No. 778,370. PATENTED DEC. 27, 1904.

L. D. PATTEN & D. LIPPY.

WINDOW SASH.

APPLICATION FILED JUNE 30, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

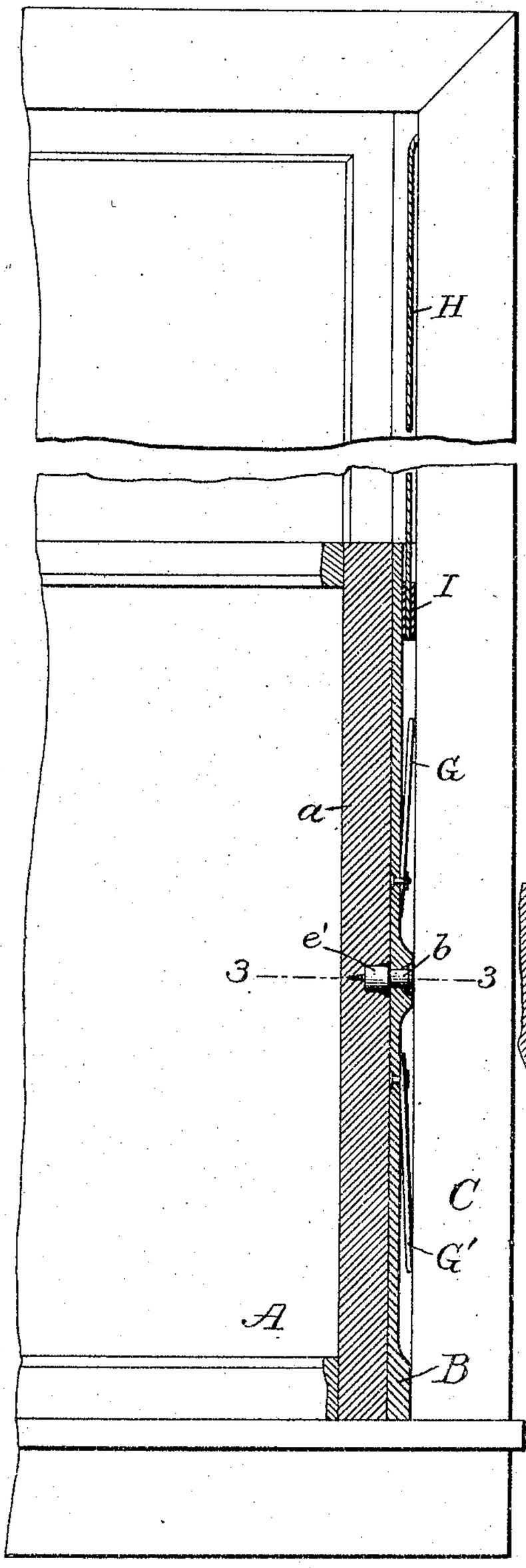


Fig. 3.

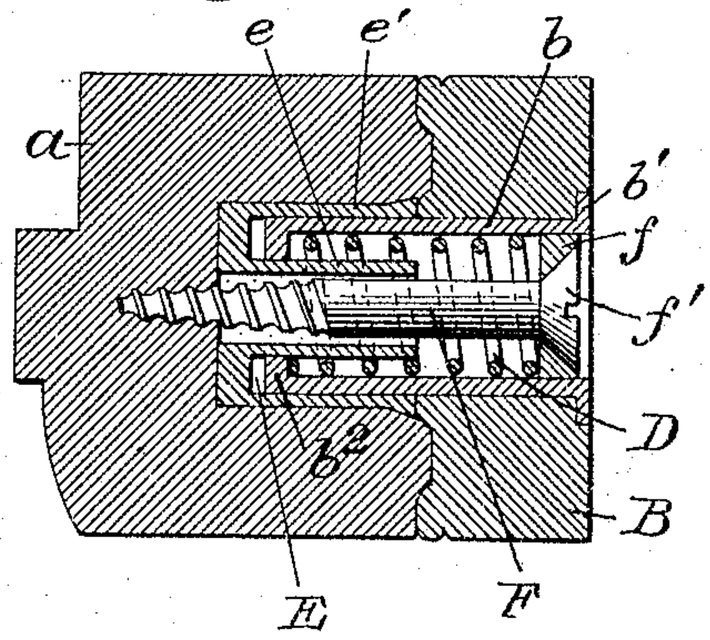
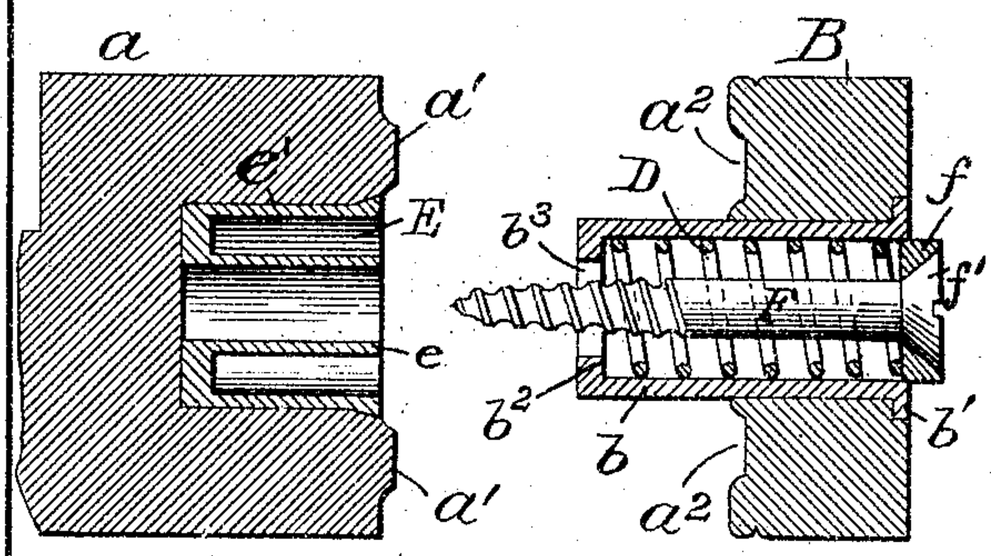


