

(No Model.)

2 Sheets—Sheet 1.

G. W. BISHOP.

BALANCE SPRING FOR WINDOW OR OTHER SLIDES.

No. 377,736.

Patented Feb. 14, 1888.

Fig. 1.

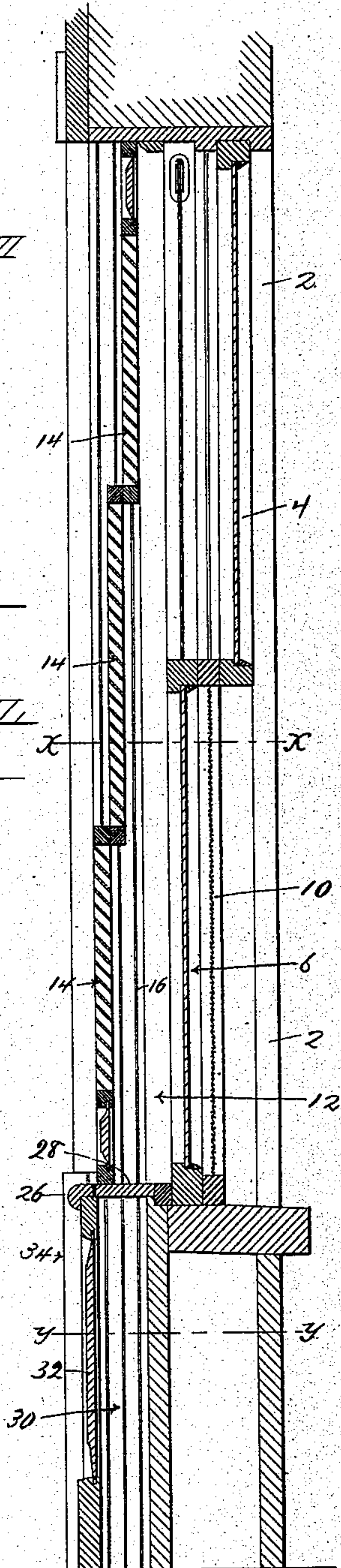


Fig. 2.

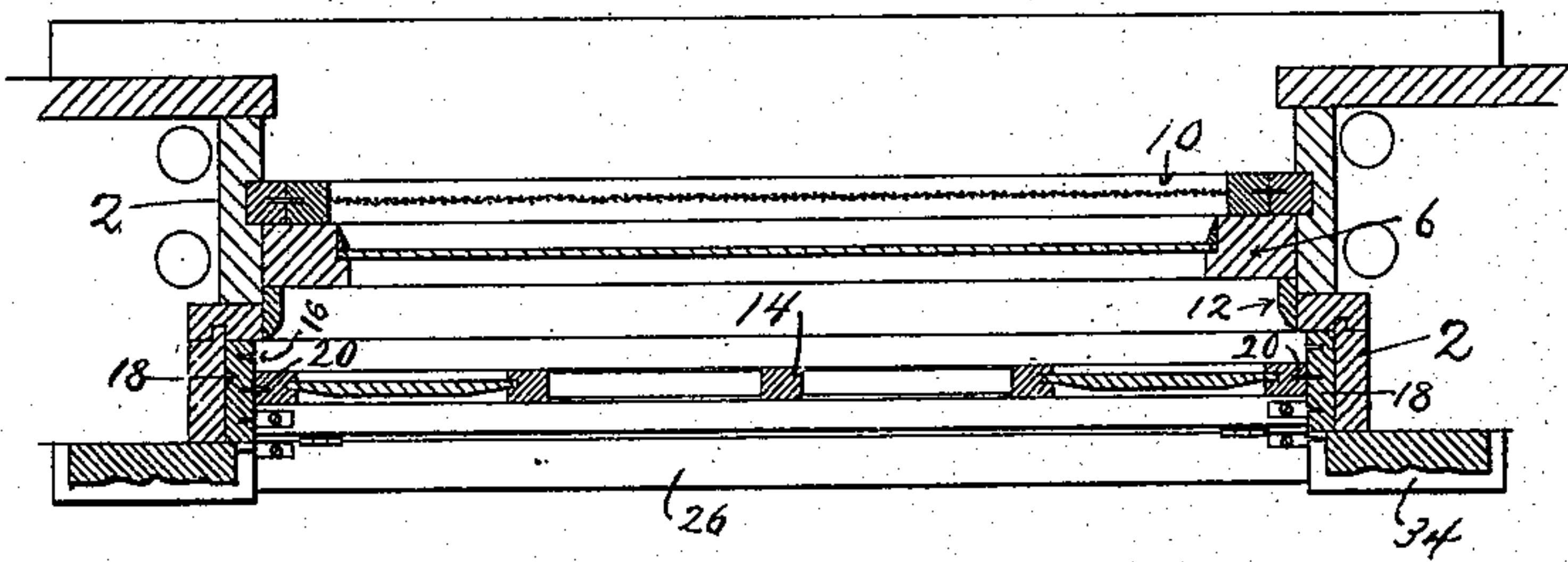


Fig. 3.

