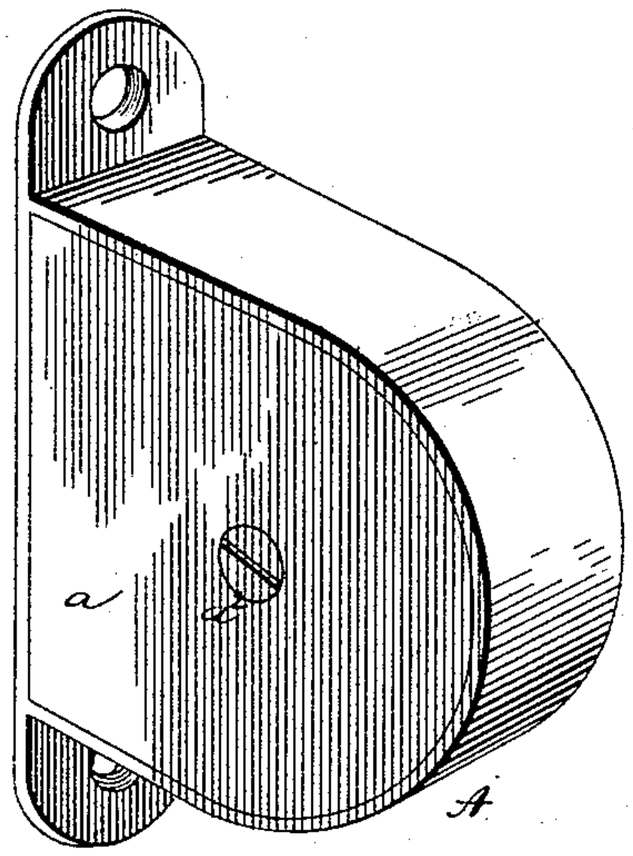
(No Model.)

A. J. ROSENTRETER & J. G. O'BRIEN.

SASH BALANCE.

No. 488,699. Patented Dec. 27, 1892.

Fig. 1



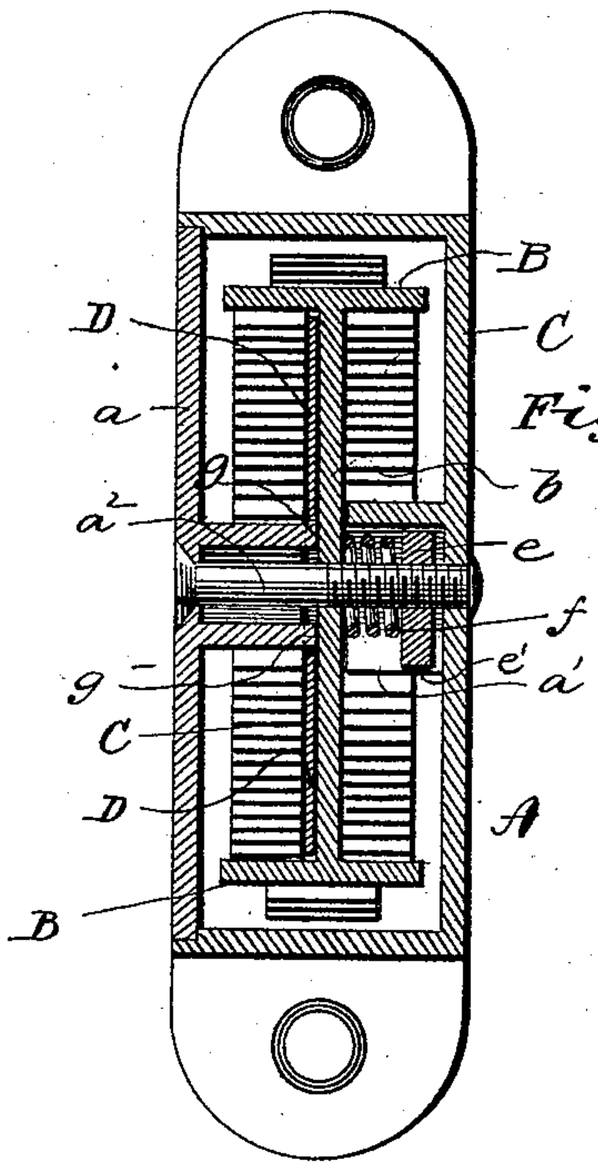


Fig. 3.

Fig. 2.

