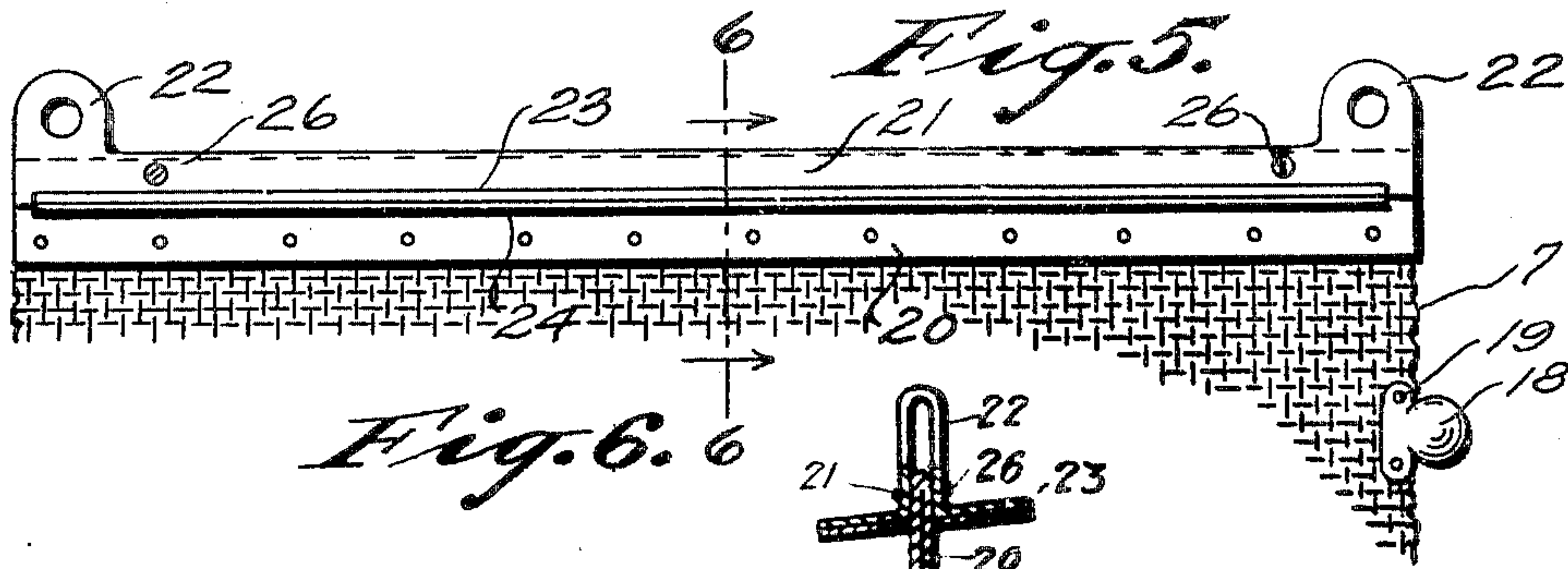
