

No. 815,613.

PATENTED MAR. 20, 1906.

G. MERRITT.  
PULLEY DEVICE.  
APPLICATION FILED APR. 13, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

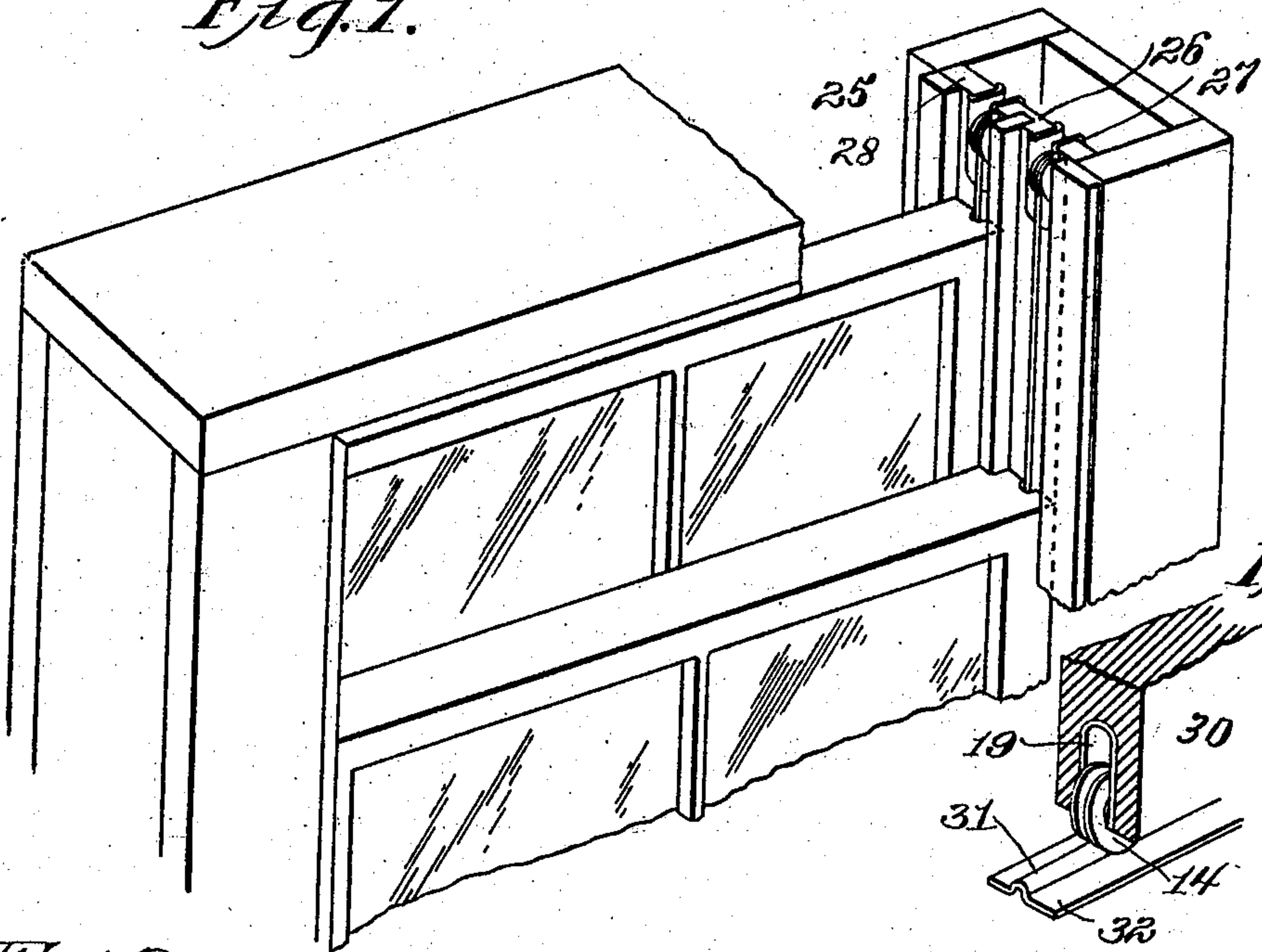


Fig. 2.

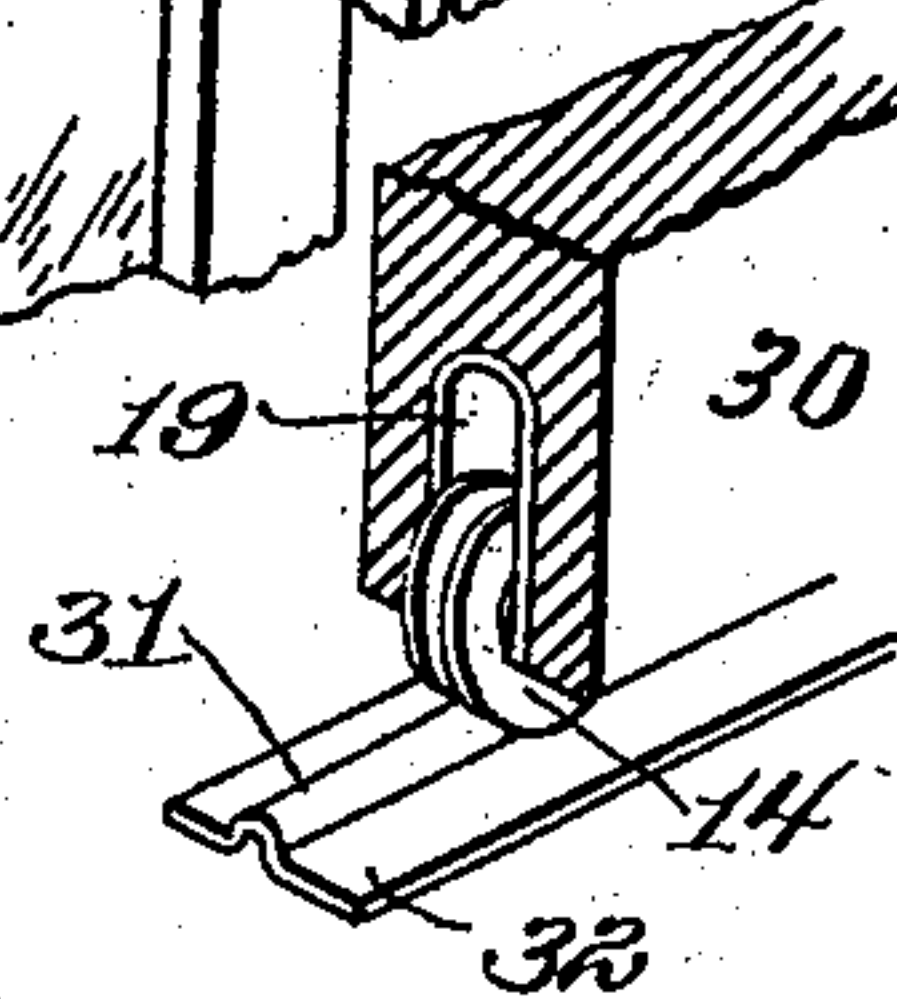


Fig. 3.

