Jan. 30, 1923.

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E. L. GARDNER ET AL.
WINDOW SASH BALANCE.
FILED NOV. 2, 1921.

Fig. 1

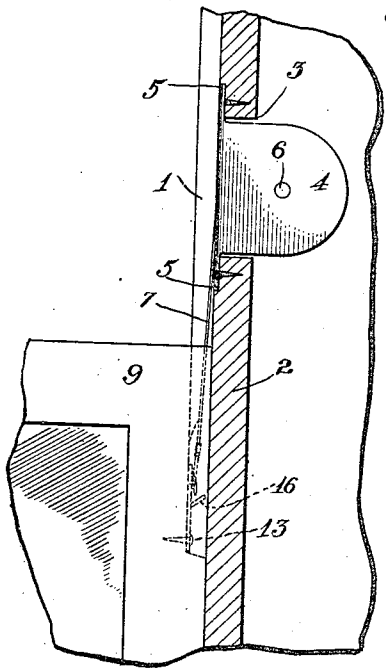


Fig. 2

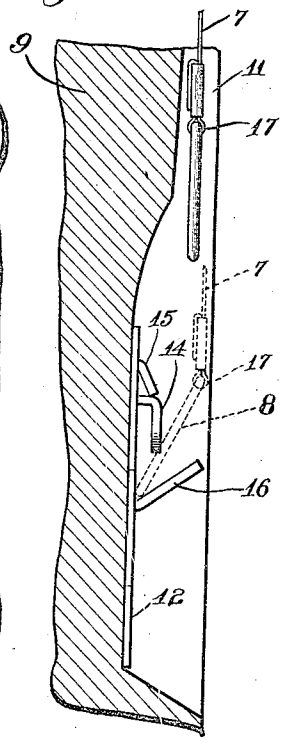


Fig. 3

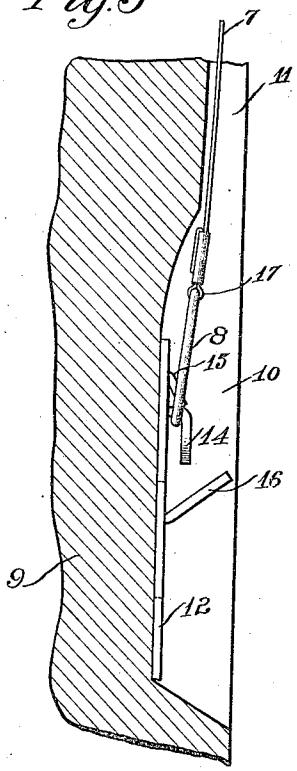


Fig. 4

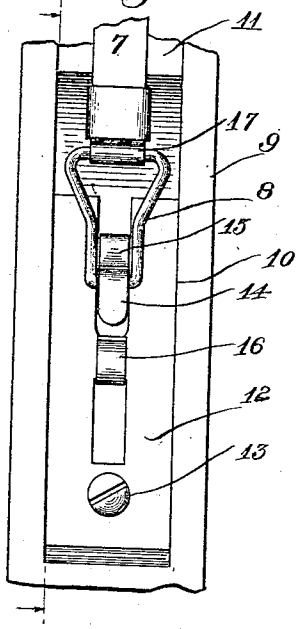
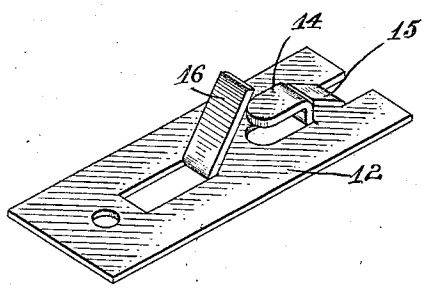


Fig. 5



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UNITED STATES PATENT OFFICE.

EDGAR L. GARDNER AND JAY L. WILLARD, OF ROCHESTER, NEW YORK, ASSIGNORS TO PULLMAN MANUFACTURING COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

WINDOW-SASH BALANCE.

Application filed November 2, 1921. Serial No. 512,177.

To all whom it may concern:

Be it known that we, EDGAR L. GARDNER and JAY L. WILLARD, of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Window-Sash Balances; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming a part of this specification, and to the reference numerals marked thereon.

