

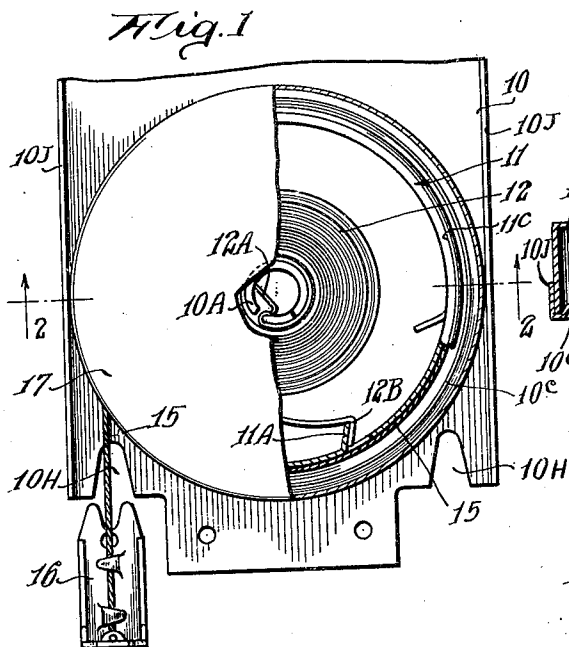
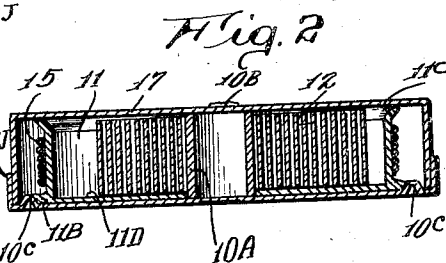
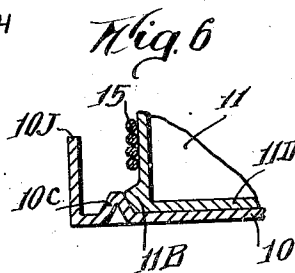
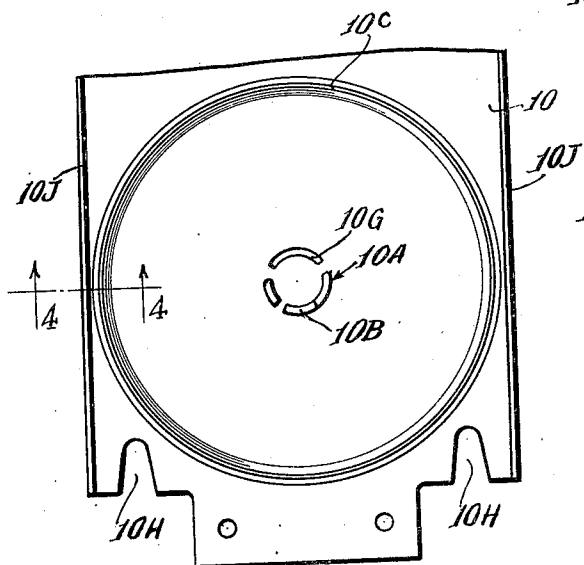
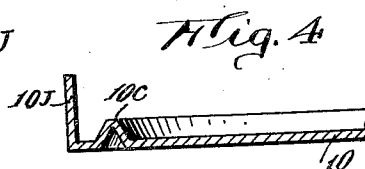
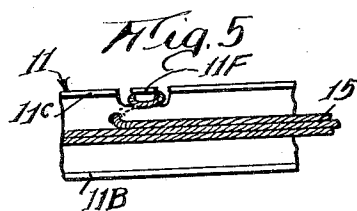
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2,497,279

SASH BALANCE

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UNITED STATES PATENT OFFICE

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SASH BALANCE

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2 Claims. (Cl. 16—198)

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The present invention relates to sash balances of the type in which a spring serves the same function as a counterweight.

Present day sash balances include a spring biased reel member having wound thereon a flexible cord or cable, one end of the cord or cable being attached to the reel member and the other end being adapted for connection to a window sash. Oftentimes, in use, the attached window sash is manually moved abruptly and rapidly. Such abrupt and rapid movement of the window sash oftentimes results in improper winding of the cable on the reel; and, in some cases the cable may become jammed between the movable reel member upon which it is intended to reel and the associated reel support member thus necessitating expensive and time consuming operations of dismantling the window sash and the attached sash balance. Such unfortunate instances occur especially when the spring biasing reel member is relatively weak and does not drive the reel member at a speed commensurate to the speed of movement of the window sash, causing the cable to be either wound improperly on the reel member or to actually jam between moving parts.

In accordance with present day practice of manufacturing such sash balances inexpensively with mass production methods, the working parts of the spring sash balance are enclosed in a permanent manner by riveting so that once the cable becomes jammed or fouled within its housing, access thereto may not readily be obtained; and if access is had the sash balance unit may not be readily reassembled.

It is therefore an object of the present invention to provide an improved spring sash balance having improved means therein arranged to prevent improper coiling and jamming of the flexible member therein which normally extends between the attached window sash and a spring biased reel member.

