Nov. 18, 1941. G. C. CROSS ET AL 2,262,990

WINDOW SASH COUNTERBALANCE

Filed Sept. 2, 1939

Fig. 1.

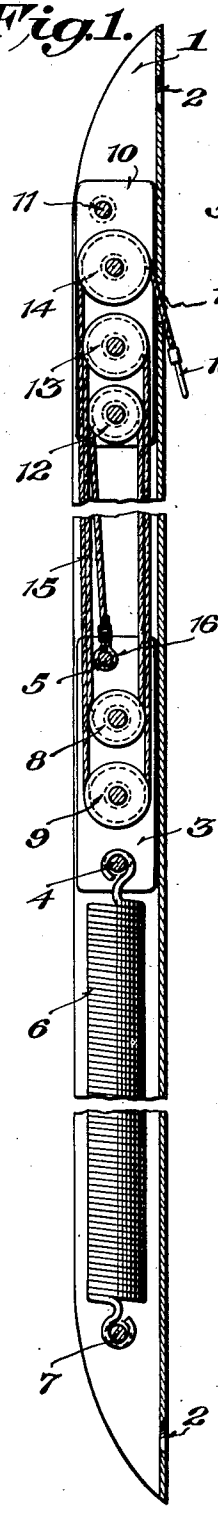


Fig. 2.

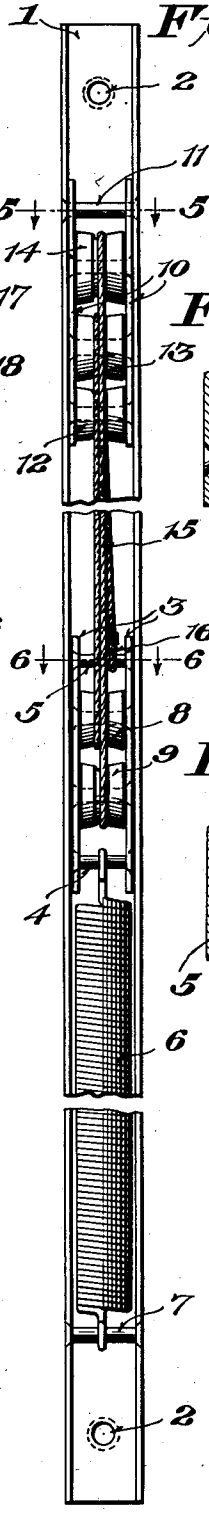


Fig. 5.

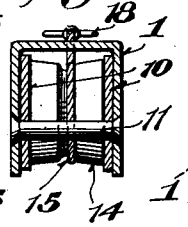


Fig. 3.

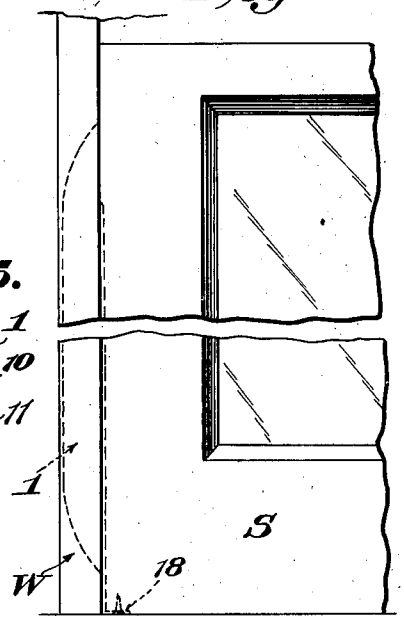


Fig. 6.

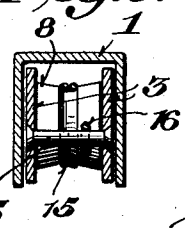
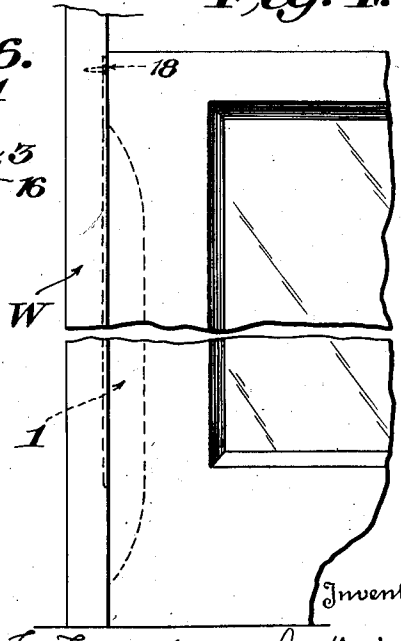


Fig. 4.