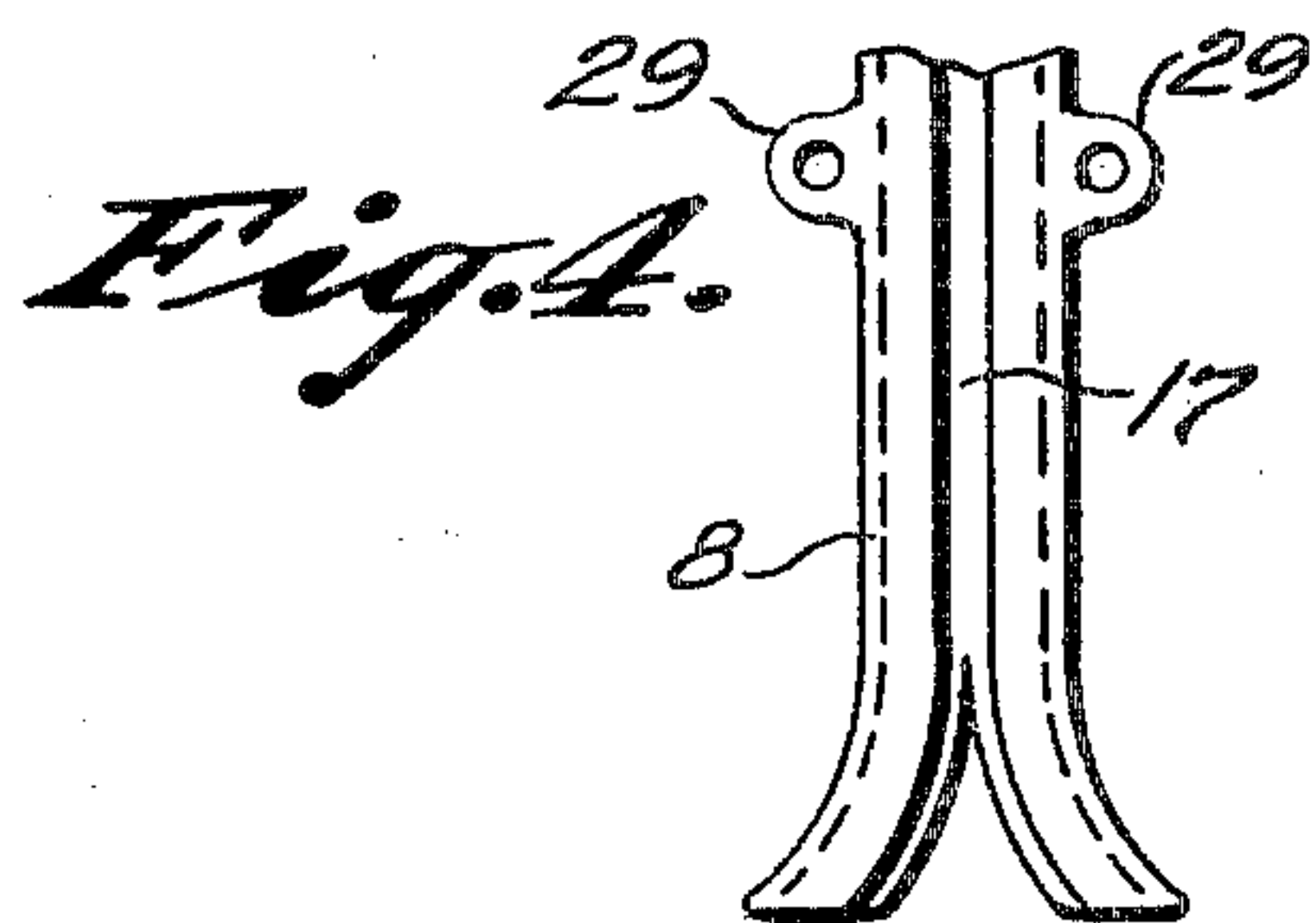
