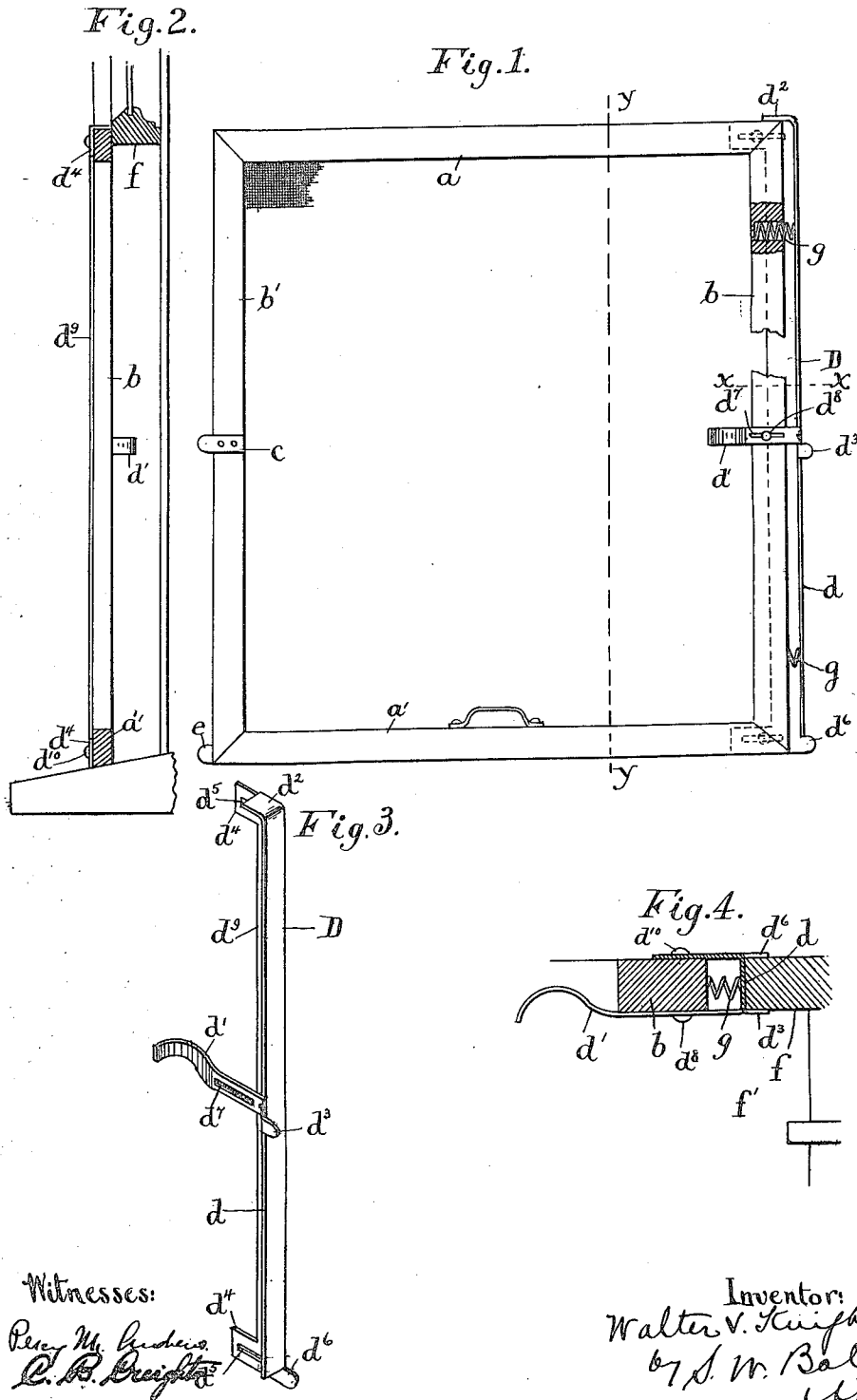


W. V. KNIGHT.
WINDOW SCREEN.
APPLICATION FILED JAN. 14, 1911.

1,016,888.

Patented Feb. 6, 1912.



Witnesses:
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UNITED STATES PATENT OFFICE.

WALTER V. KNIGHT, OF WESTBROOK, MAINE.

WINDOW-SCREEN.

1,016,888.

Specification of Letters Patent.

Patented Feb. 6, 1912.

Application filed January 14, 1911. Serial No. 602,669.

To all whom it may concern:

Be it known that I, WALTER V. KNIGHT, of Westbrook, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Window-Screens, of which the following is a specification.

My invention relates to an improved construction of the screen shown and described in Letters Patent to Charles H. Knowles, dated Jan. 7, 1908, No. 875,826. This screen was made up of the usual end bars and side bars. It was held in place just outside the upper sash groove between the two sides of the casing by flat exterior stops or projections, one on the lower end of the screen to prevent it from being forced inward. A flat interior stop or projection at about the center of each side bar was fitted within the upper sash groove to keep the screen from being forced outward. These two pairs of stops in conjunction with the upper end bar which rested against the lower rail of the upper sash, held the screen in position and enabled it to slide vertically a limited distance. The screen was further held in place by a lateral extension of one of the side rails which was guided by pins which passed through the side bar and was pressed outward against the casing by flat springs. As this screen has been constructed, the side bar and extension strip were halved together so as to allow the extension strip to slide laterally with respect to the side bar, always making a tight joint to exclude flies, etc.

