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SCREEN.

APPLICATION FILED MAR. 18, 1911.

1,054,993.

Patented Mar. 4, 1913.

3 SHEETS—SHEET 1.

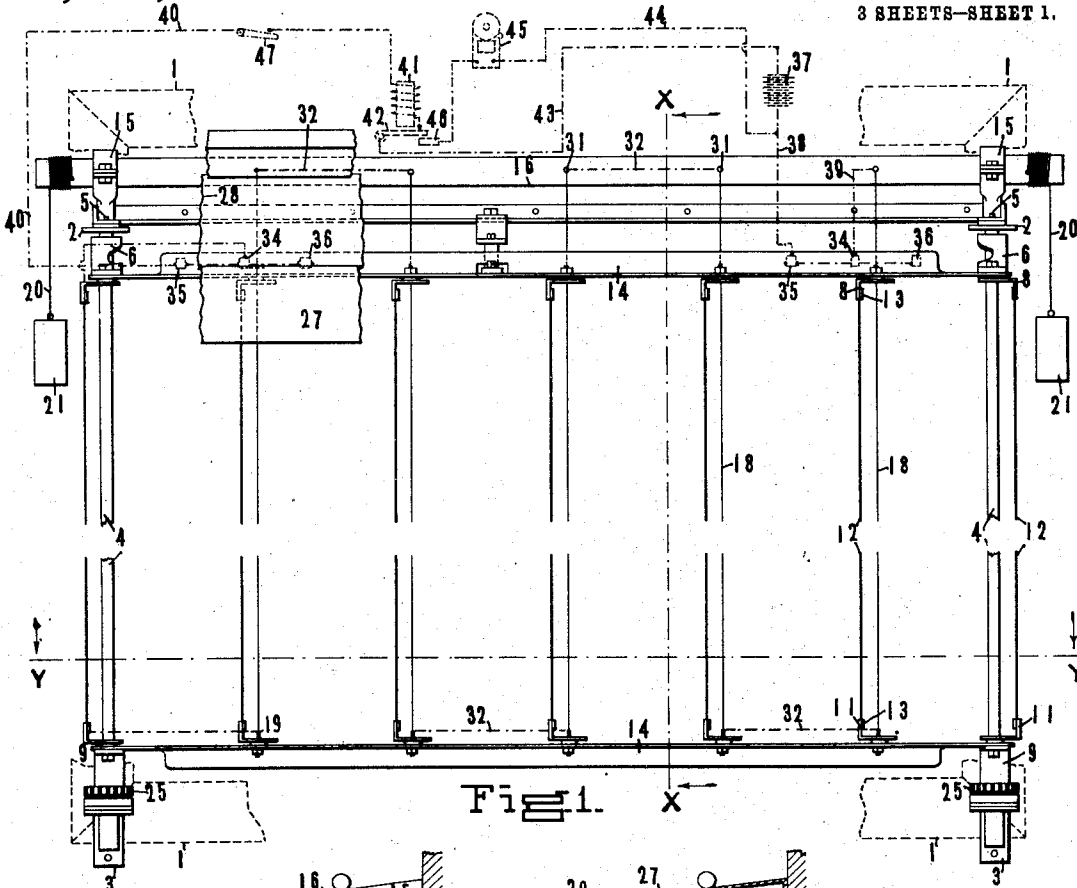


Fig. 1.

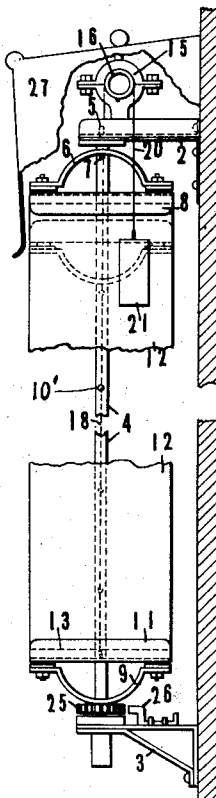


Fig. 2.

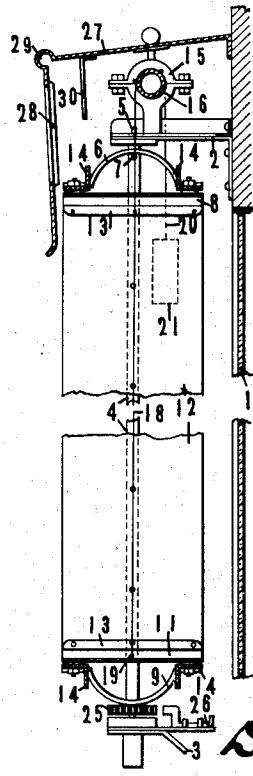


Fig. 3.

