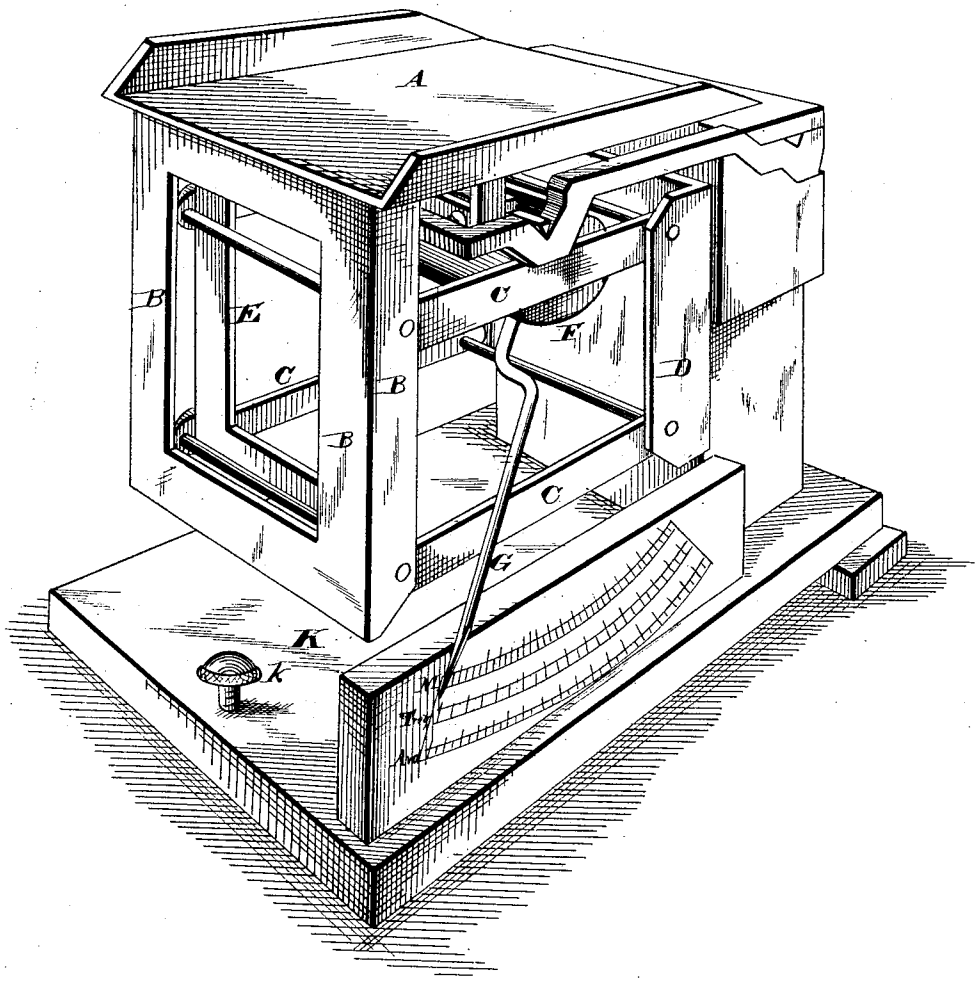
2 Sheets—Sheet 1.

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Pendulum-Scale.

No. 221,757. Patented Nov. 18, 1879.

Fig. 1.



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2 Sheets—Sheet 2.

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Fig. 2.

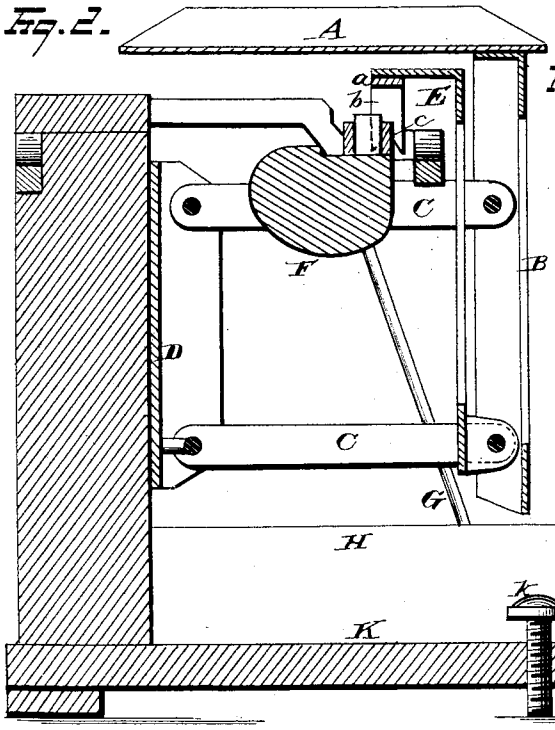


Fig. 3.

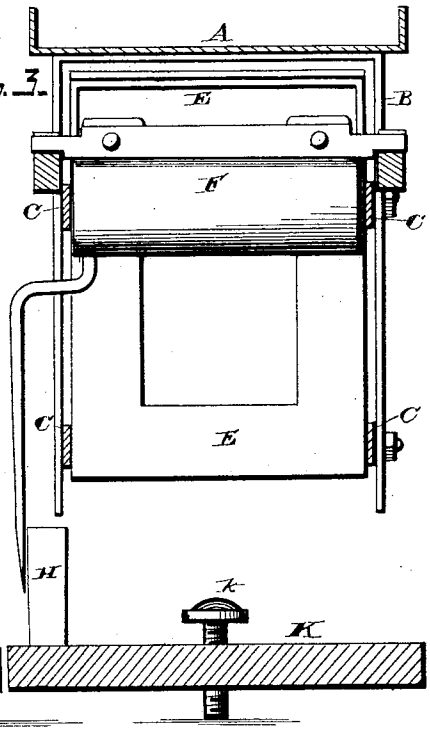


Fig. 4.

