

J. HOPKINSON.

SCALE.

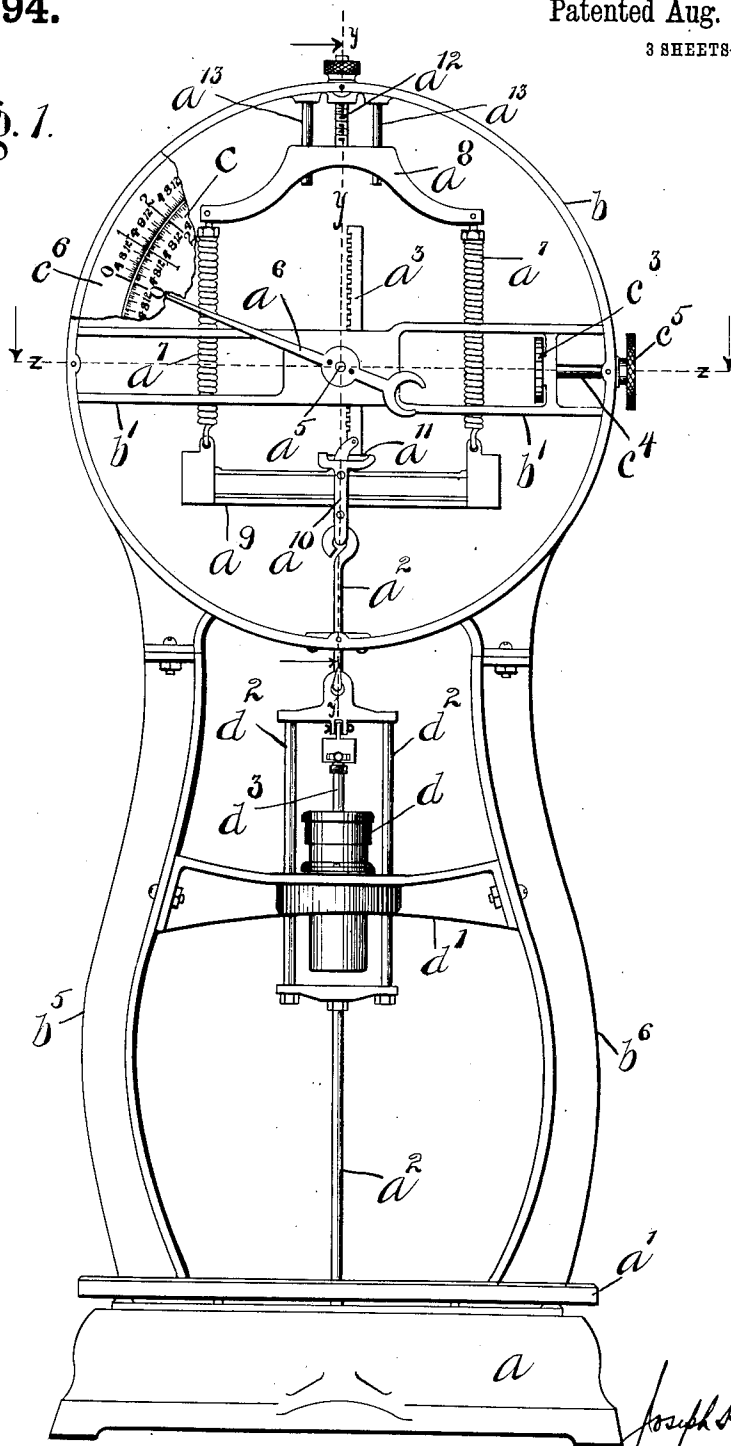
APPLICATION FILED MAR. 6, 1908.

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3 SHEETS—SHEET 1.

967,194.

Fig. 1.



Witnesses

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3 SHEETS—SHEET 2.