WITNESSES
Wm. H. H. H.
Wm. H. H. H.

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3 SHEETS-SHEET 2.

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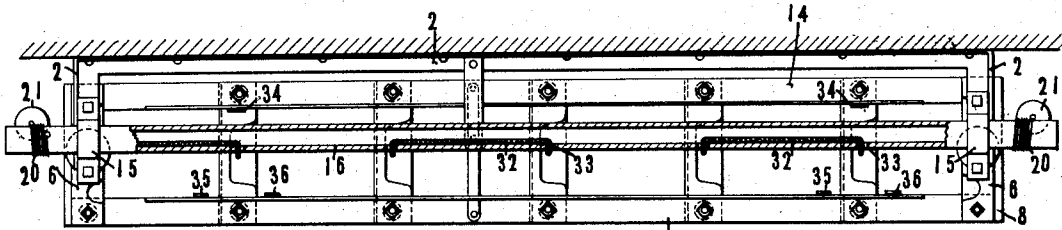


Fig. 4.

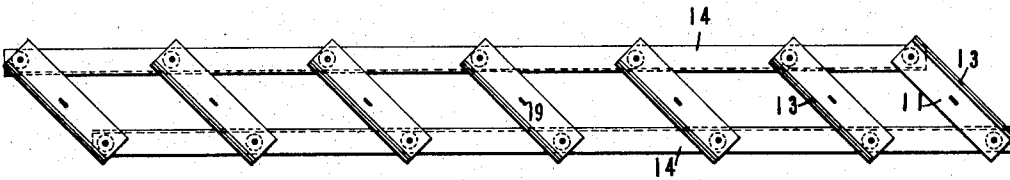


Fig. 5.

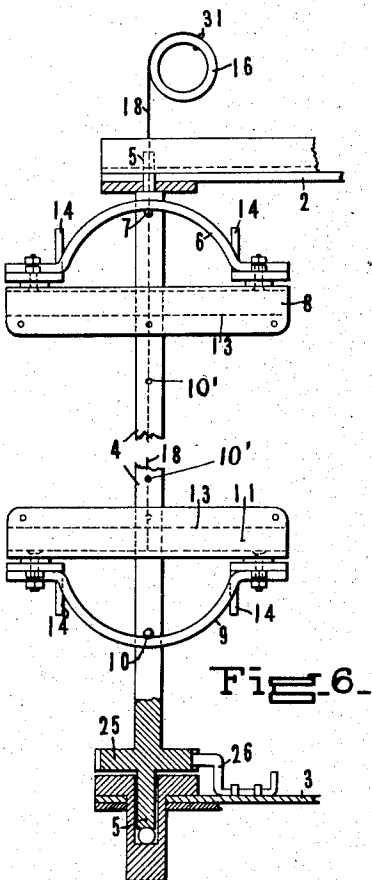


Fig. 6.

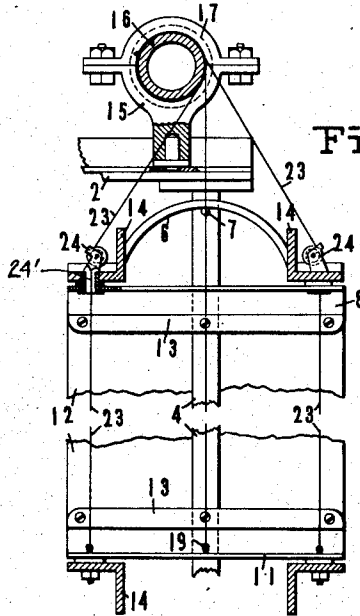


Fig. 7.

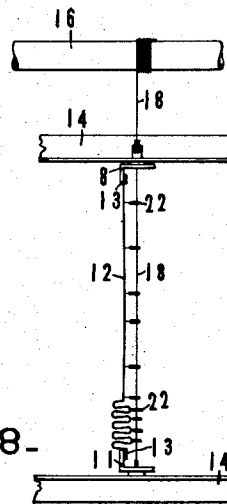


Fig. 8.

WITNESSES

W. H. T. T. T.
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3 SHEETS-SHEET 3.

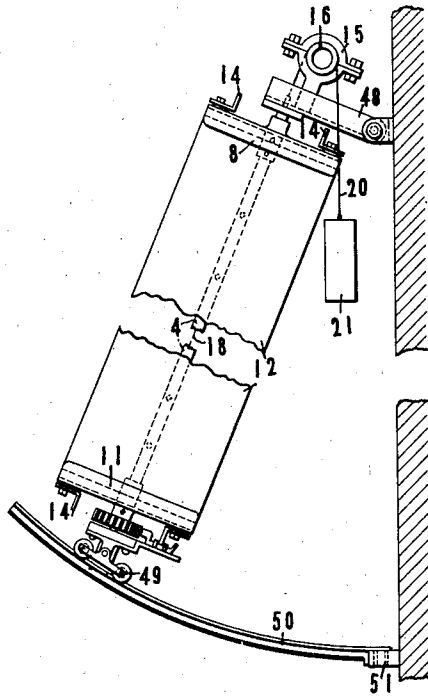


Fig. 9.

