

969,079.

F. L. RICKER.
WINDOW SCREEN.
APPLICATION FILED JULY 24, 1909.

Patented Aug. 30, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

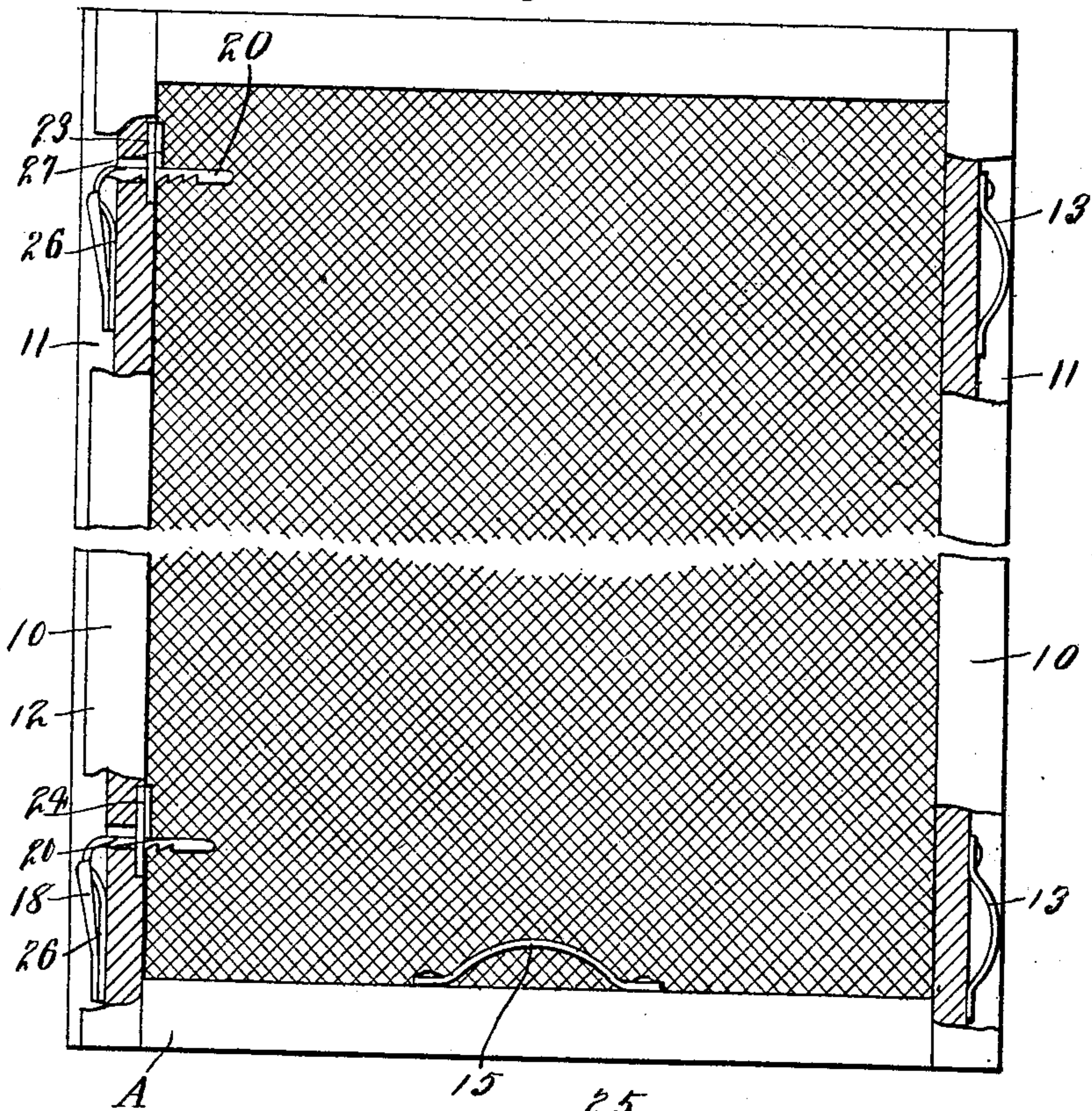
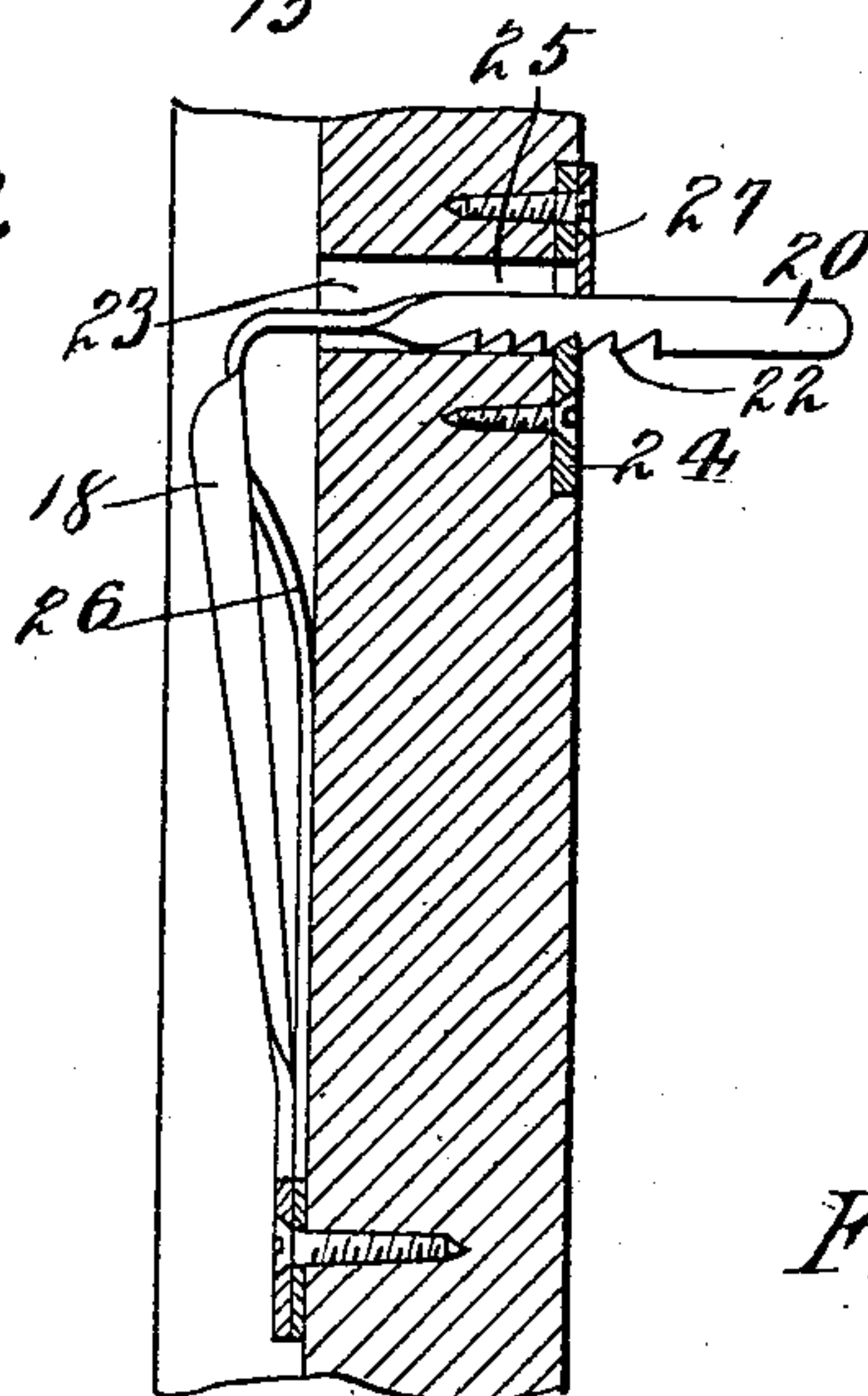