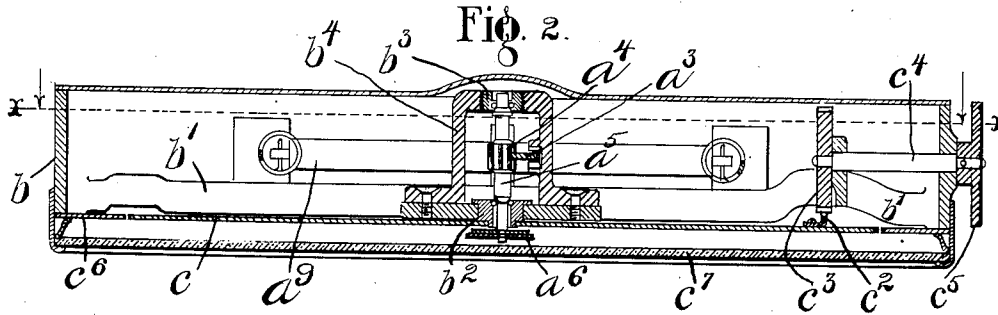
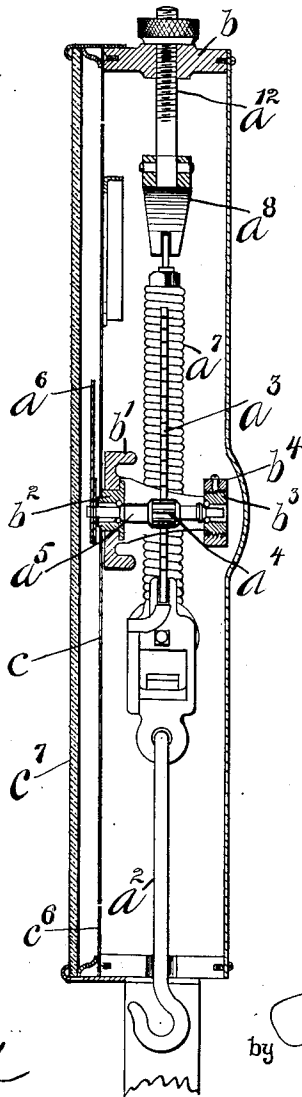


Fig. 3.



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3 SHEETS—SHEET 3.

FIG. 4

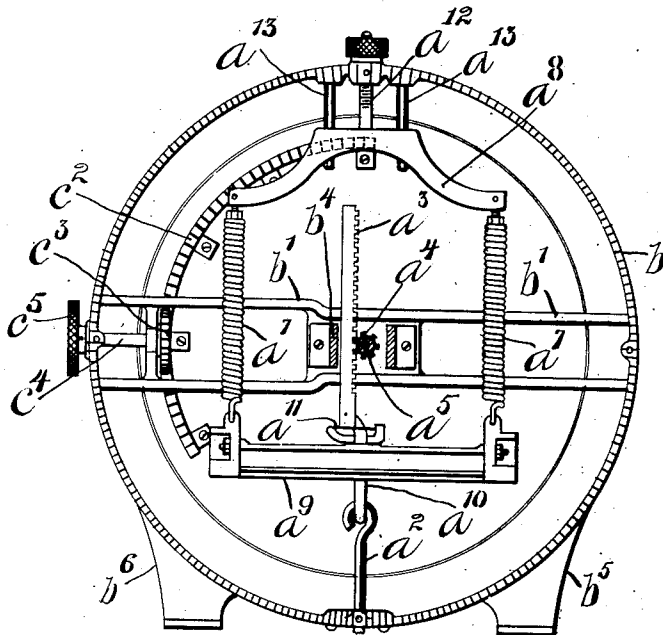
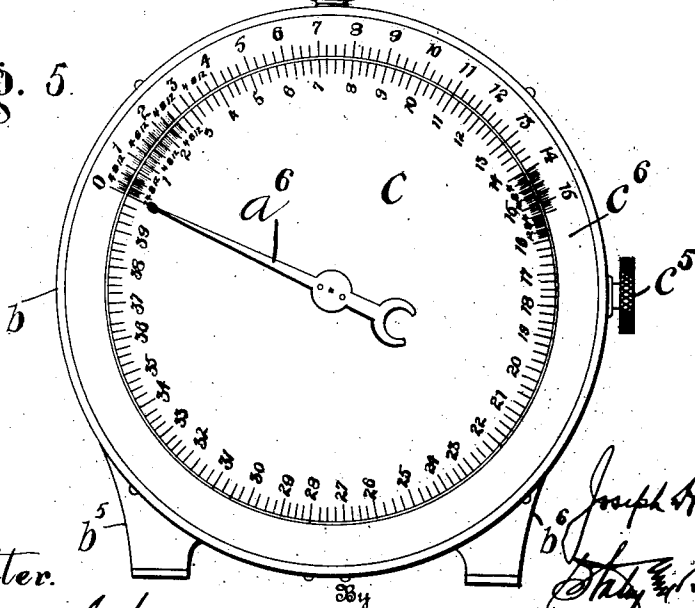


FIG. 5



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UNITED STATES PATENT OFFICE.

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SCALE.

967,194.

Specification of Letters Patent. Patented Aug. 16, 1910.

Application filed March 8, 1908. Serial No. 419,550.

To all whom it may concern:

Be it known that I, JOSEPH HOPKINSON, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Scales, of which the following is a specification.

My invention relates to improvements in weighing scales of the spring balance type, and particularly to scales of this type employing an indicating dial and pointer.

The object of my invention is to provide in a scale of this kind means for taking out the tare so that the weight of the commodity may be read at a glance without mental calculation upon the part of the operator.

My invention consists in the constructions and combinations of parts hereinafter described and set forth in the claim.