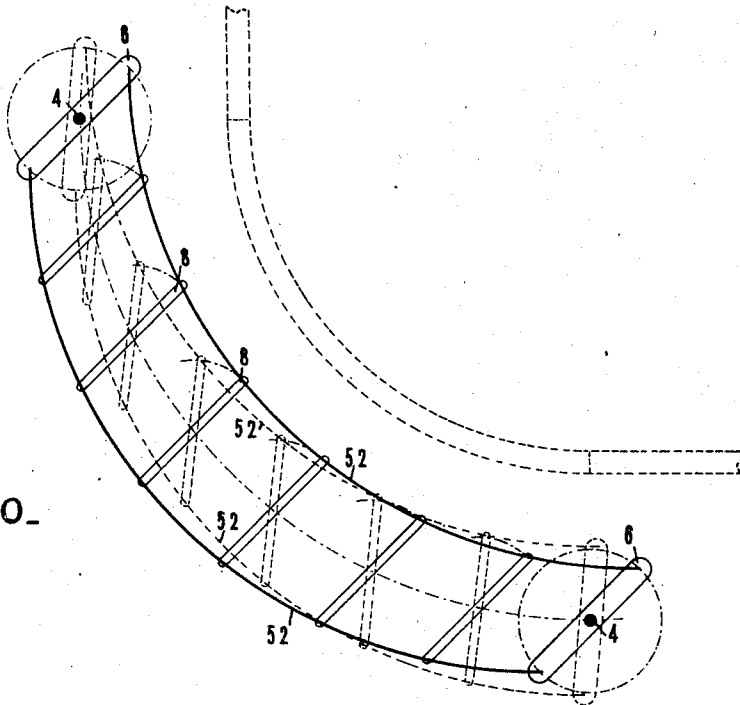


Fig. 10.

WITNESSES

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To all whom it may concern:

Be it known that I, LEOPOLD SIMON, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Screens, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to screens, and with regard to the more specific features thereof, to adjustable screens adapted to be used as awnings.

One of the objects of the present invention is to provide a practical, efficient and easily operated device of the above character.

Another object is to provide a screen which will be simple and compact in construction.

Another object is to provide simple and practical adjusting means therefor.

Another object is to provide a device of the kind described which will have few parts and will be cheap to manufacture.

A further object is to provide an improved device of the above character adapted to shut out the direct light, yet permit the admission of reflected light and fresh air.

Another object is to provide an efficient alarm device.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, wherein are shown several various possible embodiments of the present invention, Figure 1 is an elevational view of one form of screen as applied to a window, with certain parts broken away for the sake of clearness; Fig. 2 is an end view of the device shown in Fig. 1; Fig. 3 is a transverse sectional view taken on the line X—X of Fig. 1; Fig. 4 is a plan view of the device shown in Fig. 1, showing a portion in section; Fig. 5 is a sectional view taken on the line Y—Y of Fig. 1, with the screen members set at a different angle. Fig. 6 is an enlarged end view with certain parts in section, and omitted for clearness. Fig. 7 is an enlarged detail sectional view;

Fig. 8 is a diagrammatic view showing the manner in which the screen members are raised; Fig. 9 is a modification; and Fig. 10 is another modification showing diagrammatically the screen member applied to a curved window.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now to the drawings, particularly Fig. 1, 1 represents the window frame, to the corners of which are secured upper brackets 2 and lower brackets 3. Extending intermediate these brackets vertically are square guiding and supporting members or rods 4 having cylindrical bearing ends 5, provided with ball-bearings if desired as shown in Fig. 6, whereby the same may turn freely on their supports. At the upper part of each of the rods 4 is a curved member 6 supported by a pin 7 (see Fig. 6), to which is secured a clamp, arm, or frame member 8. At the lower part of the rod 4 may be positioned a similarly curved member 9 carrying a lower clamp, arm or frame member 11 and which, as will hereinafter appear, may be held in different positions longitudinally of the guides 4 by pins 10, adapted to enter any of openings 10' in said guides. The lower arms 11 have rectangular openings engaging the rods 4 permitting movement of the arms longitudinally of the guides but preventing said arms and guides from rotating relatively to each other. The upper and lower clamping members 8 and 11, support a strip of flexible screening material, such as canvas or the like, 12, which is secured to each by a metal clamp strip 13 riveted or screwed in place as indicated in Fig. 7. These frame members at opposite sides of the screen are connected in the first modification herein shown by links comprising longitudinal angle bars 14 pivotally secured to the opposite ends of each of the frame members 8 as well as the opposite ends of each of the frame members 11 whereby the screen members move simultaneously in the same direction to permit a lateral or angular adjustment thereof with respect to a vertical plane passing through the screen members, or in other words, the plane of the window or opening to which the screen is applied.