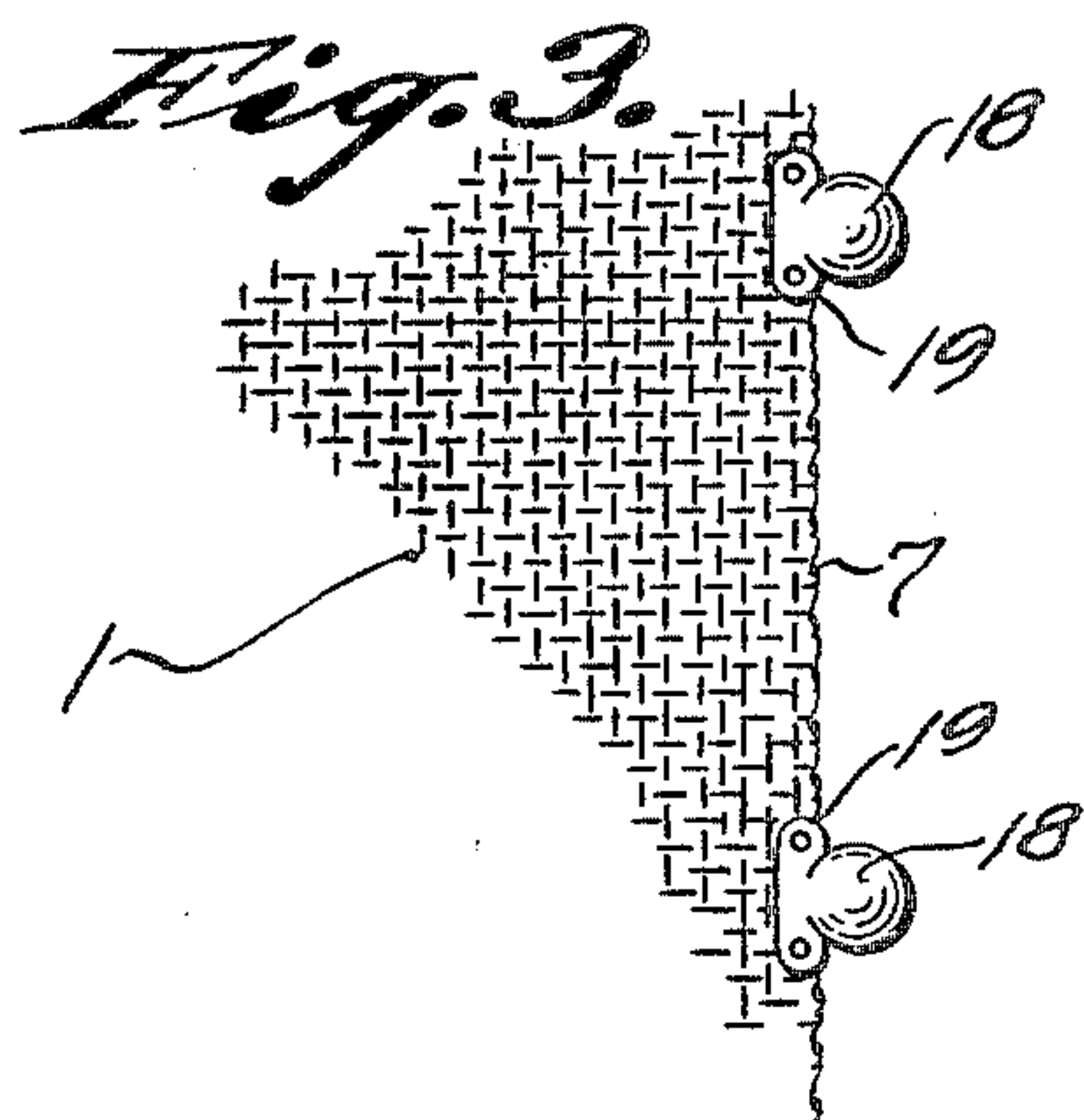