Fig. 4.



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C. J. Fowler

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2 SHEETS—SHEET 2.

Fig. 2.

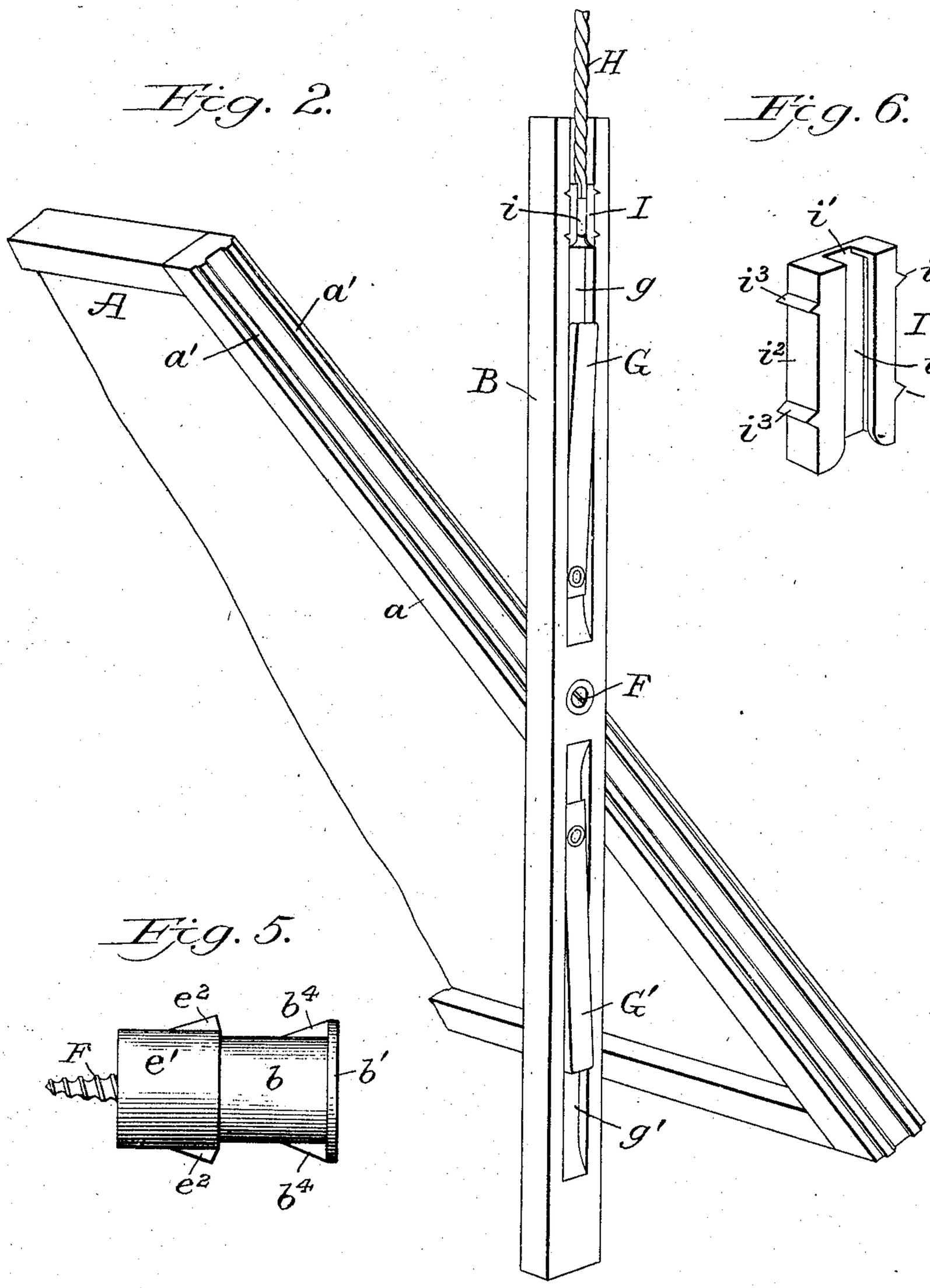

Fig. 6.