Arranged intermediate the end frames above described and spaced equal distances apart are a plurality of similar supports

thereby forming a row or series of screen members secured to the longitudinal bars 14 whereby they rotate simultaneously and in the same direction as the screen is adjusted.

Each of the links 14 is pivoted to the rotatable guide rods 4 through arms, the upper links being connected to oppositely projecting arms formed by the elements 8, fixed on said rods, and the lower links to oppositely projecting arms formed by the elements 11. The arms 11 have rectangular openings engaging the rods 4, so as to be capable of longitudinal movement on said rods but caused to rotate therewith. Thus each guide rod is provided with pairs of oppositely extending arms movable toward and from each other, and the link connections between similarly disposed arms of each pair form pairs of upper and lower links, the links of each pair moving in opposite directions as the rods 4 are rotated. Preferably certain of the frame members 8 and 11 of each series are so located as to contact the guide rods at the extreme limit of their rotary, or angular, movement, so as to prevent the screen members from completely closing on each other, and hence space is left for the passage of air between the screen members when in their extreme angular position. On each of the end brackets 2, and supported also by the guide rods 4, is a bearing member 15 adapted to support a transverse rotatable winding drum or bar 16. Suitable ball-bearings such as indicated by the dotted lines 17, Fig. 7, may be applied thereto if so desired. At substantially equal intervals along this transverse drum or bar 16 are attached cords 18 which are secured to the lower frame members or supports 11 by eyes 19 or other suitable means (see Fig. 5). Wound about the ends of the bar 16 are cords 20 to which are attached weights 21. When the screen members are not held in lower position by the pins 10, the weights and cords descend thus automatically rotating the drum 16 and winding the cords 18 thereon, and as said cords are attached to the lower frame members the latter will be elevated, thus raising the members by reducing their effective vertical extent. Any desired vertical length of screen members may be secured by means of the pins 10, which may be inserted in any one of the openings 10' arranged at different heights along the guide rods 4.

The screening or awning material 12 of each screen member is folded upon itself in a zig-zag manner, as shown in Fig. 8, when the screen is raised, being guided and held in position by rings 22 surrounding the cords 18. One cord to each screen member is usually sufficient, although three may be used if so desired, as shown in Fig. 7, that is, one intermediate cord member and two outer cords 23, passing over suitable pulleys 24 positioned in the angle iron or longitudi-

nal members 14. The pulleys are supported to rotate in bearings 24' so that as the screens rotate, the pulleys may retain alignment with the cords. Preferably the outer cords are disposed adjacent the edges of the screens, so as to support the screens, preventing undue bulging under the influence of the wind.

Suitable means such as shown in Figs. 1 and 6 are preferably connected to the end screen members, to which the others are connected, for holding the same in adjusted position in windy weather. A simple and convenient form of mechanism comprises a wheel 25 having depressions or teeth on the periphery thereof formed integrally with or mounted upon the rod 4 and adapted to be engaged by a sliding bolt member 26 mounted upon the lower bracket 3 having one end adapted to engage the depressions of the wheel in a well known manner to prevent a rotation thereof.

The upper part of the screen is preferably inclosed within a hood or cover 27, as shown in Fig. 2, in order to protect the mechanism as much as possible from the rain and snow. If desired, this hood may be provided with an opening 28 to display a sign or advertising matter mounted on a translucent backing, which may be illuminated at night by an electric light 29 having its rays reflected on the back of the sign by means of a mirror 30. The hood may be constructed of any suitable material but is preferably made of frosted glass or the like. By providing the screen with a source of electric energy, for example a battery, suitable wiring and a bell or other means for sounding an alarm, a burglar alarm may be provided as shown in dotted lines in Fig. 1.

