No. 770,849. PATENTED SEPT. 27, 1904.

# G. C. GARDNER.

## SASH PULLEY.

APPLICATION FILED FEB. 20, 1904.

NO MODEL.

Fig. 1.

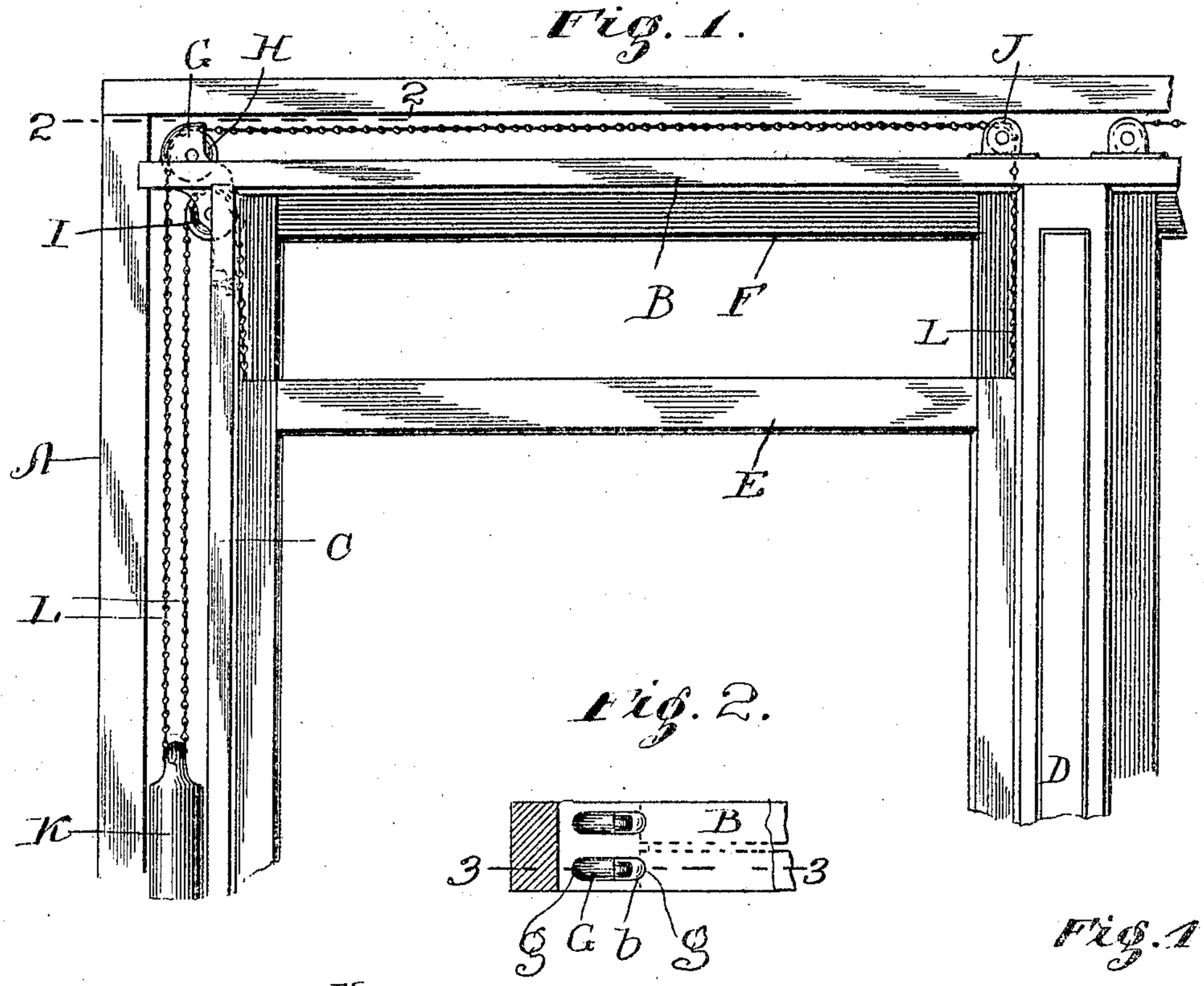



Fig. 2.




Fig. 4.




Fig. 3.