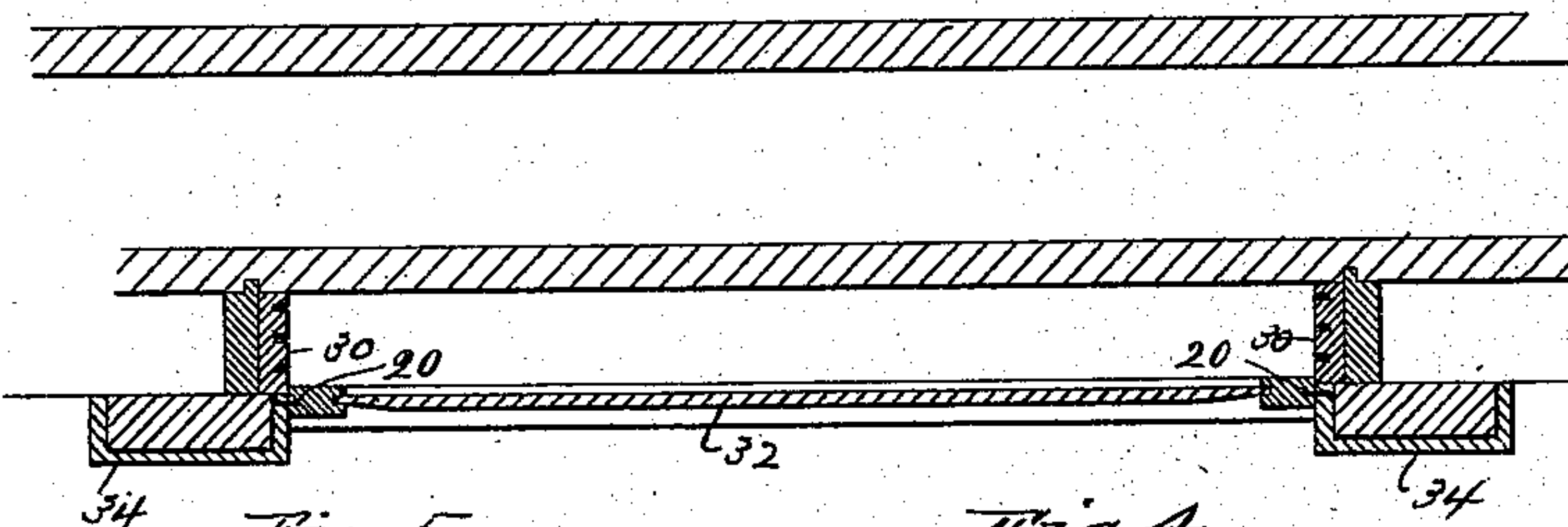


Fig. 5.

