

**No. 614,554.**

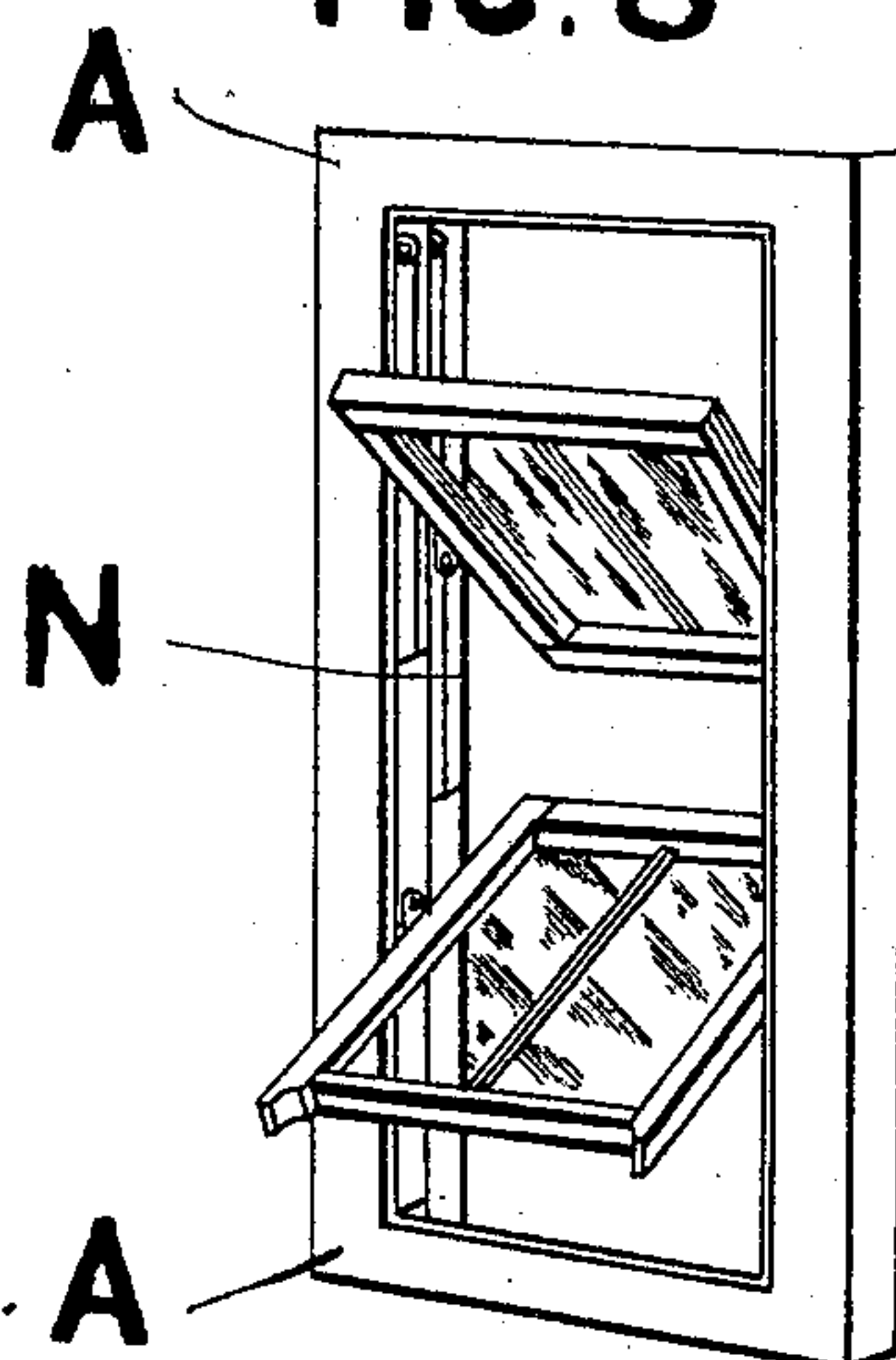