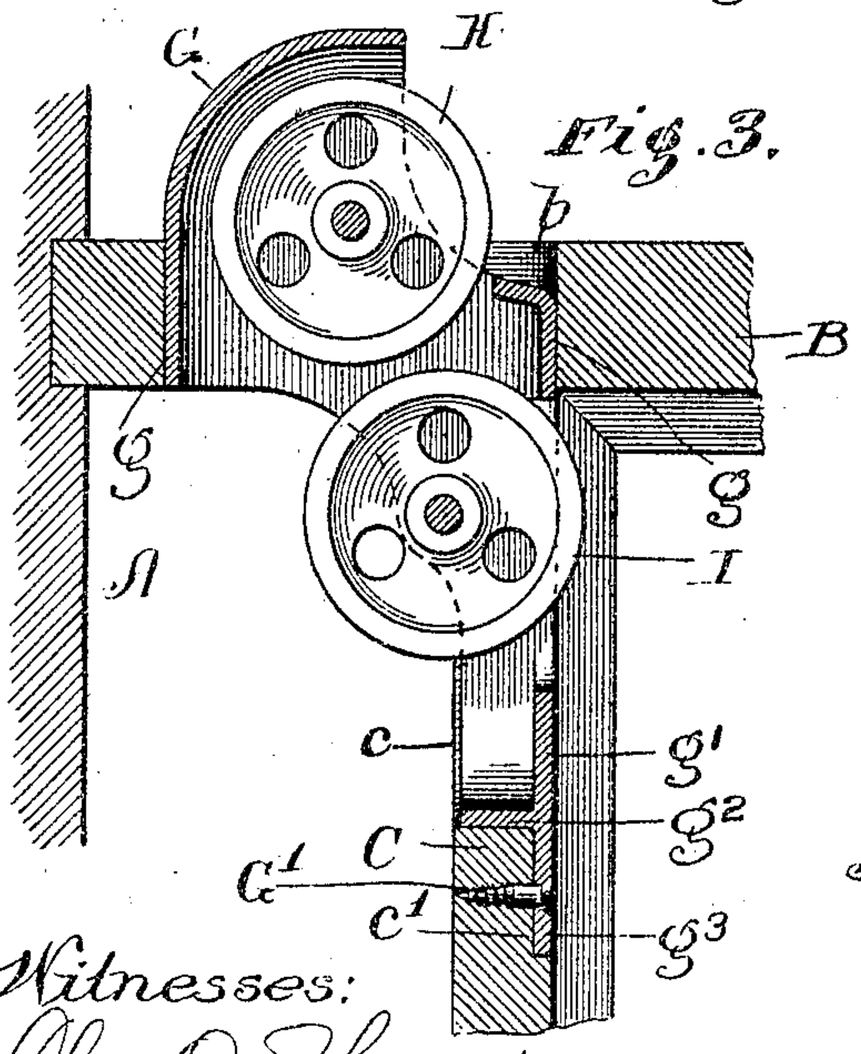
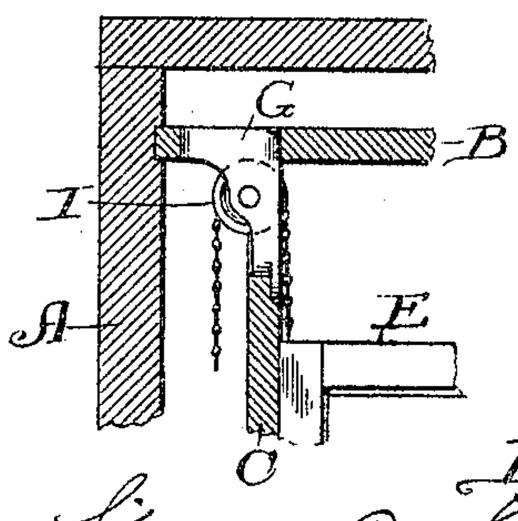



Fig. 5.

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No. 770,849. Patented September 27, 1904.

# UNITED STATES PATENT OFFICE.

GEORGE C. GARDNER, OF CHICAGO, ILLINOIS.

## SASH-PULLEY.

SPECIFICATION forming part of Letters Patent No. 770,849, dated September 27, 1904.

Application filed February 20, 1904. Serial No. 194,481. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE C. GARDNER, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sash-Pulleys, of which the following is a specification.

My invention relates to certain new and useful improvements in sash-pulleys; and its object is to produce a device of this class which shall have certain advantages, which will appear more fully and at large in the course of this specification.

To this end my invention consists in certain novel features of construction, which are clearly illustrated in the accompanying drawings and described in this specification.

In the aforesaid drawings, Figure 1 is an elevation of certain parts of a window-frame provided with my improved sash-pulley. Fig. 2 is a horizonal section in the line 2 2 of Fig. 1. Fig. 3 is a vertical section in the line 3 3 of Fig. 2. Fig. 4 is an elevation of the pulley and its frame; and Fig. 5 is a section similar to Fig. 3, showing a modified form of the device. Figs. 2, 3, and 4 are upon a larger scale than Figs. 1 and 5.

Referring to the drawings, A is the outer structure of a window-frame. Across the top of this frame A extends a horizontal lintel B, and at the left is a stile C, extending downward from the lintel and removed a short distance from the frame A. At the right of the window (illustrated in Fig. 1) is a vertical panel D, which covers the stile at the right of the window and the corresponding stile at the left of the next succeeding window in a series. The type of window herein illustrated is that which is commonly in use in many localities where a number of windows are placed side by side with only a narrow space between them, so that it is impracticable to put a sash-weight on each side of the same window-frame. Between the stile C and the stile at the opposite side, which is covered by the panel D, are two sash—E the lower and F the upper sash.

In describing the construction of my improved pulley and the manner of its use I shall refer henceforward only to the pulleys seen in Fig. 1—that is, the device which balances the lower sash E—it being understood that similar devices are used for balancing the upper sash F, one of the pulleys for this purpose being illustrated in Fig. 2.

