June 10, 1952 J. BELL 2,600,192

FLY SCREEN

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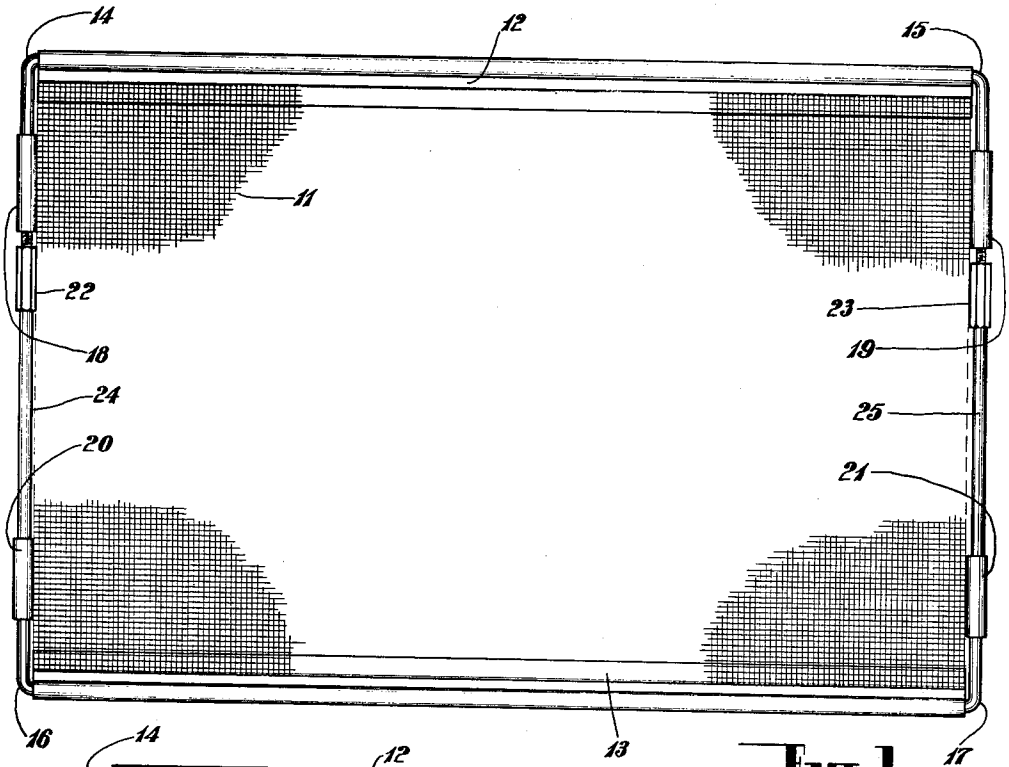


Fig. 1

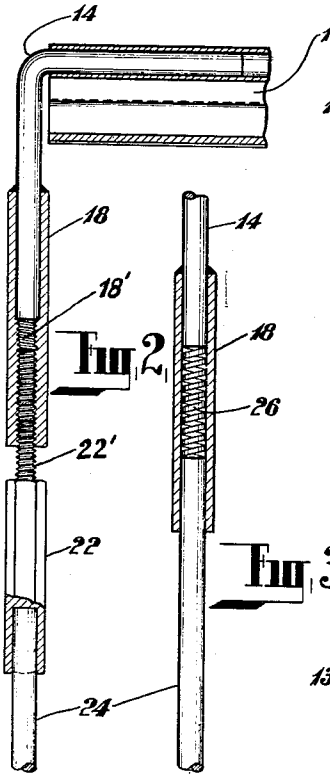


Fig. 2

Fig. 3

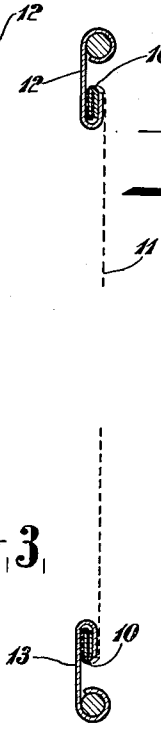


Fig. 4

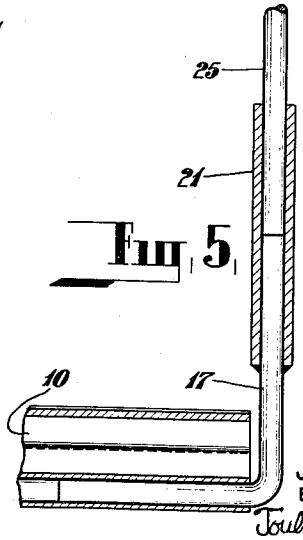


Fig. 5

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FLY SCREEN

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4 Claims. (Cl. 160—372)

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This invention relates to improvements in fly screens.