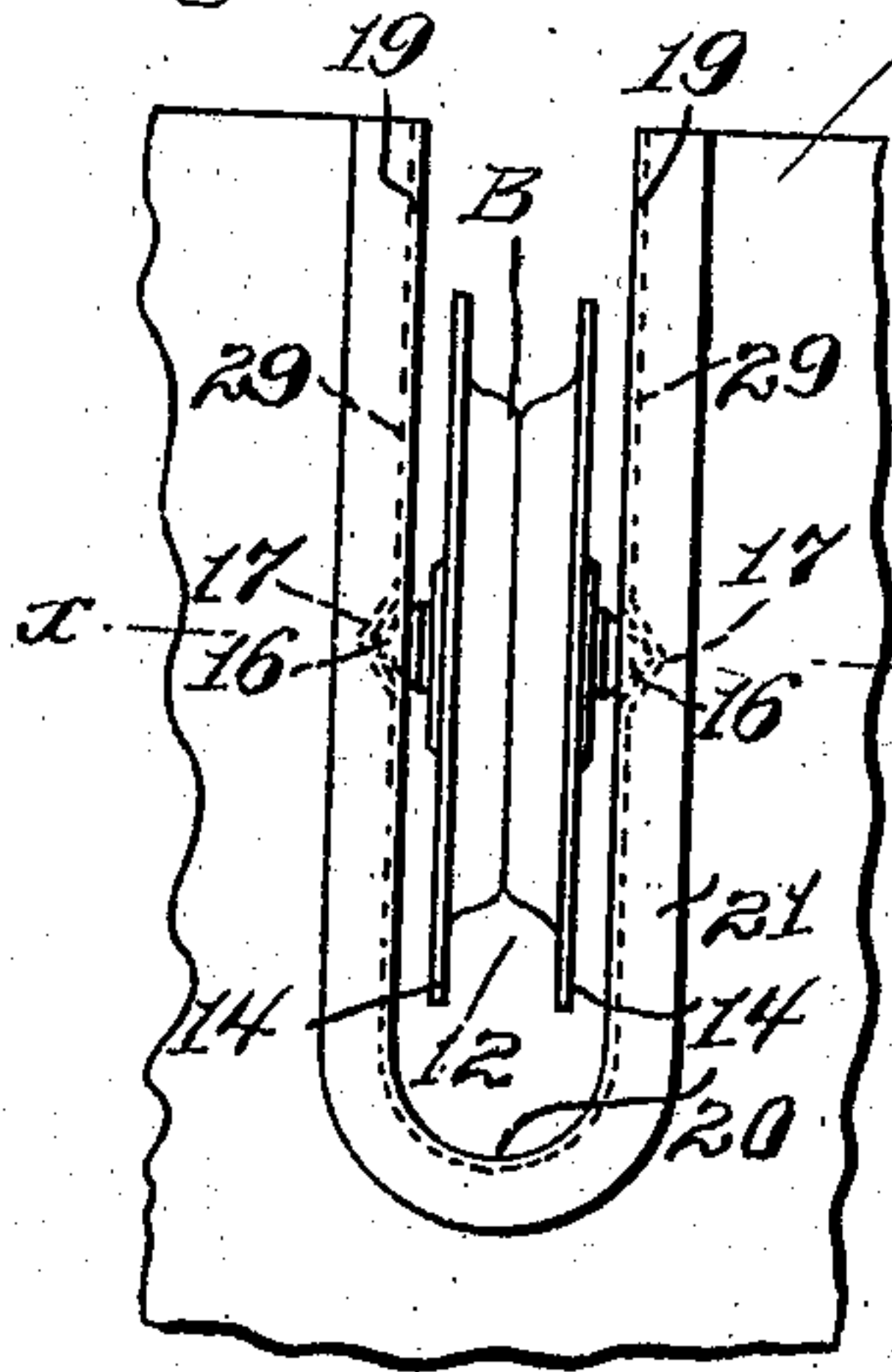


Fig. 4.

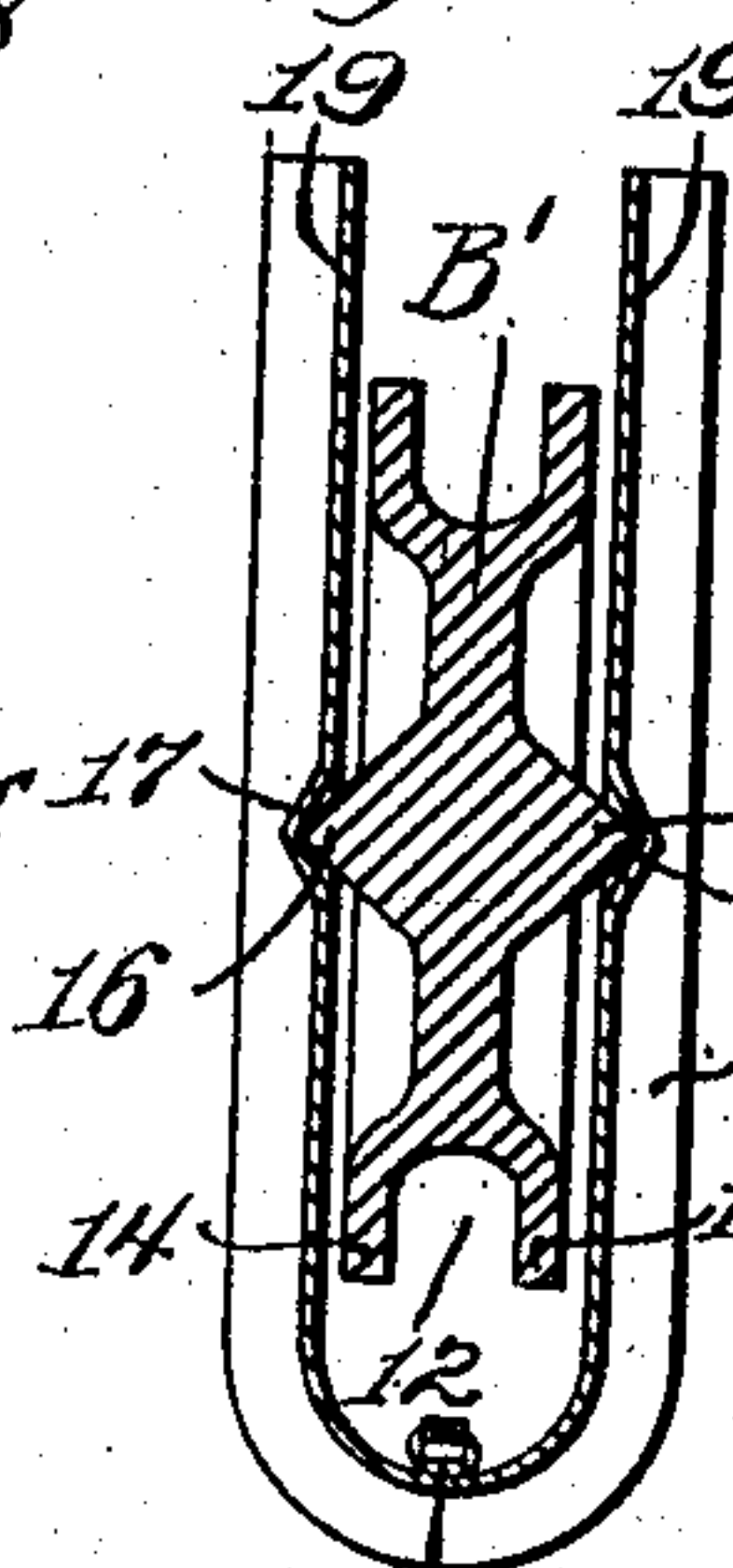


Fig. 5.