The upper end of the stile C is provided with a vertical slot *c*, which extends downward a short distance from the top and terminates in a rounded end at the bottom. The lintel B is provided with a perforation *b* having rounded ends, the end of the perforation nearer the center of the window terminating in line with the face of the stile adjacent to the sash. The perforation *b* and the slot *c* in the lintel and stile, respectively, lie in the same plane, as is clearly illustrated in the drawings. The stile C is countersunk at *c'* below the end of the slot *c*, as illustrated.

The frame of my improved sash-pulley is indicated in the drawings by G. The form of this frame can be best understood by reference to the drawings. It will be seen that it consists, preferably, of an upper portion which projects through the slot *b* and has vertical rounded shoulders *g*, which fit tightly in the grooved ends of the perforation, and a lower portion which has a flat face *g'*, lying flush with the surface of the stile and terminating in a rounded shoulder $g^2$, which lies in the rounded lower end of the slot *c*. The flat face *g'*, it will be noted, is prolonged downward at $g^3$ beyond the rounded shoulder $g^2$, this prolongation lying in the countersunk space *c'* in the stile. A pulley H is journaled in the upper portion of the frame G, the periphery of this pulley extending above the line of the lintel B and behind a vertical line extending upward from the point on a lower pulley I which is farthest removed from the window. This lower pulley I is likewise journaled in the frame G and extends through a slot in the flat face *g'* of the frame.

In placing my improved sash-pulley in position the lintel and stile are first prepared by slotting and perforating them, as illustrated and described. In practice this work is done in the factory or planing-mill, and the parts are finished ready for the insertion of the pulley-frame. The perforations are illustrated of a form which can be readily made with an ordinary mortising-machine,

and the pulley-frame is made curved to engage with the ends of perforations so made. The countersunk portion $c'$ also has, it will be seen, a curved lower end, so that the entire slot $c$ and countersunk portions $c'$ can be made with a mortising-machine. The frame of the pulley is forced up through the slot $c$ from the inside of the window-casing, the upper end of the frame passing through the perforation $b$ and the curved shoulders $g$ on this upper portion falling into place against the curved ends of the perforation $b$. When the frame reaches the proper position, the downward prolongation of the flat face $g'$ on the lower portion of the pulley falls into place on the countersunk space on the stile and a single screw G′ is put in, holding the entire device firmly in position. In this way a frame is made which can be held in place by the use of a single screw, machine-work at the factory or planing-mill being thus made in manufacturing the frame of this construction to dispense with a large amount of unnecessary handwork on the same.

At the right-hand side of the drawings will be seen a pulley J of ordinary form, over which extends a chain L from the right-hand side of the lower sash. This chain is carried across above the lintel, down over the pulley H, and through the eye of a sash-weight K, from which it extends upward over the pulley I and is secured to the left-hand side of the window-sash. In this way the window is balanced by a single weight moving on one side thereof only.

While I have illustrated my invention as applied to a device having two pulleys for carrying chains or cords from opposite sides of the sash, it will be evident that certain of the important features of my invention can be fully embodied in a structure having only one pulley. Such a device is illustrated in Fig. 5, where it will be seen that the upper pulley H is entirely dispensed with, the frame terminating at its upper end at the shoulders $g$, which lie in the perforation $b$ in the lintel.

I realize that considerable variation is possible in the details of this construction without departing from the spirit of the invention, and I therefore do not intend to limit myself to the specific form herein shown and described.

I claim as new and desire to secure by Letters Patent—

1. In a device of the class described, the combination with the lintel and stile of a window-frame, the lintel having an elongated perforation, and the stile having a slot at its upper end in the same plane with, and meeting, the perforation in the lintel, of a pulley-frame having two vertical shoulders engaging with the ends of the perforation in the lintel, and a horizontal shoulder engaging with the lower end of the slot in the stile.

2. In a device of the class described, the combination with the lintel and stile of a window-frame, the lintel having an elongated perforation, and the stile having a slot at its upper end in the same plane with, and meeting, the perforation in the lintel, of a pulley-frame having two vertical shoulders engaging with the ends of the perforation in the lintel, and a horizontal shoulder engaging with the lower end of the slot in the stile, and two pulleys mounted in the frame in the same plane, one being removed diagonally upward and outward with respect to the other.

3. The combination with a window-frame and a sash movable therein, of a pulley-frame secured at one of the upper corners of the window-frame and having two pulleys, one of which is diagonally removed upward and away from the center of the window-frame with respect to the other, a weight-bearing cord running over the lower of these pulleys from the adjacent side of the sash, a second pulley at the opposite upper corner of the frame, and a weight-bearing cord running over said second pulley and over the upper pulley in said pulley-frame.

In witness whereof I have signed the above application for Letters Patent, at Chicago, in the county of Cook and State of Illinois, this 16th day of February, A. D. 1904.

GEORGE C. GARDNER.

Witnesses:
CHAS. O. SHERVEY,
RUSSELL WILES.