In the burglar alarm construction shown, the cords 18 of the screen are composed of material adapted to conduct an electrical current, consisting preferably of copper wire suitably insulated and protected by an outer steel casing. These cords may be attached to the rotatable bar 16 in any suitable manner, for example, by the plugs 31, which in this case are insulated. In order that the cords for each screen member may be in electrical circuit with each other suitable connecting cords 32 extend from the upper and lower ends of the adjacent cords. A modification of this connection of the various cords of the screen members (shown in Fig. 4) is provided by passing a continuous cord through a series of apertures 33 in the rotatable bar 16. The cord will pass from one of these apertures through holes in the upper and lower frame bars of the screen member, thence to the lower frame bar of the adjacent screen member, thence through the upper frame bar of this latter screen member to the next aperture in the rotatable bar, and so on through all the

screen members. As shown in Fig. 1, the cords are connected in series. Electrical contact is provided between the upper longitudinal members 14, as shown in Fig. 4, by means of the set of single contact plates 34 attached to either end of one of said members, and the set of contact plates 35 and 36 attached to either end of the other of said members. According to this construction, when the longitudinal member having the set of double contact plates is moved to the right, contact plate 35 will contact with the single contact plate 34 and when the member is moved to the left, contact plate 36 will contact therewith.

A battery 37 connected in series in the circuit is connected to the contact plates 35 and 36 at one end of the longitudinal member by a line 38. These contact plates are insulated from the longitudinal member to which they are attached and are electrically connected to each other. The current flows from either one or the other of said contact plates, according to the position of the longitudinal member to which they are attached, through the contact plate 34, thence by the line 39 through the cords 18 and connecting cords 32, the cords, as shown, being connected in series. After leaving the last cord in the series the current travels through the line 40 and traverses the field of the electro-magnet 41. From there it flows to the switch 42 and thence returns to the battery by the line 43. Connected in parallel with the battery is a bell or alarm circuit which includes a line 44 leading from the battery to a bell 45, and from there to a stationary contact member 46. According to the construction outlined, a slight current controlled by the resistance of the circuit continually passes through the screen circuit, energizing the electro-magnet, which thereby holds the switch in normal position out of contact with the contact member in the bell circuit. A switch 47 may be provided in the screen circuit adapted to disconnect the circuit during the day or at such time as the alarm is not in use.

The operation of the burglar alarm is as follows: The longitudinal members having been moved to rotate the screen members into a position to close the window opening and the contact plates on the upper longitudinal members having been thereby brought together, the screen members are locked in their closed position, as usual, by the bolt 26. The cords in the embodiment shown are sufficiently close together to prevent the body of a man passing therebetween, even if the canvas or other screening material were removed. To effect an entrance it might therefore be necessary to cut one or more of the cords. If this be done the switch 42, which, as noted, is normally held out of contact with the member 46 by the electro-

magnet, will drop into contact with this member, thus completing the bell circuit. The current will then travel from the battery through the line 44, through the bell, through the member 46, through the switch 42 and return to the battery by the line 43. The alarm will be in this way sounded. If, on the other hand, the burglar were aware of the bolt preventing the screen from opening he might slip his hand between the screen members and withdraw the bolt. If this were done, however, and the screen members opened only slightly, contact would be broken between the contact plates on the upper longitudinal members, which, as noted, are in series with the electro-magnet, the switch would drop as before and the bell circuit again completed, whereby the alarm would be sounded.

In the modification shown in Fig. 9 substantially the same form of screen is used as that illustrated in the other figures, except that the upper bracket is in the form of a hinge 48 (see Fig. 9), whereby the screen may be swung bodily away from the window with respect to the horizontal plane, whereby it acts as an awning, giving an unobstructed view up and down the street. The lower part of the screen is preferably provided with a roller member 49 adapted to traverse a curved rod acting as a track 50 detachably connected to a bracket 51 secured to the side of the building. When the screen is swung in against the building, the arm 50 may be detached. If desired this arm may be hinged so that when the screen is swung in, the arm will lie flat against the side of the building. The screen may be held at any desired angle, by any suitable means.

Fig. 10 illustrates a modification of the present invention particularly adapted for curved windows. The general construction and arrangement of the parts are substantially the same as that described in connection with the modification shown in Fig. 1, although the screen members are positioned parallel to each other and normal to the tangent of the curve at its central portion. Each screen frame is connected by one or more curved bars 52 whereby the same may be swung from the position shown in full lines to that shown in dotted lines.

The operation of the present device is substantially as follows:—The screen as a whole is applied to the window frame, as above described, and the bolt 26 is removed from the teeth in the wheel 25. Assuming the screen members to be in their uppermost position, they will be maintained in such position by the weights 21. When it is desired to extend the screen over the window opening the lower frame members may be grasped and pulled downwardly or away from the upper frame members whereupon the screen will be elongated or extended and

the pins 10 having been inserted in one of the openings 10' in each guide 4, the member 9 will serve to restrain contraction of the screens under the influence of the weights 21. Of course, it will be obvious that the screen members may be extended by rotating the drum 16 in a direction to raise the weights 21, whereupon the lower frame members will move down under the influence of gravity. The screen having been extended or contracted and fixed in preferred position, a link 14 may be grasped and moved longitudinally, or, as in the present instance, horizontally in either direction, whereupon the screen members may be simultaneously rotated and disposed at substantially any preferred angle, the angular disposition of the screens being governed by the results desired. The least obscuring results may be obtained by setting the planes of the screens normal to the window opening whereupon both light and air may enter the opening which is thus practically unobstructed. When it is desired to partially shut out the light and at the same time permit the passage of air, the screen members will be set at such an angle that the light passing the edge of one will fall upon the plane of another, the screens in such a position permitting air to pass therebetween so that ventilation is not substantially interfered with.

