Sheet 1, 2 Sheets.

E. Sampson.

Pendulum Scales.

No. 6,852. Patented Nov. 6, 1849.

Fig. 3.

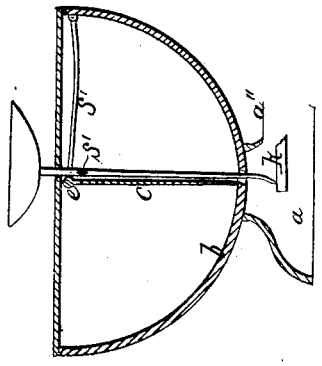
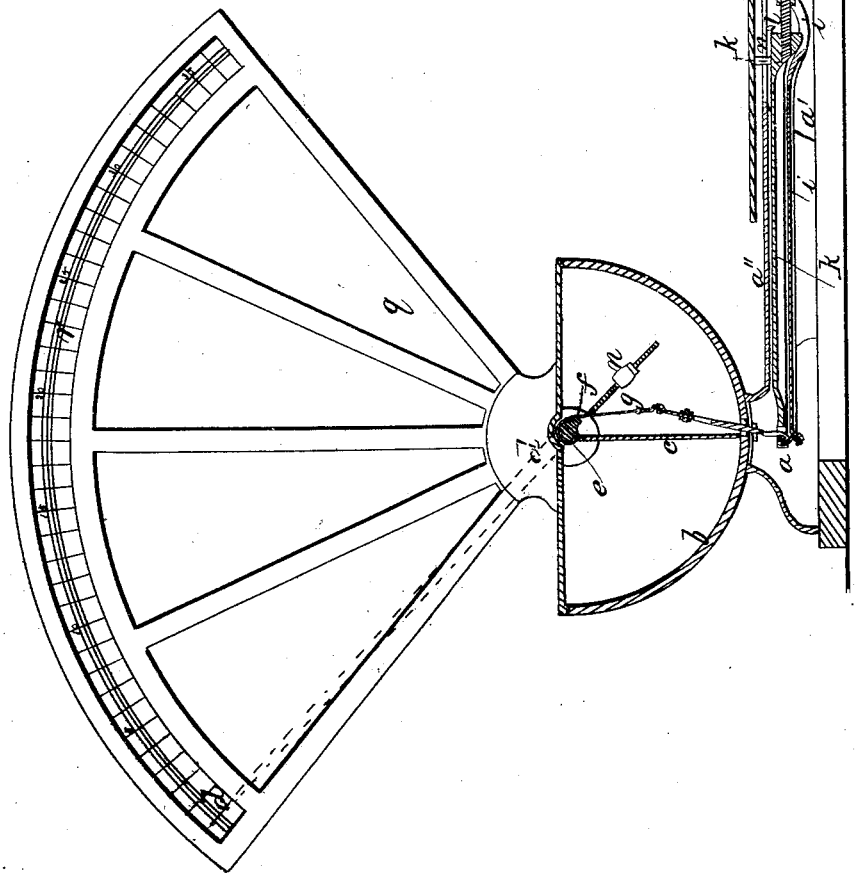


Fig. 1.



Sheet 2, 2 Sheets.

E. Sampson.

Pendulum Scales.

No. 6,852. Patented Nov. 6, 1849.

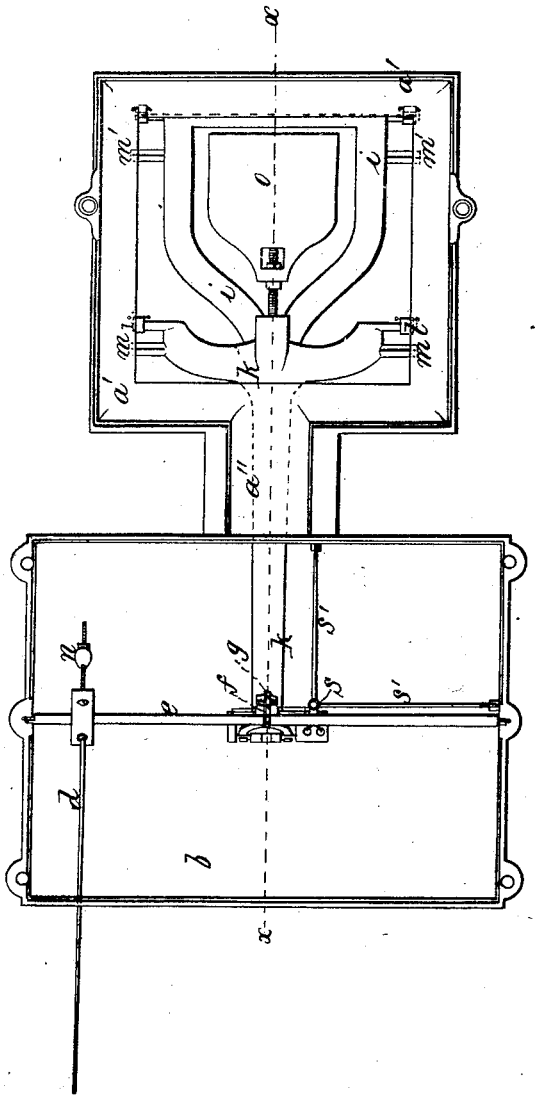


Fig. 2.