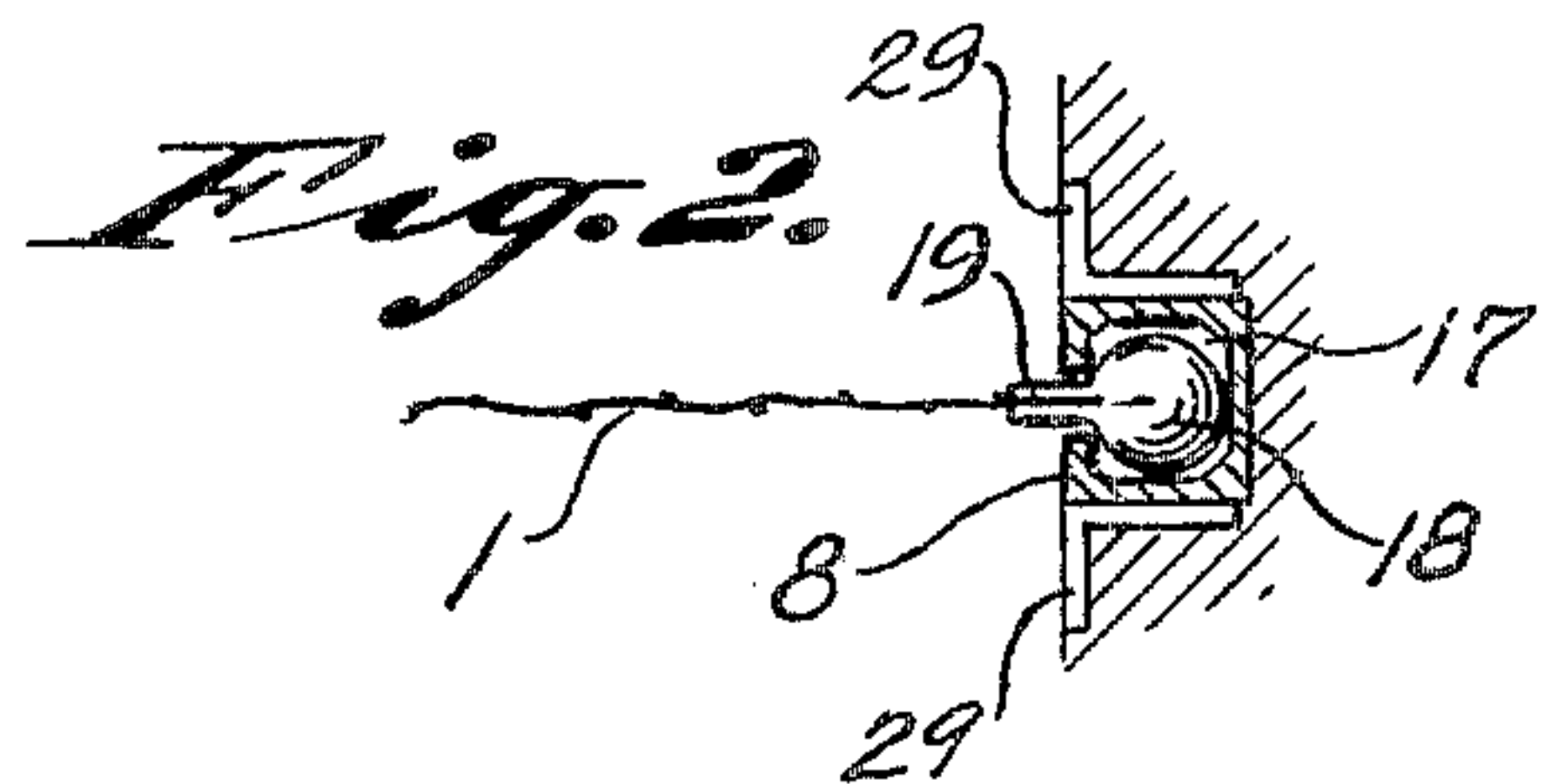