In the accompanying drawings Figure 1 is a front elevation of a device embodying my invention with the front of the casing removed and the greater part of the dial broken away to expose the working parts. Fig. 2 is a transverse sectional view on the line $z-z$ of Fig. 1. Fig. 3 is a vertical section on the line $y-y$ of Fig. 1, looking to the right. Fig. 4 is a sectional view on the line $x-x$ of Fig. 2 looking toward the front. Fig. 5 is a detail view of the dial and index hand.

Like parts are represented by similar characters of reference in the several views.

The type of spring balance scales to which I have applied my invention is one which has a supporting base, represented by a .

a^1 is a platform, which is supported in the usual way upon the platform levers located in the hollow of the base. These levers are connected through the medium of the rod a^2 with an operating rack a^3 , which rack meshes with a pinion a^4 secured to the shaft a^5 , which is located in the suitable bearings or bushings, b^2 b^3 in the frame work b^1 of the inclosing casing, b , which casing is supported by upwardly-extending arms, b^5 b^6 , secured to the base. This frame work consists of a frame part b^1 extending from side to side of the casing, b , and having a rearwardly extending yoke, b^4 , which carries the bushing, b^3 , the bushing, b^2 being located in the frame proper, b^1 . The shaft, a^5 , has secured at its forward end an indicating hand or pointer a^6 , which is adapted to be moved by the weight of the load on the platform

around a dial c which is provided with proper marks to indicate the weight of the load or commodity. The weight of the load is resisted by the coil springs, a^7 , which are suspended from the cross-bar, a^8 , and are connected to the rod, a^2 , through the medium of the bar, a^9 , and link, a^{10} ; the rack a^3 being pivotally connected to the upper end of the link, a^{10} , and held yieldingly in engagement with the pinion by a flat spring a^{11} . The yoke a^8 is supported by an adjusting screw a^{12} , screw threaded in the upper part of the casing, b , this screw being for the purpose of adjusting the mechanism to bring the pointer to its normal position at zero, the yoke or cross-bar, a^8 , being guided and held in a straight horizontal position by the guide rods, a^{13} .

The dial, c , is secured to the bushing, b^2 , which is revolubly journaled in the frame work b^1 . The dial also has a circular rack, c^2 , which extends for a suitable distance around the rear side of the dial. Meshing with this rack, c^2 , is a pinion c^3 , secured to the shaft c^4 , which shaft is located in suitable bearings in the frame work b^1 , and casing and is extended through the side of the casing and provided with a knurled thumb-nut, c^5 . The dial, c , is somewhat smaller in diameter than its casing, a circular strip c^6 , which is also provided with marks or indications corresponding to and registering with those of the dial in the normal position of the dial, being inserted between the dial and casing and secured to the casing in any suitable way. The front of the casing is closed by a glass plate c^7 in the usual way.

For the purpose of causing the indicating hand or pointer to quickly settle to its proper position of indication, I have provided a dash-pot, d , located in a cross-bar d^1 , secured to the supporting arms, b^5 b^6 . The connecting rod, a^2 , is bifurcated or provided with a yoke-shaped portion, d^2 , which has pivotally secured thereon the piston rod, d^3 , of the dash-pot.

In the normal position of the devices, the indicating hand a^6 , the zero mark of the dial, and the zero mark of the indicating plate, c^6 , will register. Placing a crock, box or other receptacle upon the platform, say of the weight of 10 ounces, will cause the index hand to swing to the indication "10" on the dial. The dial may then be turned

- about its center, through the medium of the rack and pinion described, until the zero mark of the dial registers with the pointer. Then it will be seen that upon the placing
5 of the commodity in the receptacle, the pointer will swing to properly indicate the weight of the commodity upon the dial, so that the necessity of mental calculation is obviated.
- 10 If the scale is being used to fill receptacles of uniform weight, such for instance as boxes which are being packed with a given commodity of a certain weight, the dial may be left at the proper tare indication, or at least very close to it. If it is desired to weigh any other object or commodity where the necessity for taking out
15 tare is not present, it will be seen that this weight can be obtained from the indications on the indicating strip, c^5 , without disturbing the proper tare position of the dial, thus avoiding the necessity of turning the dial back to the zero position for that particular transaction.

Having thus described my invention, I 25 claim:—

In a scale, a supporting base, a vertically-arranged casing supported from said base, levers supported in said base and a platform supported on said levers, a movable indi- 30 cating dial arranged in the front of said casing, a stationary indicating member arranged about said dial, an indicating hand coöperating with said dial and stationary member, weighing mechanism comprising 35 said levers connected with said hand, a circular rack on the back of said dial, a shaft extending through the side wall of said casing and having means on the outer end thereof for turning same, and a pinion on 40 the inner end of said shaft meshing with said rack, substantially as specified.

In testimony whereof, I have hereunto set my hand this 27th day of February, 1908.

JOSEPH HOPKINSON.

Witnesses:

GEO. W. KEPLER,
CHAS. E. NORTHWAY.