

(No Model.)

L. PFINGST.

SASH HOLDER.

No. 396,709.

Patented Jan. 22, 1889.

Fig. 1.

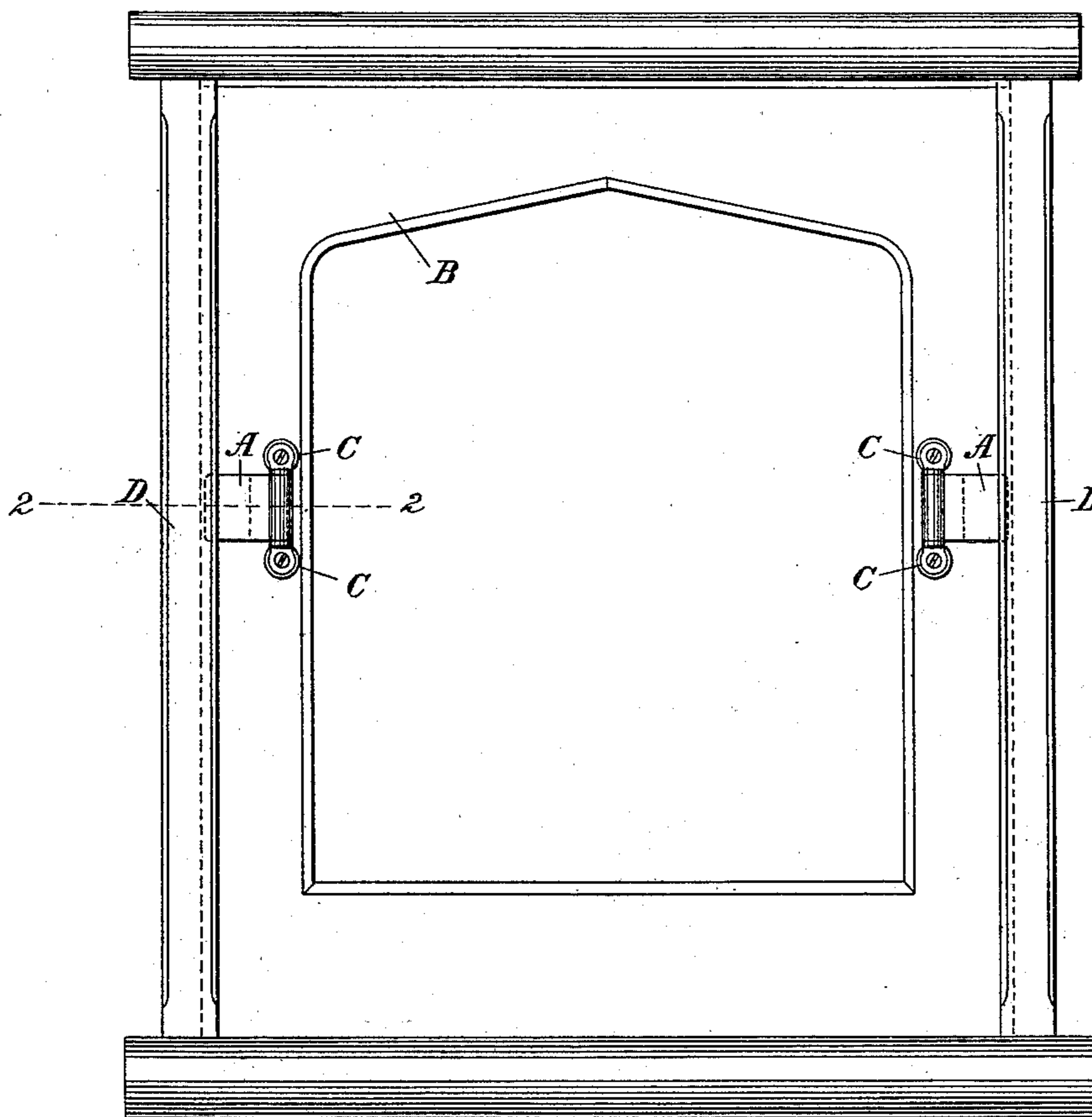
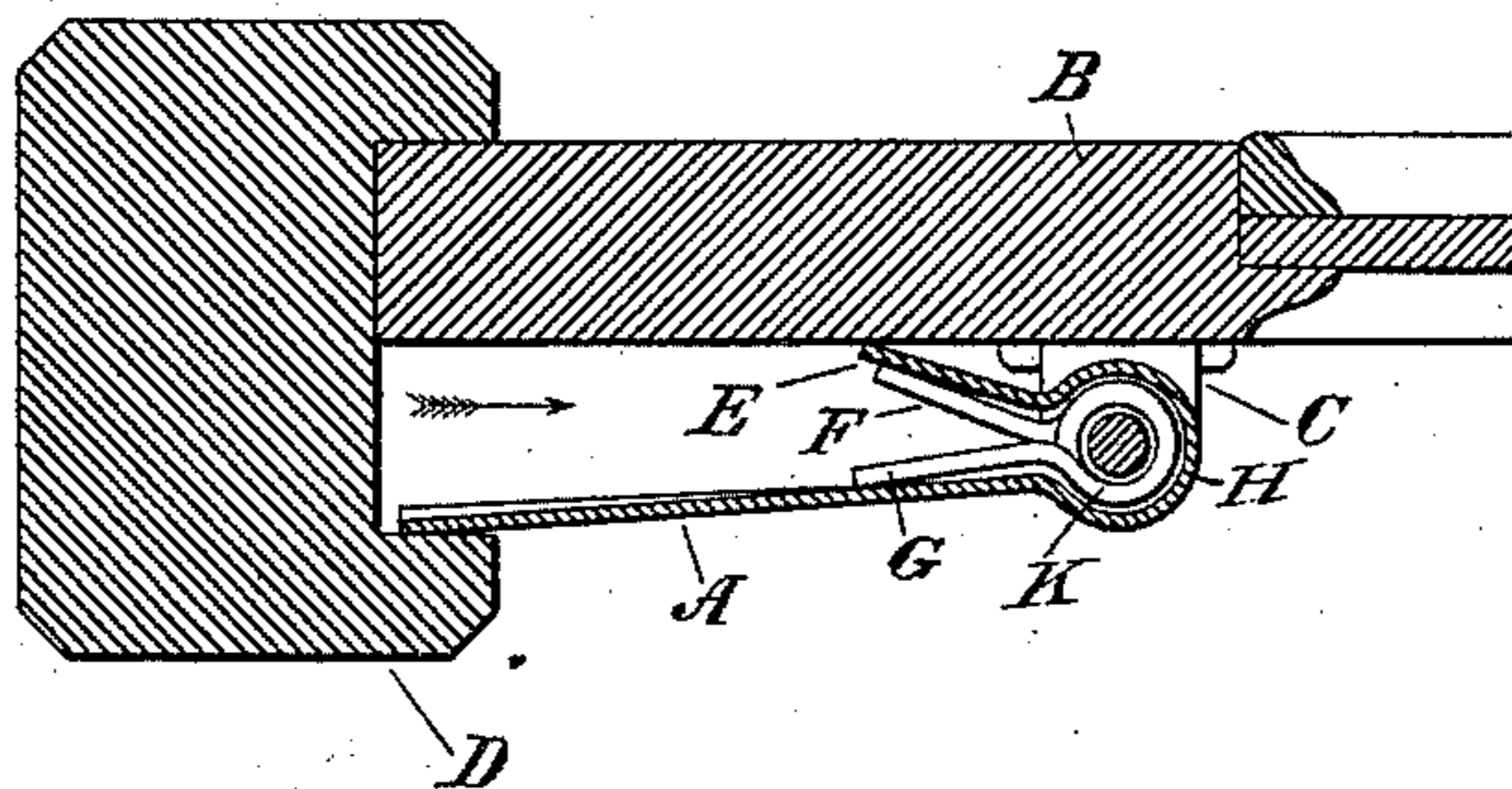


