

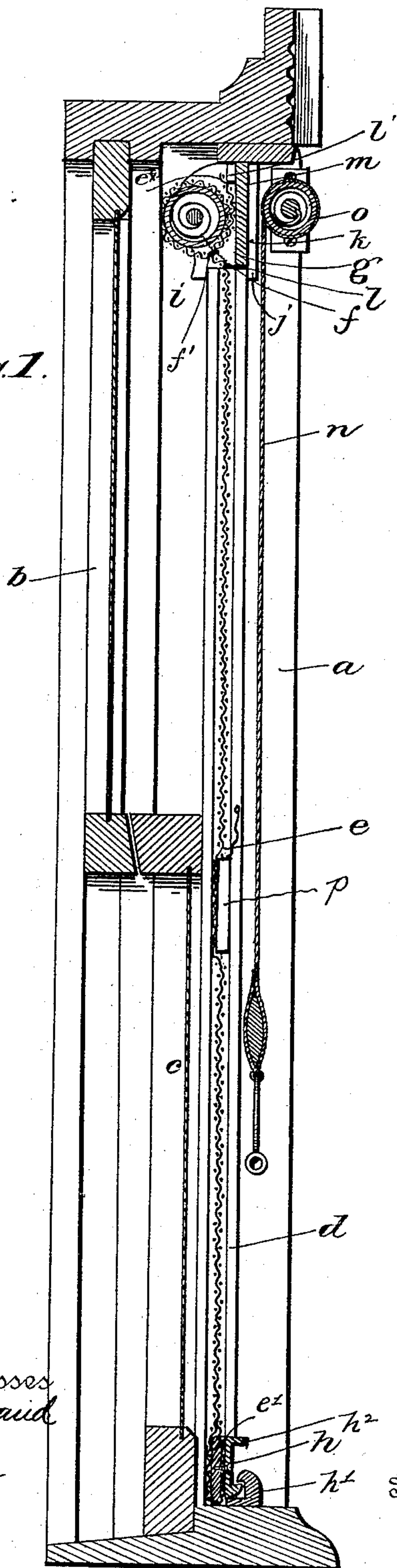
(No Model.)

A. L. BENEDICT.
WINDOW SCREEN.

No. 409,555.

Patented Aug. 20, 1889.

Fig. 1.