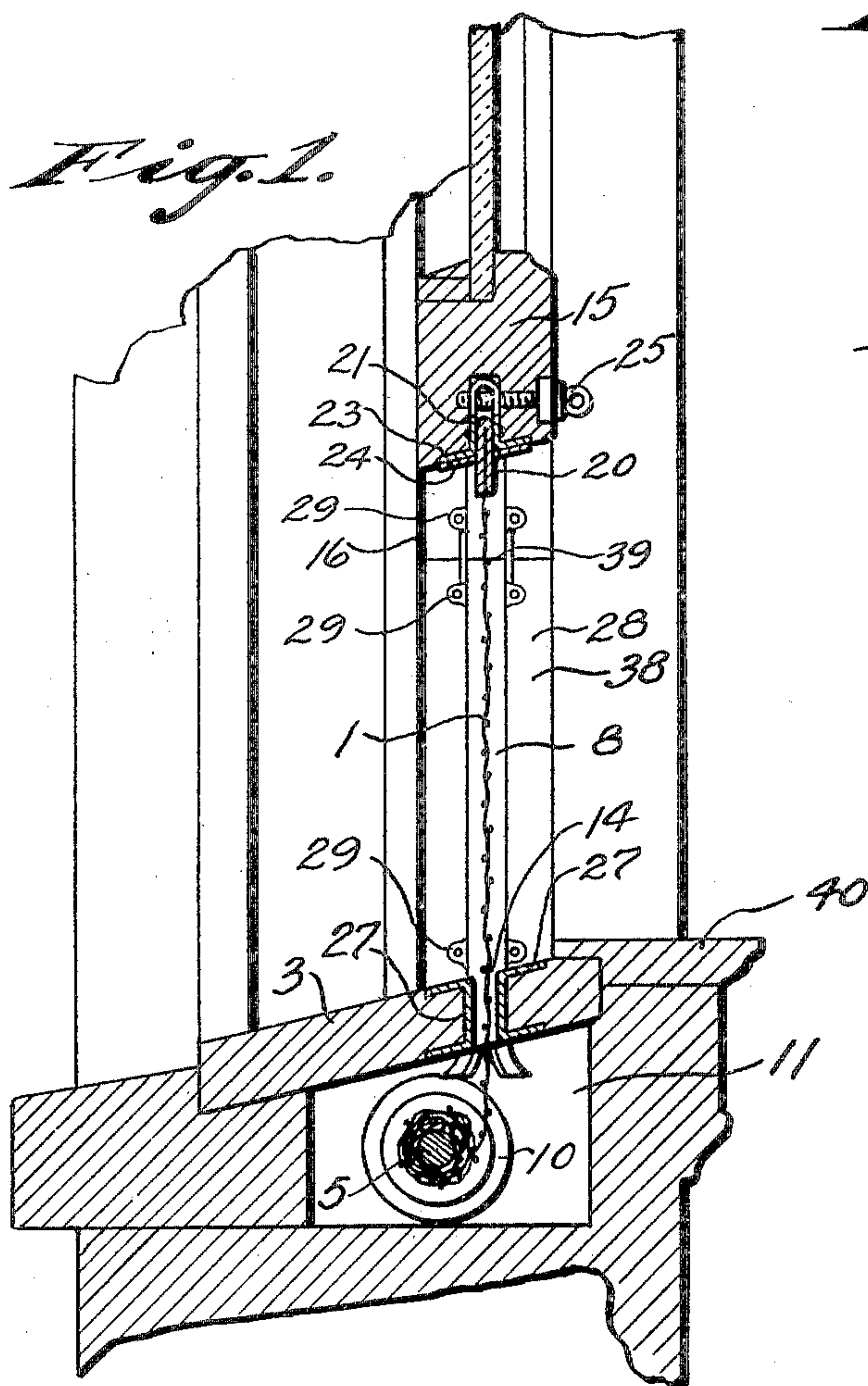