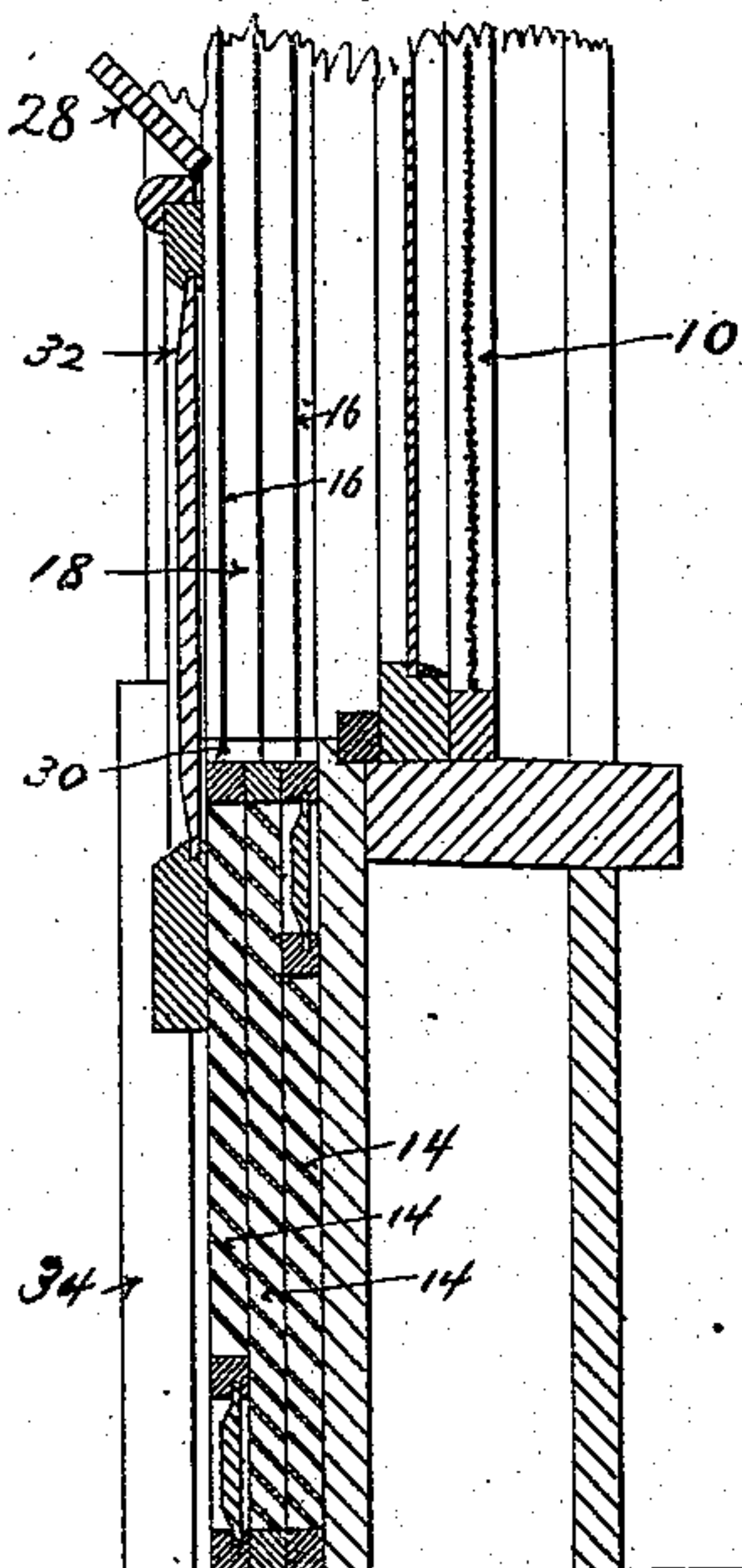
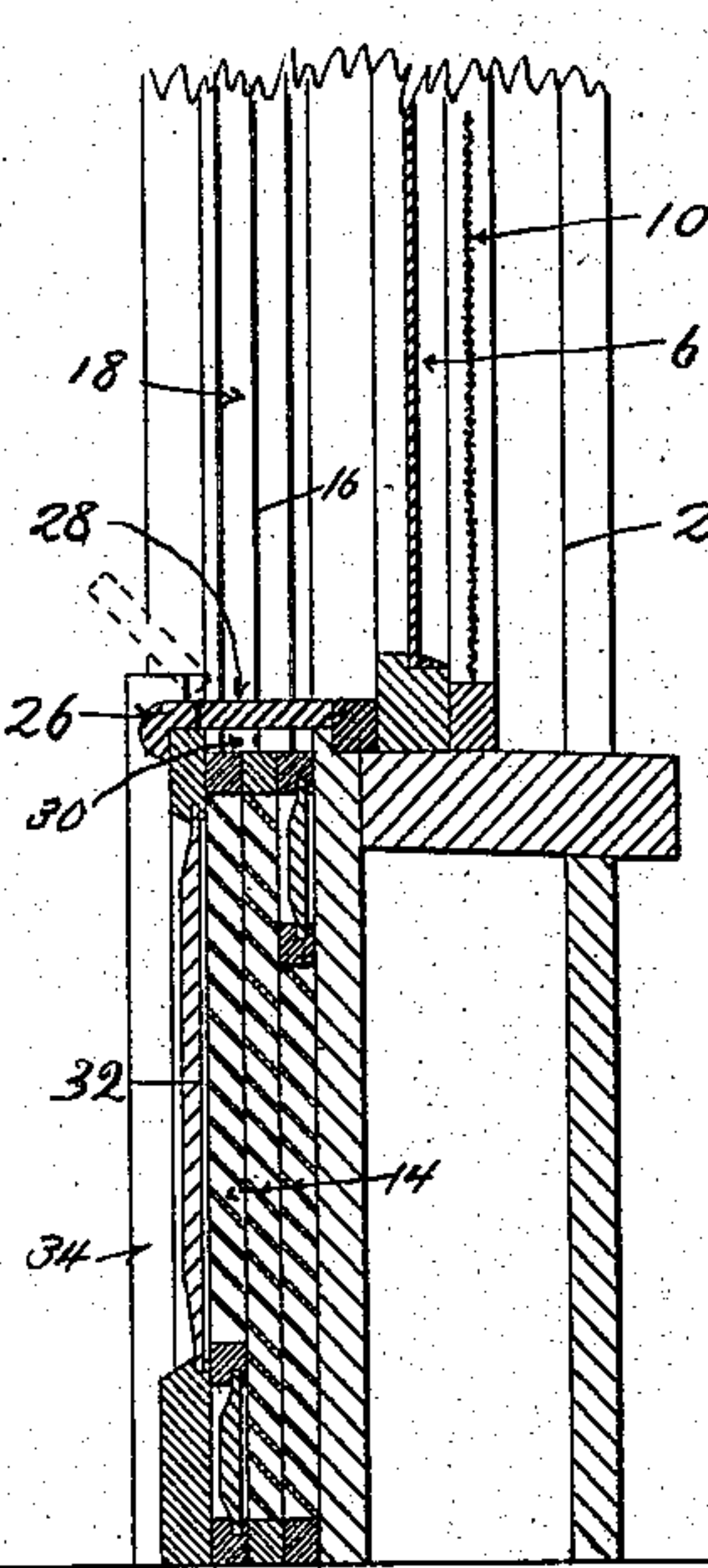