Hitherto, the side bars of the screen and the extension strips have been made of wood and have developed in practice certain more or less serious faults. The two wooden strips being halved together, were liable to become warped when they would either stick and move hard, one on the other or they would open joints or spaces for flies to enter. Another fault was that spiral springs, the most desirable form to use, could not be used to forge the strip out because the bearing surface for the end of the spring would only be substantially one half of the thickness of the strip. The strip could not be more than $\frac{1}{4}$ inch thick on account of the thickness of the casing outside of the sash groove. My invention is directed to remedying these defects and to substituting an extension which could be more cheaply made, and which will be more efficient in use.

My invention consists in the features of

constructions hereinafter set forth and claimed.

I illustrate my invention by means of the accompanying drawing, in which—

Figure 1 shows an elevation of the screen looking from the inside of the window outward, and with my improvement applied to one of the side bars. Fig. 2, is a vertical section on the line $y y$ including the upper sash and the sill. Fig. 3, is a perspective view of the side strip which embodies my invention, and Fig. 4, is an enlarged section on the line $X X$ of Fig. 1, showing a position of the casing.

The screen frame is made up in the usual way with end bars a' and b' and b . An internal stop c is secured on the inside face of the side bar b' at about the center and an external stop e is secured on the outer surface near the bottom. Both of these stops are of thin metal and project laterally beyond the side bar.

The extension strip which embodies my invention is applied to the side bar b and is made up of a strip of sheet metal indicated generally as D . It is bent into the form of an angle bar, forming a flange d and a flange d^o . The flange d^o fits against the outer surface of the side bar b and the flange d which is the same width as the thickness of the side bar, presses against the casing f (Fig. 4) this latter casing forming the outer wall of the upper sash groove f' .

The strip D has a limited horizontal motion from and toward the side bar, and to guide the strip, I form in the flange d^o , a horizontal slot d^5 one at the top and one at the bottom, offsets d^4 being extended out from the flange d^o for this purpose.

It is necessary to close the upper end of the space between the outer edge of the side bar b and the inner face of the flange d . For this purpose I turn over a portion d^2 of the upper end of the flange d so that it rests on the upper end of the side bar effectually closing this space and making a tight joint.

The external and internal stops which correspond with the stops c and e , I form from the metal of the strip D . The lower external stop e is formed by cutting into the flange d near the bottom and bending a portion outward into the plane of the flange d^o .

The central internal stop is formed by extending a portion of the metal of the flange d and bending it outward to form a stop c opposite the stop C . An operating handle

is formed by bending an extended portion of the flange d inward to form a handle d' . The handle d' rests against the face of the side bar b . A horizontal slot d'' is formed in the handle and a screw d^s passes through the slot and serves to secure the handle at any desired point.

To force the strip D outward against the window casing, I make use of two spiral springs g contained in recesses in the side bars and impinging against the inner face of the flange d . This is rendered possible by having the whole width of the flange d to serve as a bearing for the outer end of the spring.

It will be seen from the above, that with a single integral piece of sheet metal, which may be steel, galvanized iron, or other suitable metal, I form it in such a way that it performs all the functions and contains all the parts necessary to form the expanding side bar of the Knowles screen.

In the old construction, it was necessary to use the halved strip, guide pins projecting inward from the strip, internal and external stops which must be fastened onto the side bar, a cap piece to close the top of the opening and an operating handle which must be fastened on and long flat springs between the side bar and the strip as shown in the Knowles patent. I am enabled to form the strip and all its connecting parts by suitably bending a single piece of metal.

I claim:

1. A device for holding a screen in a window frame, said device comprising a bar of right-angular cross-section throughout its length, a pair of parallel lugs extending from the edge of one of the flanges of the bar adjacent the ends thereof and both lugs being disposed in the same plane with such flange to engage with the latter the outer surface of the screen frame; a lug extending laterally from the edge of the other flange at an intermediate point of the bar and extending parallel with the first-mentioned lugs though disposed in a plane to one side of the plane of the first-mentioned lugs a distance to permit the screen frame to fit

between the lugs on one flange and the lug on the other flange, a plurality of lugs extending from the bar in the opposite direction from the afore-mentioned lugs to engage with a portion of the window frame, in combination with a screen, means for slidably connecting the screen-engaging lugs with the said screen, and yielding means interposed between the said bar and screen for urging the bar from the screen into engagement with the window frame.

2. A device for holding a screen in a window frame comprising a bar composed of two flanges disposed in angular relation, one flange having at its ends laterally-extending screen-engaging lugs, each lug having a longitudinal slot and the slot of one lug being parallel with that of the other, a screen-engaging lug extending from the other flange of the bar at an intermediate point and offset from the first-mentioned lugs a distance equal to the thickness of a screen frame, said last-mentioned lug having a longitudinal slot parallel with the slots of the first-mentioned lugs and also having an extremity formed into a handle, the flange having the intermediate lug being bent laterally at its upper end in alinement with the upper end of the flange having the first-mentioned lugs, and window-frame engaging lugs extending from the respective flanges of the bar in a direction opposite from the screen-engaging lugs, in combination with a screen frame fitted between the screen-engaging lugs, fastenings passing through the slots of the screen-engaging lugs for holding the bar attached to the screen frame, and spring means confined between the screen frame and bar for urging the latter away from the screen to maintain the window frame engaging lugs in engagement with the window frame.

In testimony whereof I have affixed my signature, in presence of two witnesses.

WALTER V. KNIGHT.

Witnesses:

PERCY M. ANDREWS,
S. W. BATES.