

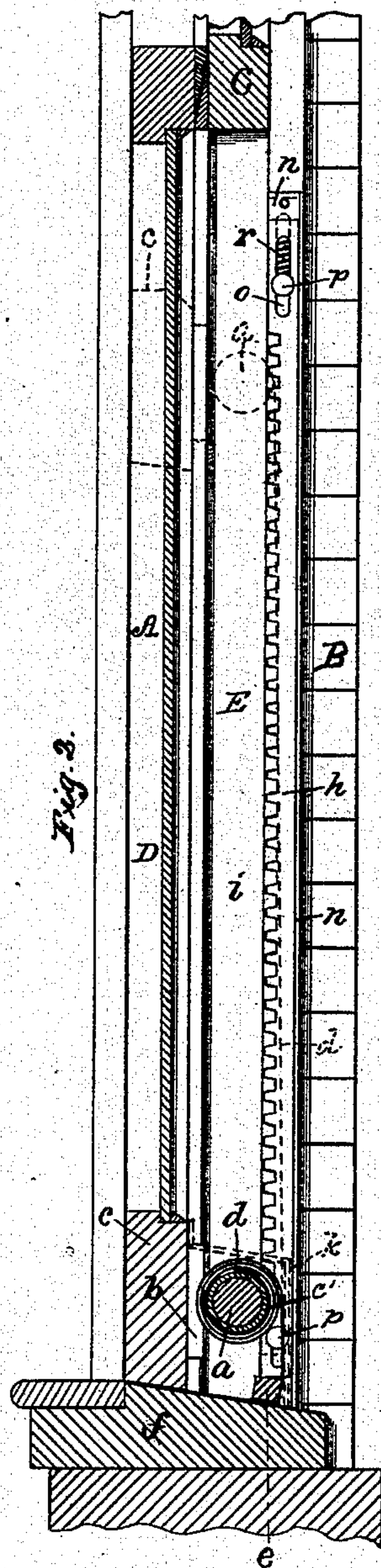
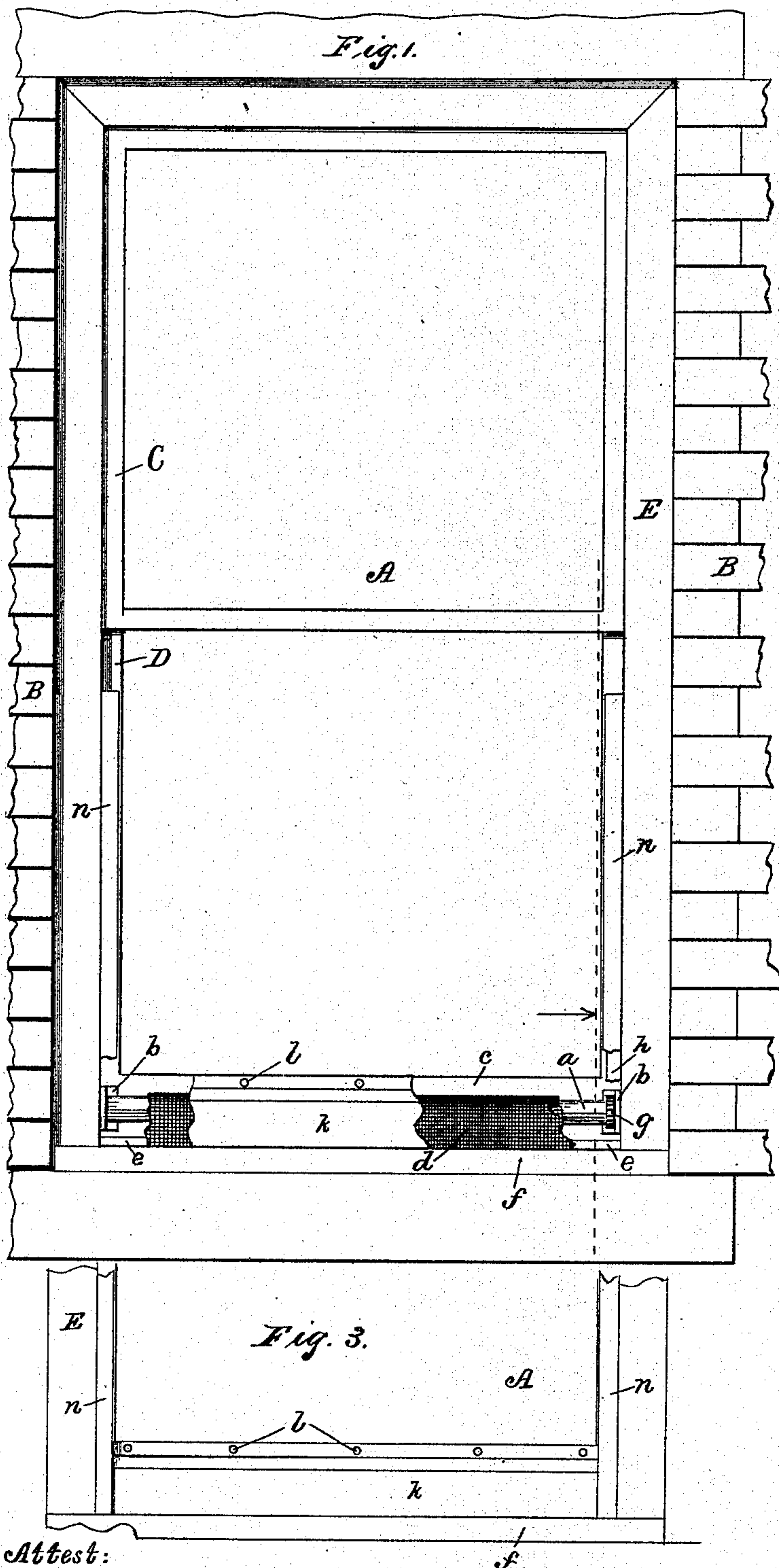
(No Model.)