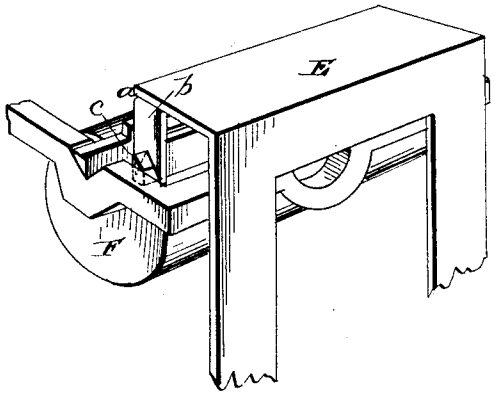


Fig. 5.

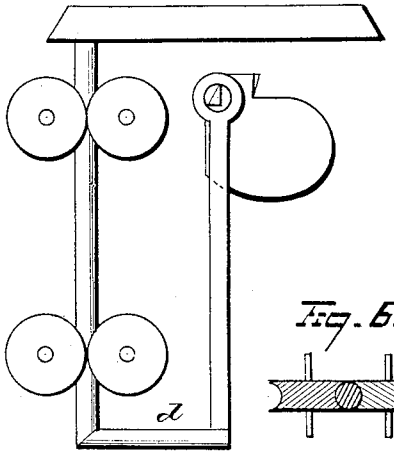


Fig. 6.

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UNITED STATES PATENT OFFICE

HENRY M. WEAVER, OF MANSFIELD, OHIO.

IMPROVEMENT IN PENDULUM-SCALES.

Specification forming part of Letters Patent No. **221,757**, dated November 18, 1879; application filed March 17, 1879.

To all whom it may concern:

Be it known that I, HENRY M. WEAVER, of Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Pendulum-Scales; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an automatic gravity-scale; and it consists in the combination, with a single cylindrical weight, of a hanger whose upper extremity connects therewith, and whose lower extremity is pivoted to the lower extremity of the platform-support, together with devices which engage with said platform-support and maintain it in a constant vertical position.

Referring to the drawings, Figure 1 is a view, in perspective, of a device embodying one form of the invention. Fig. 2 is a transverse vertical section of the same looking toward the front side. Fig. 3 is a longitudinal vertical section looking toward the front or open end. Fig. 4 is a sectional view in detail, representing the opposite side from that shown in the preceding figure. Figs. 5 and 6 are different views, representing one form of modification from that shown in the previous figures.

The platform A is rigidly secured at right angles to the top of the vertical support B, which latter is adapted to have free bodily movement in a constant vertical straight line, and thereby maintain said platform continuously in horizontal position under all circumstances.

In accomplishing this result according to one manner of construction, any suitable number of horizontal arms C may be employed, the same respectively having their outer extremities pivoted to the platform-support, while their opposite or inner extremities are pivoted to an upright, D, of any desired character.

Preferably I employ two upper arms and one lower arm, arranged in horizontal line.

To the lower extremity of this vertical platform-support is pivoted a hanger or vertical frame, E, whose upper extremity is connected with the pendulum-weight F, and it is this element or device in the combination of operative parts which serves an important function in accomplishing the result of my invention.

The upper extremity of this hanger or frame is formed with a right-angular horizontal extension, *a*, from which depend arms *b*, which latter engage with the knife-edge bearings *c*, formed at suitable points on the weight.

Certain immaterial changes in the mechanical form of the several parts may be made without departing from the invention.

Among other modifications which might be made I illustrate in Figs. 5 and 6 of the drawings a construction wherein the pivoted frame or hanger is in direct vertical line with its connecting portion of the pendulum-weight. This form calls for a horizontal extension, *a*, on the lower extremity of the platform-support. Said modification also dispenses with the horizontal pivoted arms adapted to have swinging movement in a vertical plane, and provides, in substitution therefor, grooved rollers, between which the vertical platform-support is guided in its free bodily movement in a longitudinal direction.

In further modification of the mechanism for adapting the platform-support to have free bodily movement in vertical line, and thereby maintain the platform constantly in horizontal position, said platform may be centrally placed on its vertical support, and bearings of any description could take the place of the anti-friction rollers, provided only that said bearings are capable of guiding said platform-support in vertical line. This latter modification, however, would increase the friction of the parts, and hence the former methods of construction would be preferable in a sensitive or delicate scale; also, in further modification, the platform-support could be made in form of a lazy-tongs, and thus still preserve the horizontal position of the platform, inasmuch as the bodily movement of said lazy-tongs operates in vertical straight line.

In instance of use of the horizontal arms, the latter may work on vertical knife-edge bearings instead of having horizontal pins passing through holes in their engaging por-

tions with the connecting parts, the result of said change being to produce greater sensitiveness in the action of the scale.

Other methods of connecting the hanger or pivoted frame to the pendulum-weight may be employed. Thus in Fig. 5 a loop is employed as one manner of connection with the knife-edge bearings of the weight.

The base-plate K of the scale may be provided with a vertical set-screw, *k*, or other means be employed, in order to bring the scale to a level and cause the pointer to coincide with the zero-point of the dial-plate.

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

The combination, with a single cylindrical weight, of a hanger whose upper extremity connects therewith, and whose lower extremity is pivoted to the lower extremity of the platform-support, together with devices which engage with said platform-support and maintain it in a constant vertical position, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 8th day of March, 1879.

HENRY M. WEAVER.

Witnesses:
ROBT. B. BRINKERHOFF,
S. L. NASH.