Fig. 5.

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UNITED STATES PATENT OFFICE.

LORENZO D. PATTEN AND DAVID LIPPY, OF MANSFIELD, OHIO, ASSIGNORS OF ONE-THIRD TO GEORGE MOORHOUSE, OF MANSFIELD, OHIO.

WINDOW-SASH.

SPECIFICATION forming part of Letters Patent No. 778,370, dated December 27, 1904.

Application filed June 30, 1904. Serial No. 214,755.

To all whom it may concern:

Be it known that we, LORENZO D. PATTEN and DAVID LIPPY, citizens of the United States, residing at Mansfield, in the county of Richland and State of Ohio, have invented new and useful Improvements in Window-Sashes, of which the following is a specification.

Our invention relates to window-sashes which are adapted to be raised and lowered and also turned or revolved upon pivotal supports to enable both sides of the window-glass to be readily cleaned or to permit the sash to be inclined to secure increased ventilation. Window-sashes of this character are usually provided with strips which are pivotally secured to the sash-stiles and which slide in grooves or rabbets in the sash-casing, said strips serving to hold the sash to the casing and the pivotal connections permitting the sash to be tilted or revolved, as will be readily understood.

Our invention relates more particularly to means for pivotally connecting the side strips to the sash, whereby the sash may be firmly supported and the strips firmly and at all times held against the sash-stiles; and it also relates to other features of construction to be hereinafter described, and particularly pointed out in the claims hereunto annexed.

Referring to the drawings furnished and forming a part of this specification, Figure 1 is a view of a portion of a window-sash and sash-casing embodying our invention, the stile of the lower sash being shown in section. Fig. 2 is a perspective view of a portion of the sash, the latter being turned at an angle to the side strips, to which it is attached. Fig. 3 is a horizontal section taken on line 3 3 of Fig. 1. Fig. 4 is a view similar to Fig. 3, but with the side strips separated from the sash-stile. Fig. 5 illustrates the sash-supporting stud and its receiving-socket in side elevation, and Fig. 6 is a perspective view of the chain or cord holder.

Referring to the drawings, it is to be understood that both of the stiles *a* or the side edges of the sash A are provided with a strip B, which fits into a groove or rabbet in the sash-casing C, said strips being preferably made of wood and being so mounted in said grooves or rabbets as to project slightly therefrom to permit the sash to turn or revolve on its pivotal supports. The strips B extend the full length of the sash, and about midway of their lengths they are provided with a hollow stud *b*, which fits in a socket in the sash-stiles and forms the supporting-pivots upon which the sash turns. The stud *b* is in the form of a tube having a flange b' around its inner edge and an inwardly-projecting flange b^2 at its outer end, said flange b^2 serving as an abutment for a spiral spring D, to be hereinafter referred to. The central opening b^3 at the outer end of the stud is made to receive and snugly fit a hub *e*, which projects centrally from the bottom or rear wall of the stud-receiving socket E. The stud *b* is driven through a hole bored through the strip B and projects therefrom a sufficient distance to afford a proper support for the sash. It is held in the strip B by frictional contact only and is prevented from rotating by spurs or barbs b^4, which are driven into the strip B, as will be readily understood.

The stud-receiving socket E may be a hole bored in the sash-stile *a*; but where the latter is made of wood said socket is formed by a metallic cup e', which is driven in a hole bored to receive it in the edge of the sash-stile, as clearly illustrated in the drawings, said cup being provided with spurs or barbs e^2, which are driven into the wood to prevent the cup from rotating.

Projecting centrally from the bottom or rear wall of the socket E is a hub *e*, which projects into the stud *b* through the hole or opening b^3 and which is centrally bored to receive a screw F, to be presently referred to.

As thus far described, it will be seen that the sash A is wholly supported by the studs *b* and that no screws are required for attaching or securing the sash-supporting members or for performing any part of the sash-supporting duty. This is an important and valuable feature of our invention when considered with reference to the spring retaining feature which will now be described.