J. A. WILSON & A. CHALSTROM.  
WINDOW SCREEN.

APPLICATION FILED MAR. 15, 1904.

2 SHEETS—SHEET 1.



*Witnesses:*

*Rudow Rummel,*  
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*Inventors,*

*J. A. Wilson & A. Chalstrom,*  
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No. 797,652.

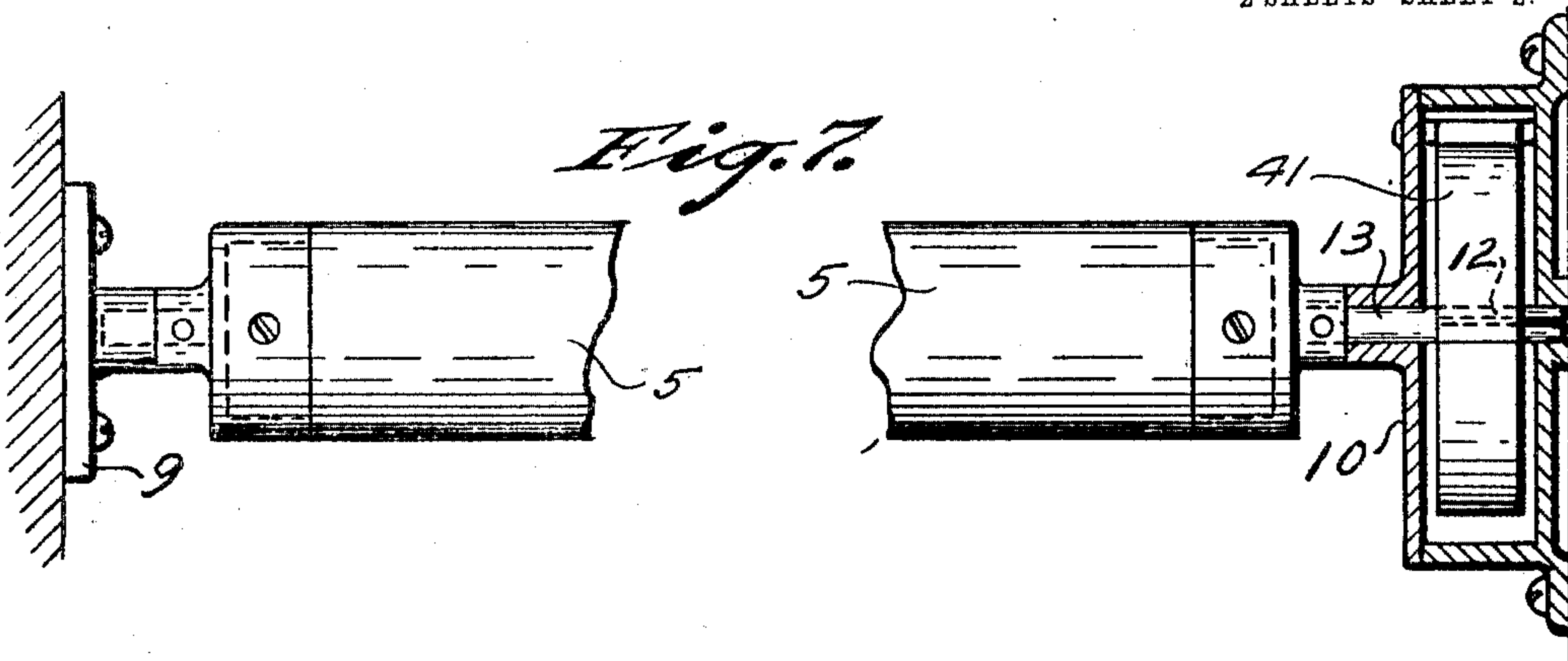
PATENTED AUG. 22, 1905.

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2 SHEETS—SHEET 2.



*Witnesses:*

*Rudow Rummel,*  
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# UNITED STATES PATENT OFFICE.

JAMES A. WILSON AND ALBERT CHALSTROM, OF CHICAGO, ILLINOIS.

## WINDOW-SCREEN.

No. 797,652.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed March 15, 1904. Serial No. 198,231.

*To all whom it may concern:*

Be it known that we, JAMES A. WILSON and ALBERT CHALSTROM, citizens of the United States of America, and residents of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Window-Screens, of which the following is a specification.

The main objects of our invention are to provide an improved form of window-screen which may be readily applied either to old or specially-constructed window-frames, which may be readily removed and stored in compact form, which shall tightly fit around all edges of the window, which shall be compact and simple in structure and afford the least possible obstruction to the light, which will afford no obstruction to cleaning the windows or passing articles through the same, which shall be neat in appearance, durable and always protected from the weather except when actually needed across an open window, and to provide improved means for securing the edges of sliding screens or other curtain-like structures. We accomplish these objects by the device shown in the accompanying drawings, in which—

Figure 1 is a vertical section, partly broken away, of a window frame and sash having thereon a window-screen constructed according to our invention. Fig. 2 is a transverse section of one edge of the web of screen material, showing the means for retaining such edge in the guide-channel at the side of the frame. Fig. 3 is a front elevation of a portion of the screen, showing the bead-like members secured along its edge. Fig. 4 is a side elevation of the lower end of one of the guide-bars. Fig. 5 is a front elevation of the stiffening-strip extending along the upper edge of the web of screen material. Fig. 6 is a transverse section on the line 6 6 of Fig. 5. Fig. 7 is a side elevation, partly broken away, of the roller or drum upon which the screen is wound, showing its journals and spring winding mechanism.

In the form shown in the drawings the screen consists of a flexible web 1, of woven-wire, extending through a slot 14 in the sill 3 of the window, having a stiffening-bar 20 at its upper edge, secured to the lower edge of the lower sash of the window and having its lower end secured to a spring-actuated roller 5. The side edges 7 of the screen are secured within guide-bars 8 at each side of the window-frame in suitable manner to permit of the free rais-

ing and lowering of the screen with the sash and at the same time holding such edges into such close relation with the frame as to prevent insects from passing the edges.