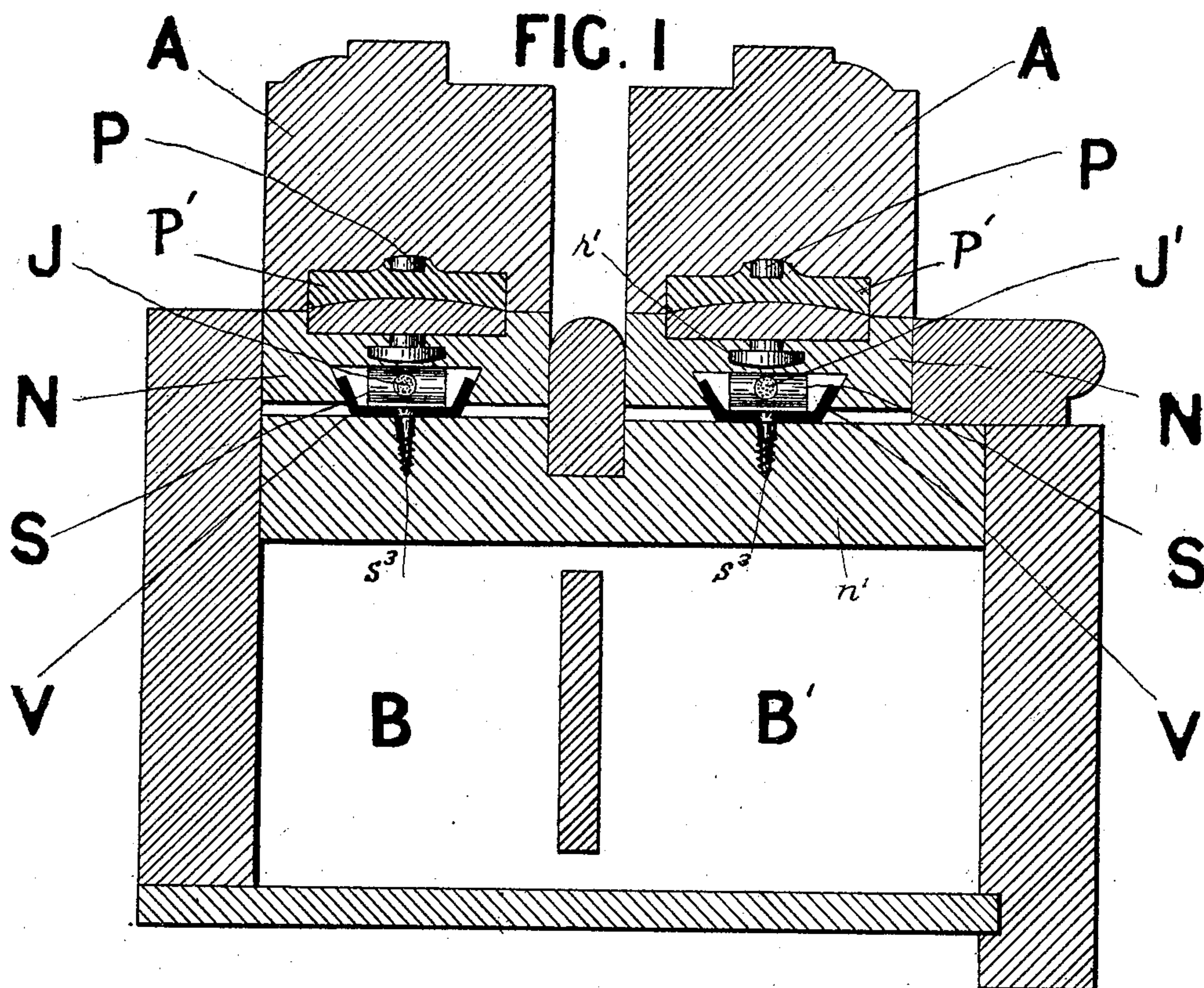
**Patented Nov. 22, 1898.**

