

No. 628,075.

Patented July 4, 1899.

J. A. CROCKER.
WINDOW SCREEN.

(Application filed Nov. 7, 1898.)

(No Model.)

2 Sheets—Sheet 1.

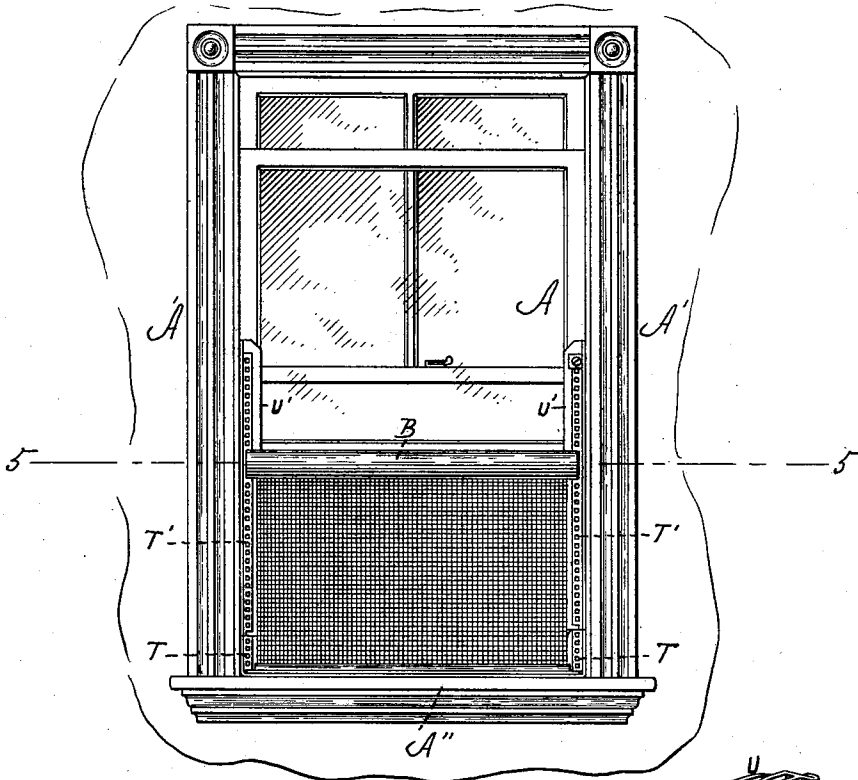


Fig. 1.

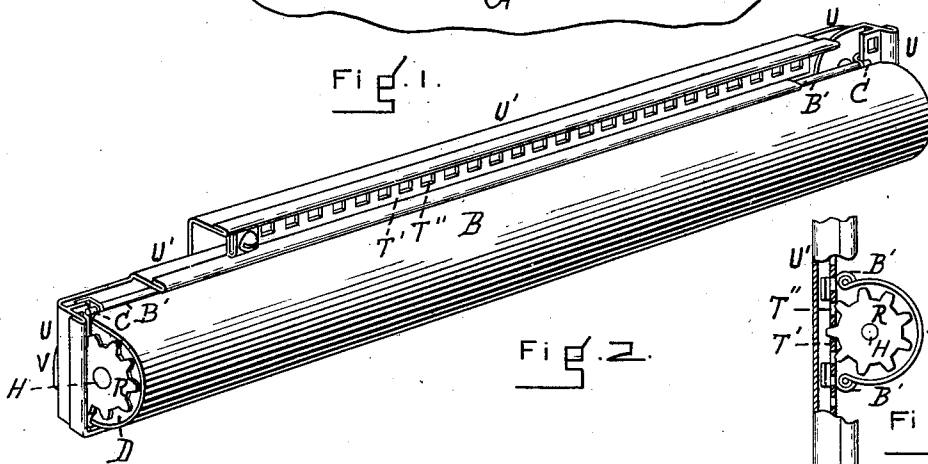


Fig. 2.