When the screen is applied, as shown in Fig. 1, the roller is journaled in bearings 9 and 10 in a space 11 below the sill 3. The bearing 10 at one end of the roller 5 consists of a hollow casing having a spiral spring 41, one end of which is connected to the casing 10, while the other end is connected with a slot 12 in the journal 13 of the roller. A slot 14 is cut through the sill immediately below and parallel with the bottom bar 15 of the lower sash of the window. This slot extends across the entire width of the window and is adapted to permit the web of screen material to pass through the sill. Each of the vertical side bars 16 of the frame has a groove cut into the same, and a metal guide-bar 8 of special construction is seated in each of said grooves. The opposed faces of each of the guide-bars 8 has a longitudinal groove 17 therein, extending through its entire length. The groove 17 is preferably substantially T-shaped in cross-section and is uniform throughout its length, consisting of an enlarged channel extending through the interior of the bar 8 and opening through a contracted slot through one side of the bar. The web 1 of the screen has a selvage at each of its side edges and has secured to such side edge a plurality of bead-like or ball-shaped members 18. The members 18 are slotted and straddle the edge of the web 1 and are rigidly secured thereto by compressing the flanges 19 so as to tightly grip the webbing, and they may also be riveted. The beads 18 form shoulders projecting from each face of the webbing 1 and slidably fitting the interior of the groove 17, the web 1 extending through the contracted part of the slot, as shown in Fig. 2. It will be seen that the members 18 serve to tautly spread the screen between the side bars of the frame and hold the edges 7 of the screen within the slots 17, thus causing the screen to fit tightly at the sides of the frame, and thus prevent the possibility of insects passing same at such points. The upper edge of the screen is provided with a stiffening-bar 20, which consists of a strip of sheet metal bent over the upper edge of the webbing and fitting within a slotted bar 21, having lugs 22 for securing the same to the bar 15 of the sash. The bar 21 is provided with transverse flanges 23, which fit the upper surface of the sill and



close the slot 14. These flanges are particularly useful for preventing the edge of the screen from being drawn into the slot 14 when the screen is disconnected from the sash of the window. The bottom of the flanges 23 may be provided with a rubber gasket 24, so as to prevent water from entering the slot when the screen is in its rolled-up position. The bar 21 is seated in a groove of suitable shape in the bottom of the sash-bar 15 and is secured into engagement with the sash-bar by means of pins 25, which are preferably threaded into the lugs 22. The bars 21 or 20 are secured together by means of screws 26 and may be readily separated when it is desired to permit the end of the screen to be withdrawn through the slot 14. The edges of the slot 14 are preferably protected by a facing 27, of sheet metal.

The guide-bars 8 are set in flush with the face of the bottom of the sash-grooves 28 of the frame and are securely fastened to the side bars of the frame by screws in the lugs 29, which are soldered to the sides of the bar 8 and are also flush with the woodwork, as indicated in Fig. 2. The lower end of each of the guide-bars 8 is spread open, as shown in Fig. 4, so as to guide the edges of the screen and the bead members 18 into the groove 17. The guide-bars 8 are cut at the upper edge of the cover 38, which closes the pocket which gives access to the sash-weights, and the parts of the bars 8 are secured in alinement with each other at this point by means of socket-pieces 39.

The operation of the device shown is as follows: When the screen is attached to the lower sash, as shown, it is drawn into position across the window by merely raising the lower sash. Being entirely protected by a housing, only such portions of the screen as are in actual use are exposed to the weather. When it is desired to open the window without raising the screen, it is merely necessary to unscrew the pins 25, and thereby release the screen from the sash. The sash may now be raised and the window will be open to permit things to be passed through the same or to permit the cleaning of the windows. In this case the spring on the roller 5 draws the flanges 23 of the bar 21 tightly against the upper surface of the slot and protects the screen from water that may be spilled upon the sill. The upper edge of the bar 21 is in this case below the upper surface of the stool 40 of the window-frame, and therefore offers no obstruction and is not likely to be injured by articles passed through the window. The balls or beads 18 on the edges of the screen readily enter and slide along the grooves 17 when the screen is raised, but effectually prevent the edges of the screen from being withdrawn laterally from such grooves. Further, the beads being of short length in no way inter-

fere with the flexibility of the screen and the rolling of the same.