Witnesses
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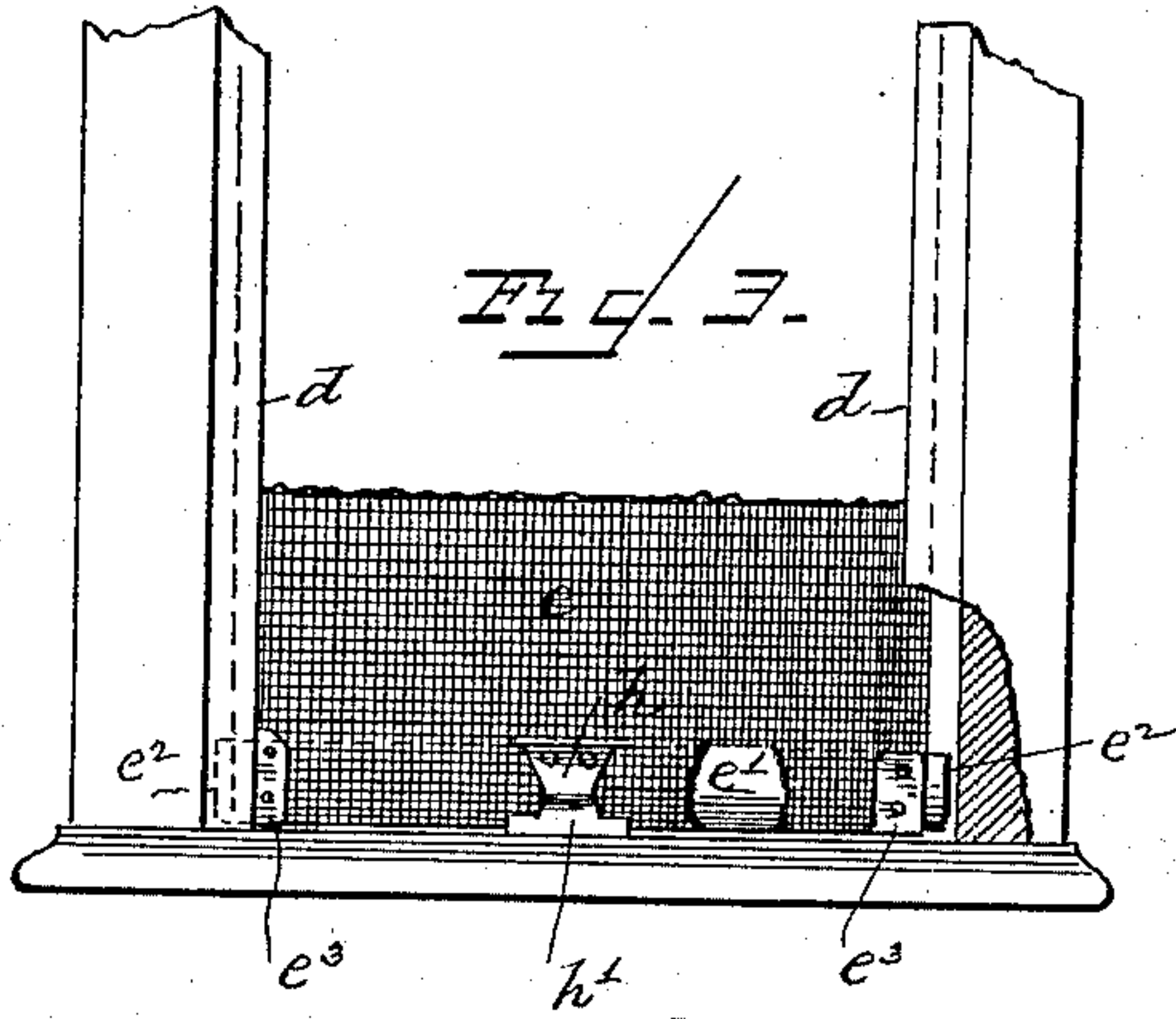


Fig. 2.