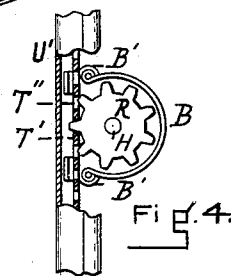


Fig. 4.

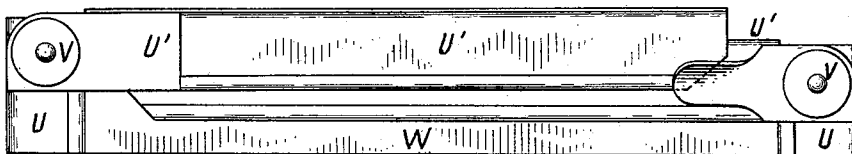


Fig. 3.

WITNESSES:

A. A. Connelley.
A. F. Connelley.

INVENTOR:
James Allen Crocker.
By his Atty
Sherry W. Williams

No. 628,075.

Patented July 4, 1899.

J. A. CROCKER.

WINDOW SCREEN.

(Application filed Nov. 7, 1898.)

(No Model.)

2 Sheets—Sheet 2.

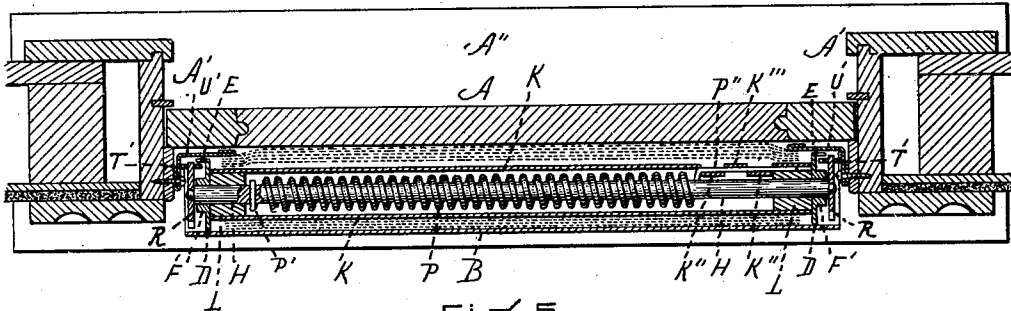


FIG. 5.

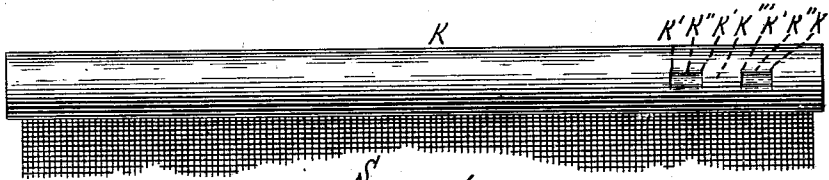


FIG. 6.

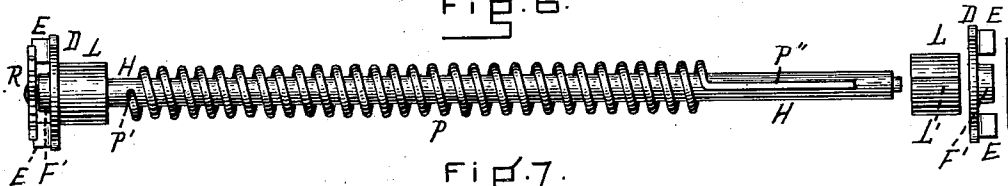


FIG. 7.

