount and yet not interfere with the accuracy of the scales. This is effected as follows: The space in the beam-guide through which the beam passes is usually one-fourth or three-eighths of an inch from the top to the bottom of the beam-guide. This space I divide, say, making a space of three-sixteenths of an inch through which my attachment acts. If one-pound notice is decided upon, a spring F is used, that will be pulled out just three-sixteenths of an inch when the weight is slid out on the beam to the one-pound mark. The beam will then just

touch the bottom of the beam-guide. Now when the goods are placed on the scale ever so small an amount of the last pound releases just that much tension on the spring, and the spring recovering its position pulls up the beam, and the indicating-hand moves. When the full pound is on the scales, the spring has recovered its normal position and gone back through the three-sixteenths of an inch space and the beam is poised in the center. The cord *e* is now released and loose, and the scales now are independent of the indicator, as the support A holds the casing at the predetermined distance to permit this. The indicator acts only on the last pound or whatever amount is determined upon and lets go its hold when the last particle of that pound is on the scales, because the beam comes to a center poise where the tension of the spring ends and the cord becomes loose. The attaching-rod E is balanced as part of the beam and its weight is not adjusted to spring. In weighing ten pounds the indicator may be set to act at nine pounds, so that the additional one pound may be cautiously poured in, so as to produce no overplus in material.

The object in using the double pulley *d d'* is to prevent the coils of the cord *e* from rubbing against those of *e'*. This avoids friction and interference and renders the device more sensitive.

As a modification of my invention I may in the place of the helical spring F employ a weighted arm F', as seen in Fig. 4. In this case the adjustment of balance is secured by making the weight screw-threaded and adjustable to or from the center along the arm.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A weight-indicator for weighing-scales, comprising, as a separate attachment, a case, a shaft bearing an index-hand and a pinion, a gear-wheel meshing with the pinion and having a pulley, means for connecting the pulley to the scale-beam, means for lifting the scale-beam through the initial part of its rise, and a support for the casing arranged to hold the latter at a definite and regulatable distance from the scale-beam to permit the connecting mechanism for the scale-beam to lose its influence thereon after the initial rise of the scale-beam substantially as described.

2. A weight-indicator for weighing-scales, comprising, as a separate attachment, a case, a shaft bearing an index-hand and a pinion, a gear-wheel meshing with the pinion and having a pulley, a flexible connection for connecting the pulley to the scale-beam, means for lifting the scale-beam through the initial part of the rise and a support for the casing arranged to hold the latter at a definite distance from the scale-beam to permit the flexible connection for the scale-beam to lose its influence thereon after the initial rise of the scale-beam substantially as described.

3. A weight-indicator for weighing-scales comprising as a separate attachment, a case, a shaft bearing an index-hand and a pinion, a gear-wheel meshing with the pinion and having a pulley, means for connecting the pulley to the scale-beam, means for lifting the scale-beam through the initial part of its rise and a support for the casing made adjustable as described to hold the casing at a definite distance from the scale-beam, to permit the connecting mechanism for the scale-beam to lose its influence thereon after the initial rise of the scale-beam substantially as described.

4. A weight-indicator for weighing-scales, comprising, as a separate attachment, a case, a shaft bearing an index-hand and a pinion, a gear-wheel meshing with the pinion and having a pulley, means for connecting the pulley to the scale-beam, means for lifting the scale-beam through the initial part of its rise, said means being adjustable as to power exerted, and a support for the casing arranged to hold the latter at a definite distance from the scale-beam to permit the connecting mechanism for the scale-beam to lose its influence thereon after the initial rise of the scale-beam substantially as described.

5. A weight-indicator for weighing-scales, comprising a case, a shaft bearing an index-hand and a pinion, a gear-wheel meshing with the pinion and having a double pulley, a suspended operating-rod, a flexible line connecting the same to one of the pulleys, an adjustable spring and a flexible line connecting the same to the other pulley substantially as shown and described.

6. A weight-indicator for weighing-scales, comprising a circular case with a slotted right-angular bracket arranged within the same, a vertical standard with screw-threaded ends and nuts clamping its upper end to the bracket, a clamp-plate at the bottom embracing the lower end of the standard, and nuts arranged upon the standard on opposite sides of the plate, and a weight-indicator contained within the case substantially as shown and described.

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Witnesses:
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