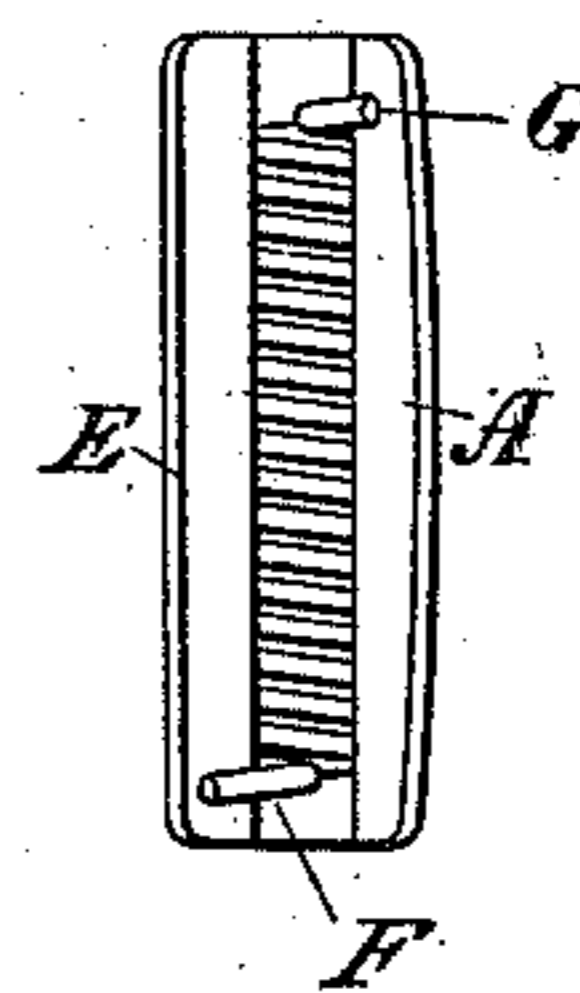
Fig. 2.



