

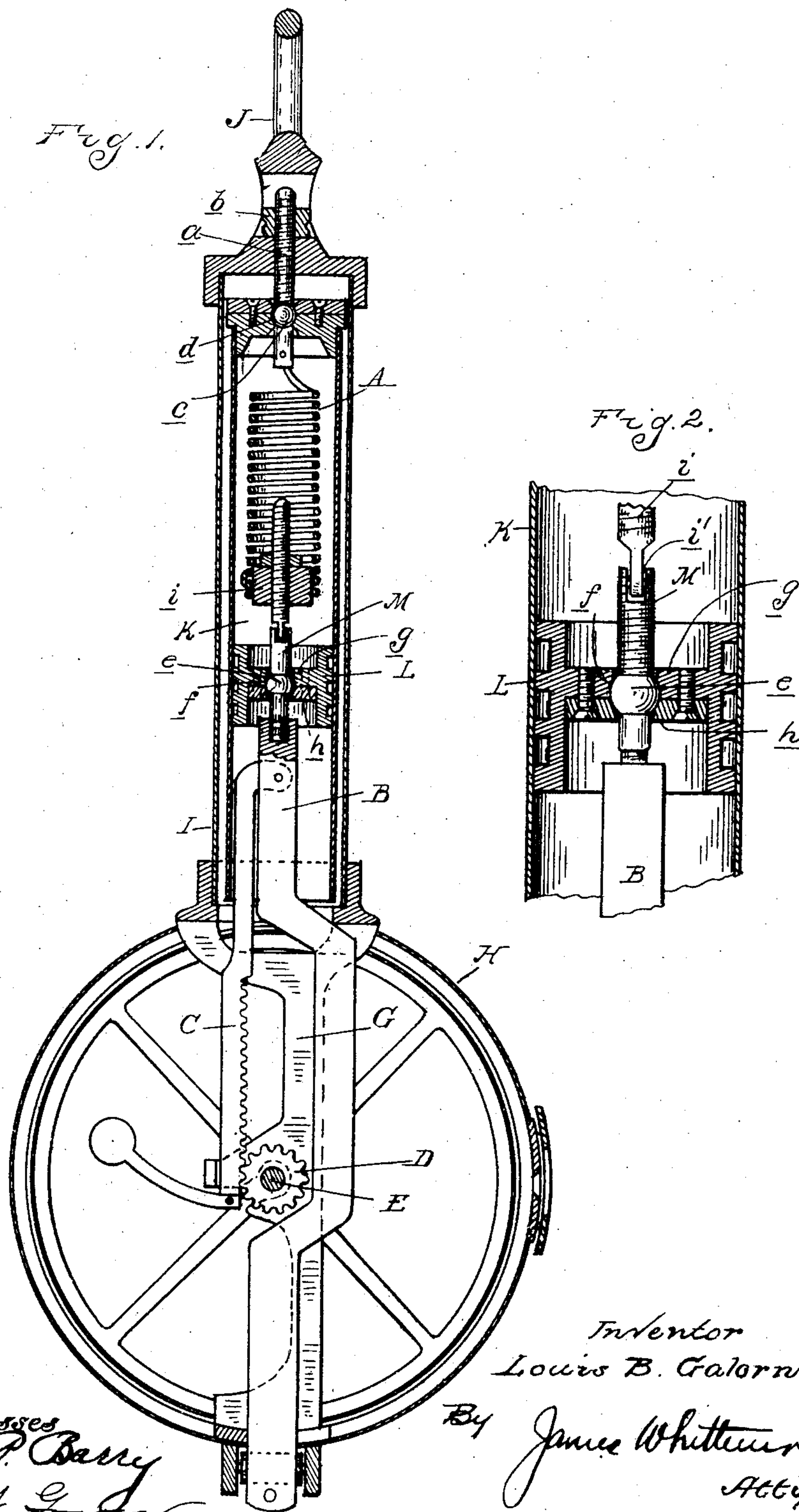
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PATENTED JULY 26, 1904.

L. B. GALORNEAU.
SPRING SCALE.

APPLICATION FILED AUG. 11, 1903.

NO MODEL.



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SPRING-SCALE.

SPECIFICATION forming part of Letters Patent No. 766,143, dated July 26, 1904.

Application filed August 11, 1903. Serial No. 169,065. (No model.)

To all whom it may concern:

Be it known that I, LOUIS B. GALORNEAU, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Spring-Scales, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to spring-scales, and more particularly to that type in which movement of the balance is retarded by a dash-pot.

It is the object of the invention to provide a simple construction and one in which the plunger of the dash-pot is freed from binding.

The invention consists in the peculiar construction, arrangement, and combination of parts, as hereinafter set forth.

In the drawings, Figure 1 is a vertical cross-section through the scale. Fig. 2 is an enlarged view of the dash-pot and plunger.

A is the weighing-spring, and B the draft-bar connected thereto, of a spring-scale. As shown, this scale is of the cylinder type, the draft-bar B being provided with a pivoted rack-bar C, meshing with the pinion D on the shaft E, supporting the cylinder F. The shaft E is journaled in a suitable frame G, which is connected to the casing H, inclosing the cylinder, and also to the frame of casing I, connecting with the hanger J. The latter forms the support for the upper end of the spring A, an adjustment being provided comprising a screw-threaded shank *a*, to which the spring is attached, said shank passing through a central aperture in the hanger and engaging with an adjusting-nut *b*.