2 Sheets—Sheet 1.

G. A. JACOBS.
WINDOW SCREEN.

No. 413,185.

Patented Oct. 22, 1889.



Attest:
M. L. McDermott,
L. M. Bailey.

Inventor:
Gabriel A. Jacobs,
By E. B. Whitmore, Atty.

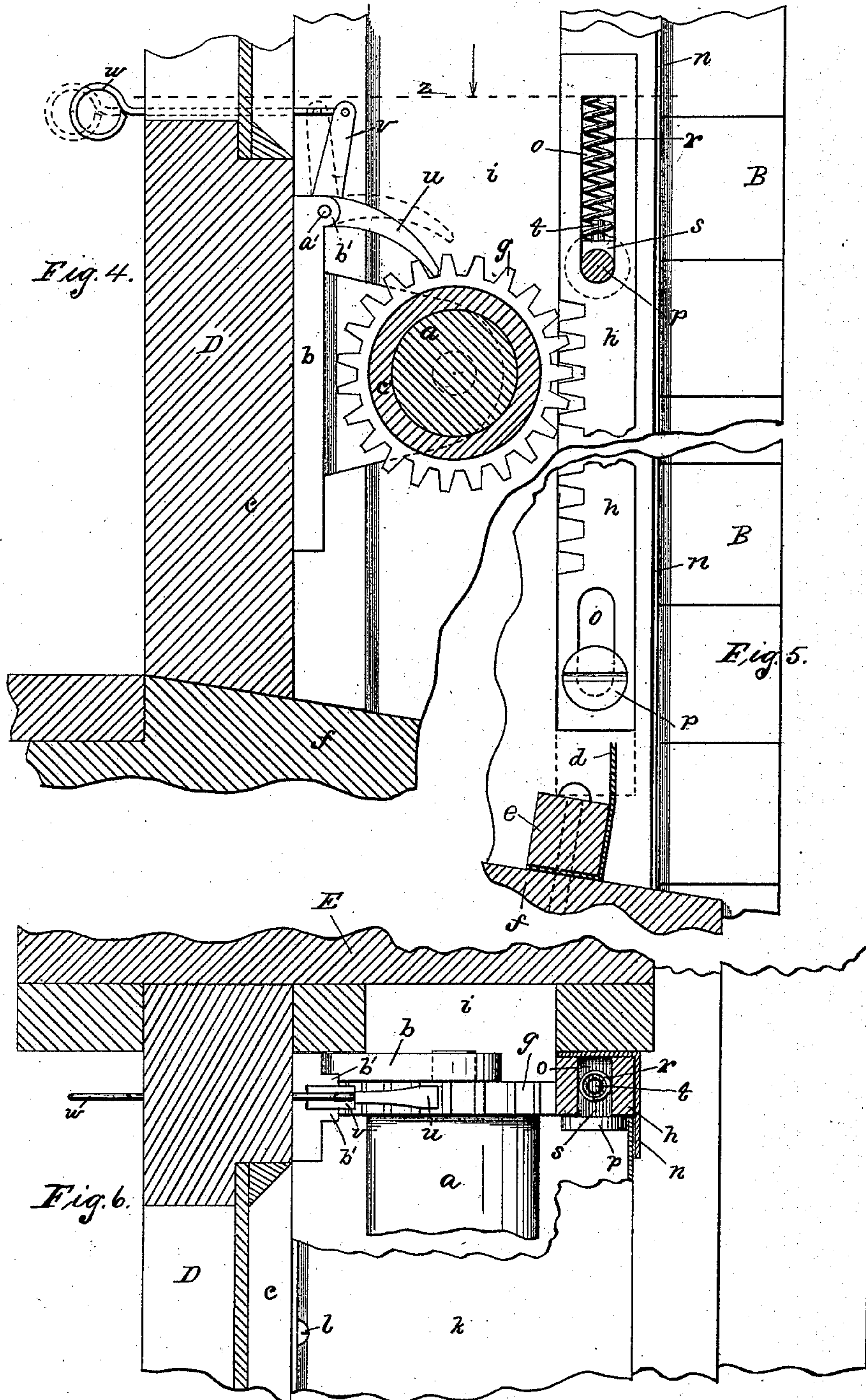
(No Model.)