Fig. 4.



Witnesses.
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Fig 8



Fig. 7.

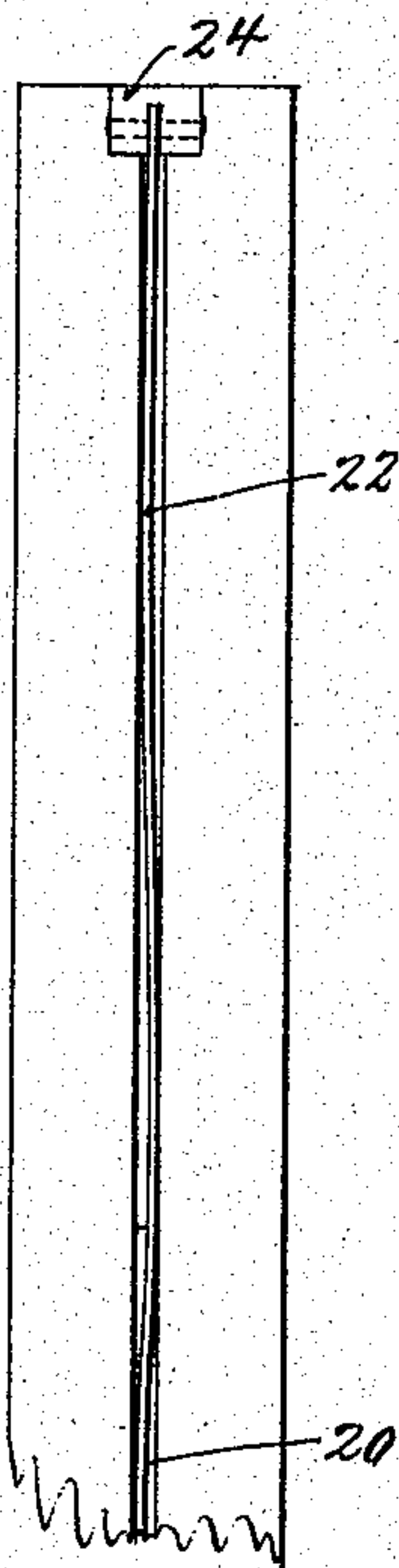


Fig. 6.