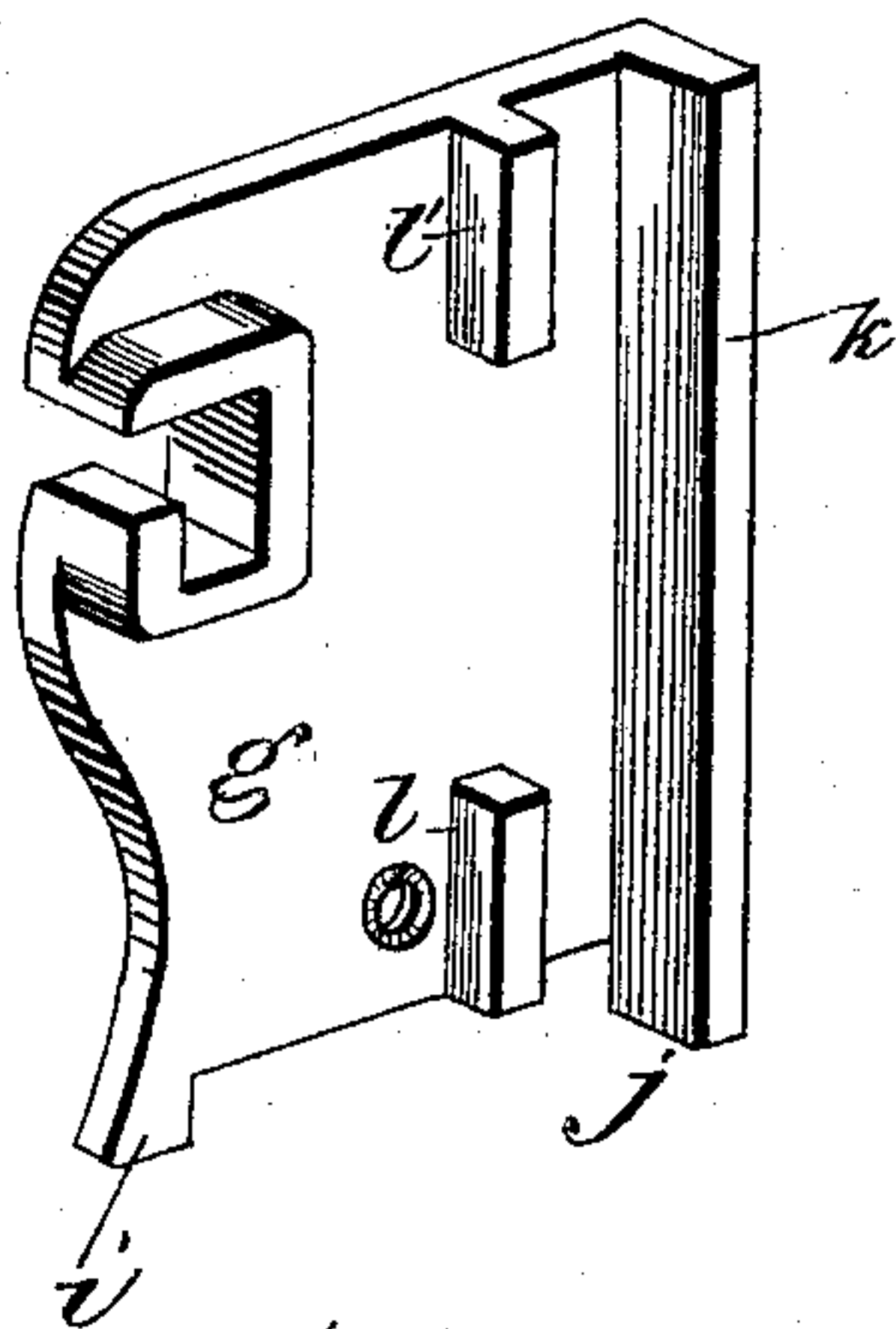
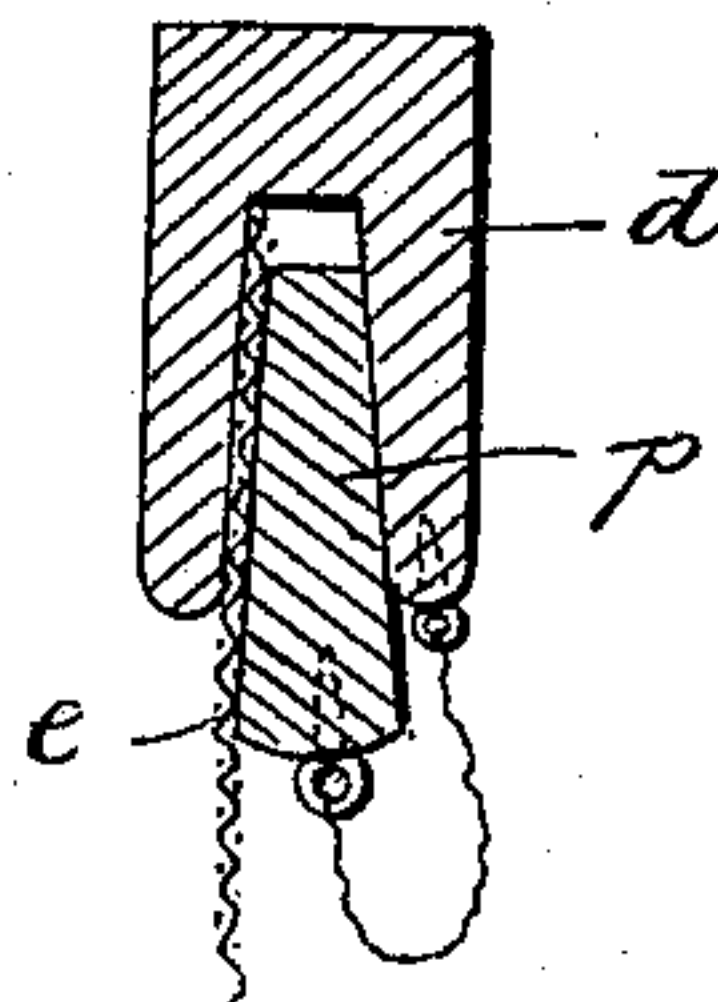


Fig. 4.