**E. G. KENDALL.**  
**WINDOW SASH AND FRAME.**

(Application filed Sept. 22, 1897.)

(No Model.)

**3 Sheets—Sheet 1.**



Witnesses:  
E. B. Bolton  
Attest

# K

*Inventor:* **A**

Edmund George Kendall

By Richardson

*his Attorneys.*

No. 614,554.

Patented Nov. 22, 1898.

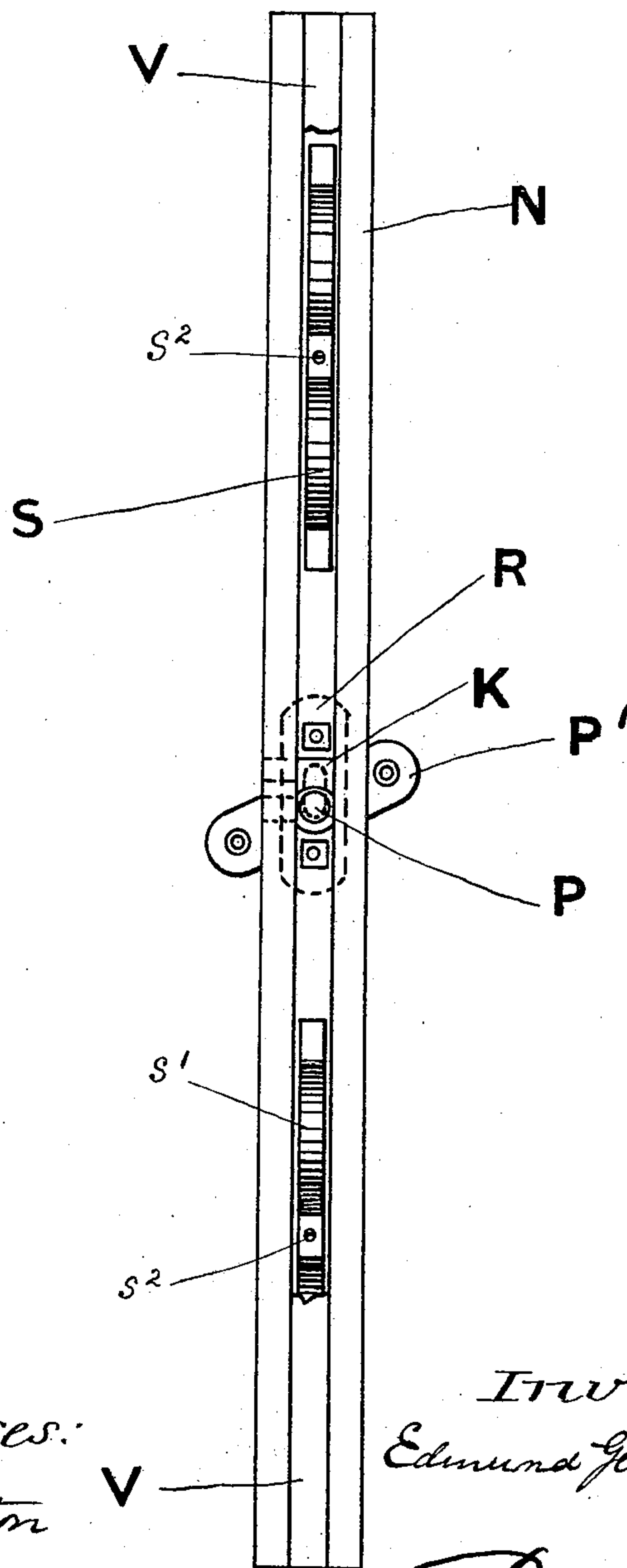
E. G. KENDALL.  
WINDOW SASH AND FRAME.

(Application filed Sept. 22, 1897.)

(No Model.)

3 Sheets—Sheet 2.

FIG. 9



Witnesses:  
E. R. Rotton  
O. R. Rotton

Inventor:  
Edmund George Kendall

By *Richard R.*  
his Attorneys.



No. 614,554.

Patented Nov. 22, 1898.

E. G. KENDALL.  
WINDOW SASH AND FRAME.

(Application filed Sept. 22, 1897.)

(No Model.)