2 Sheets—Sheet 2.

G. A. JACOBS.
WINDOW SCREEN.

No. 413,185.

Patented Oct. 22, 1889.



Attest:
M. M. Gurnett.
L. Whitmore

Inventor:
Gabriel A. Jacobs.
By E. B. Whitmore, Atty.

UNITED STATES PATENT OFFICE.

GABRIEL A. JACOBS, OF RED CREEK, NEW YORK.

WINDOW-SCREEN.

SPECIFICATION forming part of Letters Patent No. 413,185, dated October 22, 1889.

Application filed September 15, 1888. Serial No. 285,439. (No model.)

To all whom it may concern:

Be it known that I, GABRIEL A. JACOBS, of Red Creek, in the county of Wayne and State of New York, have invented a new and useful Improvement in Window-Screens, which improvement is fully set forth in the following specification, and shown in the accompanying drawings.

The object of my invention is to produce an improved window-screen, the same being hereinafter fully described, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 shows a window viewed from the outside, with my improved screen in place, parts being broken away; Fig. 2, drawn to a larger scale, a view of the parts seen as indicated by arrow in Fig. 1, parts being vertically sectioned, as on the dotted line in Fig. 1; Fig. 3, a view at the lower part of the window, drawn to more fully show the housing for the screen, viewed from without and drawn to the same scale as that of Fig. 1. Fig. 4 better shows the form of the rack and pinion with other parts, the view being taken from the same direction as that of Fig. 2, the roller being sectioned the same as in Fig. 2, parts being broken away and omitted; Fig. 5, a vertical section of some of the lower parts of the device drawn to better show the manner of holding the lower edge of the screen; and Fig. 6, a horizontal section of some of the parts, taken on the dotted line *z* in Fig. 4, and viewed as indicated by the arrow pointed thereon, parts being broken away, the last three figures being drawn to a much larger scale than the other figures.

Referring to the parts shown in the drawings, A is a window of common kind set into the wall B of a building, said window consisting of upper and lower sashes C and D, held in a frame E of common kind.

a is a roller held horizontally in hangers *b*, secured to the bottom rail *c* of the lower sash.

d is a screen, which may be of wire-cloth, mosquito-netting, or other fabric, made the full width of the window and wound upon the roller *a*, as shown, the lower edge of the screen being held firmly under a bar *e*, fastened to the lower piece *f* of the window-frame. The roller *a* is provided at one end with a pinion *g*, rigid with the roller, the pinion being