The fly screens forming the subject of this application are adapted to slide up and down, and can therefore be used to protect the openings of so-called double hung windows, although they can be applied to other windows if desired, and can be used as screens in a stationary position.

Fly screens as at present constructed have certain disadvantages. One of these is the difficulty of applying the fly wire with a uniform tension so that it does not bulge and will have no unsightly appearance.

Another disadvantage resides in the difficulty of fixing the tightened fly wire, which has a tendency to break away where attached.

It is an object of the present invention to provide fly screens which will overcome the above-mentioned drawbacks.

It is another object of this invention to provide a window screen, in which the wires can easily be tightened, while the screen itself is simple in manufacture and is easy to handle.

These and other objects and advantages of the invention will appear more clearly from the following specification in connection with the accompanying drawings in which:

Figure 1 is a front elevation of the complete window or fly screen;

Fig. 2 is a sectional elevation of a top corner of the window screen frame;

Fig. 3 is a sectional elevation of part of the top frame showing a modified arrangement with a resiliently stressed side;

Fig. 4 is an end sectional elevation of the top and bottom holding bars showing the method of attaching the screen wire, whilst

Fig. 5 is a sectional elevation of a lower corner of the frame.

As shown in these drawings, there is a crimping strip 10 at the top and at the bottom, each strip being formed of sheet metal or the like turned over about its longitudinal axis and having the wire crimped between the two folded parts. The wire 11 is then bent so as to run along one side of the folded crimping strip 10, then over the rounded top or bottom as the case may be, and then down to the other end where the other crimping strip holds the wire. The pull on the wire when tensioned is therefore on the rounded portion of the folded crimping strip 10, so that there is no possibility of cutting, and due to the method of crimping the wire and folding it, there is no possibility of it slipping out of position.

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The frame holding the wire is of metal construction. It comprises two bars, one 12 at the top and the other 13 at the bottom. Each bar consists of the required length of metal folded so that one edge is turned in so as to have a hollow circular passage right through it, whilst the other end is turned up or down as the case may be to form a hook, which also extends for the full width of such bar. It is into the hook portions of these bars 12 and 13 that the crimping strips 10 holding the wire 11 are slipped. They are preferably placed so that the rounded part of the crimping strip 10 projects slightly above the hook ends of the bars 12 and 13.

Into each hollow end of each of the hook bars 12 and 13 is slipped one leg of a right-angled rod member 14, 15, 16 or 17. To each of the free legs, that is the legs at right angles to the bars 12 and 13, is attached a hollow tube member 18, 19, 20 or 21, as the case may be. Of these, two of them, 18 and 19, as shown in the drawings are internally threaded. Associated to operate with each of these threaded tubes is an elongated bolt 22 or 23, one end of which is formed with a metal thread 22' adapted to screw into the threaded portion 18' of tube 18 or 19, and the other end of which is hollow for some distance.

The remaining parts of the frame consist of two rods 24 and 25, one on each side, one end of each of such rods being slipped into a hollow tube member 20 or 21, whilst the other end is slipped into the hollow of the elongated nut 22 or 23. When these parts are in position, then by screwing the elongated nuts 22 and 23, the effective length of each side of the frame is increased and therefore progressively tensions the fly wire held in the frame so constructed.

It will be obvious that the lower bar 13 may if desired have finger grips for raising the frame, but as these can be of any appropriate form, they have not been illustrated.

A frame constructed as described can be used for casement windows, in which case two frames will preferably be used, each slipping into channel runner sections screwed or otherwise attached to each side of the window frame. This, however, is not part of the invention. Actually the effect of screwing up the sides is slightly to bow them and this gives a resilient frictional contact against the channel runners.

The metal fly screen which has been described can be modified in the following respects.