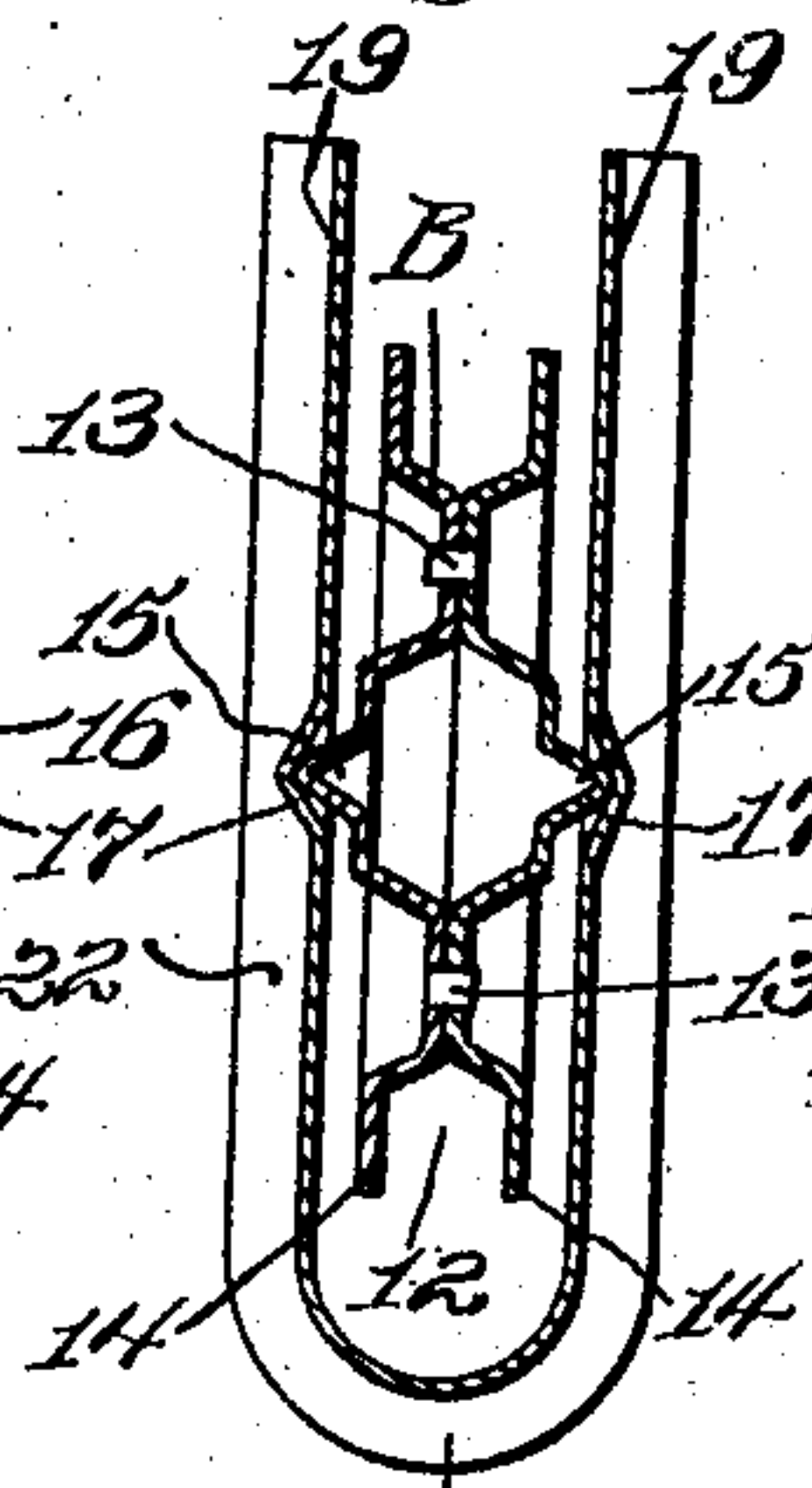


Fig. 6.