Another object of the present invention is to provide an improved spring sash balance unit having novel guiding means assuring proper coiling and storage therein of the flexible connecting member which normally connects a spring biased reel member also contained therein to a window sash.

Still another object of the present invention is to provide an improved spring sash balance unit incorporating novel cable guiding means to assure correct positioning of the cable in the sash balance especially upon abrupt and ready movement of the attached window sash, a feature of

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the present invention residing in the ease, simplicity and inexpensiveness with which such guiding means may be automatically provided during the manufacture of present day units.

Yet another object of the present invention is to provide improved cable guiding means in a sash balance without the necessity of manufacturing operations in addition to those used in the manufacture of present day balances.

The present invention is particularly applicable in spring sash balances of the type shown in my United States Patents 1,905,107, 2,164,654 and also Design Patent 115,712.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. This invention itself, both as to its organization and manner of operation, together with further objects and advantages thereof, may be best understood by reference to the following description taken in connection with the accompanying drawings in which:

Figure 1 is a view in elevation of one half of a twin spring sash balance incorporating the present invention with a portion of the cover fragmented to show some of the internal parts.

Figure 2 is a sectional view taken substantially on line 2—2 of Figure 1.

Figure 3 is a view similar to Figure 1 but with the cover member, internal spring member, reel member and cable member removed, Figure 3 being a top plan view of a portion of the inside surface of the face plate 10.

Figure 4 is a sectional view taken substantially on the line 4—4 of Figure 3.

Figure 5 is a view in side elevation of a portion of the cable reel shown in Figures 1 and 2 showing the manner in which one end of the cable is attached to the cable reel.

Figure 6 shows some of the structure of Figure 2 in enlarged form.

The spring sash balance shown in Figure 1 includes: a face plate 10; a cup-shaped reel member 11; a prestressed torque spring 12 having one of its ends 12A fastened to the hollow cylindrical reentrant standard 10A affixed to base plate 10, and the other one of its ends 12B fastened to the inwardly extending tongue member 11A on reel member 11; the flexible cord or cable 15 having one of its inner ends suitably secured to reel member 11 as shown in Figure 5 and its other end affixed to the fastening member 16 which is arranged to be fastened to a window sash; and, the cup-shaped cover member 17 which is normally maintained in position by

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riveting it to the central standard 10A, the upward extending projection 10B being bent over or flattened for that purpose.

Of importance is the fact that the face plate 10 may be manufactured by one or more stamping operations during which suitable apertures 10G, 10H may be provided for respectively fastening thereto the inner hub member 10A, for seating fastening member 16; and also the circular bead 10C and the upstanding side walls 10J may be formed.

The outer periphery of the cup-shaped member 11 has opposite edges thereof tapered as shown in Figure 2 to provide a pair of circular flange members between which the cable 15 may be reeled. The diameter of the circular flange member 11B is slightly less than the diameter of the circular bead 10C and is mounted concentric therewith in almost abutting relationship. The bead member 10C is closely adjacent the inner flange member 11B and is raised to extend inwardly within the unit contiguous to the circular flange 11B to thereby provide an improved means whereby the flexible cable 15 may, in use, be assured of proper positioning on reel 11 without becoming fouled or jammed between the bottom portion 11D of the cup-shaped reel member 11 and the adjacent abutting surface of the face plate 10.

While I have shown the bead 10C in continuous circular form, it may likewise be in the form of a discontinuous circle. Also, while I have shown a circular bead 10C on the face plate 10, a corresponding bead may likewise be formed on the cover member 17 to cooperate in identical manner with the other circular flange member 11C. Usually, however, when the inner end of the flexible cable 15 is fastened as shown in Figure 5 to a projection 11F defined by a cut-out portion on the upper flange member 11C adjacent the cover member 17, a bead 10C need only be impressed in the face plate 10. It is reasonable to suppose that the converse may be true. That is, when the inner end of the cable 15 is fastened onto or

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closely adjacent the flange member 11B, a bead, corresponding to bead 10C, should be on the cover member 17 to cooperate with the other flange member 11C.

While the particular embodiments of the present invention have been shown and described, it will be obvious to those skilled in the art that changes and modifications may be made without departing from this invention in its broader aspects and, therefore, the aim in the appended claims is to cover all such changes and modifications as fall within the true spirit and scope of this invention.

I claim:

1. In a spring sash balance, a plate member, a cable, a reel member having a pair of spaced circular flanges defining a channel for confining said cable, one end of said cable being attached to said reel member in proximity to one of said flanges and the other one of said flanges cooperate with a raised portion on said plate member to guide the movement of said cable onto said reel member.

2. In a spring sash balance, a plate member, a cable, a reel member having a pair of spaced circular flanges defining a channel for confining said cable, one end of said cable being attached to said reel member in proximity to one of said flanges and the other one of said flanges cooperate with a raised portion on said plate member positioned immediately adjacent said other flange to guide the movement of said cable onto said reel member.

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REFERENCES CITED

The following references are of record in the file of this patent:

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1,898,584	Mantz	Feb. 21, 1933