Fig. 2.



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2 SHEETS—SHEET 2.

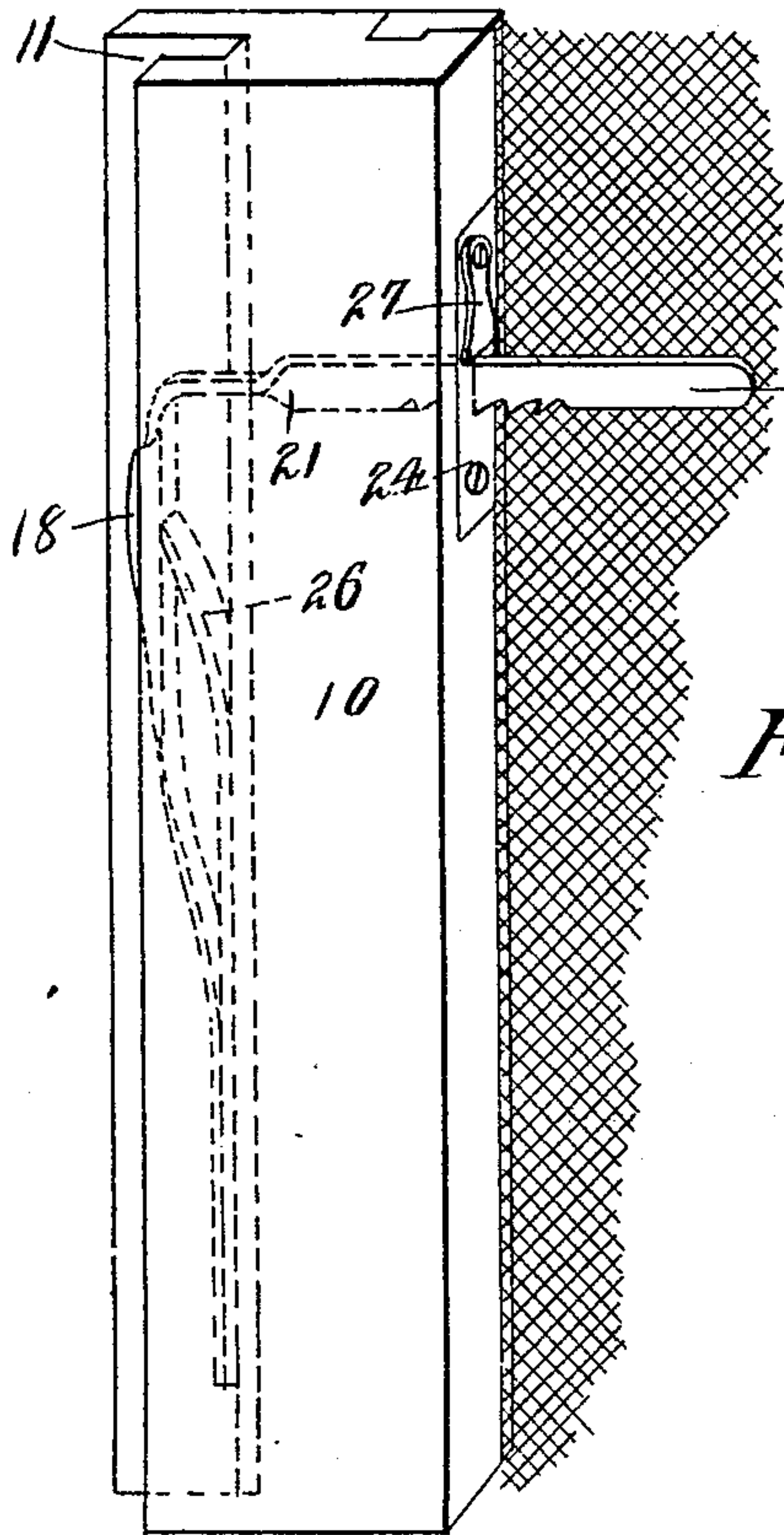


Fig. 3.