It will be seen that a screen constructed as shown may be readily removed from the housing and stored for the winter or for shipment in much less space than is occupied by screens with rigid frames. Furthermore, this form of screen in no way interferes with the washing of the window and is always protected from the weather except when in actual service.

It will be seen that numerous details of the construction shown may be altered without departing from the spirit of our invention.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination of a window-frame having parallel side bars, each provided with a groove for receiving the sliding sash; a bar set into each of said side bars flush with the bottom of the groove and having therein a longitudinally-disposed slot of T-shaped cross-section; a housing extended across the frame at one end of said bars; a shaft journaled in said housing transversely of said bars said bars having outwardly-flared ends extending into said housing; a sheet of flexible material having one end secured to said shaft and having its side edges seated in said slots; means for securing the upper edge of said sheet to the bottom of the lower cross-bar of the window-sash; suitable shoulders on the edges of said sheet and adapted to move freely longitudinally of the slots and to engage the sides of the slot and thereby prevent the edges of said sheet from being drawn laterally out of the slots; and means normally urging the rotation of said shaft and winding up the sheet, substantially as described.

2. The combination of a window-frame having parallel side bars; the opposed faces of said side bars each having therein a slot of substantially T-shaped cross-section extending longitudinally thereof; a housing at one end of said bars; a roller journaled in said housing transversely of the bars; a sheet of flexible material extending between said side bars, having one end secured to said roller and having its side edges seated in said slots and slidable along same; shoulders on the edges of the sheet and adapted to engage the inner surface of said slots and prevent the withdrawal of the sheet from said slots laterally of the bars; said shoulders each comprising a ball having a reduced inner end to receive the screen, and oppositely-disposed securing-ears formed integral with said reduced inner end, said housing having therein a slot for permitting the sheet to be drawn outwardly therefrom; a stiffening-strip secured to the outer end of the screen and fitting over the slot in the housing to form a closure for the same when the screen is rolled up; a bar adapted to fit a groove in the bottom of the



sash-bar and attached to said stiffening-strip, means for securing said bar in position in the sash-bar; a strip of packing material secured to the stiffening-strip and adapted to engage the housing and prevent moisture from entering the slot therein when the screen is rolled up, substantially as described.

3. In a device of the class described, the combination of a slotted sill; a roller journaled below the sill, a screen wound on said roller and extending through the slot, a stiffening-strip consisting of a piece of metal bent upon itself and embracing the upper end of the screen and adapted to pass through the slot, and an inverted-U-shaped flanged bar of less length than said stiffening-strip secured thereto and adapted to close the slot and prevent the end of the screen from being drawn therethrough, ears formed on said bar and detachably secured in the bottom of the window-sash, said bar being removable from the strip and the flanges of the bar being faced with packing material.

4. In a device of the type set forth, the combination with a window sash and frame, said sash having a slot in its lower edge, of a guide-bar attached to each side of said frame,

a screen, a stiffening-strip attached to the upper end of said screen and extending into said guide-bars, an inverted-U-shaped bar received in the slot in the said sash, oppositely-disposed packing-flanges on said bar, said stiffening-strip being detachably secured in said bar, securing-ears formed on the outer ends of said bar and partially entering said slotted guide-bars, and means for detachably securing said ears in said slotted sash, substantially as described.

5. The combination with a window-sash, a frame having a housing below the lower end of the sill, said sill being slotted, and the slot faced with metal, of a roller journaled in said housing, a flexible screen passing through the housing and having a retaining-strip at its upper edge, and means for detachably securing the upper edge of said screen to the lower bar of the window-sash.

Signed at Chicago this 12th day of March, 1904.

JAMES A. WILSON.  
ALBERT CHALSTROM.

Witnesses:

RUDOCO RUMMLER,  
EUGENE A. RUMMLER.