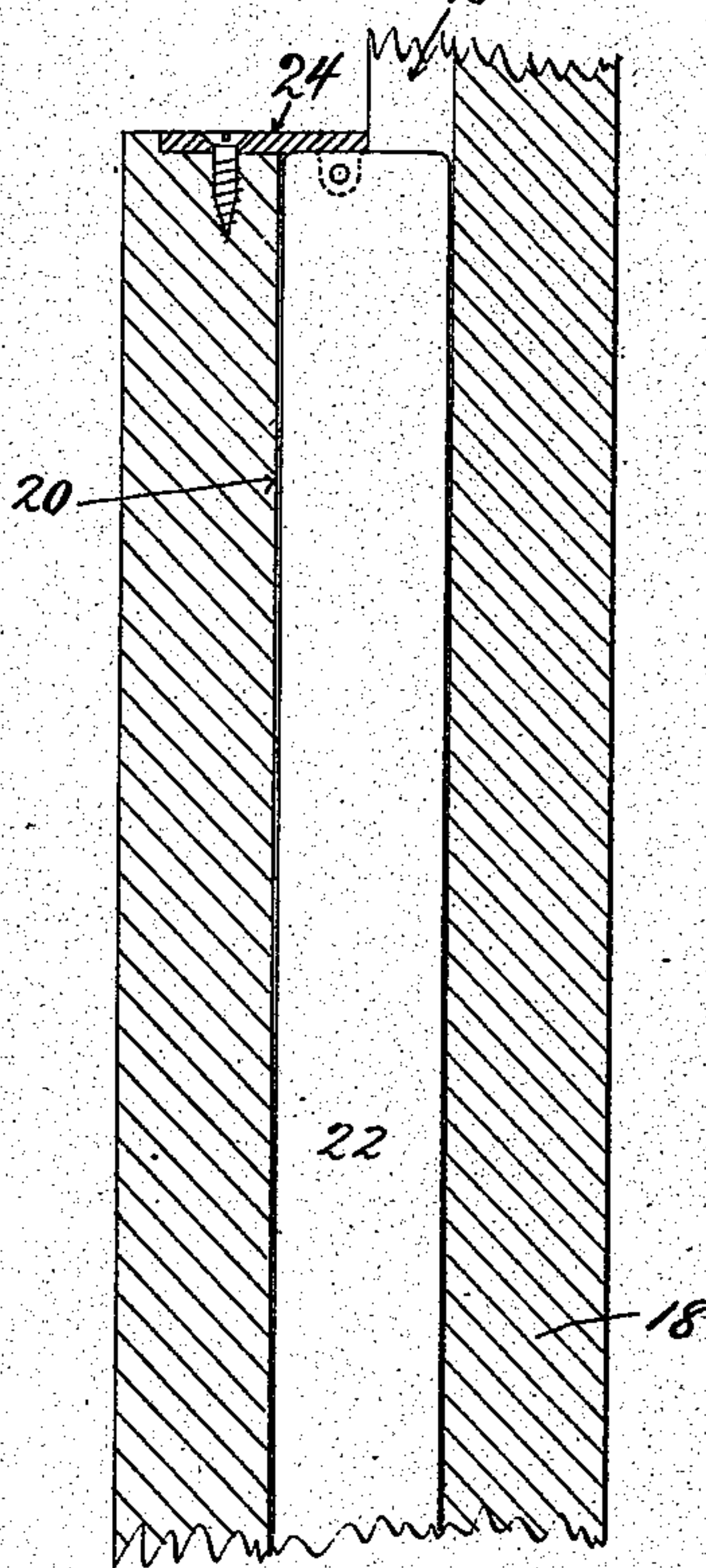


Fig. 11.

