July 4, 1939. A. H. KERSTING 2,164,654

SPRING SASH BALANCE

Filed Nov. 8, 1937

FIG. 1.

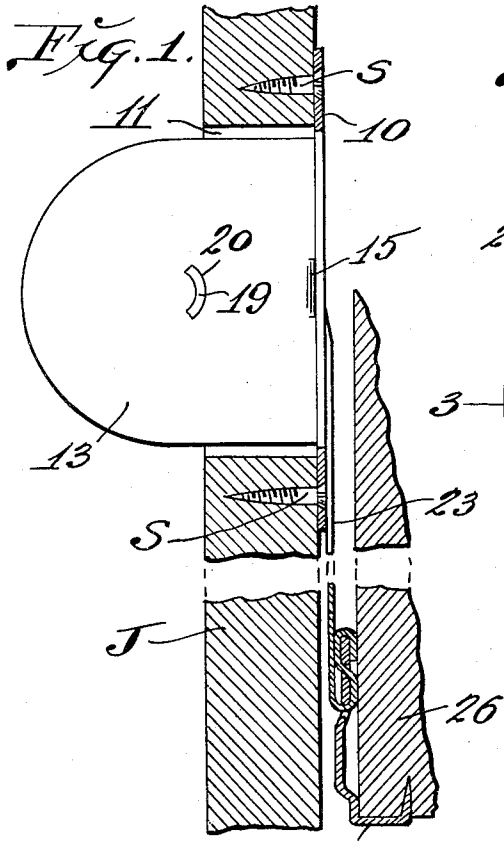


FIG. 2.

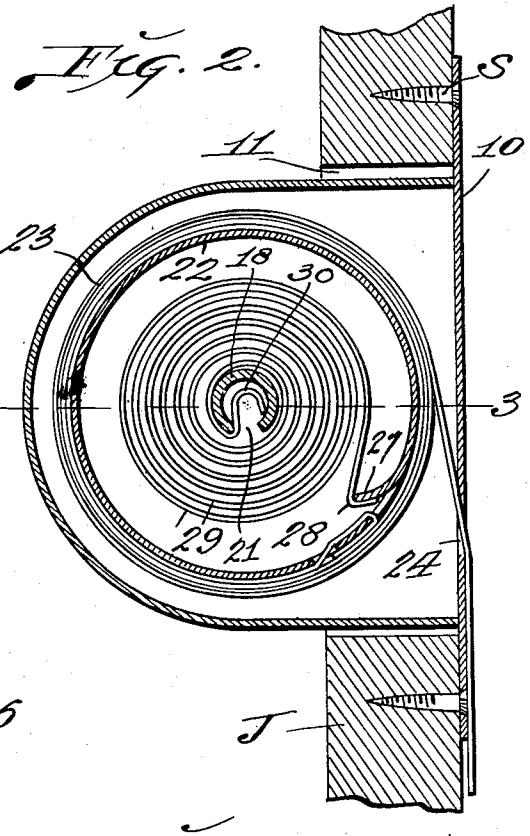


FIG. 3.

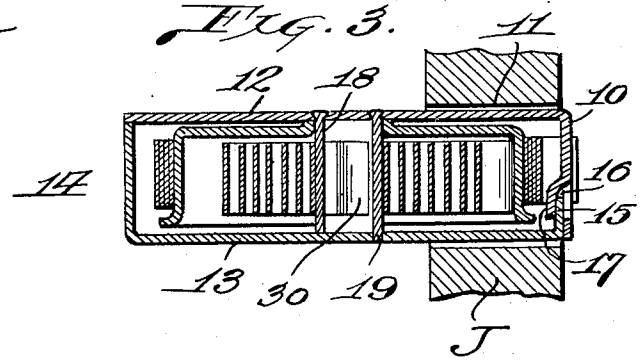
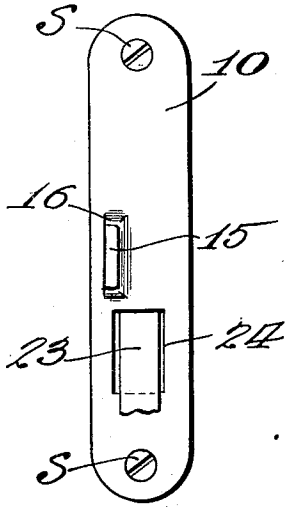


FIG. 4.



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SPRING SASH BALANCE

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Application November 8, 1937, Serial No. 173,421

1 Claim. (Cl. 16—198)

My invention relates to a spring sash balance of the general type disclosed in United States Letters Patent Number 1,733,666 issued to me October 29, 1929.