engaged by a vertical rack *h*, secured to the window-frame outside of the channel *i* for the upper sash C. From this description of the parts it will be understood that if the lower sash be raised or lowered at any time the roller will be turned one way or the other by means of the rack and pinion, and the screen *d* will be unwound from the roller or wound upon the latter, as the case may be, and as the lower edge of the screen is at all times held down by the bar *e* the screen will in any position of the lower sash cover the opening below the sash as it is extended. The roller is protected by a housing *k*, extending from side to side of the window, preferably made of sheet metal, and secured to the bottom rail *c* by simple fasteners *l*, said housing extending outward from the sash and down over the roller, as shown. This housing or hood, moving with the sash and roller, always covers the latter, and also the entire screen, as shown in Figs. 1 and 3, when the sash is down. Narrow vertical side strips *n*, preferably made of sheet metal, are employed, secured to the window-frame on each side in position to come just outside of the downturned portion of the housing *k* to cover the ends of the latter and the vertical edges of the screen, as shown in Fig. 3. These strips extend upward from the lower piece *f* of the window-frame, and are of such length that the housing does not rise above their upper ends when the sash is raised to its highest position. These strips are bent longitudinally, so as to form a right angle in cross-section, as shown in Fig. 6, one part or side of each being secured to the frame of the window while the other part laps over the end of the housing. The rack *h* is not held rigid to the window-frame, but is formed with vertical slots *o o* at its upper and lower ends, through which slots fastening-screws *p p* extend and enter the wood-work, said screws passing through holes in the side strip *n*. These fastening-screws have broad heads, as shown, and are set up only moderately against the face of the rack, so that the latter may have a vertical or endwise motion. A spiral spring *r* is inserted, preferably, in the upper slot over the holding-screw therein, the action of which spring is to hold the rack in its upper position. It will be understood that as the sash is moved from

an upper to a lower position the diameter of the roller upon which the screen is wound will increase as the number of turns of the screen thereon increases, on account of which the screen would be more and more strained at its fastening at *e* as the sash descends; and, on the contrary, if the sash be raised the screen will become slack from the decreased diameter of the roller when the sash is well up. To obviate these difficulties is the function of the spring *r*. When in moving the sash downward a stress is brought upon the screen from the cause just stated, the spring *r* will yield from compression and allow the rack to move slightly downward, thus relieving the stress on the screen, for any downward motion of the rack results in a corresponding loss of rotatory motion of the roller. When the sash is raised and the stress upon the screen decreases, the spring will urge the rack upward and slightly accelerate the rotation of the roller, causing the latter to take up the slack of the screen. By this means the screen is always kept taut and prevented from becoming waved or wrinkled, while at the same time it is never overstrained. The spring is shown as resting on a saddle *s*, the latter resting on the screw *p*. The saddle is formed with a stud *t*, to enter the end of the spring to hold the lower end of the latter from lateral displacements. The rack *h*, as shown, is placed outside of the channels *i* for the upper sash *C*, so as not to interfere with the vertical motion of the latter therein. With the pinion *I* I associate a catch or pawl *u* to at any time lock or hold the pinion from rotating. As shown, the pawl is held on a pin *a'*, resting in bearings *b'* in the hanger *b*, and is provided with an arm *v*, extending upward, to which is secured a pull-wire *w*, extending through the sash to the inside of the window. The pawl drops from its own weight to engage a tooth of the pinion, and when the sash is raised to any position its descent is prevented by the pawl until the latter is disengaged from the pinion by the wire *w* being pulled from within. It will be understood, of course, that this screen, with the roller and other parts, may be as readily attached to the upper sash as the lower, the

holding-bar *e* in which case being secured to the upper part of the window-frame; also, that the screen, with the other parts, is as well adapted to be placed upon the inside of the sash as upon the outside, as shown. I also prefer to pad the roller with some soft or fibrous material, as cloth or felt *c'*, for the purpose of giving to it a cushioned surface, as the yielding nature of such a cushion or padded covering enables the roller to act less harshly upon the screen than if the roller were uncovered, and serves also to compensate in a degree for the stress brought upon the screen by the moving of the sash.

What I claim as my invention is—

1. A window-sash and roller held in bearings thereon, in combination with a screen secured to said roller and to the window-frame, a pinion on the roller and a rack to engage the pinion secured to the frame, a housing for the roller secured to the sash, and angular side strips *n*, secured to the frame parallel with the sash, substantially as shown and described.

2. In combination with a window-sash, a roller held in bearings thereon, a screen for the window attached to said roller and secured to the window-frame, and a rack and pinion for turning the roller as the sash is moved, said rack being provided with means whereby it may move endwise upon its bearings, substantially as and for the purpose set forth.

3. A window-sash, in combination with a roller held thereby, a screen having one edge attached to said roller, and the opposite edge secured to the window-frame, a yielding rack and a pinion for turning the roller, and a spring to operate the rack, substantially as shown and described.

4. In combination with a window-sash, a roller held thereon, and a screen secured to said roller and to the window-frame, the surface of said roller being padded or cushioned with a soft yielding material, substantially as and for the purpose set forth.

GABRIEL A. JACOBS.

Witnesses:

PATRICK MALONEY,
GEORGE ROBERTSON.