WITNESSES:

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Fig. 3.



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SASH-HOLDER.

SPECIFICATION forming part of Letters Patent No. 396,709, dated January 22, 1889.

Application filed February 6, 1886. Serial No. 191,070. (No model.)

To all whom it may concern:

Be it known that I, LOUIS PFINGST, a citizen of the United States, residing at the village of Pullman, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Sash-Springs, of which the following is a specification.

My invention has for its object a spring of simple construction and ready application, which shall prevent the rattling of the sash in its casing, and, at the same time, shall not interfere with the ready movement of the sash.

A spring for a street-car sash must be capable of acting through a wide range of movement, since the groove in which the sash slides is narrow at the top but becomes very wide at the bottom, where the side of the car is curved inward, in order to permit the sash to slide in the curved groove, it being as necessary for the spring to bear upon the side of the groove when the sash is lowered as when it is raised to prevent rattling. The difficulty experienced heretofore has been that a spring with enough range to act in the lower position of the sash would be injured by the compression necessary to bring it into the upper part of the groove, this compression exceeding the limit of elasticity of the metal and causing the spring to quickly wear out.

It is the object of my invention to produce a spring which shall be efficient in both positions of the sash and which shall have sufficient elasticity to follow the changing width of the groove without injury. To this end I have invented a spring which has two novel features, which may be used in combination in the same spring or used separately. The form of spring which I propose to use is the common plate-spring bent so as to have two arms; but instead of merely bending the plate I propose to give it at its elbow an approximately tubular form or the form of a large segment of a circle, so that the strain, when the spring is bent, may be distributed over a considerable length of the plate instead of being thrown upon one point, as would be the case were the plate simply bent, as has heretofore been done. This distribution of the strain enables the spring to be bent through a wide range of motion without

injury to the temper of the metal at any point. I also propose, instead of rigidly fastening the plate to the sash, to hang it upon a pivot at the elbow of the plate, so that in passing from one extreme position to another a part of the motion may be taken up by the swing of the plate on its pivot and the metal to that extent be relieved.

In the accompanying drawings, which form a part of this specification, Figure 1 is a front elevation of the window-sash to which my invention has been applied. Fig. 2 is a detail section on line 2 2 of Fig. 1. Fig. 3 is a perspective view of my spring, as seen from the direction of the arrow in Fig. 2.

The usual groove is provided in casing D for the sash B, as shown in Fig. 2, and the spring which I propose to use is attached to the sash and pressed against one of the faces of the groove, pressing the sash against the other face.

The spring consists of a sheet of metal bent so as to have two arms, A and E, and a tubular portion, H. This plate is preferably made of spring metal and may furnish of itself all the spring-tension needed to hold the sash in position. It may, however, be reinforced by an interior spring, as K, (shown in this drawing as a coiled wire,) so placed as to tend to separate the two arms of the plate. The plate is held in position upon the sash by two hubs, C C, the end of one of which appears in Fig. 2, said hubs being screwed to the sash, as shown in Fig. 1, and entering the tubular part of the plate from opposite ends thereof, thus forming together an axis or shaft for the plate and holding it to the sash. Revolution of the plate upon its axis is prevented by the arm E resting upon the inner surface of the sash. As the spring passes from one of its extreme positions to the other, the arm E has a slight forward and backward motion upon the sash, materially reducing the demand upon the elasticity of the metal itself. The particular form of the spring K which I have shown is capable of many variations, which would be equivalent to my construction and within my invention.

I claim—

1. The combination of a casing provided with a groove, a sash sliding in the said

groove, and a two-armed spring pivoted to the sash, one arm of said spring bearing against one face of the groove and the other arm of the spring resting upon the sash, substantially
5 as described and shown.

2. The combination of a casing provided with a groove, a sash sliding in the said groove, and a two-armed plate-spring attached to the sash, the two arms being connected to
10 each other by a tubular portion, one of said arms bearing against one of the interior faces of the groove, substantially as and for the purpose set forth.

3. As a means for holding a sash in place, a bent metal plate, A, in combination with 15 hubs C, by means of which it is pivoted to the sash and spring G, for increasing the tension of the plate, one arm of said plate resting upon the sash, and the other arm being pressed against the surface of the sash-casing, sub- 20 stantially as described and shown.

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Witnesses:

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