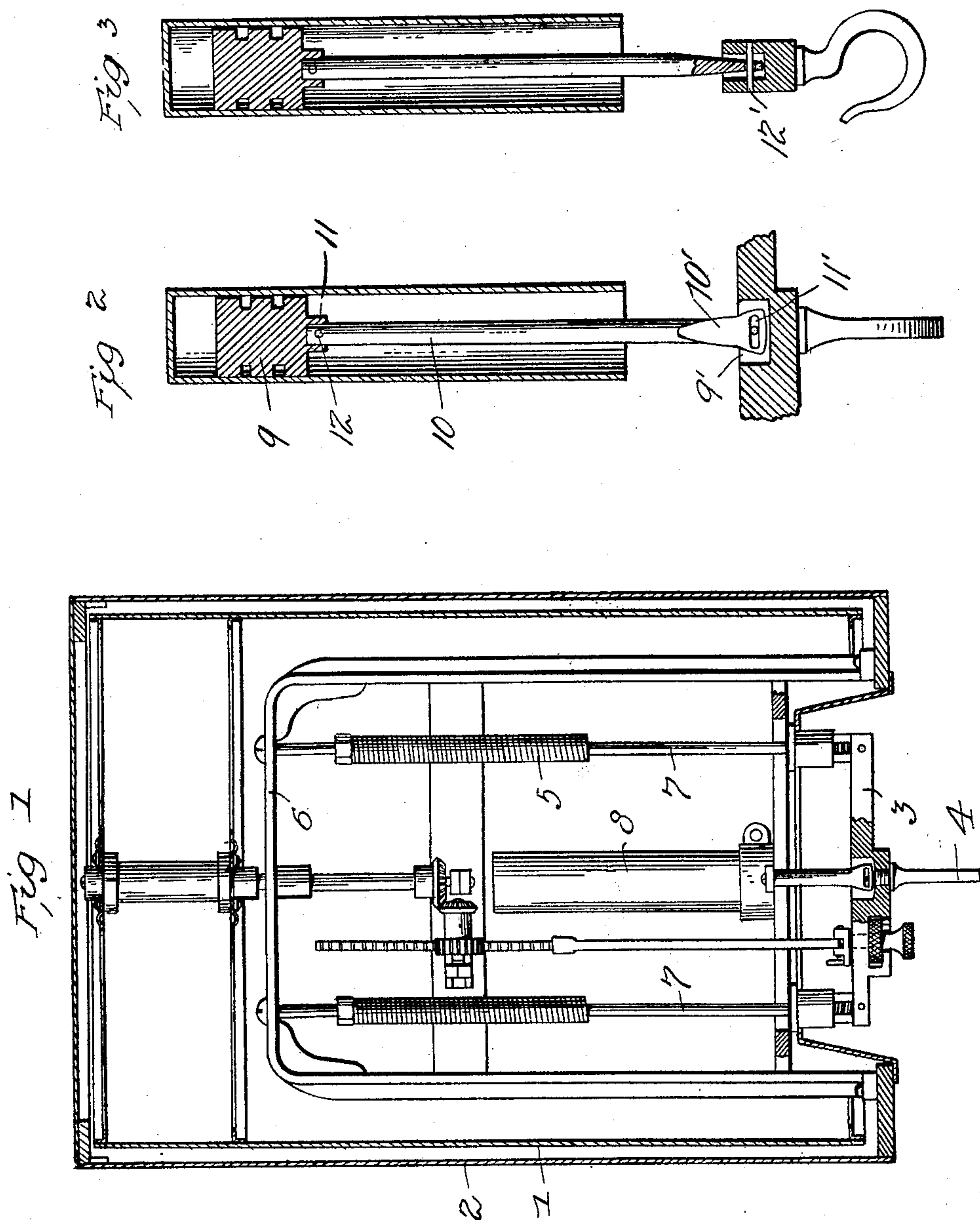


No. 795,380.

PATENTED JULY 25, 1905.

L. P. WELFLEY.
SPRING SCALE.

APPLICATION FILED DEC. 24, 1904.



Attest:

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UNITED STATES PATENT OFFICE.

LAWRENCE P. WELFLEY, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO
THE AUTOMATIC SCALE COMPANY, A CORPORATION OF NEW JERSEY.

SPRING-SCALE.

No. 795,380.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed December 24, 1904. Serial No. 238,247.

To all whom it may concern:

Be it known that I, LAWRENCE P. WELFLEY, a citizen of the United States, residing at Bridgeport, Connecticut, have invented certain new and useful Improvements in Spring-Scales, of which the following is a specification.

My invention relates to spring-scales, and is designed to provide a simple and effective arrangement for controlling the movement of the mechanism.

The invention concerns particularly a pneumatic cushion or dash-pot and the manner of connecting the same with the operating mechanism of the scale.

The invention consists in the features and combination and arrangement of parts hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a central vertical sectional view of so much of a spring-scale with my invention applied thereto as will enable one skilled in the art to understand the same. Fig. 2 is a detail view of the dash-pot or pneumatic cushion, and Fig. 3 is a view of the parts shown in Fig. 2 a quarter-turn therefrom.

I have shown my invention as applied to a price-scale of the type employing a vertical cylindrical chart rotating in a casing 2 and having connections to the cross-beam or cross-head 3, which carries the hook 4, from which the scale-pan is hung. This cross-beam is suspended by springs 5, connected with the main stationary frame 6. The connections between the springs and the cross-heads consist of the rod 7.