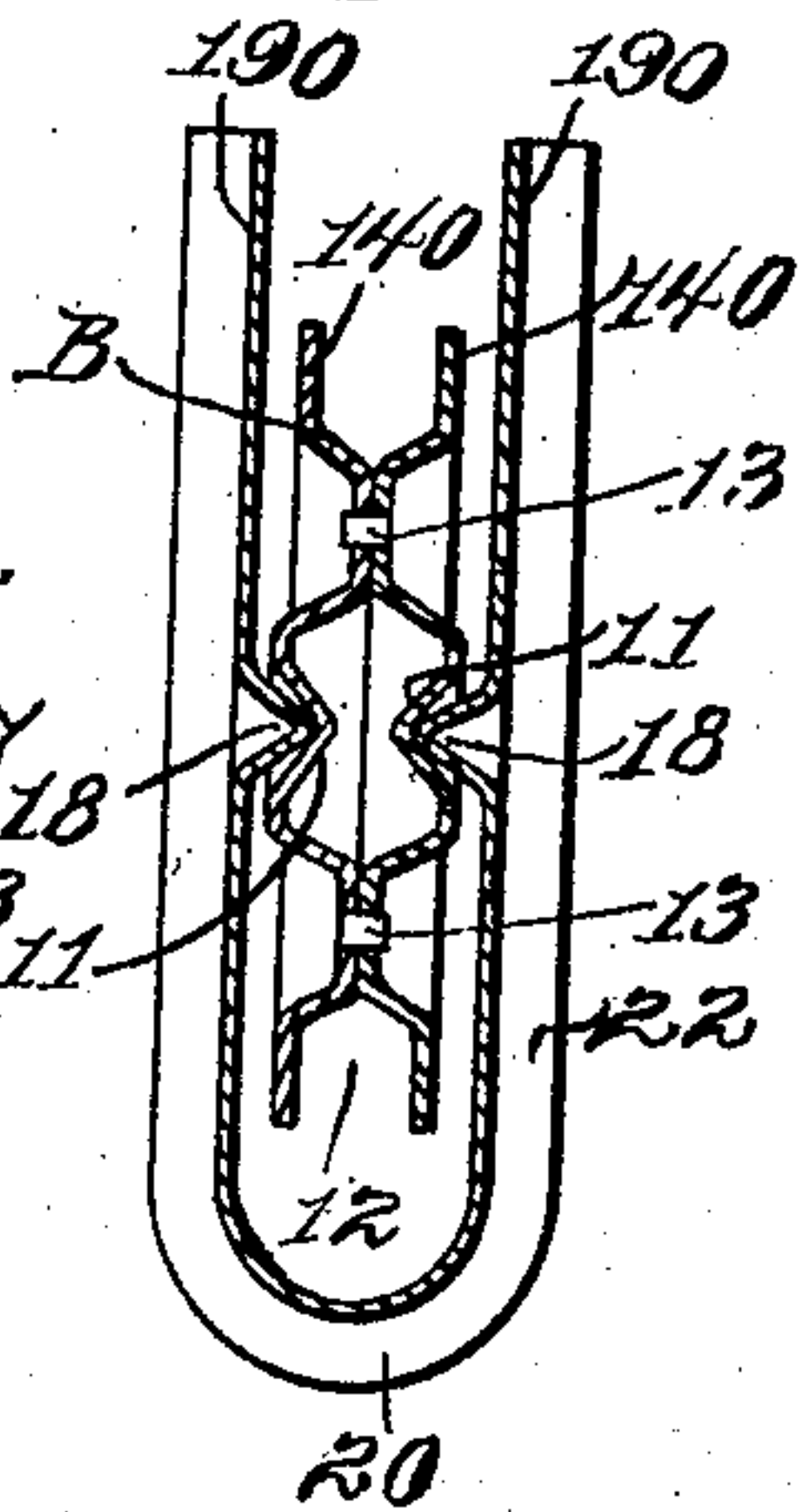
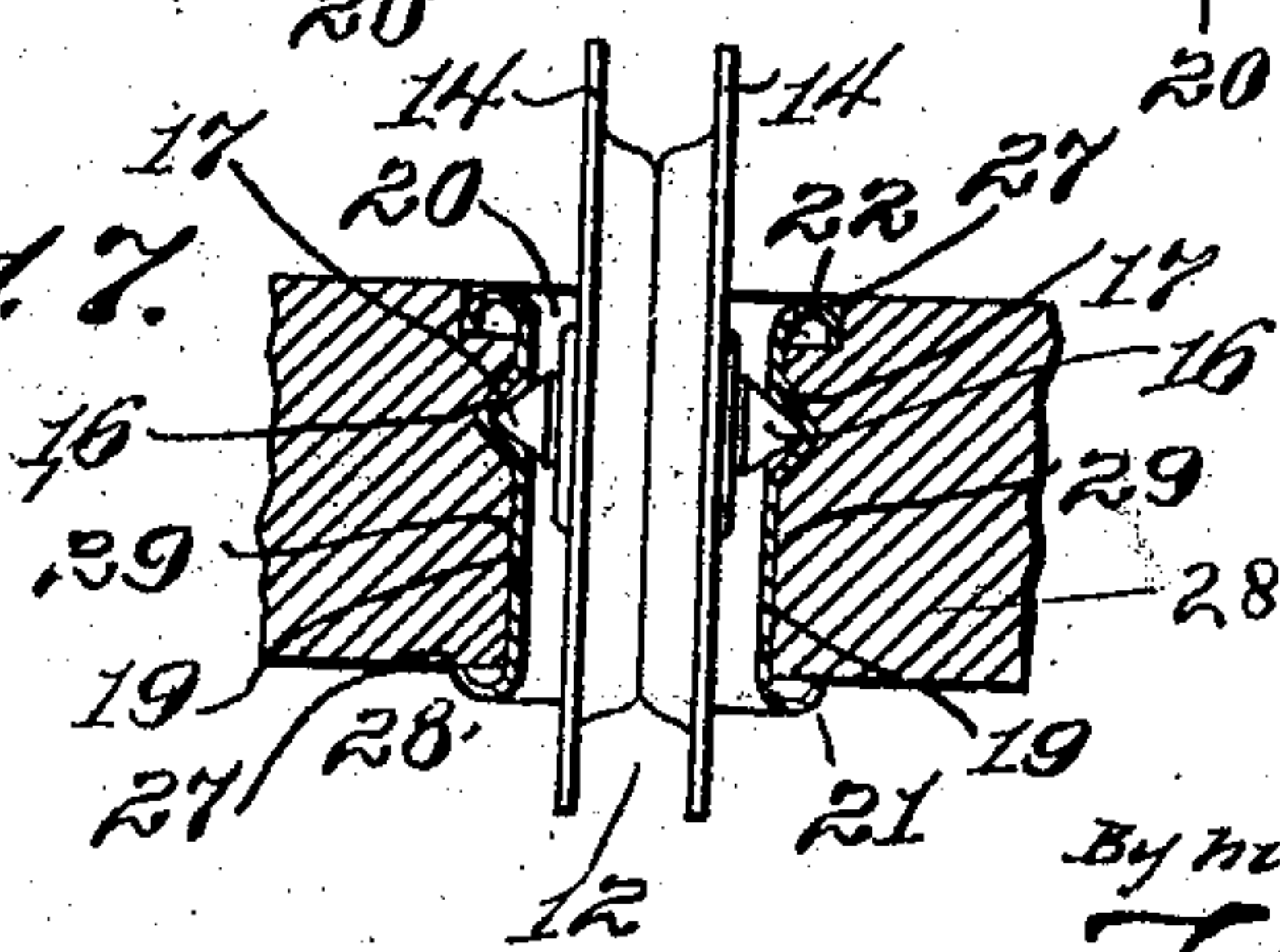


Fig. 7.



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2 SHEETS—SHEET 2.

Fig. 8.

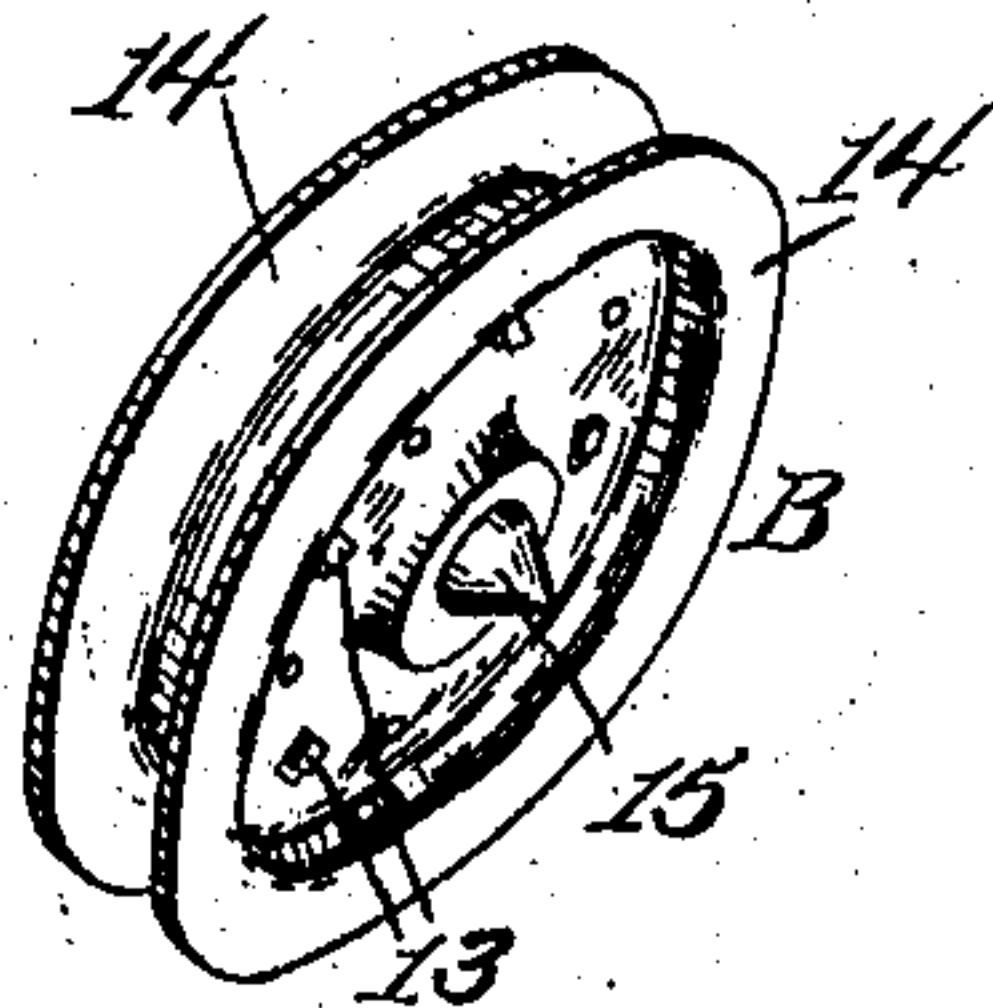


Fig. 9.