It will be observed that with the upper and lower frame members connected to the guide bars 4 as described, any horizontal movement of one of the lower members, for instance by one of the links 14, will result in a similar movement of the upper frame member so that although the screen members may be of flexible material, such as canvas, both ends of the screen members are similarly moved in horizontal planes by the manipulation of the screen supporting members. After placing the screen members in the desired position they are preferably locked in place by the bolt 26. As the sun moves around to a different relative position in the course of the day, the screen members may be turned as may be necessary in the manner above described. The modification shown in Fig. 9 is operated in substantially the same manner and is particularly adapted for windows above the street level. It is quite clear that this form of screen may be used as an awning, permitting plenty of light and air to enter the room and also giving an unobstructed view of the street in both directions.

It is to be understood that the screening material used in connection with the screen members may be made of such material that the screen is rendered fire-proof. For example, the screen members may be of steel or other heat resisting material, so that when closed they are adapted to prevent fire

from entering a window or other opening in which the screen may be placed.

It is thus seen that this invention provides for a simple and practical device which will be comparatively cheap to manufacture and easy to install, accomplishing, among others, all the objects and advantages above pointed out.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense. It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a screen, in combination, a plurality of screen members placed in a row, means adapted to adjust the position of said screen members angularly, comprising movable longitudinal members attached to said screen members, said longitudinal members being adapted, when moved, to move said screen members, upright rods placed at opposite ends of said row, each of said rods being provided with a wheel having depressions on the periphery thereof, and a bolt adapted to move into and out of said depressions and thereby retain said row of screen members in a given position after angular adjustment thereof.

2. In a screen, in combination, a plurality of screen members, a support therefor, means adapted to adjust the angular position of said screen members with respect to a vertical plane passing through said support, means adapted to adjust the length of said screen members while permitting the angular adjustment of said screen members, and means adapted to adjust the angular position of said screen members with respect to a horizontal plane passing through said support.

3. In a screen, in combination, a plurality of screen members, a support therefor, means adapted to adjust the angular position of said screen members with respect to a vertical plane passing through said members, means adapted to adjust the length of said members while permitting the angular adjustment of said screen members, and means adapted to adjust the angular position of said screen members with respect to a horizontal plane passing through said support,

comprising a projecting bar, and a device associated with said screen members adapted to hold said members in a given position with respect to said bar.

5 4. In a screen, in combination, a plurality of screen members placed in a row, an upright rod placed at either end of said row, means adapted to adjust said screen members angularly with respect to a vertical plane
10 passing through said members, means adapted to adjust the length of said members while permitting the angular adjustment thereof, and means adapted to adjust the angular position of said screen members with
15 respect to a horizontal plane passing through said members, comprising a projecting bar constituting a track and roller members adapted to move upon said track, said roller members being attached to said upright rods.

20 5. In a screen, in combination, a frame providing a window opening, a plurality of vertically disposed screen members arranged in said opening, means to move said screen members in one direction thereby to adjust
25 their position with respect to the vertical plane of said opening, and means adapted to adjust the angular position of said screen members with respect to the horizontal plane of said opening, comprising a projecting bar, constituting a track, and means adapted to hold
30 said screen members at a given position upon said track.

6. In a screen, in combination, a plurality of screen members arranged in a curved
35 series; the plane of each of said screen members being disposed in parallel relation with respect to the plane of each of the others of said series, the plane of each of said screen members in its normal position being perpendicular to the tangent plane, touching
40 said curve at substantially its middle point, and longitudinal members attached to said screen members, said longitudinal members being adapted, when moved, to rotate said
45 screen members.

7. In a device of the character described, in combination, a screen, means adapted to support said screen, comprising a cord adapted to serve as an electrical conductor,
50 means adapted to adjust the angular position of said screen with respect to a vertical plane passing through said screen, and means adapted to produce an alarm, comprising an electrically actuated device including
55 said cord in circuit, whereby when said screen is opened said means will be actuated.

8. In a screen, in combination, a plurality of screen members, means adapted to adjust the length of said members, comprising a
60 cord attached to each of said screen members, means coacting with said cord adapted to raise said members, said cord being composed of material adapted to conduct an electric current, a source of electrical energy
65 associated with the cords of said members,

and means adapted to produce an alarm whereby when any one of said cords is severed said alarm will be actuated.