3 Sheets—Sheet 3.

FIG. II

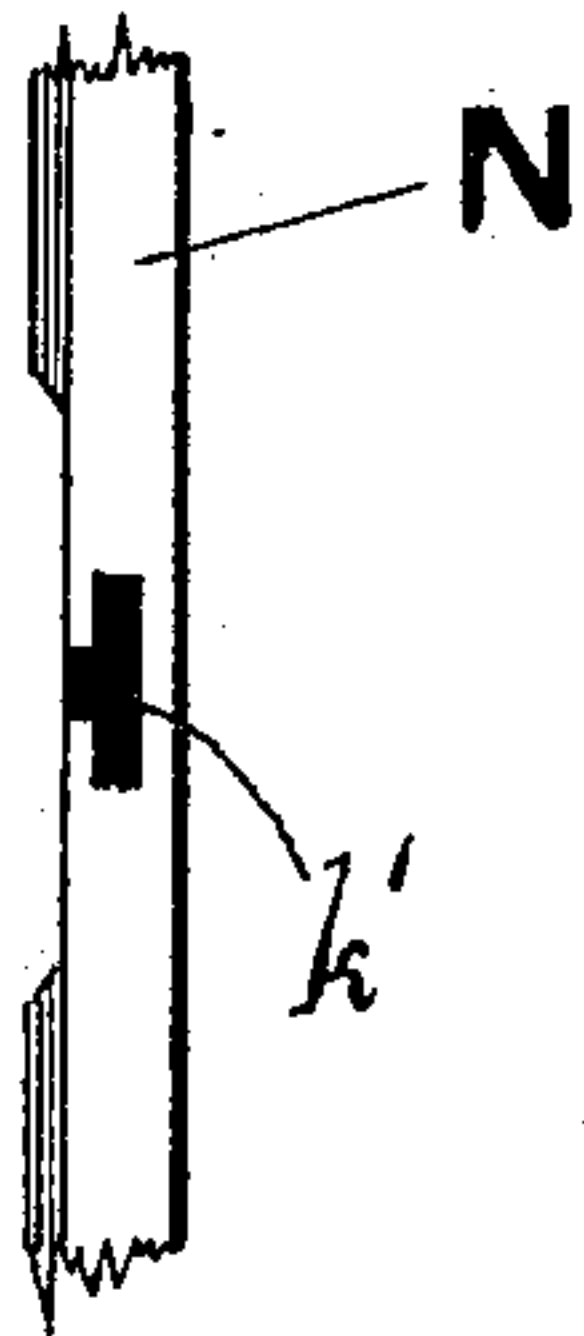
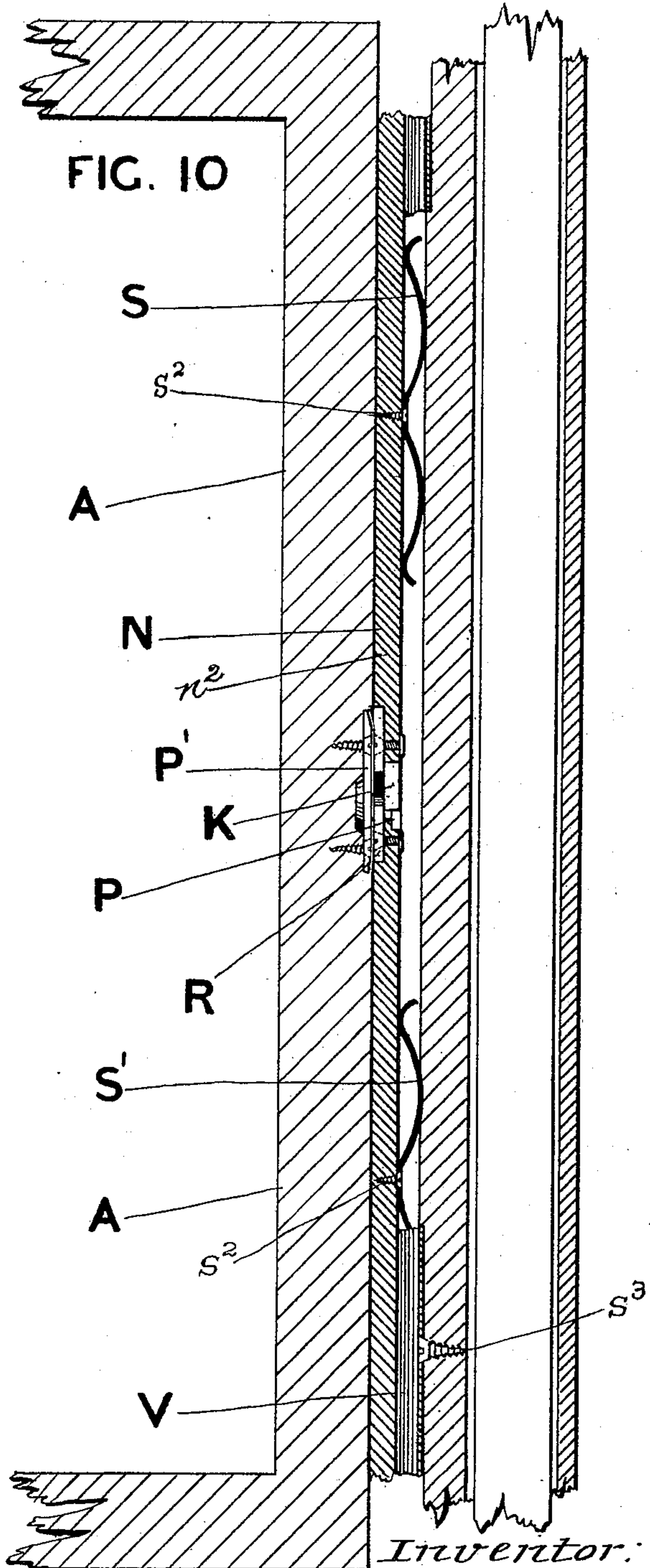


FIG. 10



Witnesses:

E. B. Bolton

*[Signature]*

Inventor:

Edmund George Kendall

By *[Signature]*

his Attorneys



# UNITED STATES PATENT OFFICE.

EDMUND GEORGE KENDALL, OF HARBORNE, ENGLAND, ASSIGNOR TO THE  
KENDALL'S PATENT REVERSIBLE WINDOW SASH COMPANY, LIMITED, OF  
BIRMINGHAM, ENGLAND.

