April 29, 1930. R. KOWNATZKY 1,756,030

ADJUSTABLE WINDOW SCREEN

Filed Oct. 18, 1928

Fig. 1

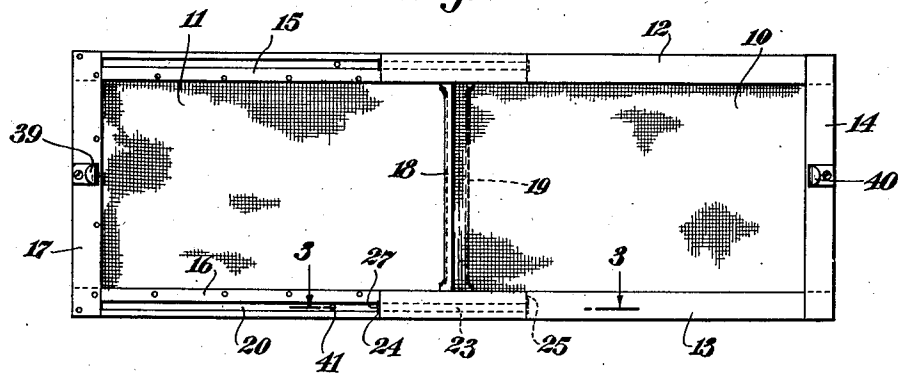


Fig. 2

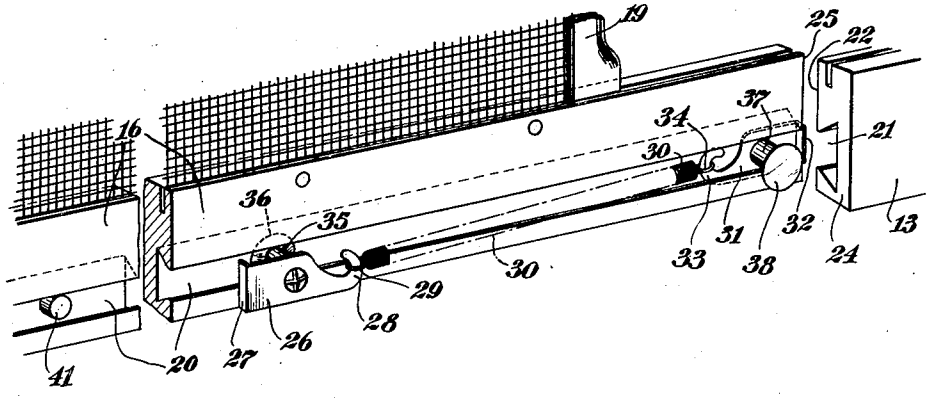
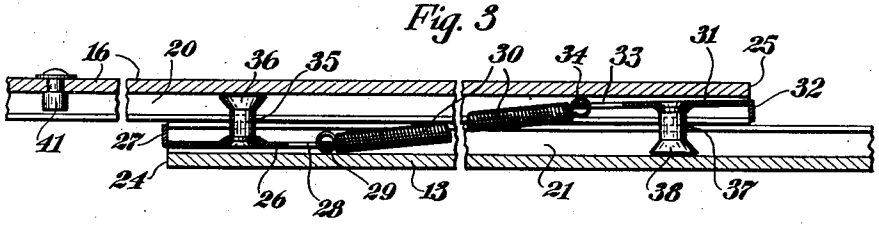


Fig. 3



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ADJUSTABLE WINDOW SCREEN

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My present invention relates generally to screens, and has particular reference to the sectional type of wire screen which is used in conjunction with the ordinary openable window.

A general object of my invention is to provide a screen which is simple in construction, inexpensive to manufacture, which is provided with means for expediting its application and removal with respect to a window, and wherein a resilient arrangement enhances the ease of employment and the efficiency of the screen in use.