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WINDOW-SCREEN.

SPECIFICATION forming part of Letters Patent No. 409,555, dated August 20, 1889.

Application filed April 7, 1887. Serial No. 234,052. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR L. BENEDICT, a citizen of the United States, residing at New Canaan, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Window-Screens, of which the following is a full, clear, and exact description.

This invention relates to window-screens, and more particularly to that class which are designed to cover the whole, or substantially the whole, of the window space or opening in the case from top to bottom and side to side.

The invention consists in certain details of construction, all as hereinafter particularly set forth and claimed.

In the accompanying drawings, in the several figures of which like parts are similarly designated, Figure 1 is a vertical section of a window-casing provided with my invention. Fig. 2 is a perspective view of one of the brackets for supporting the roller upon which the screen is mounted. Fig. 3 is an elevation of the lower end of the screen and part of one of the guides, and Fig. 4 is a cross-section of one of the guides.

The window-casing *a* and the sash *b c* are all as usual. Upon the window-beads are placed vertically-grooved pieces *d*, on each side of the window, which form guides to receive the longitudinal edges of the netting or other suitable screen material *e*. This netting is secured to any ordinary spring curtain-roller *f*, which is mounted in brackets *g*, attached to the side stop-beads at the top of the window. The netting *e* is lapped around the roller and secured thus by a line of stitches, as indicated at *f'*, and the said netting is of such length as to cover the entire, or substantially the entire, opening in the casing from the roller down to the sill and from jamb to jamb, substantially as indicated, respectively, in Figs. 1 and 3, so that when the netting is stretched across this space and its lower end secured to the sill by any suitable hook *h* and catch *h'* the netting will be stretched or drawn taut, and thus prevented from wrinkling and blowing out of the grooved ways. The netting is so attached to its roller with relation to the pawl-and-ratchet mechanism of the roller that when the screen is released at the bottom it (the said netting) will rise, say from one to two inches (more or less) before the pawl in the end of the spring-

roller will engage the ratchets therein to stop the screen in its upward passage.

This operation is incidental to the construction of the spring-roller and can be obtained with the spring-shade or curtain-roller now commonly used and known on the market as the "Hartshorne."

It will be observed that if the netting be locked at its lower end and be fully unrolled from its roller and further be secured to the roller so that the pawl-and-ratchet mechanism is not immediately operative upon the unlocking of the lower end, then the netting will automatically rise by the turning of the roller, and so be in position to be further acted upon to raise or lower the netting.

The strip or stick *e'* in the lower edge of the netting has its ends *e² e²* extended beyond the netting so as to project into the guides to control the movement of the screen, and the netting is bound to this stick at such ends by metal wear-plates *e³ e³*, so as to take off from the netting the friction of the grooves that would otherwise fall upon the netting. These wear-plates *e³ e³*, arranged substantially as shown in Fig. 3, may be strips of sheet metal bent around the stick and netting and secured thereto by any suitable fastenings, and, as intimated, they protect the netting from the abrading action of the guides as the screen is drawn up and down in such guides, and thus preserve it from wearing and tearing out at the most vulnerable point. Such wear-plates are merely attachments to the stick and netting, made of cheap material and economically produced and applied.

The resiliency of the stick is made use of to spring the hook *h* into the catch *h'*, and thus securely hold it in position in such catch, at the same time permitting the ready disengagement of the hook and catch. The hook and catch are made with beveled ends, so as to more readily permit their engagement. The hook and catch are inherently unyielding, (being usually castings,) and their engagement and disengagement are effected through the resiliency of the stick *e'*, which may be simply the ordinary curtain-stick of wood. By bowing the stick the hook and catch are connected and released. In this way I avoid the expense of spring catches and hooks and the evil of their constitutional tendency to derangement and breakage; and, moreover, I get in the spring-stick and un-

yielding hook and catch a very rigid and strong fastening for the screen at a minimum of cost. The hook is provided with a projecting top portion h^2 , which, when the screen is rolled up, comes in contact with the hereinafter-described cross-piece or shield m to prevent the screen from slipping back over its roller.