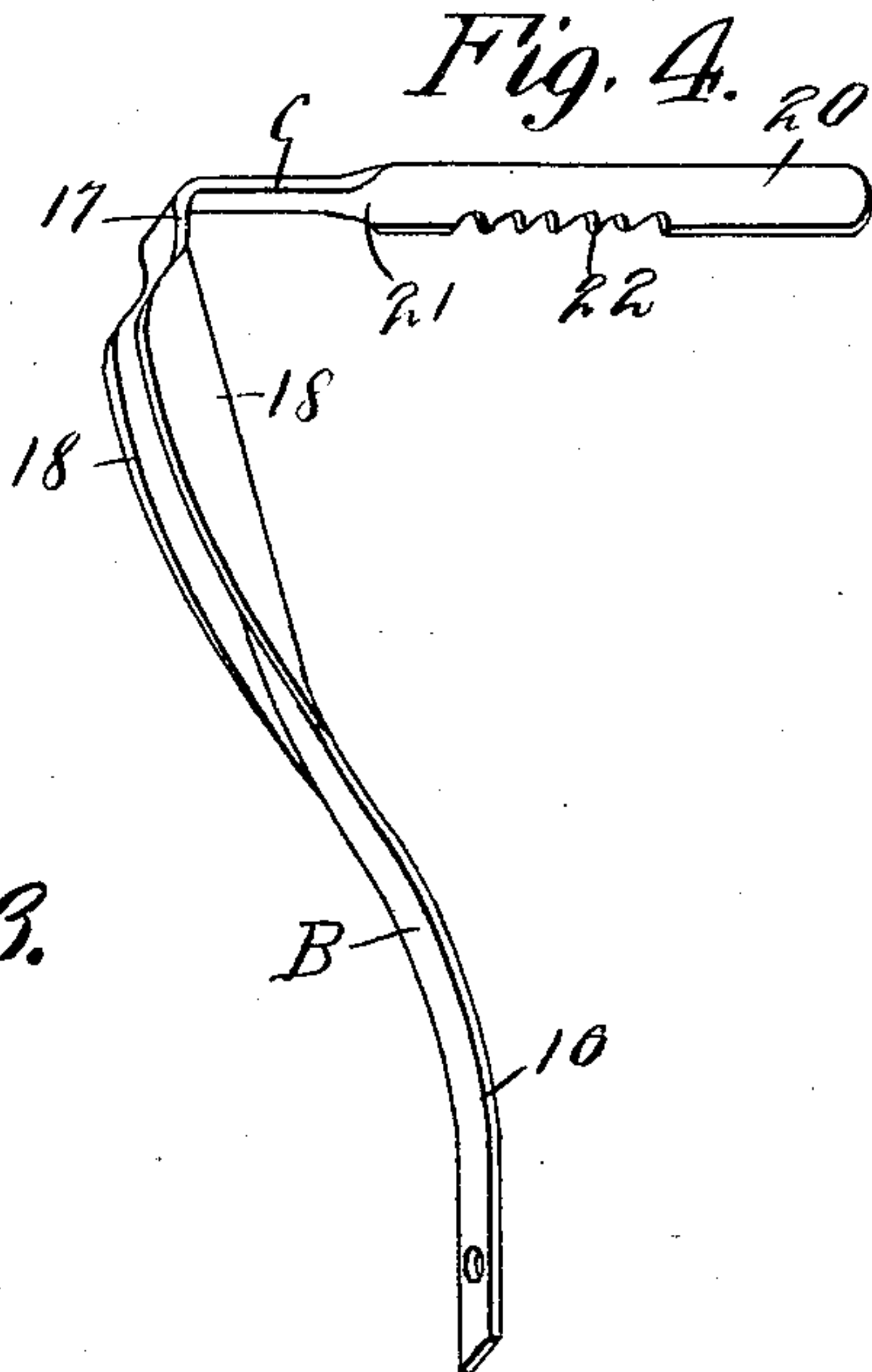


Fig. 4.

Fig. 5.