Surrounding the spring A and arranged within the casing I is the dash-pot K. This is pivotally secured at its upper end to the shank *a*, which latter is provided with a ball *c*, engaging a socketed bearing *d* in the head of the dash-pot.

L is the piston or plunger of the dash-pot, which is secured intermediate the spring A and the draft-bar B.

With the arrangement thus far described it will be understood that the movement of the draft-bar occasioned by the weight in the

weighing-pan (not shown) will be communicated to the cylinder through the rack C and pinion D and that this movement will be retarded by the plunger L in the dash-pot K. Thus the continuous oscillation of the cylinder, which might otherwise occur, is prevented.

It is essential to the accuracy of the scale that this dash-pot should not in any way bind the draft-bar, so as to prevent the latter from assuming its proper position under load. It is also necessary that the draft-bar should be given a certain freedom of lateral movement. The latter is provided for by the universal connection between the cylinder of the dash-pot and the shank *a*, which permits the free oscillation of said cylinder.

To prevent binding of the plunger in the cylinder, this also is connected to the draft-bar and spring by a universally-jointed connection. As shown, this consists of a shank M, having a ball *e* thereon engaging with the socket *f* in the plunger head or piston L. The socket *f* is preferably arranged centrally within the piston, which latter is recessed at opposite ends and has a head or diaphragm *g*, in which the socket is formed, and *h* is a detachable plate forming the complementary portion of the socket.

The apertures in the diaphragm *g* and the plate *h* are larger than the shank M, so as to permit of a free oscillatory movement of the piston L, pivoted on the ball *e*. Thus in whatever position the cylinder K may move and whatever its relation in angularity may be to the draft-bar B and spring A the piston L is always free to arrange its axis in coincidence with the axis of the cylinder.

The shank M is preferably threaded at its lower end to engage with a screw-threaded socket in the draw-bar. At its upper end it is preferably bifurcated and is pivotally secured to a shank *i*, attached to the lower end of the spring. This pivotal connection is formed by the pin *i'*, and the effect is to provide an independent angular movement of the spring and draw-bar.

What I claim as my invention is—

1. In a spring-scale the combination with a

draft-bar, and a surrounding dash-pot of a plunger for said dash-pot, having a universally-jointed connection with said bar, a pinion, a rack arranged to engage the pinion, 5 pivoted to said bar whereby the rack may remain in contact with the pinion irrespective of the position of the bar relative to the plunger.

2. In a spring-scale, the combination with a 10 weighing-spring and draft-bar, of a dash-pot surrounding said spring and bar, a plunger within the dash-pot, a shank forming a connection between said spring and draft-bar, and a universally-jointed connection between 15 said plunger and shank.

3. In a spring-scale the combination with a weighing-spring, and draft-bar, of a dash-pot surrounding said spring and bar, a plunger within said dash-pot having a socket therein, 20 a shank forming a connection between said spring, and draft-bar, and having a ball engaging the socket for forming a universally-jointed connection between said shank and plunger.

4. In a spring-scale, the combination with a weighing-spring, and draft-bar, of a dash-pot surrounding said spring and bar, a shank forming the connection between said spring and draft-bar, and having a ball thereon, and a 30 plunger for said dash-pot, centrally socketed to engage said ball, and form a universally-jointed connection with said draft-bar and spring.

5. In a spring-scale, the combination with a 35 weighing-spring and draft-bar, of a dash-pot within which the same are adapted to reciprocate, a connecting means between the spring and bar, a plunger within the dash-pot, and a universally-jointed connection between the 40 plunger and said first-mentioned connecting means.

6. In a spring-scale, the combination with a weighing-spring and draft-bar, of a dash-pot surrounding said spring and bar, a plunger

within the dash-pot, a shank forming a con- 45 nection between said spring and draft-bar, a pivotal connection between said shank and spring, and a universally-jointed connection between said plunger and shank.

7. In a spring-scale, the combination with a 50 weighing-spring and draw-bar, of a dash-pot surrounding said spring and bar, a shank forming a connection between said spring and draw-bar, a pivotal connection between said shank and spring, a ball on the shank, a 55 plunger for the dash-pot having a socket engaging the said ball and forming a universally-jointed connection between said draw-bar and shank.

8. In a spring-scale, the combination with a 60 weighing-spring and draft-bar, of a dash-pot surrounding said spring and bar, a shank having a screw-threaded connection with said bar and a pivotal connection with said spring, and a plunger having a universally-jointed con- 65 nection with said shank.

9. In a spring-scale, the combination with a weighing-spring, and a draft-bar, of a dash-pot surrounding said spring and bar, a shank having a screw-threaded connection with said 70 bar and a pivotal connection with the spring, a ball on said shank, and a plunger for the dash-pot centrally socketed to engage said ball.

10. In a spring-scale, the combination with a weighing-spring and draft-bar, of a dash-pot 75 surrounding said spring and bar, a shank forming the connection between said spring and draft-bar, and having a ball thereon, and a plunger centrally socketed to engage said ball, the upper and lower portion of said plunger 80 having a concaved portion adjacent the socket, for permitting lateral movement of the shank.

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS B. GALORNEAU.

Witnesses:

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