The screw F, which is secured to the sash-

stile *a* through the hub *e*, affords an adjustable abutment for the inner end of the spiral spring D, the latter being interposed between the flange b^2 of the stud *b* and a washer *f*, which is pressed by the spring against the head *f'* of the screw. The hub *e* in the socket E serves as a guide for the screw F when the latter is being driven into the stile of the sash, said hub assuring a proper alinement of the screw with respect to the stud *b*. The arrangement of the stud *b* and screw E permits a long and comparatively stiff spring D to be inserted between the head of the screw F and the inwardly-projecting flange of the stud *b* for drawing the strip B and holding it at all times tight against the sash-stile, no other spring of any kind being necessary for this purpose, and it will be seen that the tension of the spring may be increased or diminished by forcing the screw in or out, as may be desired.

The abutting face of the sash-stile *a* is provided with two projecting tongues *a' a'*, running the full length of the sash at each side of the stud-receiving socket E, and the abutting face of the strip B is provided with two grooves a^2 a^2, which receive said tongues when the sash is in its normal or closed position. These tongues and grooves are provided for preventing air and dust from passing between the sash and the strip B and also for preventing the sash from being tilted or turned on its pivotal supports until force is applied sufficient to overcome the power of the spring D to hold the strip to the sash, the tongues *a' a'* and grooves a^2 a^2 being provided with inclined sides, so that when the sash is pulled or pushed at its upper or lower edge the strip B will be forced away from the sash against the power of the spring D, as will be readily understood.

For providing against the shrinkage of wood of which the sash, strip, and sash-casing are composed and also for preventing the sash from rattling we provide springs G and G' at the back or rear of the strip B, which bear against the sash-casing C. Said springs are mounted in grooves *g* and *g'*, one above and the other below the center of the strip. They are preferably made of wood in the form of a thin strip having its inner end beveled and riveted to the strip B, so that the outer end of the spring will project outwardly from the strip and bear with yielding pressure upon the sash-casing. The groove *g'* should be made just long enough to receive the spring G'; but the groove *g*, in which the spring G is mounted, extends to the upper end of the strip and is utilized for the hanging rope or chain H, the latter being secured to the strip by means of a chain or rope holder I. (Illustrated in Fig. 6.) The rope or chain holder I is a small box-like structure having an open lower end and a partially-open front, the latter being slotted, as at *i*, said slot extending to an opening *i'* in the upper end of the box, through which the chain or rope H passes. The width of the box is substantially equal to the width of the slot *g*, and its side walls i^2 are provided with spurs or barbs i^3, which when the box is driven into the slot *g* enter or cut into the wood at the sides of the slot, and thus firmly hold or lock the box or cord-holder to the strip. The end of the chain or cord is provided with the usual button or knot, which occupies the box or holder I for suspending the strip in the sash-casing, said chain or cord passing over a pulley in the sash-casing and being provided with a weight in the usual manner and as will be understood without further description. With this form of cord or chain holder no screws are required for attaching it to the strip B, and the latter does not have to be specially cut out to receive it, a single groove *g* in the strip being all that is required for the spring G, the cord or chain holder I, and the cord or chain H.

Our invention is designed to be applied to both the upper and the lower sash of a window, and when so applied both sashes may be readily swung inwardly or outwardly upon their pivotal supports or entirely reversed without objectionable strain upon the supporting-pivots.

Any of the well-known locking devices may be employed for locking the sashes in their closed positions.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination with a window-sash of side strips adapted to enter the grooves or rabbets of a sash-casing, hollow studs secured to and projecting through said strips into sockets formed in the stiles of the sash for pivotally supporting the same, said studs having open ends and an inwardly-projecting flange at the outer end, a spring within the stud having one end abutting against said flange, and an abutment for the opposite end of said spring secured to the sash-stile through the opening in the outer end of the stud.

2. The combination with a window-sash of side strips adapted to enter the grooves or rabbets of a sash-casing, hollow studs secured to and projecting through said strips into sockets formed in the stiles of the sash for pivotally supporting the same, said studs having open ends and an inwardly-projecting flange at the outer end, a spring within the stud having one end abutting against said flange, and an adjustable abutment for the opposite end of said spring secured to the sash-stile through the opening in the outer end of the stud.

3. The combination with a window-sash of side strips adapted to enter the grooves or rabbets of a sash-casing, a hollow stud projecting from each of said strips into a socket in the adjacent sash-stile, said stud having an open-

ing in its outer end and an inwardly-projecting flange, a hub projecting from the bottom or rear wall of said socket through said opening, said hub being centrally bored for the reception of a screw, a spring within said stud having one end abutting against said inwardly-projecting flange, and a screw secured to the sash-stile through the opening in said hub, said screw having a head which forms an abutment for the other end of the said spring.

In testimony whereof we have hereunto set our hands in presence of the subscribing witnesses.

LORENZO D. PATTEN.
DAVID LIPPY.

Witnesses for Lorenzo D. Patten:
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HOWELL BARTLE.

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C. E. FRITZINGER,
FRANK A. BARE.