The principal objects of my present invention are, to generally improve upon and simplify the construction of the sash balance disclosed in my aforesaid patent, as well as other similar forms of sash balances, and to construct the housing and other parts of the balance so that the same may be easily and economically produced and capable of being readily assembled and installed for use.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangements of parts that will be hereinafter more fully described and claimed and illustrated in the accompanying drawing in which:

Fig. 1 is a vertical section taken through a portion of a window jamb and showing my improved balance installed for use and connected to a window sash.

Fig. 2 is an enlarged vertical section taken through the center of the balance.

Fig. 3 is a horizontal section taken on the line 3—3 of Fig. 2.

Fig. 4 is an elevational view of the face plate of the sash balance housing.

Referring by numerals to the accompanying drawing which illustrates a preferred embodiment of my invention, 10 designates the face plate of the housing which is preferably formed from suitable sheet metal, and provided in its ends with apertures for the reception of screws S that secure the housing to the jamb J. In order to receive the housing of the balance, jamb J is provided with a vertically disposed slot or opening 11.

Formed integral with one side of the face plate 10 and extending at right angles therefrom through the opening 11 is a plate 12 of sheet metal, that constitutes one of the side walls of the housing.

The opposite side wall 13 of the housing comprises a plate of sheet metal that has the same shape as plate 12, and formed integral with the upper, lower and rear edges of this plate 13 and projecting at right angles therefrom, is a flange 14 that constitutes the top, bottom and inner walls of the housing.

When the parts of the housing are properly assembled, the edge of flange 14 bears against plate 12 adjacent its edge, and the vertical front edge of plate 13 bears against the inner face of the face plate 10.

In order to hold the two parts of the housing in assembled relation, a short lip or flange 15 projects at right angles from the central portion of the vertical front edge of said plate 13, and when the parts of the housing are properly assembled, this lip occupies a position in a slot or pocket 16 that is formed in the face plate 10 by slotting the latter and pressing the material to one side of said slot rearwardly as designated by 17, Fig. 3.

Rigidly fixed in any suitable manner, either by riveting or spot welding, to the center of the side wall 12, is one end of a short tubular member 18, and the other end of this member is provided with a short arcuate lip 19 that projects through a corresponding slot 20 that is formed in the side wall 13.

This tubular member 18 is provided with a longitudinally disposed slot 21.

Mounted to rotate freely on the tubular member 18 is a shallow cup-shaped drum 22, and suitably secured thereto is one end of a tape 23, preferably of steel, of the type generally employed in spring sash balances. After passing around the drum several times, this tape passes through an opening 24 formed in the lower portion of the face plate 10, and the end of this tape carries a hook 25 that is secured to the lower portion of the upright side member 26 of an adjacent window sash (see Fig. 1).

Cut and pressed inwardly from the circumferential flange of the drum 22 is a lip 27 that is engaged by a hook 28 that is formed on the outer end of a spiral spring 29. The inner end of this spring passes through the slot 21 in tubular member 28, and that portion of the spring within said tubular member is bent to form a semi-circular hook 30 that is positioned within said tubular member. The hook 30 on the inner end of spring 29 is formed so that its free end engages the inner face of tube 18 on the opposite side of the slot 21 from that portion of the spring that enters said slot and thus the inner end of the spring is very securely anchored to the tube 18 without the necessity for employing rivets, screws or other fastening means.

The relative positions of the convolutions of the tape 23 and spring 29 are such that when the window sash to which the tape is connected is moved downward, the tape will unwind from the drum 22 thereby imparting rotary movement to said drum, and the spring 29 will be wound onto the tubular member 18, thus imparting tension to said spring, and which tension is subsequently utilized when the window sash is moved upward.

Thus it will be seen that I have provided a spring sash balance that is relatively simple in construction, inexpensive of manufacture, capable of being readily assembled or taken apart, also capable of being easily and quickly installed and said spring sash balance being very effective in performing the functions for which it is intended.

It will be understood that minor changes in the size, form and construction of the various parts of my improved spring sash balance may be made and substituted for those herein shown and described, without departing from the spirit of my invention, the scope of which is set forth in the appended claim.

I claim as my invention:

A spring sash balance comprising a two-part housing, one of which parts includes a face plate, said face plate having a pocket, a lip projecting from the other part of the housing into said pocket, a tubular member connecting the intermediate portions of the parts of said housing, said tubular member being provided with a slot, a drum mounted for rotation on said tubular member, a lip projecting inwardly from the periphery of said drum, a spiral spring, a hook formed on the inner end of said spiral spring, said hook being positioned within said tubular member with the free end of said hook engaging the inner surface of said tubular member opposite that side of the slot engaged by the spring in passing through said slot, a hook on the outer end of said spring, which hook engages the lip on said drum, a tape of flexible metal carried on the periphery of said drum, the inner end of which tape is secured to said drum and the outer portion of which tape passes through an opening in said face plate.

ALBERT H. KERSTING.