## WINDOW SASH AND FRAME.

SPECIFICATION forming part of Letters Patent No. 614,554, dated November 22, 1898.

Application filed September 22, 1897. Serial No. 652,663. (No model.)

*To all whom it may concern:*

Be it known that I, EDMUND GEORGE KENDALL, architect, a subject of the Queen of Great Britain, residing at 53 High street, Harborne, in the county of Stafford, England, have invented certain new and useful Improvements in Window Sashes and Frames, of which the following is a specification.

This invention has been patented in England, No. 13,810, dated July 18, 1894, and No. 20,027, dated October 24, 1895.

My invention has for its object improvements in window sashes and frames which will admit of the sashes being reversed for the purpose of cleaning and ventilation and can be easily applied to existing windows and old sashes without much alteration.

In order that my invention may be clearly understood and easily carried into practical effect, I have appended hereunto a sheet of drawings, upon which I have shown an example of my improvements.

Figure 1 is a sectional plan showing one side of the frame and sash. Fig. 2 is a plan view of the wooden slide in which the steel channeling fits. Fig. 3 is an elevation of one of the springs S. Fig. 4 is a front elevation of the pivot-plate. Fig. 5 is a front elevation of the socket-plate. Fig. 6 is a front elevation of the key for keeping the pivot in its place. Fig. 7 is a view showing the steel channeling which acts as a bearing for the springs S and S' and also leaves a space for the cords J and J' to work in. Fig. 8 is a perspective view of the frame, showing one of the many positions in which the window-sash can be placed. Fig. 9 is a side elevation of a sash made according to my invention. Fig. 10 is a front sectional elevation of a portion of the frame and sash. Fig. 11 is a side view of a portion of the slide N, prepared for the socket-plate and key.

In carrying my invention into practice each of the stiles A, which are formed concave on their outer sides and which form part of the top and bottom sash of a window, are provided with the separate slide N, which is formed convex on one side, so as to fit into the concave portion of the stile, and is attached

thereto by the pivot P, formed in the center of the pivot-plate P', screwed or otherwise fixed to each sash-stile, taking into the T-shaped slot r', formed in the plate R, preferably secured by bolts to the side of the slide N. On the opposite side of this slide the dove-tailed groove n' is formed, and into this dove-tailed groove, above and below the pivot, I fix the double springs S and S' by means of the screw s<sup>2</sup> or its equivalent, which passes through the center. Also fitted into this dovetailed groove is the steel channeling V or its equivalent, which acts as a bearing for the springs and also forms a space for the sash-cords J and J' to freely move up and down in. This channeling is fixed to the cord-pulley stile by screws s<sup>3</sup> or other means. The spaces B and B' are provided for the usual weights, which are attached to the ends of the cords to move up and down in.

When fixing the sash into its frame, the pivots P are inserted into the T-shaped slots, care being taken that the pivot-plate and slot-plates are fixed in such a position as to evenly balance the sash, and then the keys K are fixed in position, the slots k' being cut in the sides of the wooden slides N for that purpose, as shown at Fig. 11, by which means the sashes are firmly held in position and prevented from rattling or moving when being opened or closed.

It will thus be readily understood that either the top or bottom sash may be raised or lowered in the usual manner, or they may be turned on their pivots to any angle, as shown at Fig. 8, the pressure of the spring holding them in any desired position.

What I claim, then, is—

1. In window-frames capable of turning on a pivot a double leaf-spring fixed at its center in a dovetail groove formed in a slide pivoted to a sash-stile in combination with a metal channel-piece secured to the frame and engaging the dovetail groove and upon which the slide is guided, substantially as described.

2. In pivoted sliding window-frames the combination of the curved wooden slide with the hollowed stile to correspond and the dovetail channel-piece engaging the dovetail

groove of said slide and kept tight by the spring substantially as hereinbefore described.

3. In pivoted sliding window-frames the  
5 combination of the curved wooden slide with  
the hollowed stile to correspond, the dovetailed  
channel-piece engaging the dovetail groove  
of said slide and kept tight by the spring and  
the slotted plate for the pivot to work in with  
10 its key for keeping the pivot in position sub-

stantially as hereinbefore described and as shown.

In testimony that I claim the foregoing as my own I affix my name in the presence of two witnesses.

EDMUND GEORGE KENDALL.

Witnesses:

GEORGE LESTER,  
ALBERT NEWBY.