The type of screen to which my invention relates comprises a plurality of complementary sections, usually two, which are relatively adjustable to alter the effective overall length of the screen. For example, in the screen herein illustrated and hereinafter to be described in conjunction with my present invention, a pair of relatively slidable overlapping screen sections is provided whereby an adjustment of the sections to increase the degree of overlap will reduce the effective length of the entire screen, and a reverse adjustment will increase the effective length. The reduction in length is necessary in applying the screen to a window, the initial application being followed by an adjustment which spreads the sections so as to cause the entire screen to fit snugly between the opposite frames of the window. Similarly, a withdrawal of the screen necessitates an initial adjustment of the sections to reduce the overall length.

A more particular object of my invention is to provide a screen of the foregoing character wherein all of the adjusting mechanism is effectively concealed and protected.

Another object is to provide a screen which is totally devoid of undesirable openings or slots through which insects, dust, or the like may pass while the screen is in use.

An important object is to provide a screen with the resilient means hereinbefore referred to without altering the dimensions of parts nor the appearance of the entire device.

In general, my present invention provides a compact and efficiently constructed sectional screen having a number of advantages, yet totally devoid of unnecessary and undesirable parts, projections, or the like which mar its appearance or complicate its manufacture or employment.

For the attainment of the foregoing objects and such other objects as may hereinafter appear or be pointed out, I have constructed a device embodying the features of my invention and illustrated in the accompanying drawings wherein—

Figure 1 is an elevational view of a screen constructed in accordance with my present invention;

Figure 2 is a perspective view on an enlarged scale of the lower portion of one screen section during the assembly of the device; and

Figure 3 is a cross-sectional view taken substantially along the line 3—3 of Figure 1.

I have shown a screen comprising two complementary sections 10 and 11. The section 10 includes the upper frame portion 12, the lower frame portion 13, and the end frame portion 14, these portions being preferably of wood. The section 11 is similarly provided with an upper frame portion 15, a lower frame portion 16, and an end frame portion 17. Suitably stretched between the portions 12, 13, and 14 is an area of wire mesh forming the screen proper, the inner end of this mesh being protected and stiffened by a metallic sheath 18 or the like. A complementary area of wire mesh is stretched between the portions 15, 16, and 17 and has its inner end protected by a sheath 19.

The sections 10 and 11 overlap and are adjustably constructed so as to permit the degree of overlap to be altered. More particularly, it will be noted that the frame portion 12 overlaps the frame portion 15, and that the frame portion 13 overlaps the frame portion 16. Since the upper and lower pairs of frame portions are identical in construction a detailed description of the lower pair will suffice to explain the nature of my invention.

In the frame portion 16 I provide a longitudinal channel 20 which is preferably of dovetail cross-section. A T-shaped cross-section would serve as well, the essential characteristic being that the side walls of the chan-

nel are undercut with respect to the opening of the channel.

In accordance with my invention, the channel is so arranged that it opens onto the surface of the portion 16 which is concealed by the overlapping portion 13. In the illustrated screen, this concealed surface is the front surface of the portion 16.

In the frame portion 13 I provide a channel 21 which is similarly constructed and arranged and which opens onto the surface 22, the latter being the surface of the portion 13 which is concealed by the overlapping portion 16.

In other words, the channels open toward each other, and they are so arranged as to register with each other to provide a substantially enclosed chamber. This chamber is designated by the reference numeral 23 in Figure 1, its ends being defined by the ends 24 and 25 of the portions 13 and 16 respectively. It is obvious that the length of the chamber 23 is variable, depending upon the degree of overlap of the screen sections.

Mounted in the channel 21 and adjacent to the end 24 is an anchor, preferably of metal, and comprising a substantially flat body portion 26 and a bent end 27. The width of the body portion 26 is such as to enable the anchor to be frictionally held in fixed position in the end of the channel 21. The bent end or flange 27 is so constructed and sized as to extend out of the end of the channel 21 and to seal such end as shown most clearly in Figure 3. The opposite end of the body portion 26 is provided with a hook 28 or similar instrumentality for carrying an end 29 of a tension spring 30.

A similar anchor is fixedly positioned within the channel 20 adjacent to the end 25 of the frame portion 16. Thus, a substantially flat body portion 31 is frictionally held within the channel 20, a bent end or flange 32 extends out of the channel end and seals the latter as shown in Figure 3, and a hooked portion 33 or the like carries the opposite end 34 of the spring 30.