The cylinder of the pneumatic cushion or dash-pot is shown at 8, closed at its upper end and open at its lower end. A piston 9 is adapted to reciprocate within this cylinder, and the piston-rod 10 has a rigid connection with the piston at 11, said rigid connection in the present instance consisting of the end of the piston-rod fitting in a socket in the piston, wherein it is rigidly held by a cross-pin 12 passing through the piston-rod and the walls of the socket.

In a spring-scale of the general type indicated above the suspended scale-pan, together with the cross-beam 3, has a certain amount of lateral play or displacement allowed thereto, and special provision must be made in view of this lateral movement to secure proper connection between these parts and the parts of

the pneumatic cushion or dash-pot. I aim to provide a simple connection which will allow this movement and which at the same time will present advantages in the operation of the dash-pot. As above stated, I provide a rigid connection between the piston and the piston-rod of the pneumatic cushion, and I allow all the lateral displacement between the beam 3 and the piston-rod to take place at the lower end of the said rod at its point of connection with the cross-beam. For this purpose I provide the cross-beam in its upper surface with an elongated cavity 9', and I flatten the lower end of the piston-rod at 10', and in this flattened end I provide an elongated opening or slot 11', with its longest dimension extending in the same direction as the cavity 9'. The cavity 9' is also considerably wider, as shown in Fig. 3, than the flattened end of the piston-rod. A pin 12', fixed rigidly in the walls of the cavity 9', passes through the elongated opening 11' in the end of the piston. Normally this pin is at a central point in the said elongated opening, and the flattened end of the piston-rod is midway between the front and rear walls of the cavity 9', as shown at Fig. 3; but when lateral displacement of the cross-beam 3 takes place in any direction the connection just described, consisting of the pin passing through the elongated opening in the piston-rod which is located in the elongated and widened cavity in the cross-beam, will allow said cross-beam, together with the scale-pan, to move in any direction without affecting the position of the piston-rod and piston in relation to the cylinder to such an extent as would prevent the proper operation of these parts.

The connection described is such that displacement of the scale-pan and beam in any direction will be allowed for.

By reason of the fact that I provide a rigid connection between the piston-rod and the piston I secure the advantage of slight increased frictional pressure between the piston and the cylinder when the parts first begin to rise, for under the upward pressure of the parts being raised by the springs the first tendency will be to throw the piston slightly at an angle in relation to the axis of the cylinder, due to the fact that the upward pressure of the parts will not always be in a direct vertical line, and this pressure will increase the resistance initially and prevent a too rapid rise at the beginning of the movement; but after a movement starts the parts will assume

a more nearly central relative position for their operation as a pneumatic cushion.

While I show the invention as applied to a spring-scale of the vertical cylindrical type, I do not, of course, limit myself in this regard. Further, I do not wish to limit myself to the particular form of loose connection between the piston-rod and the connection leading to the goods-receiver, for, while I regard this form as presenting advantages of simplicity and effectiveness, the broad principle of the invention can be carried out in other ways than that shown.

I claim as my invention—

1. In combination in a spring-scale, a support for a scale-pan or goods-carrier, a cylinder and piston, a connection between the said piston and the pan-support consisting of a piston-rod rigidly connected at one end to the piston and having a loose connection with the support at the opposite end allowing the said support to have lateral movement horizontally in all directions in relation to the piston-rod, substantially as described.

2. In combination in a spring-scale, a cylinder, a piston therein, a support for the scale-pan or goods-carrier having an elongated cavity therein, the piston-rod connected rigidly to the piston and having an elongated opening in the end extending into the said cavity, and a pin passing through the said cavity, and the elongated opening of the piston-rod, the said cavity being of greater width than the piston-rod, substantially as described.

3. In combination in apparatus of the class described, the support for the scale-pan or goods-carrier, a cylinder, a piston moving therein, a piston-rod connected with the piston rigidly and having its other end flattened and provided with an elongated opening and a pin passing through the said elongated opening and fixed to the support to allow the flattened end to have movement transversely and longitudinally thereof, substantially as described.

4. In combination, in apparatus of the class described, a supporting member for the scale-pan or goods-carrier, a cylinder, a piston and a piston-rod extending between the piston and the said support, and connected rigidly at one end and having a loose connection at its other end to allow lateral displacement in all directions between said other end and the part to which it is connected, substantially as described.

5. In combination in apparatus of the class described, a support for the pan or goods-carrier, a cylinder, a piston, a piston-rod having an elongated opening extending substantially horizontally therein and a pin passing through the said elongated opening to hold the piston-rod while allowing movement of the pin longitudinally or transversely in relation to the piston-rod, substantially as described.

6. In combination, in apparatus of the class described, a support for the pan or goods-carrier, a cylinder, a piston, a piston-rod extending between the piston and said support and connected rigidly at one end and having a loose terminal connection at its other end to allow relative lateral displacement in all directions at said terminal end between said end and the part to which the said rod is loosely connected, substantially as described.

7. In combination, in apparatus of the class described, a support for the pan or goods-carrier, a cylinder, a piston, a piston-rod extending between the piston and said support and connected rigidly at its upper end to the piston and having at its lower terminus a loose connection with the said support to allow the same to have movement in all directions.

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

LAWRENCE P. WELFLEY.

Witnesses:

W. F. HUMMER,

JOHN R. CLEMENS.