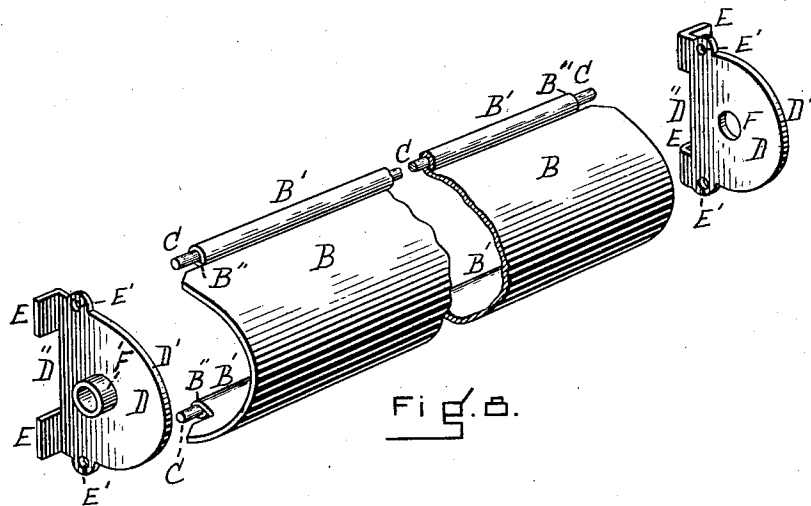


FIG. 8.

WITNESSES:

A. J. Bonney.
A. L. Bonney.

INVENTOR:
James Allen Crocker.
By his Att'y
Sherry Williams

UNITED STATES PATENT OFFICE.

JAMES ALLEN CROCKER, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE NATIONAL ROLLING SCREEN COMPANY, OF SAME PLACE AND PORTLAND, MAINE.

WINDOW-SCREEN.

SPECIFICATION forming part of Letters Patent No. 628,075, dated July 4, 1899.

Application filed November 7, 1898. Serial No. 695,676. (No model.)

To all whom it may concern:

Be it known that I, JAMES ALLEN CROCKER, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Window-Screens, of which the following is a specification.

This invention relates to that class of window-screens in which the screen is adapted to be unwound or unrolled when the sash is raised, and thereby fit into and protect the space thus produced, for the purpose of preventing the entrance of insects into the apartment, and to be wound or rolled up when the sash is closed, an example of a window-screen in such class being the invention for which Letters Patent numbered 525,381 were granted to Samuel Abbott September 4, 1894; and the invention is intended to be an improvement upon the window-screens illustrated and described in Letters Patent of the United States numbered 549,495, granted November 12, 1895, and numbered 563,948, granted July 14, 1896, to which reference is made.

The present improvement relates particularly to the construction of the ends of the case, whereby time is saved, economy secured, and strength in holding power is obtained, to the means of securing the spring to the major or hollow shaft, and to the construction of the sides and the vertical racks secured thereto, whereby said sides and racks can be folded and the device packed for shipment.

The nature of the improvement in detail is fully described below and illustrated in the accompanying drawings, in which—

Figure 1 is a front or inside elevation of my improved window-screen applied to a window with the lower sash partially raised. Fig. 2 is a perspective view of the entire device removed and folded. Fig. 3 is a rear elevation of the same. Fig. 4 is a sectional elevation of one end of the device, a portion of the side and rack being represented as removed. Fig. 5 is a horizontal section taken on line 5, Fig. 1. Fig. 6 is an elevation of the roll removed—that is to say, the major or hollow shaft with the netting secured thereto. In this figure the netting is unwound and a small portion

only is shown. Fig. 7 is an elevation of the minor shaft and spring removed, the end pieces connecting the shaft and casing being shown in position at one end of the shaft and separated at the other end. Fig. 8 is a perspective view of the case and end pieces separated therefrom, a portion of the former being represented as broken out.

Similar letters of reference indicate corresponding parts.

A represents a portion of the lower sash of a window, A' the jambs, and A'' the sill, all constructed as usual.

B is a cylindrical casing, the main body of which is constructed substantially like that shown in Letters Patent of the United States numbered 563,948 above referred to. No means for attaching this casing to the lower sash is illustrated in the drawings, as such an arrangement is not necessary. The opposite horizontal edges of the casing are formed into tubular beads B', Figs. 2, 4, and 8, containing horizontal rods C. These tubular beads are cut or recessed at their ends B'' in order to allow the rods C to project therefrom without extending beyond the ends of the main portion of the casing. D D are the ends constituting the end walls of the casing and adapted to fit therein. These end pieces D have their peripheries curved at D' to fit against the inner surface of the casing, while their rear edges D'' are straight and vertical and are provided with the outwardly and horizontally bent guiding-lips E, which are adapted to extend to the rear of the racks and slide between said racks and the side pieces as the casing and its contents are moved up and down. Each of these end pieces D is provided with the two perforations E', through which the opposite ends of the rods C extend, and thereby lock the end pieces in position. These end pieces are also provided with central openings F, which are surrounded by the outwardly-extending sockets F', which receive the ends of the minor shaft H. These end walls as constructed, in connection with the casing as formed, are economical to make, quickly applied, and strong in holding power.