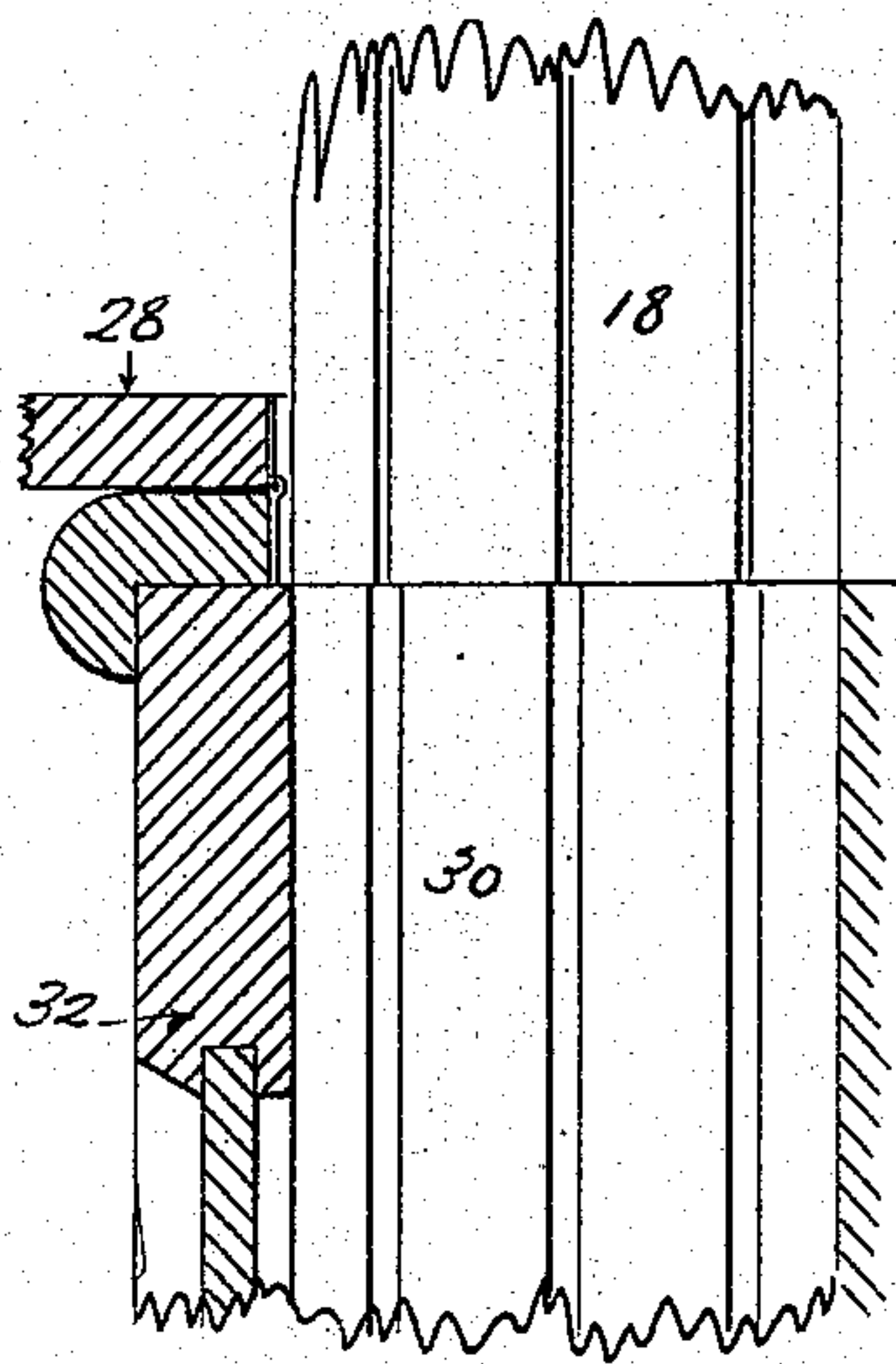


Fig. 9.

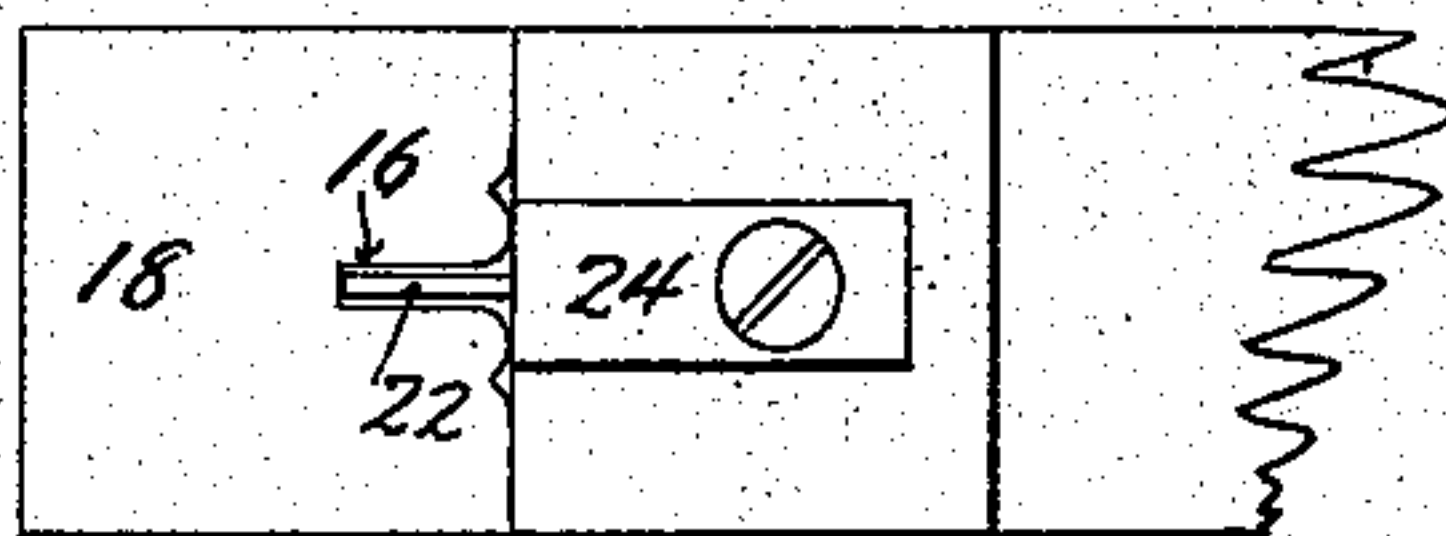
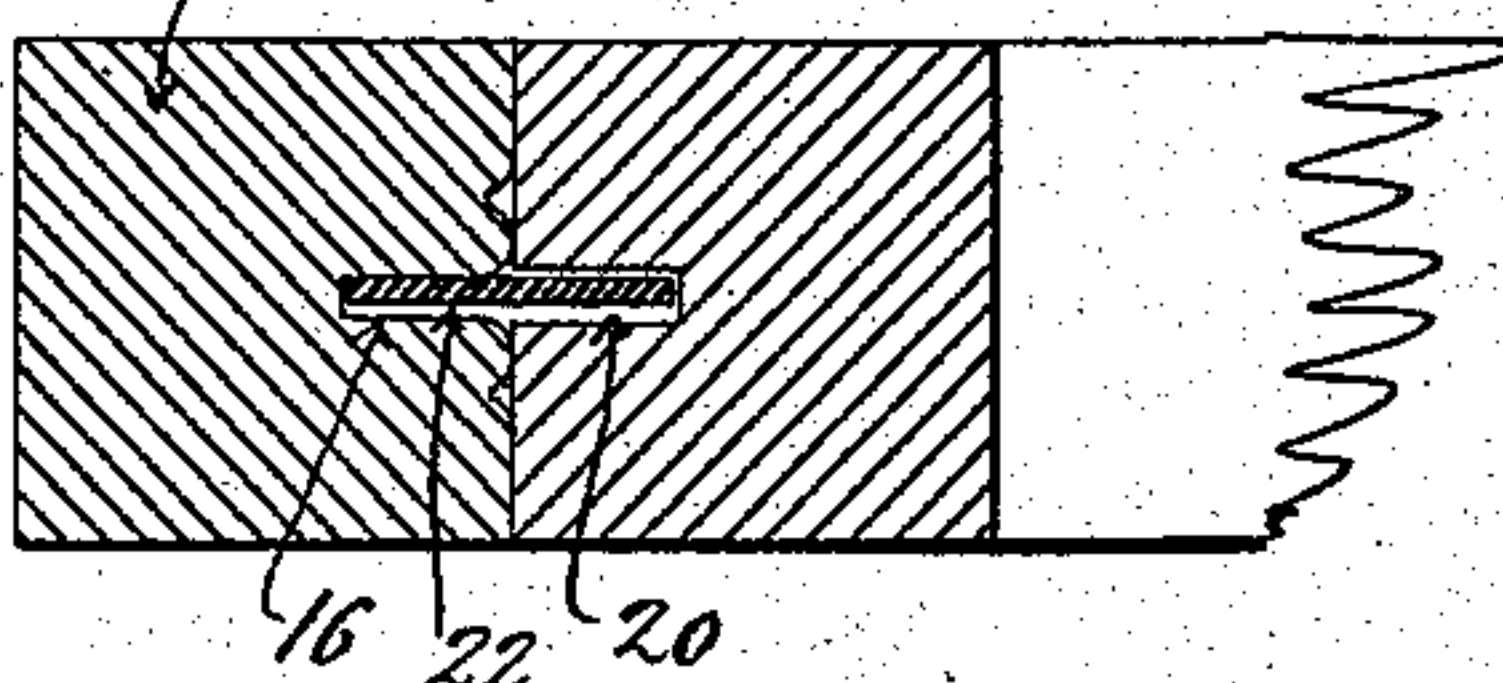