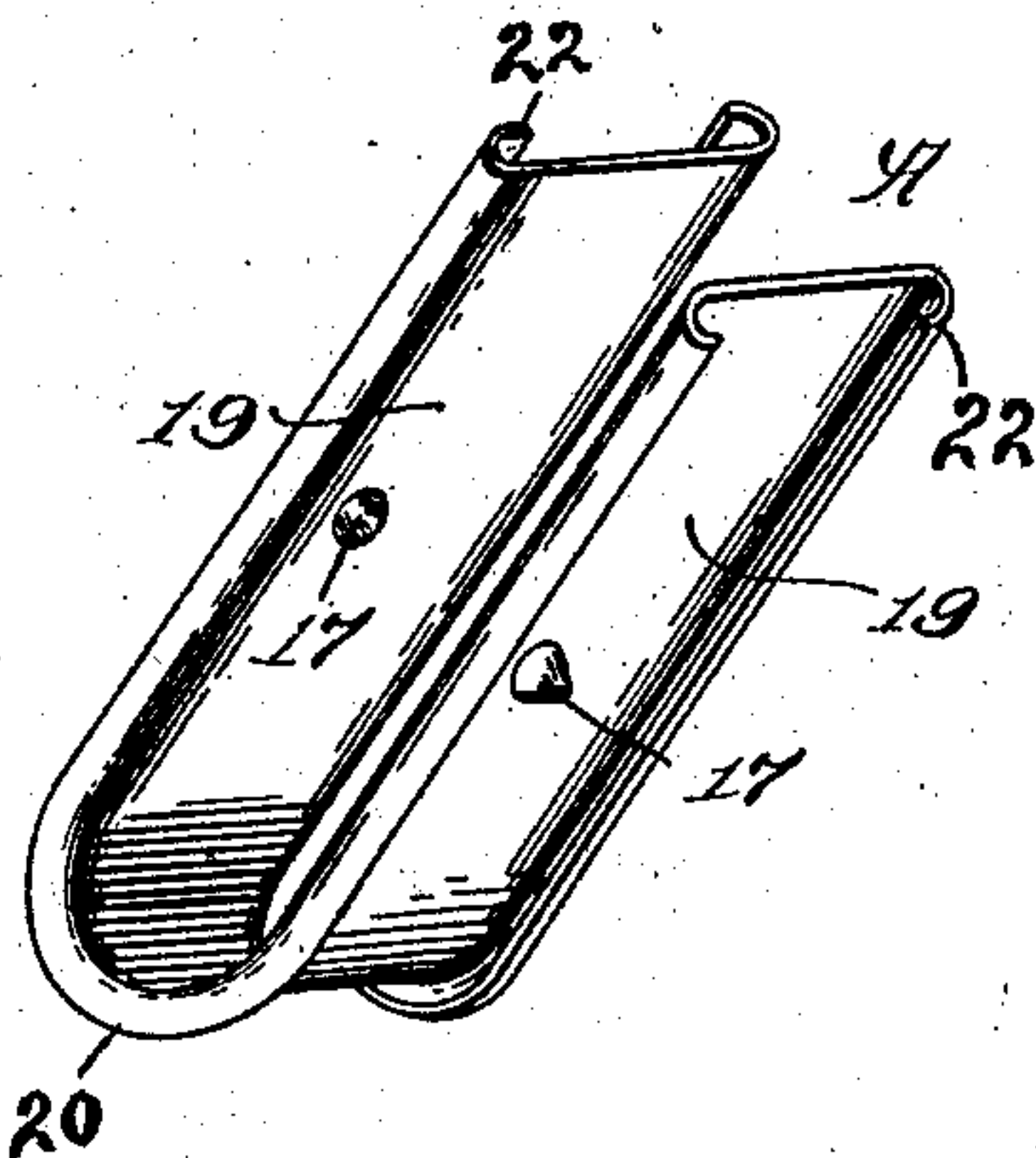


Fig. 10.

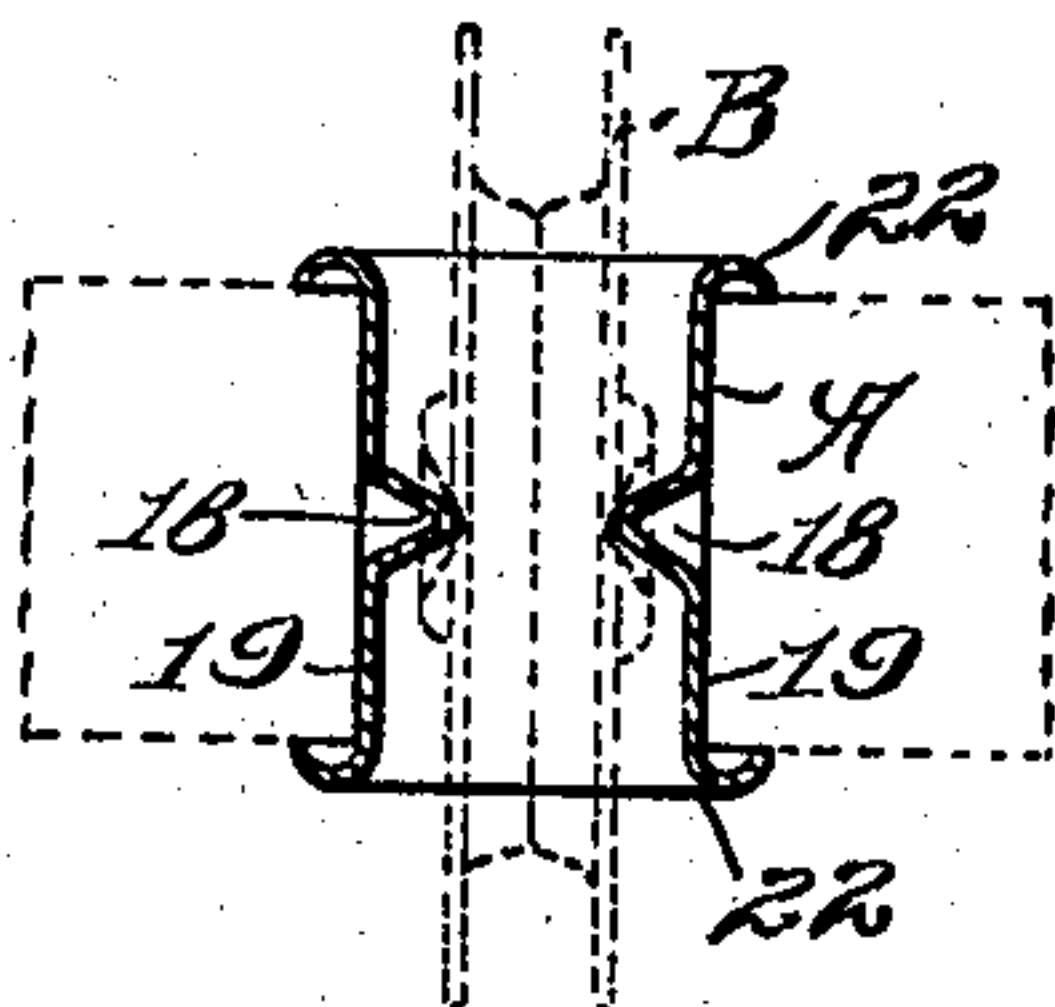


Fig. 11.