Inventors

G. C. Cross and D. J. Dinsmore

By A. W. Freeman

Attorney

Patented Nov. 18, 1941 2,262,990

UNITED STATES PATENT OFFICE

2,262,990

WINDOW SASH COUNTERBALANCE

George C. Cross and Dawson J. Dinsmore,
Sioux Falls, S. Dak.

Application September 2, 1939, Serial No. 293,268

1 Claim. (Cl. 16—197)

This invention relates to window sash counterbalance, and the primary object thereof, is to provide an improved device of this type which is wholly contained within a housing and which can be easily and quickly installed as a unit to either the window sash or its frame.

The invention further aims to provide a counterbalance which is reliable, and efficient in operation, and further one which is of compact and economical construction, and which embodies a minimum of parts, and also occupies minimum space.

Still further and other objects will be later set forth, and of themselves manifested in the course of the following.

Fig. 1 is a longitudinal sectional view of the invention.

Fig. 2 is a front elevation.

Fig. 3 is a front elevation, partly broken away, showing the invention applied to the window frame, and

Fig. 4 is similar view showing the invention applied to the window sash.

Figs. 5 and 6 are sections on lines 5—5 and 6—6, respectively of Fig. 2.

In proceeding in accordance with the present invention an elongated casing or housing 1, preferably formed of metal and of U-shape in cross-section is employed, the bottom of which is formed with apertures 2 to receive fastening screws, or the like.

A carriage composed of opposed spaced side plates 3, connected by spacing pins 4, and 5, riveted to the plates, slides within the casing, and is tensioned, in an outward direction by a strong coil spring 6, the latter at one end connected to pin 4, and at its opposite end to a pin 7 likewise riveted to the casing adjacent the lower end of the latter. Rollers of V-form 8 and 9 are journalled in the carriage in the space between the side plates 3.

Adjacent the upper end of the casing, a carrier composed of side plates 10, is pivoted to a supporting pin 11, riveted to the sides of the casing, so that the carrier may swing to a limited extent to provide for ease in operation, as later set forth.

A series of like V-rollers 12, 13 and 14 are journalled in the carrier and are of gradated diameter, as are the rollers 8 and 9 to provide for clearance of a cable 15. The cable at one end is anchored at 16 to the upper end of the carriage, thence passes over roller 12 of the carrier, under roller 8 of the carriage, thence again over roller 13 of the carrier, under roller 9 of the carriage, thence again over roller 13 and 8 and finally is trained over roller 14 of the carrier and has its other end passed through an outlet opening 17 in the bottom of the casing, interiorly of roller 14. The last named end of the cable has any suitable securing element, such as an eye 18, connected thereto and which is fastened to the window frame W as depicted in Fig. 4, or to the window sash S, as shown in Fig. 3.

It will be observed from Figs. 3 and 4, that in applying the device, the sash edge, or the face of the jamb is socketed, or cut away to provide for conformable reception thereof, and that the open side of the casing or housing is consequently closed by the bottom of the cutaway part. Also, it is merely necessary to reverse the attachment according to whether it is to be secured to the sash or jamb.

From the foregoing, it will be apparent that a most simple, compact and economical attachment is provided, attended with certainty, ease and reliability in action, and wherein the swingable mounting of the carrier contributes in smooth action of the parts.

What is claimed is:

In a window sash counterbalance, an endwise reversible casing of substantially U-shape in cross section formed to be received in a socket provided therefor in either the sash or jamb, and with its open side closed by the wall defining the back of the socket in either position of the casing, a pin connected to the casing adjacent an end of the latter, a slidable carriage in the casing disposed inwardly of said pin, a transverse pin adjacent each of the ends of the carriage, rollers journaled in the carriage and located between the pins thereof, a coil spring connected to the outer pin of the carriage and to the pin at said first-named end of the casing, and located at a point spaced longitudinally of the casing from any part of the cable that lies within the casing, a carrier adjacent and connected to the opposite end of the casing, rollers journaled in the carrier between the ends thereof, a cable connected at one end to the pin at the inner end of the carriage and alternately trained over the rollers of the carrier and of the carriage, means to secure the casing to the sash or jamb with its back facing the jamb or sash, the back of the casing being formed with an opening located inwardly of the outermost roller of the carrier and through which the opposite end of the cable projects and extends inwardly of said opposite end of the casing, the cable having a vertical portion housed by and between the back of the casing and the wall defining the back of the socket in either the sash or jamb and guided thereby.

GEORGE C. CROSS.
DAWSON J. DINSMORE.