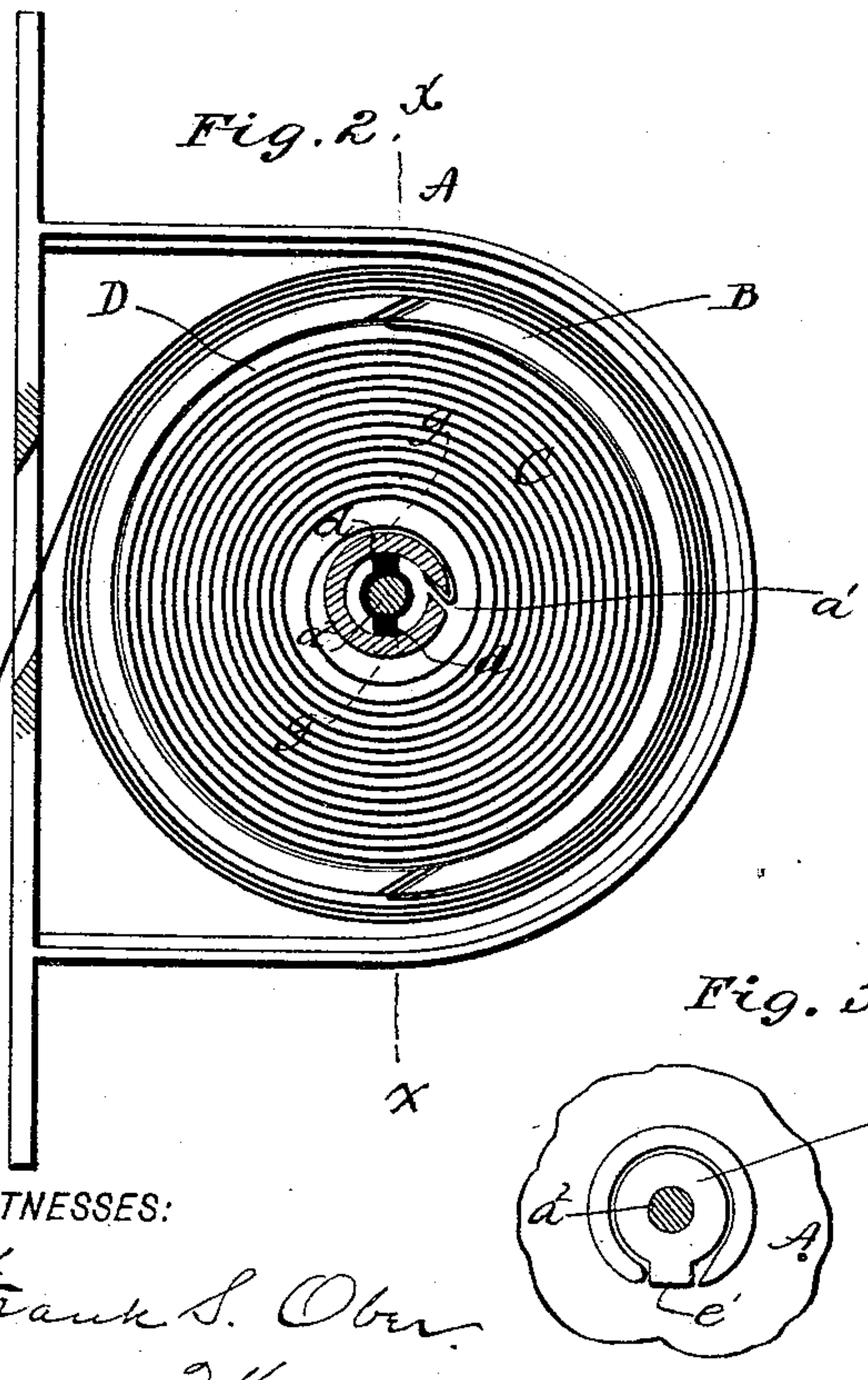


Fig. 4.

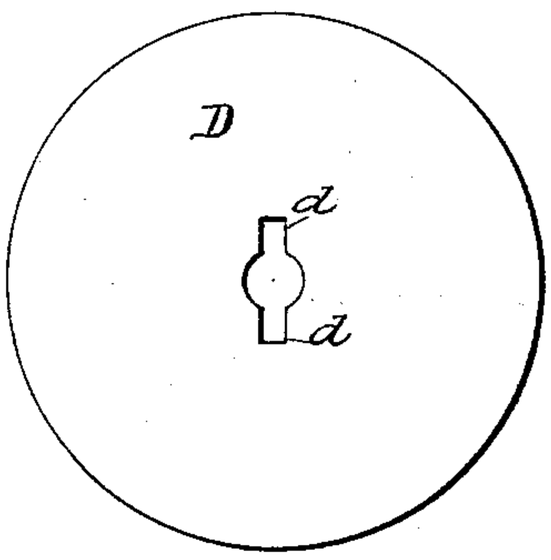


Fig. 5.

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SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 488,699, dated December 27, 1892.

Application filed May 16, 1892. Serial No. 433,080. (No model.)

To all whom it may concern:

Be it known that we, ALBERT J. ROSENTRETER and JOHN G. O'BRIEN, citizens of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Sash-Balances, of which the following is a specification.

This invention relates to sash balances of that particular class in which a coiled spring wound upon a pulley furnishes the power which balances the sash.

The object of the invention is to provide a device of this character which shall operate with less strain and friction on the parts, which shall be simple in construction, and cheap to manufacture.

The invention consists in the construction which will be hereinafter described and claimed.