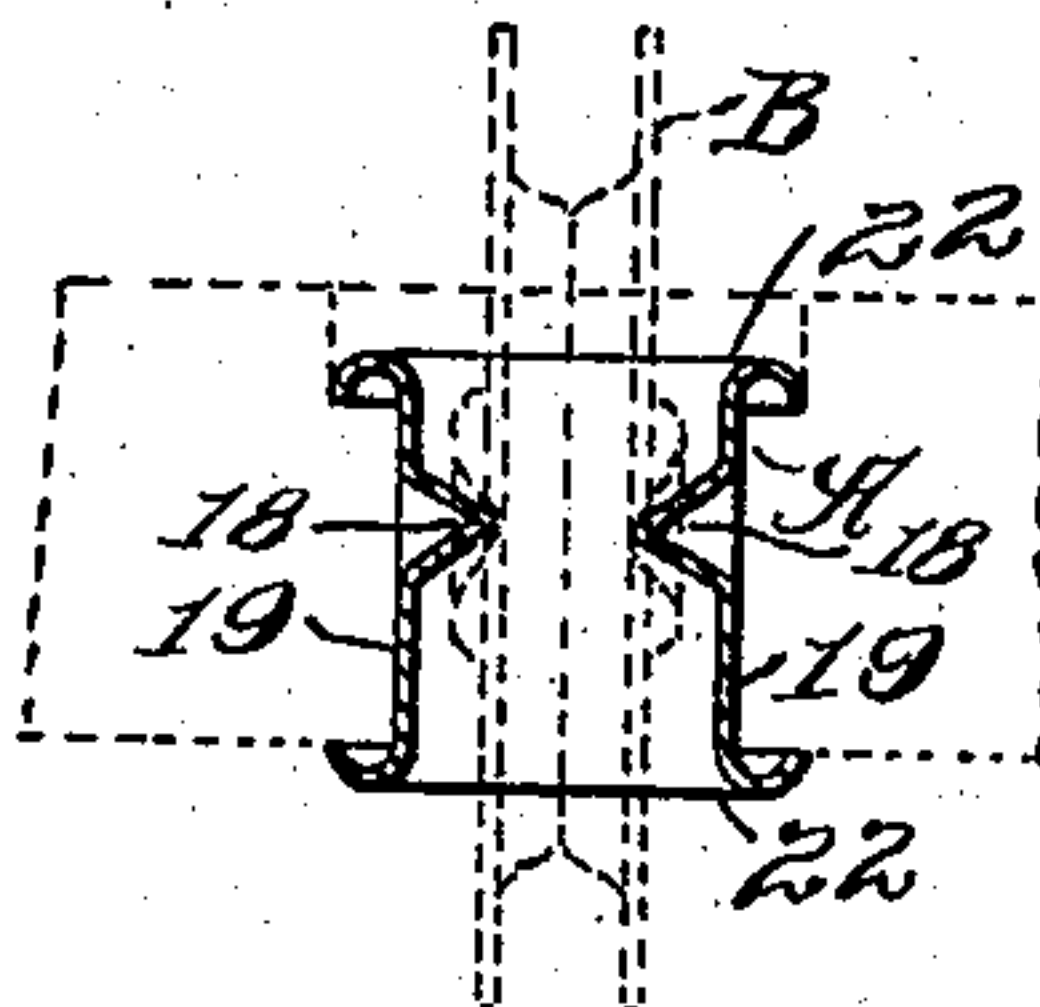


Fig. 12.

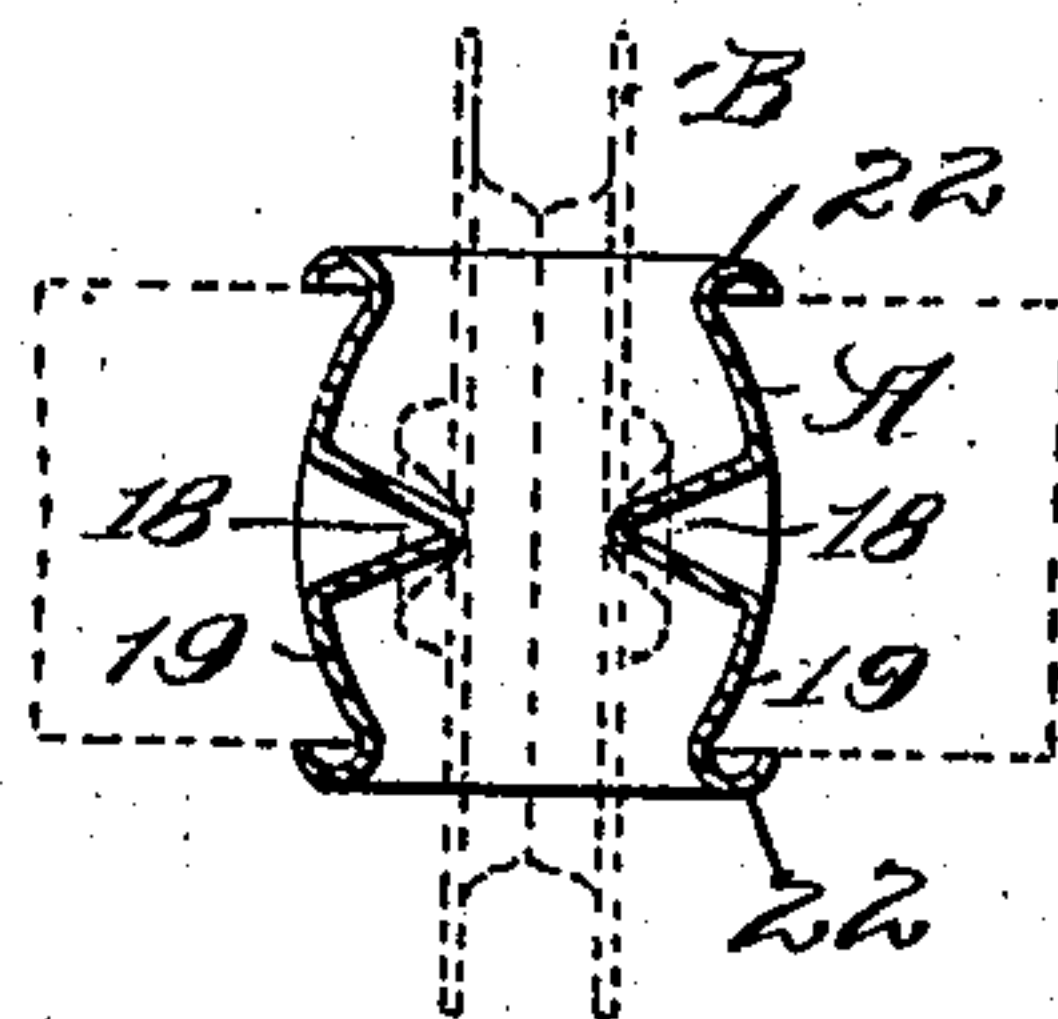


Fig. 13.