UNITED STATES PATENT OFFICE.

E. SAMPSON, OF CLAREMONT, NEW HAMPSHIRE.

PENDULUM-BALANCE.

Specification of Letters Patent No. 6,852, dated November 6, 1849.

To all whom it may concern:

Be it known that I, ELNATHAN SAMPSON, of Claremont, in the county of Sullivan and State of New Hampshire, have invented certain new and useful Improvements in Pendulum Platform-Balances, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known and of the usual manner of making, modifying, and using the same, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1, is a sectional elevation on line *x*—*x* of Fig. 2, which latter is a plan of the moving parts with the case platform &c in section. Fig. 3, is a section of the scale for light weights.

The nature of my improvements in pendulum platform balances, consists in the mode of arranging the levers for the platform, and adapting the pendulum balance thereto, so as to weigh either ounces or pounds with the same index and scale; the parts are constructed as follows—first, a castiron base (*a*, *a'*,); one end (*a'*,) of which is square, and forms the foundation for the platform for heavy weights; this is connected with the other part by a hollow stem (*a''*), within which are portions of the levers about to be described; the other portion of the base, lettered (*a*,), forms the foot of a semicylindrical case (*b*,) which contains the wing (*c*,) that is on the axis of the index (*d*,), and prevents the vibration thereof, as in the balance heretofore patented by me; the axis (*e*,) of the index is supported on knife edges, as is usual in such apparatus; and near its center it has an eccentric, or cam-shaped projection (*f*,) affixed to it, over which a chain or cord (*g*,) passes down and connects with the levers above named, on which the platform rests.

The hand, or index (*d*) is affixed at the end of the axis, and has a counter balance on it, the poise being formed by the pan or wing (*c*,) which is a plain flat piece of metal, nearly filling the cross section of the semicylinder in which it moves. The levers on which the weighing platform rests, are two in number, and both of the 2d order, the longest lever (*i*,) has a bow or loop at one end, stirrup shaped, with a long arm projecting from it, that extends under the cylinder to the center, thereof, and is there connected with the shorter lever (*k*,) that is just above it; this last named lever (*k*,) has a cross head at its opposite end that runs across just within the opening over which the platform rests; the two ends of said lever rest on triangular edged fulcra in rings (*l*,) suspended to the base, just in front of the fulcra are two horns (*m*,) parallel with them, on which two of the legs (*n*) rest; these horns are placed at the proportional distance between the fulcra, and the end of the lever under the case (*b*,) and an arm extends beyond the fulcra, on which there is an adjustable counter balance (*o*,) to counter balance the platform—this weight (*o*,) is within the loop of the long lever (*i*,); on the extreme end of this loop are two projecting fulcra on each side, like those at the other lever; and at a distance therefrom, proportionally equal to the division of the shorter lever, I project a horn on each side at (*m'*,); these support the two other legs of the platform, and by this arrangement it will be perceived that both levers move in the same direction, and the arc of motion of both horns is nearly equal, by which considerable friction is avoided; the platform is a plane surface, with four legs on its under side, resting, as before remarked, on the horns of the levers; when a weight is placed upon this platform, it causes the axis (*e*,) of the index to revolve in consequence of the chain which connects them being passed over the cam; the index moves within a thin fan-shaped case (*q*,) the point only being exposed, which passes over a segmental scale (*r*,) on which the weights are marked. On the extreme end of the upper lever (*k*,) the end of an upright rod (*s*,) rests, which extends up through a hole, at or near the center of the cover (*b'*,) of the case (*b*,); this rod is steadied in its perpendicular position by two horizontal links (*s'*,) that are attached to the case, and connect with the rod at right angles with each other; on the top of this rod, a pan, or other convenience, is set, as shown in Fig. 3, in which light articles are weighed; and if the levers are properly proportioned, the small pan can weigh ounces, while the same scale will indicate pounds on the platform; other changes can of course be made.

Having thus fully described my improve-

ments in pendulum balances, what I claim therein as new, and for which I desire to secure Letters Patent, is—

The combination of a pendlum balance, having a wing or fan attached thereto, to prevent its vibrations substantially as described, with the adjustable counter balanced platform for weighing interposing the chain and cam in the manner set forth. I claim also, in combination with the above apparatus the scales, for small weights, so arranged in connection with the levers of the platform scales as to have the same index indicate the weight of articles placed on either the large or small balance; and lastly, I claim the arrangement of the platform levers, both working in one direction, with the adjustaple weight appended thereto.

ELNATHAN SAMPSON.

Witnesses:

J. J. GREENAUGH,

WM. GREENAUGH.