Our present invention relates to building construction and, more particularly, to window sashes and balances therefor, and it has for its object to provide a simple, cheap and convenient sash and balance construction whereby the sash cord may be readily connected with or disconnected from the sash without removing the latter or any other part, and without the use of tools. To these and other ends the invention consists in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Figure 1 is a fragmentary view partly in section of a window frame and sash provided with a sash balance connected in accordance with and illustrating one embodiment of our invention;

Figure 2 is a vertical sectional view, enlarged, through a fragment of the sash showing the manner in which the sash cord is inserted and engaged;

Figure 3 is a similar view showing the cord fully engaged;

Figure 4 is a side view of the sash and its cord connections, and

Figure 5 is a detail perspective view of the attachment plate.

Similar reference numerals throughout the several views indicate the same parts.

We have illustrated our invention in the present instance in connection with a spring controlled sash balance as distinguished from the counter weighted type. The window frame with its stop strip 1 is indicated at 2, and is cut away at 3 to receive the casing 4 of the balancing device which has flanges 5 by means of which it is secured to the face of the casing. As is well known, these balances comprise a spring drum (not shown) turning on an arbor 6 to wind and unwind under tension a sash cord 7 which, in such instances, usually consists of a metal ribbon and is so shown herein. At its lower end the sash cord 7 carries a bent wire eye or similar attaching device 8.

The sash, running against the frame 2 at one edge is shown at 9. The abutting face thereof which slides on the frame at a point near the top is provided with a cavity or recess 10 and with a communicating slot or channel 11 that may be shallower and that extends to the top edge or corner of the sash. The sash cord 7, normally lying against the face of the frame may be let down into this cavity 10 through the slot 11, as shown in Figure 2, and it normally occupies the slot, as shown in Figure 1.

In the cavity 10 is located a plate 12 that may conveniently consist of a sheet metal stamping and which is secured to the sash at the bottom of the cavity by a screw 13 or otherwise. An ear 14 struck from the plate and offset forms a downwardly turned hook that may be reinforced by an inclined ear 15 struck from the edge of the plate just above it. Below this hook 14 at a suitable distance a tongue or projection 16 is struck up in a similar manner and disposed angularly as shown in the figures to reach out beyond the hook. This projection constitutes an incline or cam surface that blocks the cavity from above and serves to direct an object inserted through the slot 11 toward the side of the cavity and to a point beneath the hook 14.

The eye 8 on the lower end of the sash cord 7 preferably has a suitable connection with the latter at 17, and in the operation of the device when it is desired to attach the sash cord to the sash the cord is lowered into the slot 11 and cavity 10 in the manner shown in full lines in Figure 2. When the eye 8 strikes the cam projection 16 it is deflected inwardly beneath the hook 14 in the manner shown in dotted lines in Figure 2. Upon thereafter drawing upwardly on the cord the eye 8 is engaged with the hook 14, as shown in Figure 3, and the sash becomes suspended from the balancing device, the tension of which maintains the engagement.

If it is desired to remove the sash cord or for any reason disconnect it and the sash, the described sequence of movement may be reversed and a suitable manipulation of the

cord caused to effect its removal without reengaging the hook.

This attachment and disengagement without the use of tools or the removal of any of the parts is particularly useful when a sash cord breaks and must be renewed.

We claim as our invention:

1. In a sash balance, the combination with a casing and a sash abutting the same and having a recess in its abutting face, of a downwardly turned hook in the recess, a sash cord depending from the casing and having an eye at its lower end and means on the sash for automatically directing the eye into engaging position with reference to the hook when the sash and cord is lowered between the sash and casing.

2. In a sash balance, the combination with a casing and a sash abutting the same and having a recess in its abutting face, of a downwardly turned hook in the recess, a sash cord depending from the casing and having an eye at its lower end and an inclined projection on the sash within the recess and below the hook for directing the eye into engaging position with reference to the hook when the sash cord is lowered between the sash and casing.

3. In a sash balance, the combination with a casing and a sash abutting the same and having a recess in its abutting face, of a plate arranged in said recess and having a downwardly turned projection struck therefrom and constituting a hook and an upwardly turned inclined projection struck therefrom below the hook, and a sash cord depending from the casing and provided with an eye at its lower end adapted to strike the inclined projection when lowered into the recess and to be directed thereby into engaging position with reference to the hook.

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