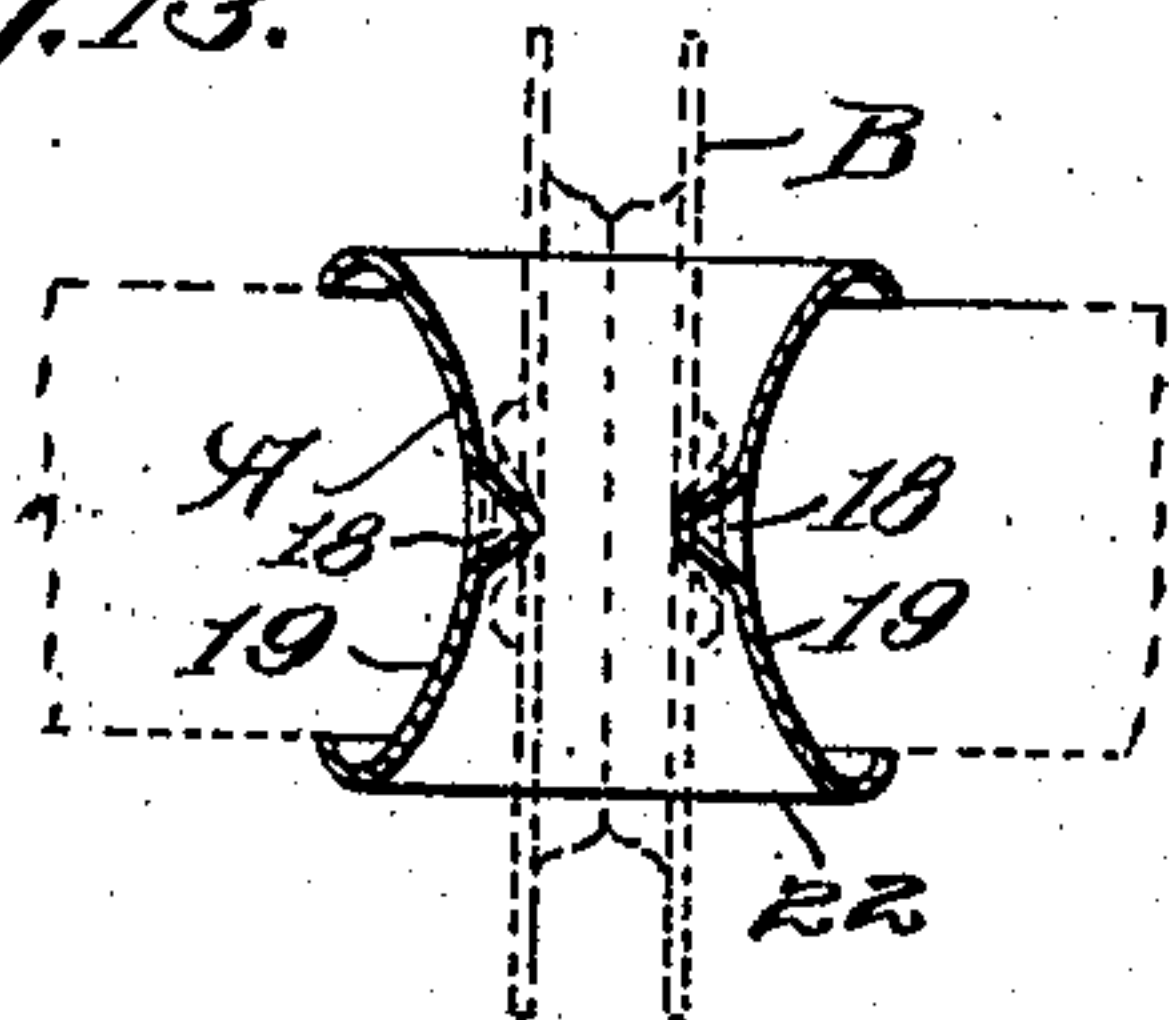
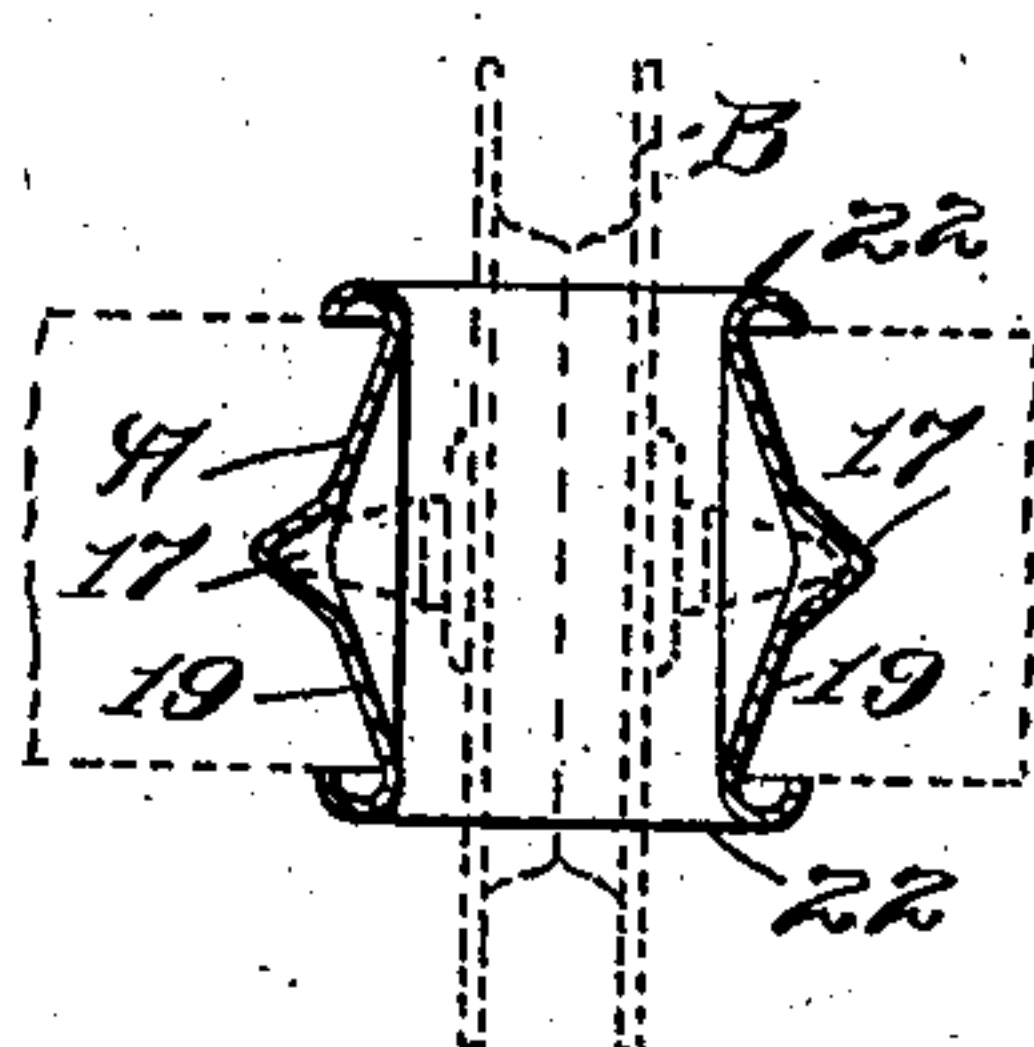


Fig. 14.



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# UNITED STATES PATENT OFFICE.

GORDON MERRITT, OF RIDGEWOOD, NEW JERSEY.

## PULLEY DEVICE.

No. 815,613.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed April 13, 1905. Serial No. 255,271.

*To all whom it may concern:*

Be it known that I, GORDON MERRITT, a citizen of the United States, residing in Ridgewood, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Pulley Devices, of which the following is a specification.

One of the objects of my invention is to provide a pulley device that is retained in its seat in a structural element and prevented from lateral displacement by reason of the structure of the side members of the device that engage opposite side walls of such seat.

A further object of my invention is to provide means integral with a frame and a pulley-wheel, respectively, whereby the wheel is rotatably supported in the frame and can be mounted therein by displacement of the bearing portions of the frame.