In the drawings: Figure 1 is a perspective view of the device. Fig. 2 is a side elevation of the device with one side of the casing removed. Fig. 3 is a vertical section taken on line *x x* of Fig. 2. Fig. 4 is a face view of the disk brake, and Fig. 5 is a detail.

The case inclosing the parts of the device consists of a box A having the usual flanges through which screws may pass to hold it in place. One side of the case is a removable plate *a* which fits neatly in a seat formed on the edges of the case as shown in Fig. 3; this removable plate *a* and the side of the casing directly opposite are provided with two concentric hubs, projecting toward each other but with a space between them. Each of the hubs has a slot, or opening *a'* parallel to its axis for a purpose which will hereinafter appear. A screw a^2 passes through the plate *a*, the hubs and the opposite side of the casing, and is headed or flanged on the outside to prevent its removal but permitting its rotation. The head of the screw is provided with the ordinary slot for rotating it. Inside of the casing is mounted a pulley B, which has its bearing upon the screw above mentioned. The rim of the pulley is a little narrower than the case, and is supported by a central web *b*, which extends inward between the two hubs of the case and surrounds the screw. The hubs extend close up to the web and prevent its longitudinal movement upon the screw. In the space on each side of the pulley is placed a coiled spring C, the inner end of which is bent into a hook and catches into a slot in the hub formed upon that side of the casing to which the spring is adjacent. The outer ends of the springs are secured in any desirable manner to the rim of the pulley. These springs exert their power in the same direction upon the pulley. Acting as they do upon opposite sides of the bearing of the pulley, and in the same direction, the pulley is better balanced and runs with less strain and friction, and the power is applied more effectually than if one large spring were used.

D represents a metallic disk which lies against the web *b* of the pulley and is centered loosely upon the screw. Its function is to act as a brake upon the pulley to overcome any inertia which may be imparted to the sash, and to make the action of the balance more positive. Friction is set up between this disk and the pulley by a spiral spring *f*, which surrounds the screw and bears at one end against the pulley and at the other end against an adjustable nut *e*. This nut runs upon a thread on the screw and is provided with a small lug *e'* which projects into the slot in the hub and prevents the nut from rotating with the screw. When the screw is turned, therefore, the nut must move longitudinally upon it and in this way the tension of the spiral spring and the action of the brake may be regulated.

As shown in the drawings, the brake disk occupies a position against the web of the pulley, and between it and one of the coiled springs. This brake, however, might be arranged to bear at other points upon the pulley. In order to prevent the disk from turning with the pulley, it is provided with two notches *d d*, at the center, into which two lugs *g g* on one of the hubs, extend. The hub being stationary, the disk is also held stationary. The disk as here illustrated is flat and bears with its whole surface against the web of the pulley, but in practice it may be found desirable to curve the disk slightly to make it like a segment of a sphere, so that the edges alone, which in that case would be resilient, would bear upon the web; or the web itself might be rounded a little and the disk remain flat. It is therefore to be understood

that my invention comprehends all such constructions and is not confined to the details illustrated.

Around the outside of the rim of the pulley a metallic tape T is wound, its inner end being fastened to the pulley, and its outer end extending through an opening *t* in the front of the case and attached to the sash.

In operation the movement of the sash causes the springs to wind and unwind the supporting tapes, the springs acting to counterbalance the weight of the sash.

Whenever the brake becomes worn or has an improper action, it may be adjusted with a screw driver in the manner hereinbefore described.

Having thus described our invention, we claim:

1. In a sash balance, the combination with a pulley, of two coiled springs acting conjointly upon it and in the same direction, for the purpose set forth.

2. In a sash balance, the combination with a pulley, of two coiled springs acting conjointly upon it and in the same direction, and located on opposite sides of its supporting web or spokes, and a brake disk interposed between said web or spokes and one of the springs, and bearing upon the pulley, substantially as described.

3. In a sash balance, a casing formed in two parts, each provided with hubs which are located concentric with each other, a shaft passing through said hubs, and a pulley loosely mounted upon said shaft and held in position upon the shaft by said hubs in the manner described.

4. In a sash balance, the combination with the loose pulley, of a brake disk on a concentric axle, the edges of the disk bearing upon the pulley to produce the required friction, and an adjusting device for regulating the pressure of the disk upon the pulley.

5. In a sash balance, the combination with a pulley loosely mounted upon an axle, of a disk mounted upon a concentric axle, the edges of the disk bearing against the pulley, a spring pressing upon the disk, and an adjusting device for regulating the power of the spring.

6. In a sash balance, the combination of a case, a spring operated pulley located therein, a disk forming a brake bearing against the pulley and means for applying pressure to the disk, substantially as described.

7. In a sash balance, the combination with the case, of the pulley, the brake disk resting against one side of the same, the screw passing through the case, the nut fitted to the screw and the spiral spring interposed between the nut and disk, substantially as shown and described.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

ALBERT J. ROSENTRETER.
JOHN G. O'BRIEN.

Witnesses:
F. D. NYE,
J. NORMILE.