K is the major or hollow shaft, Figs. 5 and 6, secured to the bushings L, which are loose

on the minor shaft H and fit into the hollow shaft K at its ends. To this shaft is secured the netting S, constructed and operating substantially as in Letters Patent numbered 5 563,948, referred to above.

P is the spring, secured at one end at P' to the minor shaft and at the other end straightened into the part P'', which extends through openings formed by means of transverse cuts or incisions K' in the hollow or major shaft K, such incisions being of equal length and made in two pairs, and the stock K'' between each pair of incisions being bent inward toward the minor shaft H. Thus the inwardly-bent portions K'' and the portion K''' between such inwardly-bent portions constitute a substantially tubular passage into which the straight end P'' of the spring is thrust and to which it may be soldered, if desired. This passage is practically extended by means of a longitudinal groove L', Figs. 5 and 7, in the periphery of the bushing L at that end, into which groove the extreme end of the portion P'' of the spring extends. Thus a convenient and efficient means is provided for securing that end of the spring to the major shaft.

Fast on the outer ends of the shaft H are the gear wheels or pinions R, which extend in the ordinary manner into the openings or sockets T'' in the racks T'T', secured, respectively, to the sides U and U', which are angle-shaped in horizontal section. The sides U are rigidly secured to the horizontal portion W, Fig. 3, while the sides U' are hinged at V to said sides U in such a manner as to swing inward and fold into the position indicated in Figs 2 and 3, thus enabling the device to be folded into a small compass for transportation.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a window-screen of the character described, the cylindrical casing B formed on its opposite edges into the tubular beads B', said beads being recessed or shortened at their outer ends at B'' as described; the rods C within said beads, said rods extending at their opposite ends beyond the ends of the beads; and the caps D adapted to fit within the casing at its opposite ends and provided with the perforations E' of suitable shape to receive the outer ends of said rods, whereby

said caps may be contained entirely within the casing and secured thereto, substantially as described.

2. In a window-screen of the character described, in combination, the casing B; the rods C secured to the opposite edges of the casing and with their opposite ends extending outward therefrom; the end pieces D of substantially the shape shown and adapted to fit and be secured within the casing near the outer ends thereof, said end pieces being each formed of one integral piece of metal and having their rear edges formed with the outwardly-extending guiding-lips E and being provided with the perforations E' and sockets F'; the frame of the netting comprising the side pieces U' and racks T' behind which said guiding-lips are adapted to slide; and the shaft H having its bearings in said sockets and provided with suitable pinions for engaging with the racks, substantially as set forth.

3. In a window-screen of the character described, the major or hollow shaft K provided with the horizontal passages formed by the slits K' and depressed portions K''; the bushing L fitting within said hollow shaft and provided with the longitudinal peripheral groove L'; the minor shaft H sustained within said hollow shaft; and the spring P provided with the straight horizontal end P'' extending through the passages in the major shaft and into said groove in the bushing, the opposite end of said spring being secured to the minor shaft, substantially as described.

4. In a window-screen of the character described, the combination with the roll containing the screen; of the frame adapted to be secured to the casing, said frame comprising the base-piece W, the side pieces U rigidly secured to the opposite ends of said base-piece and being provided with the racks T, and the side pieces U' provided with the racks T', said side pieces U' being hinged at their lower ends to the side pieces U and thereby adapted with the rack T' to fold inward next and parallel with the base-piece and roll, substantially as described.

JAMES ALLEN CROCKER.

Witnesses:

HENRY W. WILLIAMS,
A. N. BONNEY.