Another object of my invention is to provide an improved pulley-wheel or sheave formed out of sheet metal or other sheet material in which bearing portions are formed by the indenting of the sheet material.

In the drawings accompanying and forming a part of this specification, Figure 1 is a perspective view of a window broken away and showing the application of a form of my invention thereto. Fig. 2 is a perspective view, partly sectional, of a portion of a sliding door and track with a form of my invention applied thereto. Fig. 3 is a side elevation of one form of my invention shown in position for use. Figs. 4, 5, and 6 are longitudinal sections through modified forms of my device. Fig. 7 is a transverse section on the line  $x\ x$  indicated in Fig. 3, the pulley-wheel being shown in elevation. Fig. 8 shows in perspective the form of pulley-wheel shown in Fig. 5. Fig. 9 is a perspective view of the form of frame shown in figures heretofore described; and Figs. 10 to 14 are transverse sectional views of modified forms of the frame, the structural element and wheel being indicated in broken lines.

The device is composed of a frame A, supporting a pulley-wheel B. The frame A is shown as composed of two side members 19, that are joined by a suitable connecting member 20 at one end, and the pulley-wheel B is suitably mounted between the side members

19 and has bearings therein. The members 19 of the frame are preferably arranged parallel, or at least their longitudinal elements are disposed in parallelism. In the structural element I provide a seat for the frame in the form of a slot 27, the width of the opening corresponding with that of the frame, whereby the frame may be housed therein, the closed end and the side walls of the slot constituting a seat for the frame. In order to prevent lateral displacement of the frame in this seat, the side members 19 are so formed as to have a retaining engagement with the side walls of the seat. In Fig. 7 and also Figs. 10 to 14 I show various configurations that may be given to the side members to prevent the lateral displacement of the device. In the present instance the side members are shown as substantially channel-shaped, being provided with flanges 22 on the opposite longitudinal edges, extending outwardly in opposite directions and engaging the opposite sides of the structural element adjacent the opening. These flanges are preferably formed convex, as shown. Where the flanged side members are of less width than the thickness of the structural element, the latter may be rabbeted on one side, preferably the inner, as indicated in Fig. 7. In Figs. 12 and 13 the side members 19 are cylindrically curved instead of being flat, and the side walls of the opening are correspondingly formed. With the form shown in Fig. 12 the walls of the opening would be concave, while with that indicated in Fig. 13 these walls would be convex. In Fig. 14 the side members are shown as V-shaped in transverse section, and the side walls of the opening would be of corresponding configuration.

The portion connecting the extremities of the side members 19 may be of any desired shape. It is found convenient to curve such part, as shown in Figs. 3 to 6, forming a substantially U-shaped frame, and these three members are shown in Figs. 3, 5, and 6 as made integral. In Fig. 4 is shown another form of frame, in which one-half of the connecting portion 20 is integral with each side member 19, the two portions thus constituting the frame being secured together by suitable means. The flanges 22 of the side mem-



bers may be continued around the curved portion 20, and thus constitute one integral flange.

Any suitable form of a pulley-wheel may be rotatably mounted between the side members 19. In Fig. 4 a solid wheel B' is shown, having projections 16 engaging socket portions 17 in the frame.

In Figs. 5 and 8 is shown a pulley-wheel in which two substantially similar portions 14, formed of sheet material, are suitably secured together, as by integral clips 13. Each of the portions 14 has formed integral therewith a pivot or journal portion 15, formed by indenting the material outwardly. These pivots 15 engage suitable conoidal socket portions 17, formed in the side members 19 by indenting them outwardly or in opposite directions. The form shown in Fig. 6 is a somewhat similar arrangement; but the side portions 140 of the pulley have sockets 11 formed by indenting the central portions inwardly toward each other and preferably made conoidal. The frame 190 in the present instance has conoidal pivot portions 18, formed by indenting the sides of the frame inwardly toward each other.

In the form shown in Fig. 4 the wheel B' can be placed in its bearings before the side members are secured together at their connecting parts; but in the form shown in Figs. 5 and 6, where the frame is formed of one integral piece, it is made yieldable or of resilient material, whereby the side portions can be bent apart to mount the wheel in its pivot-bearings, and it will be retained therein by the side members returning to their normal relative positions. It will be further observed that when the frame has been inserted in the opening 27 of the structural element 28 its engagement with the side walls thereof will prevent the side members of the frame springing apart, which would release the pulley-wheel, thus insuring the secure mounting of the pulley-wheel in its bearings.

After the pulley-wheel has been mounted in its bearing in the frame the latter is slipped into the opening 27, the upper ends of the frame being either flush with or below the end of the opening. It will be observed that when so placed the bottom or connecting part of the frame will be seated on the bottom wall of the opening, and also that it is entirely prevented from lateral displacement by reason of the flanges 22 engaging the sides of the opening, and when the cord is passed around the pulley and the sash and weight connected the pulley is held in its seat by reason of the load direction—that is, the strain on the pulley and frame is directly downward, tending to securely retain it in its seat. With such a structure it is clearly evident that no fastening devices, such as

screws or nails of any form, are needed to retain the device in its proper position, nor is it required to strike up or indent any portion of the frame, thereby to secure the device in place.

In Fig. 2 is shown the pulley device hereinbefore set forth, but applied in a reverse position and used to support a sliding door 30. The door has a suitable mortise formed in its bottom edge, in which the pulley device is inserted, the closed or connecting end being put in first. It will be observed that the pulley device is retained in this socket solely by the action of the load direction—that is, by the weight of the door—and that no fastening devices of any form are used or needed.

In the several forms of pulley herein set forth it is provided with a groove 12 for the purpose of guiding the cord or chain supporting the sash and weight in the window or which in the case of the sliding door engages the ridge on the track; but it is obvious that the periphery of the wheel may be made of any preferred or desired configuration in order to engage and support the flexible member passing over it or the particular form of track which the pulley may engage.

It is obvious that other forms of pulley-wheel may be applied to my improved form of frame herein set forth and also that other and various ways of rotatably mounting the pulley-wheel desired to be used in this frame may be employed.

Having thus described my invention, I claim—

1. The combination of a pulley-wheel, and a frame rotatably supporting the wheel, the frame comprising two side members, and a connecting end member, the side members being provided with retaining means extending throughout their length.

2. The combination of a pulley-wheel, and an integral resilient frame rotatably supporting the wheel, the frame comprising two side members and a connecting end member, the side members being provided with retaining means extending throughout their length.

3. The combination of a pulley-wheel, and a substantially U-shaped frame rotatably supporting the wheel, the frame having flanges extending outwardly from both side edges of the side portions of the frame throughout their length.

4. The combination of a pulley-wheel, and a substantially U-shaped frame rotatably supporting the wheel, the sides of the frame being curved in section in opposite directions.

5. The combination of a pulley-wheel, and an integral resilient frame of sheet metal rotatably supporting the wheel, the frame comprising two side members and a connecting



end member, the side members being provided with retaining means extending substantially throughout their length, the pulley-wheel comprising two similar parts of sheet metal secured together, the parts having the central portion conoidally indented from opposite directions to constitute bearing portions for the wheel, and the frame also provided with indented projections oppo-

sitely disposed to cooperate with said indented portions of the wheel to constitute a journaled support for the wheel.

Signed at Nos. 9 to 15 Murray street, New York, N. Y., this 12th day of April, 1905.

GORDON MERRITT.

Witnesses:

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