9. In a screen, in combination, a plurality of screen members, means adapted to move
70 said members in one direction and thereby adjust the position of said members with respect to a vertical plane passing through said members, said means comprising longitudinal members attached to opposite sides
75 of each of said screen members, contact members attached to one of said longitudinal members, a single contact member attached to the other of said longitudinal members, said single member being adapted
80 to touch and to thereby make electrical contact with one of said other contact members, a source of electrical energy connected in series with said contact members, and means adapted to produce an alarm where-
85 by when contact between said members is interrupted said alarm will be given.

10. In a screen, in combination, a plurality of screen members, means adapted to rotate said members together in the same
90 direction and thereby adjust the position of said members with respect to a vertical plane passing through said members, said means comprising longitudinal members attached to opposite sides of each of said screen mem-
95 bers, contact members attached to one of said longitudinal members, a single contact member attached to the other of said longitudinal members, said single member being adapted to make electrical contact with
100 one or the other of said contact members according to the direction of movement of said longitudinal members, means adapted to adjust the length of said screen members, comprising a cord attached to each of said
105 members and a rotatable rod, each of said cords constituting an electric conductor and each being insulated from said rotatable rod, a source of electrical energy connected in series with the cords of each of said mem-
110 bers and with said contact members, and means adapted to produce an alarm, whereby when the electric circuit is interrupted between said contact members and when
115 any one of said cords is severed, said alarm will be actuated.

11. In a screen, in combination, a plurality of screen members, means adapted to adjust the length of said members, comprising a rotatable rod and cords adapted to
120 raise said screen members, each of said cords constituting an electric conductor, and being connected in series with respect to each other, a battery connected in series with said cords, a bell circuit, an electro-magnet
125 in series with said cords, and an armature associated with said magnet, said armature constituting a switch in said bell circuit whereby when any one of said cords is severed said switch will move to close said bell
130

circuit, whereby said bell will sound an alarm.

12. In a screen, in combination, a plurality of screen members, means adapted to adjust the length of said screen members, comprising a rotatable tube having a series of apertures therein, a continuous cord passing successively from one of said apertures through one of said screen members, thence into said tube, and thence to successive screen members, a battery connected in series with said cord, a bell circuit, an electro-magnet in series with said cord, and an armature adapted to be attracted thereby, said armature constituting a switch in said bell circuit whereby when said cord is severed said armature will move to close said bell circuit to thereby sound an alarm.

13. In a screen, in combination, a plurality of screen members, means adapted to adjust the angular position of said screen members with respect to a vertical plane passing therethrough, means adapted to adjust the length of said screen members, and means adapted to adjust the angular position of said screen members with respect to a horizontal plane passing therethrough, said aforementioned means being adapted to permit any one of the adjustments from any position of said screen members.

14. In a screen, in combination, a plurality of screen members, a support therefor, means adapted to adjust the angular position of said screen members with respect to a vertical plane passing through said support, means adapted to adjust the length of said members while permitting the adjustment of said angular position, means adapted to adjust the angular position of said screen members with respect to a horizontal plane passing through said support, and means adapted to hold said members in a given adjustment.

15. In an apparatus of the character described, in combination, a pair of rotatable supporting members, pairs of links connecting said members, one pair adapted to move toward and from the other, said links being so connected to said members that the links of each pair move in opposite directions as said members rotate, a plurality of extensible screen members extending between the pairs of links, means connecting the screen members to each pair of links, a winding drum, and a cord connecting said drum and the movable pair of links.

16. In an apparatus of the character described, in combination, a pair of rotatable guide rods spaced apart, a link pivotally connected to each rod, a second link pivotally connected to each rod and movable toward and from the first link, a plurality of screen members pivotally connected to each link, a winding drum supported by said guide rods, a cord attached to said drum

and connected to said second link, and automatic means adapted to rotate said drum and thereby wind said cord thereon.

17. In an apparatus of the character described, in combination, a pair of parallel rotatable rods spaced apart, each rod having arms oppositely extending therefrom and stationary relative thereto, arms oppositely extending therefrom and movable longitudinally thereof, the latter arms being non-rotatable relative to said rods, links connecting said arms forming pairs of parallel links, one pair movable toward and from the other pair, screen member supports pivotally connected to the links of each pair, a winding drum, cords attached to said drum and to said screen member supports, and means adapted to automatically rotate the drum in a direction to move one pair of links toward the other pair.