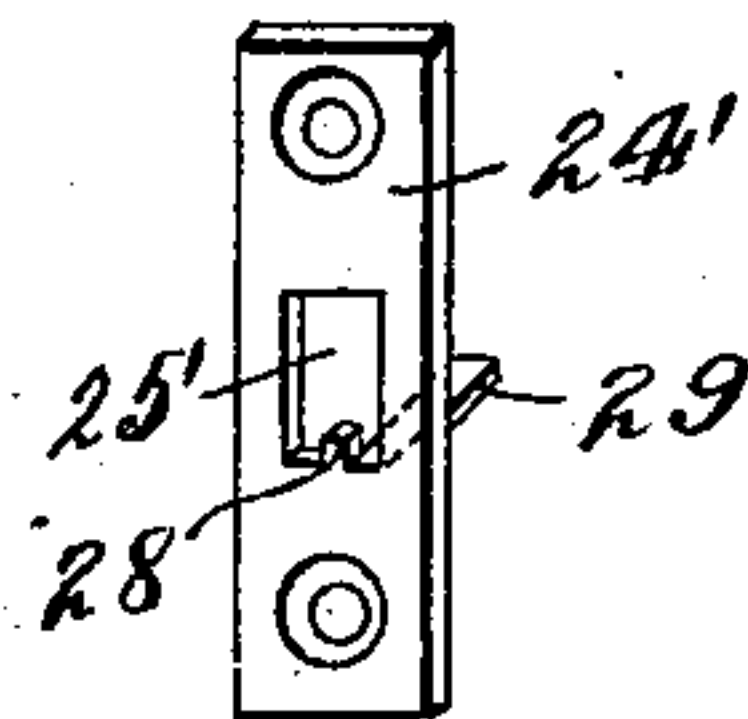


Fig. 6.

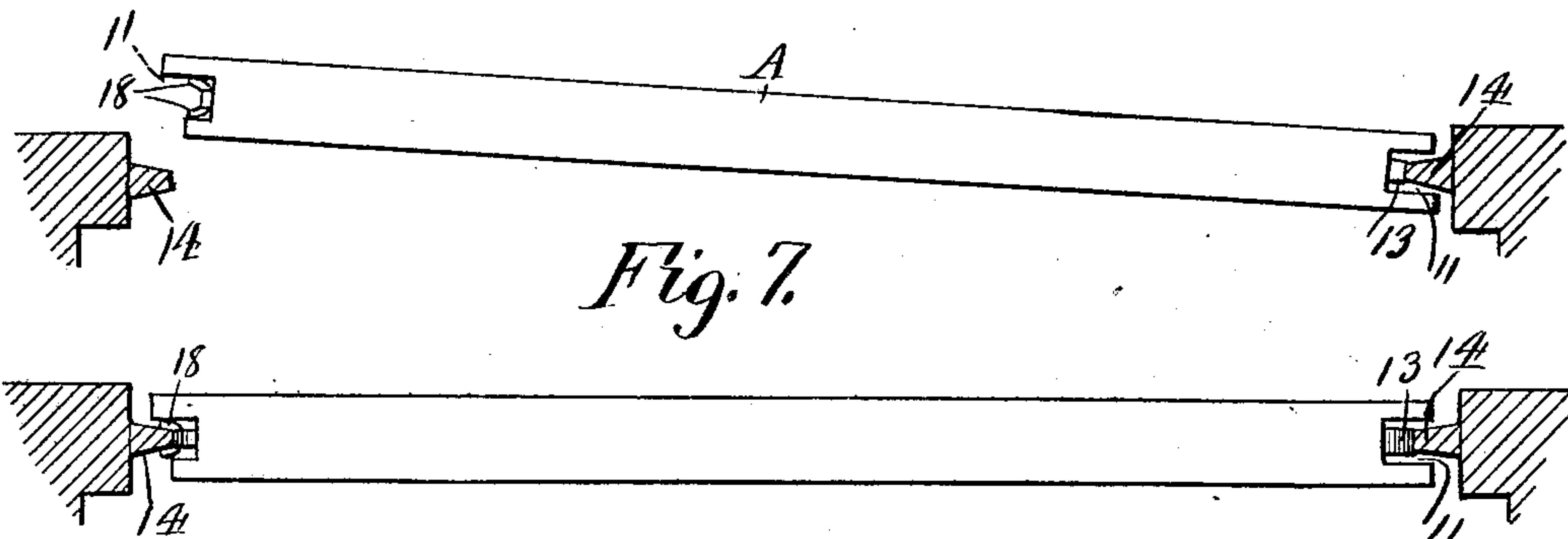


Fig. 7.

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UNITED STATES PATENT OFFICE.

FRANK L. RICKER, OF PORTLAND, MAINE.

WINDOW-SCREEN.

969,079.

Specification of Letters Patent. Patented Aug. 30, 1910.