The grooves in the guides d are made tapering with their widest portions outermost, so that should said guides warp or become distorted the stick traveling in said widest portion of the guides is not likely to be bound in the guides in consequence of such warping or distortion. In prior inventions, where the longitudinal edges of the netting have been provided with cords, and thus become circular in cross-section, the guides have been made of circular metal tubes to contain the corded edges of the netting, and slit longitudinally for the passage of the netting, or else they have been made of two parallel strips of molding, forming substantially the sort of guides formed by the metal tubes. In neither case is there liability to warping, and in neither case does the stick enter the guides.

In order to close the space between the roller f and the strip forming the top of the screen, I allow one end e^x of the netting to project beyond the roller, and when the screen is drawn down this projecting portion automatically turns up over the roller, so as to cover the space between the roller and strip, substantially as shown. When the netting is wound up upon the roller, this projecting portion winds up snugly with it.

The brackets g , for the reception of the roller f , are constructed with the usual bearings for such rollers; but, as shown in Fig. 2, said brackets are provided with lugs i and j , which, as shown in Fig. 1, embrace the guides d in front and rear, and thus insure their alignment with the netting as it winds off and on its roller. The brackets at their front are provided with a flange k , and back of said flange lugs or a flange l are provided, which serve to receive a shield m , extending transversely of the window-casing in front of the roller, so as to close the space between the lintel or transverse bead and the roller at the top of the casing. This shield m may be a piece of thin board or other suitable material, and of any ornamental character.

n represents an ordinary window-shade, and o an ordinary spring-roller, to which it is applied, which shade or curtain may be used in connection with the window-screen.

In order to provide against the screens being blown out of their guides by a strong wind, I employ wide wedge-shaped pieces p , of wood, rubber, or other material or substance, which may be conveniently attached to the guides or to the casing, and insert such wedges on either side of the netting between the netting and the guides, and thus bind the said netting in the guides.

What I claim is—

1. A window-screen of the class covering the whole of the opening in the window-casing, comprising a netting of just sufficient length from its supporting-roller to the sill that when drawn down its full length and locked at its lower end it will be held taut, irrespective of the tension of its spring-roller or supporting device, combined with such supporting device, such as an ordinary spring curtain-roller, guides to receive the longitudinal edges of the netting, and a locking device to secure the lower end of the extended netting to the window-sill, substantially as described.

2. The combination, with the netting and its roller or support, of an extension e^x of such netting integral therewith, turned back and up over the roller, substantially as and for the purpose set forth.

3. The combination of the netting, its support or roller, vertical guides for the longitudinal edges of the netting, and brackets to receive and sustain the netting support or roller, constructed wholly independent of the guides, and having the downwardly-projecting lugs i and j to engage the vertical guides, substantially as described.

4. As an article of manufacture, the herein-described window-screen-roller bracket, consisting of bearings for the roller, the lugs i, j , depending from the lower edge, and the flanges k, l, l' , projecting laterally from the inside face of the bracket, substantially as and for the purpose set forth.

5. A window-screen of the class covering the whole of the opening in the window-casing, comprising a netting of just sufficient length from its supporting-roller to the sill that when drawn down its full length and locked at its lower end it will be held taut, combined with an ordinary spring curtain-roller, about which such netting is looped, as shown, and having an ordinary pawl-and-ratchet detent, guides to receive the longitudinal edges of the netting, and a locking device for its lower end, all arranged as set forth, that when the netting is extended and unlocked the roller is free to raise automatically the netting a short distance before its pawl and ratchet act, and thus the netting is put in condition to be further raised by manual interposition, substantially as described.

6. In a window-screen, the combination, with the grooved guides and the netting having its edges arranged in said guides, of independent detachable wedges p , adapted to be inserted between the netting and the guides within said guides, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand this 6th day of April, A. D. 1887.

ARTHUR L. BENEDICT.

Witnesses:

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A. F. JONES.