The body portion 26 carries a guide pin 35 having an enlarged head 36, such pin extending across the chamber 23 into the channel 20. The undercut nature of the latter together with the enlargement of the head 36 serves to retain the anchor (and consequently the frame portion 13) in close overlying proximity to the frame portion 16. Similarly, a guide pin 37 provided with an enlarged head 38 extends from the body portion 31 of the other anchor across the chamber 23 into the opposite channel 21.

Reference to Figure 3 will show clearly how the anchors with their guide pins, and the spring 30, are all effectively concealed and protected within the chamber 23. They are thus totally invisible so far as the external appearance of the screen is concerned, and they are also efficiently protected and shielded from annoying or undesirable contact with the user or with external things.

In assembling the device, the two anchors with the spring associated therewith are slid into one of the channels, for example, the channel 20. The positions which these anchors assume is shown most clearly in Figure 2. The left-hand anchor will slide freely to a position approximately at the point shown in Figure 2; the right-hand anchor will have to be forced frictionally into the end of the channel 20 so that the flange 32 lies in close sealing contact over the end of the channel. Thereupon, the portion 13 is slid from the right into the assembled condition of Figure 1. That is, the head 38 will enter the channel 21 first and will slide freely within the latter as the portion 13 is moved to the left. The channel 21 will presently approach the left-hand anchor, and the latter may easily be forced into frictional fixed position within the channel. The parts will finally assume the positional relationships of Figure 3.

The operation of the device will be obvious from the foregoing description. A pair of finger grips 39 and 40 are preferably associated with the frame portions 17 and 14 respectively. By engaging these grips and drawing them together, the sections will be caused to move so as to increase the degree of overlap. Such movement will be effected against the action of the spring 30 in the chamber 23 and the identical spring in the upper chamber. The screen being then applied to the window, a mere release of the grips 39 and 40 will enable the springs to reduce the lengths of the chamber 23 and the corresponding upper chamber. In other words, the spring 30 will tend to draw the anchors with which it is associated toward each other, and since these anchors are fixedly positioned within the ends of the channels 20 and 21 respectively, the spring will tend to draw the ends 24 and 25 of the portions 13 and 16 toward each other. This will tend to decrease the size of the chamber 23, thereby decreasing the degree of overlap of the sections 10 and 11, and the total effective length of the screen will thereby automatically increase until the screen braces itself securely between the opposite frame portions of the window.

To prevent over-stressing the spring 30, I provide an abutment 41 in at least one of the channels. I have shown such abutment in the channel 20, and it is so positioned with respect to the type of screen employed that when the maximum elongation of the spring has been effected, the head 36 of the pin 35 will encounter the abutment 41 and will thereby limit the adjustment of the screen sections. A similar abutment is preferably associated with the upper frame portion 15.

I wish to point out particularly that the screen constructed in accordance with my invention is totally devoid of any externally projecting parts, tubes, guideways, pins, or the like. It resembles in all exterior respects the ordinary type of screen customarily employed. Furthermore, it is to be noted that there are no slots, openings, or other apertures through the frame portions or elsewhere through which dust or insects might find their way. These advantageous results are achieved as a direct result of my construction wherein the channels open toward each other and register to provide a chamber, and wherein the entire guiding and adjusting mechanism is efficiently and compactly arranged in protected and concealed condition within such chamber. Furthermore, I draw attention to the extreme simplicity of my construction, all of the constituent parts being of an extremely inexpensive character and enabling me to construct and assemble a device with a minimum amount of labor, time, and expense. I am fully aware that sectional screens are well known by themselves, and also that the employment of resilient means has heretofore been attempted in connection with such screens. I therefore make no claim broadly to the employment of resilient means in conjunction with such a screen. The specific advantageous features of construction which I claim herein are clearly set forth in the appended claims.