Application filed July 24, 1909. Serial No. 509,338.

To all whom it may concern:

Be it known that I, FRANK L. RICKER, a citizen of the United States, residing at Portland, in the county of Cumberland and State of Maine, have invented new and useful Improvements in Window-Screens, of which the following is a specification.

This invention relates to sliding self-balancing window screens, blinds, shutters and the like; and the particular object of the invention is to provide a high grade fixture of the class referred to which shall be equipped with means whereby it will be safely and securely retained at any position to which it may be adjusted.

A further object of the invention is to provide a fixture of the character described which may be readily adapted to window frames or casings of varying dimensions caused by shrinking or swelling of the structural material owing to atmospheric dryness, humidity or other causes.

A further object of the invention is to provide a fixture of the class referred to having balancing means including springs which frictionally engage the proximate parts of the window frame or casing, such as the supporting beads or moldings; means being provided whereby the supporting and balancing springs may be adjusted to regulate the pressure.

A still further object of the invention is to provide a fixture of the class referred to which shall be provided with balancing springs including loops, the dimensions of which may be increased for the double purpose of facilitating the adjustment and regulating the pressure or tension.

Still further objects of the invention are to simplify and improve the general construction and operation of a device of the class referred to.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention; it being however, understood that no limitation is necessarily made to the precise structural details therein exhibited,

but that changes, alterations and modifications within the scope of the invention may be resorted to when desired.

In the drawing: Figure 1 is a side elevation, partly in section of a window screen constructed in accordance with the invention. Fig. 2 is a vertical sectional view on a larger scale taken through one of the stiles of the screen frame. Fig. 3 is a perspective view showing a portion of one of the stiles and related parts. Fig. 4 is a perspective view showing the preferred form of the balancing spring. Fig. 5 is a perspective detail view showing a slightly modified construction of the catch plate. Fig. 6 is a top plan view of a screen showing the same in the act of being applied to a window frame or casing, the posts of which are shown in cross section. Fig. 7 is a similar view showing a screen applied in operative position to a window frame or casing.

Corresponding parts in all the figures are denoted by like characters of reference.

The side members or stiles 10—10 of the screen frame A are provided with longitudinal grooves 11 and the side flange 12 of one of the grooves is reduced as will be clearly seen by reference to Figs. 1, 3, 6 and 7 to facilitate the placing of the screen frame in operative position upon a window frame or casing. Suitably secured upon the bottom of one of the grooves 11 outwardly bowed or arched springs 13 of conventional construction have been shown for the purpose of frictionally engaging the face of the adjacent supporting bead or molding 14. An operating handle 15 has been shown upon the bottom rail of the screen frame.

The improved balancing spring B in its preferred form is composed of a fiat leaf spring 16 having an outwardly curved loop portion 17, the outer or engaging face of which is provided adjacent to its side edges with flanges 18 adapted to straddle the bead or molding 14 upon the proximate side of the window casing. The upper end of the spring is bent to form a laterally projecting bracket C, the outer portion 20 of which is quarter-twisted as at 21 so as to lie in a plane approximately at right angles to that of the body portion of the bracket C; one edge of the portion 20 is toothed as shown at 22 so that said portion 20 will constitute a ratchet bar. It may here be stated that

when, such as under certain circumstances is the case, the balancing spring is to engage the bottom of a groove wherein the screen frame is fitted to slide, the side flanges 18 of the balancing spring may be advantageously omitted. The stile 10 of the screen frame or fixture in the groove of which the balancing spring is secured is provided with a transverse bore 23 for the passage of the laterally extending rack 20 and bracket portion 19. The inner face of the stile 10 is recessed to afford a seat for a catch plate 24 having a slot 25 for the passage of the rack or ratchet bar 20, the lower edge of the slot 25 constituting a pawl to engage the teeth or ratchets 22, the latter being beveled in such a manner as to prevent the loop portion of the balancing spring from springing outward when placed under tension.

The balancing spring has been shown as being reinforced by an auxiliary spring 26 which may be of any desired construction, but it is to be understood that the reinforcing spring may be omitted when desired; as a matter of fact, its presence is not needed except when the invention is applied to exceptionally heavy screens or other fixtures.