Fig. 10.



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UNITED STATES PATENT OFFICE.

GEORGE W. BISHOP, OF MINNEAPOLIS, MINNESOTA.

BALANCE-SPRING FOR WINDOW OR OTHER SLIDES.

SPECIFICATION forming part of Letters Patent No. 377,736, dated February 14, 1888.

Application filed August 20, 1887. Serial No. 247,444. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. BISHOP, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Balance-Springs for Window or other Slides, of which the following is a specification.

My invention relates to improvements in balance-springs for all kinds of light slides—such as window or screen sash, shutters, panels, or small doors; and the object I have in view is to provide a spring for a slide of this kind by which the slide may be held at any point on its supporting-strips and at the same time permit it to be easily moved in either direction.

The invention consists, generally, in providing the window or other slide and its supporting-strip with longitudinal grooves, the groove in the slide being slightly wider than that in the supporting-strip, and a spring-plate that is slightly waved longitudinally and is secured in the groove in the slide and projects into the groove in the supporting-strip, where it expands sufficiently to cause considerable friction between its surface and the walls of the groove.

Other features of the invention will appear from the following detailed description.

I show and describe the invention herein as applied to sliding screen-frames and sliding inside shutters or blinds of windows; but it will be understood that it may be applied in a similar manner to any other slides.

In the accompanying drawings, forming a part of this specification, Figure 1 is a longitudinal vertical section of a window, showing the application of my device to a sliding screen sash or frame and to sliding shutters. Fig. 2 is a horizontal section on line X X of Fig. 1. Fig. 3 is a horizontal section on line Y Y of Fig. 1. Fig. 4 is a partial vertical section showing the shutters in a pocket between the stool and floor, where they may be placed when not in use. Fig. 5 is a partial vertical section showing the manner of removing the outer panel in order to remove or replace the sliding shutters. Figs. 6, 7, 8, 9, and 10 are details showing the construction and arrangement of the slide and its balance-spring. Fig. 11 is a detail showing the arrangement of the grooves for the shutters in the pocket.

The sash-frame or the shutter, being the movable part, I denominate the "slide," and the portion of the casing over which the sash or shutter moves I call the "supporting-strip."

In the drawings, 2 represents a window frame or casing provided with an upper sash, 4, and a lower sash, 6, sliding thereon in the usual manner. I have shown a screen-sash, 10, arranged to slide over the window-frame, and also inside shutters, 14, also arranged to slide on the window-frame. I have illustrated my invention by showing its application to these slides, and as the application and mode of operation are the same in both instances I will describe them only with reference to the shutters, which are of any ordinary preferred construction.