18. In an apparatus of the character described, in combination, a pair of rotatable guide rods rectangular in cross-section spaced apart, a link pivotally connected to each rod, movable arms having rectangular openings engaging said guide rods, a second link pivotally connected to each arm and movable toward and from the first link, a plurality of screen supports pivotally connected to each link, a winding drum, cords attached to said drum and connected to the screen supports of said second link, automatic means to rotate said drum and thereby move said second link toward the first, and means carried by the guide rods adapted to secure the second link in the position to which it may be moved.

19. In an apparatus of the character described, in combination, a pair of rotatable supporting members, pairs of links connecting said members, one pair adapted to move toward and from the other, said links being so connected to said members that the links of each pair move in opposite directions as the members rotate, a plurality of screen members extending between the pairs of links, and means connecting the screen members to each pair of links.

20. In an apparatus of the character described, in combination, a pair of parallel rotatable rods, each rod having pairs of arms, one pair of arms movable toward and from the other, links pivotally connecting said arms forming pairs of links, a plurality of screen members extending between the pairs of links, and means pivotally connecting the screen members to the links of each pair.

21. In an apparatus of the character described, in combination, a pair of parallel rotatable guide rods, each rod having pairs of oppositely extending arms, one pair of arms movable toward and from the other, means whereby said arms rotate with said rods, links pivotally connecting said arms

forming pairs of links, a plurality of screen members extending between the pairs of links, and means pivotally connecting the screen members to the links of each pair.

5 22. In an apparatus of the character described, in combination, a pair of parallel rotatable guide rods, each rod having a pair of arms fixed therewith, said arms extending in opposite directions, a pair of arms movable longitudinally thereof, mounted to rotate therewith, extending in opposite directions, links connecting said arms forming pairs of links, a plurality of screen members extending between the pairs of links, and means pivotally connecting the screen members to the links of each pair.

23. In an apparatus of the character described, in combination, a pair of parallel rotatable guide rods, rectangular in cross section, each rod having a pair of arms fixed therewith, said arms extending in opposite directions, and a pair of arms provided with a rectangular opening engaging said rod and movable longitudinally thereof, links connecting said arms forming pairs of links, a plurality of screen members extending between the pairs of links, and means pivotally connecting the screen members to the links of each pair.

30 24. In an apparatus of the character described, in combination, a pair of parallel rotatable rods, pairs of links connecting said rods, one pair adapted to move toward and from the other, said links being so connected to said rods that the links of each pair move in opposite directions as the rods are rotated, and screen supporting members pivotally connecting the links of each pair.

40 25. In an apparatus of the character described, in combination, a pair of parallel rotatable rods, pairs of links connecting said rods, one pair adapted to move toward and from the other, said links being so connected to said rods that the links of each pair move in opposite directions as the rods are rotated, screen supporting members pivotally connecting the links of each pair, and flexible screens connected to the screen supporting members and extending between the pairs of links.

50 26. In an apparatus of the character described, in combination, a pair of parallel rotatable rods, pairs of links connecting said rods, one pair adapted to move toward and from the other, said links being so connected to said rods that the links of each pair move in opposite directions as the rods are rotated, screen supporting members pivotally

connecting the links of each pair, flexible screens connected to the screen supporting members and extending between the pairs of links, a rotary drum, and cords attached to said drum and to the movable pair of links, said cords being disposed to support the screens adjacent their edges.

65 27. In an apparatus of the character described, in combination, a pair of parallel rotatable rods, pairs of links connecting said rods, one pair adapted to move toward and from the other, said links being so connected to said rods that the links of each pair move in opposite directions as the rods are rotated, screens supporting members pivotally connecting the links of each pair, flexible screens connected to the screen supporting members and extending between the pairs of links, a rotary drum, cords attached to said drum and to the movable pair of links, said cords being disposed to support the screens adjacent their edges, and rotatable rollers carried by the other pair of links adapted to guide said cords.

80 28. In an apparatus of the character described, in combination, a pair of rotatable supporting members, pairs of links connecting said members, one pair adapted to move toward and from the other, said links being so connected to said members that the links of each pair move in opposite directions as the members rotate, a plurality of screen members extending between the pairs of links, means connecting the screen members to each pair whereby they are rotated as the links move, and means whereby space is left between the screen members at the limit of their rotary movement in either direction.

95 29. In an apparatus of the character described, in combination, a pair of parallel rotatable rods, pairs of links connecting said rods, one pair adapted to move toward and from the other, said links being so connected to said rods that the links of each pair move in opposite directions as the rods rotate, a plurality of screen supporting members pivotally connecting the links of each pair, and screens attached to said supporting members between the pairs of links, said rods being disposed in the path of movement of certain of said supporting members.

In testimony whereof I affix my signature, in the presence of two witnesses.

LEOPOLD SIMON.

Witnesses:

J. THOMSON,
L. A. WATSON.