For the purpose of retaining the ratchet bar 20 in engagement with the catch plate, when desired, there has been shown a stop 27 consisting of a metallic tongue pivotally supported upon the catch plate and adapted to be placed in engagement with the upper edge of the ratchet bar which is thereby held securely in engagement with the catch plate. When the tongue or stop member 27 is placed in a non-engaging position it is obvious that the balancing spring may be forced in an inward direction by contact with the engaging surface of the bead, molding or other supporting device.

Under some circumstances it is desirable that the balancing spring should be left entirely free, in order to secure at all times the maximum amount of friction resulting from the tension of the spring upon the supporting bead; it may then be found advantageous to employ the modified form of catch plate illustrated in Fig. 5 of the drawings where said catch plate which is here designated 24' is provided with a relatively wide slot 25', the lower edge of which has an upstanding lip 28 disposed intermediate the side edges of the slot; the material struck up from the slot adjacent to one side of the lip 28 is bent inward approximately at right angles to the body of the catch plate so as to form a shelf 29 upon which the ratchet bar may be slidably supported when it shall be desired to leave the spring free to operate; by shifting the ratchet bar to the opposite side of the lip 28 it may be secured in the manner already described.

While the screen frame or other fixture has been described as being equipped with

conventional arched springs in the groove of one of its stiles, it is desired to be understood that the improved balancing spring may be applied to both stiles; or springs may be entirely omitted in the groove of one of the stiles when it is desired to economize in the manufacture.

From the foregoing description taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood by those skilled in the art to which it appertains. The improved balancing springs are capable of a degree of adjustment whereby the screen frame or other fixture equipped therewith may be fitted upon window frames or casings, the dimensions of which are caused to vary by shrinkage or expansion; a degree of adjustment is also possible whereby the screen frame or fixture may be slightly tilted so as to fit closely adjacent to a sill which is not completely level. Heretofore screen frames, in order to fit them to expanded window frames have been planed down in order to enable them to operate freely; and in the event of subsequent shrinkage of the window casing the screen frames will then be found to fit so loosely that it will be found practically impossible to sustain them in a raised position. By the present invention, a screen frame or similar fixture may be readily fitted to the window frame or casing and may be readily adjusted in such a manner as to slide freely and still be maintained frictionally at any position it may be adjusted.

Having thus described the invention, what is claimed is—

1. In a device of the character described, a frame having a stile provided with a bore and a balancing device consisting of a flat spring secured upon the stile and including an outwardly extended loop portion, said spring being quarter-twisted to form a ratchet bar extending through the bore of the stile; and ratchet engaging means.

2. In a device of the character described, a frame having a stile provided with a bore, a vertically slotted catch plate at the inner end of the bore, and a balancing device consisting of a flat spring secured upon the stile and including a loop portion, said spring being bent and quarter-twisted to form a ratchet arm extending through the frame and engaging the catch plate.

3. A balancing device for screen frames and similar fixtures, consisting of a leaf spring having a loop portion and a laterally extending arm, the latter being quarter-twisted, and provided with teeth to form a ratchet bar, in combination with ratchet engaging means.

4. A balancing device for screen frames and similar fixtures consisting of a leaf spring having a loop portion and a laterally

extending quarter-twisted arm toothed at its lower edge to form a ratchet bar, in combination with a stile having a bore for the passage of the ratchet arm, and a catch plate at the inner end of said bore, said catch plate being equipped with a slot, an upstanding lip at the lower edge of said slot, and a laterally extending shelf adjacent to one side of the lip.

5. In a device of the character described, a frame having a stile provided with a bore, a balancing spring secured upon the stile and including a loop portion and a laterally extending ratchet member extending through the bore, a ratchet engaging catch plate at one end of the bore, and a pivotally supported tongue adapted to engage the ratchet

bar to retain it in engagement with the catch plate.

6. In a device of the character described, a frame having a stile provided with a bore, a balancing spring secured upon the stile and having a ratchet arm extending through the bore, ratchet engaging means at one end of the bore, and means for retaining the ratchet bar in operative contact with the engaging means.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK L. RICKER.

Witnesses:

HELEN L. GREELEY,
CHARLES M. DONAHUE.