The edges of the slides are provided with vertical grooves 20, extending longitudinally therein. The supporting-strips 18, upon which the slides move, are provided with similar but slightly narrower grooves, 16. A thin metal spring, 22, that is bent or flexed laterally in opposite directions throughout its length, as clearly shown in Fig. 8, is secured at one end to the slide, preferably at its top, and extends, preferably, the full length of the slide in the groove 20. About one-half of the spring projects into the groove in the supporting-strip, as shown in Figs. 6, 9, and 10. The spring can expand without resistance in the groove 20; but as it expands in the groove 16 it bears against both walls of the groove with a slight pressure, so that there is sufficient friction between the spring and the walls of the groove to hold the slide in any position, but not enough to prevent the slide from being easily moved. The spring is preferably pivoted to a metal plate, 24, which may be secured by a screw to the top of the slide. The other end of the spring is preferably not secured to the slide, so that the spring is free to shorten as it expands against the walls of the groove 16. The spring may be inserted in the grooves and secured to the slide after the slide has been put in place. Each edge of the slide is preferably provided with the spring, as described; but if preferred the spring may be applied to one edge only, and the other edge may be guided in any suitable manner.

By the use of the sliding shutters with my invention applied thereto I am enabled to

make the window-jamb much narrower than can be done where the shutters are arranged to slide in the ordinary manner.

In some instances I prefer to construct the window in such a manner as to allow the shutters to be put entirely out of the way, which may be done as follows: The window-stool 26 is constructed with a hinged top, 28, which extends from one jamb to the other across the window and swings upward, as indicated by dotted lines in Fig. 4. Supporting-strips 30, which are continuations of the side strips, 18, are placed in the recess below the window-stool. The grooves in the strips 30 correspond in position to the grooves 16, and the slides may be moved into the grooves in the said strips when the top 28 is raised and pass into the pocket below the said stool, as shown in Figs. 4 and 5. The top 28 can then be replaced and the shutters will be all inclosed in the pocket and the window will be as free and unobstructed as if no shutters were used.

For convenience in placing and replacing the shutters, I prefer to construct the front panel, 32, to which is attached the front portion of the stool and the hinged top or lid 28, in such a manner as to be easily removed, which I do by arranging it to slide in grooves similar to those already described for the slides, one of said grooves formed in each edge of the panel, which receives the spring held in position by the plate 24, secured to the said panel, and a corresponding groove is formed in the inner sides of the plinth 34. This plinth projects beyond the casing, as shown in Figs. 2, 4, and 5, and preferably extends a short distance above the top of the panel, and the difference between the width of the plinth and casing allows the groove to run out at the top of the plinth, so that when the panel is raised above the said plinth the spring-plate in the edge of the said panel will be free from the casing, and the panel can be entirely removed, if desired. I prefer to construct the supporting-strip 30 separate from the strip 18, in order that the said strip 30 can be removed from one or both sides of the recess to facilitate the removing or replacing of the shutters. When the said strips are removed, each section of the shutters can be removed by sliding them down into the pocket.

The grooves in the strips 30 in the pocket are preferably as wide as the grooves in the slides, (see Fig. 11,) so that there is no friction between the spring and the walls of the grooves

when the slides are in the pocket. All of the grooves for the shutters are preferably formed in a single supporting-strip 18, which may be readily removed from the casing when desired.

I claim as my invention—

1. The combination, with a slide having a groove therein, of a supporting-strip having corresponding grooves of less width than the groove in the slide, and a bent metal spring secured to the slide and extending longitudinally in its groove and projecting into the groove in the supporting-strip and bearing against its walls, substantially as described.

2. The combination, with a slide having a groove extending longitudinally in its edge, of a supporting-strip having a corresponding longitudinal groove of less width than the groove in the slide, and a bent metal spring secured in the groove in the slide and extending longitudinally therein and projecting into the groove in the supporting-strip and bearing against its walls, substantially as described.

3. The combination, with a slide having grooves in its opposite edges, of supporting-strips having corresponding grooves of less width than the grooves in the slide, and bent metal springs secured in the grooves in the slide and projecting into the grooves in the supporting-strips and bearing against their walls, substantially as described.

4. The combination, with the window-casing provided with a pocket, of the sliding shutters adapted to be moved into said pocket, and a sliding panel, 32, the stool 26, the hinged cover 28, and the balance-spring secured to and moving with said sliding panel, substantially as described.

5. The combination, with the window-casing, of the supporting-strips 18, having the grooves 16, the removable strips 30, arranged in a pocket below the window-stool and provided with grooves of greater width than the grooves in the strips 18, the stool provided with the hinged cover 28, the removable panel, and the sliding shutters provided with the springs 22, projecting into said grooves in the supporting-strips, substantially as described.

In testimony whereof I have hereunto set my hand this 15th day of August, 1887.

GEORGE W. BISHOP.

In presence of—

R. H. SANFORD,
S. J. BEARDSLEE.