It will of course be obvious that changes in the details herein described and illustrated for the purpose of explaining the nature of my invention may be made by those skilled in the art without departing from the spirit and scope of the invention as expressed in the appended claims. It is therefore intended that these details be interpreted as illustrative and not in a limiting sense.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent is—

1. In a screen, a pair of overlapping sections, each section having a channel opening onto the surface which is concealed by the other section, said channels registering with each other to provide a chamber, a pair of anchors at opposite ends of said chamber and abutting the ends of said channels respectively, and spring means in said chamber and operatively interposed between said anchors to yieldably urge them toward each other.

2. In a screen, a pair of overlapping sections, each section having a channel opening onto the surface which is concealed by the other section, said channels registering with each other to provide a chamber, a pair of anchors at opposite ends of said chamber and associated with the ends of said sections respectively, and spring means in said chamber and operatively extending between said anchors for yieldably urging said ends toward each other; said anchors being arranged within said channels respectively and having portions which seal the ends of said channels.

3. In a screen, a pair of overlapping sections, each section having a channel opening onto the surface which is concealed by the other section, said channels registering with each other to provide a chamber, a pair of anchors at opposite ends of said chamber and associated with the ends of said sections respectively, and spring means in said chamber and operatively extending between said anchors for yieldably urging said ends toward each other; said anchors being arranged for endwise removability within said channels respectively and having each a guide pin which extends across the chamber into the opposite channel.

4. In a screen, a pair of overlapping sections, each section having a channel opening onto the surface which is concealed by the other section, said channels registering with each other to provide a chamber, a pair of anchors at opposite ends of said chamber and associated with the ends of said sections respectively, and spring means in said chamber and operatively extending between said anchors for yieldably urging said ends toward each other; said anchors being removably arranged within said channels respectively and having each a portion which seals the end of the channel and a guide pin which extends across the chamber into the opposite channel.

5. In a screen, a pair of overlapping sections, each section having a channel opening onto the surface which is concealed by the other section, said channels registering with each other to provide a chamber, a pair of anchors at opposite ends of said chamber and associated with the ends of said sections respectively, and spring means in said chamber and operatively extending between said anchors for yieldably urging said ends toward each other; said anchors being arranged within said channels respectively and comprising each a flat body portion bent to provide an end flange which extends out of the channel to seal the end thereof.

6. In a screen, a pair of overlapping sections, each section having a channel opening onto the surface which is concealed by the other section, said channels registering with each other to provide a chamber, a pair of anchors at opposite ends of said chamber and associated with the ends of said sections respectively, and spring means in said chamber and operatively extending between said anchors for yieldably urging said ends toward each other; said anchors being arranged within said channels respectively and comprising each a flat body portion bent to provide an end flange which extends out of the channel to seal the end thereof, and a hook at the oppo-

site end of the body portion for engaging one end of said spring means.

7. In a screen, a pair of overlapping sections, each section having a channel opening onto the surface which is concealed by the other section, said channels registering with each other to provide a chamber, a pair of anchors at opposite ends of said chamber and associated with the ends of said sections respectively, and spring means in said chamber and operatively extending between said anchors for yieldably urging said ends toward each other; said anchors being arranged within said channels respectively and comprising each a flat body portion bent to provide an end flange which extends out of the channel to seal the end thereof, and a guide pin projecting from said body portion across the chamber into the opposite channel.

8. In a screen, a pair of overlapping sections, each section having a channel opening onto the surface which is concealed by the other section, said channels registering with each other to provide a chamber, spring means in said chamber and hence concealed and protected thereby for yieldably urging said sections to alter the degree of overlap, and means in at least one of said channels for limiting the movement of said sections against the action of said spring means.

9. In a screen, a pair of overlapping sections, each section having a channel opening onto the surface which is concealed by the other section, said channels registering with each other to provide a chamber, a pair of anchors at opposite ends of said chamber and associated with said sections respectively, spring means in said chamber and operatively interposed between said anchors to yieldably urge them toward each other, and an abutment in at least one of said channels and encounterable by one of said anchors to limit the spreading of said anchors against the action of said spring means.

In witness whereof I have signed this specification this 15th day of October, 1928.

RUBIN KOWNATZKY.