Thus, in lieu of the means for increasing the effective length of the sides by means of the elongated nuts with screw threads co-acting with

threads on the tubes 18 and 19, a spring 26 can be housed in the hollow tubes 18 and 19. These springs tend to increase the effective length of the sides of the frame. That is, they tend to make the rods, for example 14 and 24, move away from each other on the one side and similarly affect the other side of the frame.

Moreover, although the arrangement of rod members 14, 15, 16 and 17 having one leg slipping into the hollow of the bars 12 and 13, and the other leg extending at right angles to these bars, is a convenient form of construction, I do not exclude the direct attachment or association of rods at right angles to each of the bars 12 and 13, such as by welding or other means.

It will further be appreciated that whilst the arrangement of elongated nuts with an extending male thread co-acting with threads in the hollow tube members 18 and 19 is satisfactory and convenient, and I believe the simplest way of effecting the object aimed at, there are obvious alternatives which are within the scope of the present invention. Thus, the rod member 14 and tube 18 could be one unit, at the free end provided either with an internal female thread or externally with a male thread co-acting with an oppositely threaded elongated nut such as 22.

Further, the bars 12 and 13 could be corrugated in cross section in that portion of them which is between the bent-around part and the hook, as this will increase the strength and will in addition give a certain amount of additional elasticity.

A still further modification which in principle is quite the same as the arrangement described will be to extend the free legs of the rod members 16 and 17 so that they are adapted to slip into the hollows in the elongated nuts 22 or 23. This will of course dispense with tube members 20 and 21 and with the separate side rods 24 and 25.

I claim:

1. A window screen comprising in combination, a first member having tubular shaped ends, a second member parallel with but spaced from said first member and also having tubular shaped ends, a window screen having two opposite marginal edges attached to said members, a first rod and a second rod arranged in spaced parallel relation in the same plane as said first and said second members, each of said rods having a central portion extending perpendicular to said members and also having its end portions arranged perpendicular to said central portion, said end portions being located in the adjacent tubular shaped ends of said first and said second members, and male and female threaded means associated with each of said rods and respectively engaging each other to facilitate adjustment of the length of said rods, said screen lying in a plane that passes through said rods and members whereby the assembled unit will seal about a window opening.

2. A window screen comprising in combination, a first hollow bar, a second hollow bar spaced from and parallel with said first hollow bar, each bar comprising a portion extending toward the other bar and bent back to form a U-shaped channel, screen wire having two marginal edges respectively secured in the said channels of the said hollow bars, two U-shaped rod members spaced from each other, each of said members having one leg slipped into one end of each of said hollow rod members, hollow tube means respectively associated with each of said rod members intermediate said legs and each provided with an internal thread, and threaded means also respectively associated with said rod members and each engaging one of said internal threads thereby effecting adjustability of the length of said U-shaped rod members, said bars, rods, and screen being substantially co-planar so the assembled unit may seal within and about a window opening.

3. A window screen comprising in combination, a first bar having a recess at each end thereof, a second bar opposite said first bar and spaced therefrom, said second bar also being provided with a recess at each end thereof, a first L-shaped member having one end engaging one recess of said first bar, a second L-shaped member having one end engaging the adjacent recess of the other bar, means interposed between said two L-shaped members to vary the distance therebetween, a third L-shaped member having one end in engagement with the other end of said first bar, a fourth L-shaped member having one end in engagement with the other end of said second bar, means interposed between said last mentioned L-shaped members to vary the distance therebetween, each said bar being formed of a strip rolled to a cylindrical form with one edge extending out toward the other bar and with the marginal part of the edge bent back to form a channel opening toward the said bar, screening having U-shaped crimping strips on two opposite marginal edges, and said strips being mounted in said channels with their open sides toward the closed sides of said channels and with the screening passing around the closed sides of said clips.

4. A window screen comprising in combination, a first bar having a recess at each of its ends, a second bar arranged opposite and parallel with said first bar and likewise provided with a recess at its ends, an L-shaped member at each end of each bar and each having one of its legs located in the adjacent one of said recesses, a member extending between the other legs of the corresponding L-shaped members to form a rectangular frame and having at least its end parts tubular to receive the said other legs, the last mentioned member including threaded means for adjusting the length thereof to change the size of the said frame in one direction, each said bar having a portion extending toward the other bar along its entire length, each said portion being turned back on itself to form a channel opening toward the associated bar, screening having its opposite marginal edges in said channels, and means for clamping the said edges in said channels.

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