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A. S. WISNER ET AL

2,616,498

WINDOW SCREEN WITH ADJUSTABLE LOUVER

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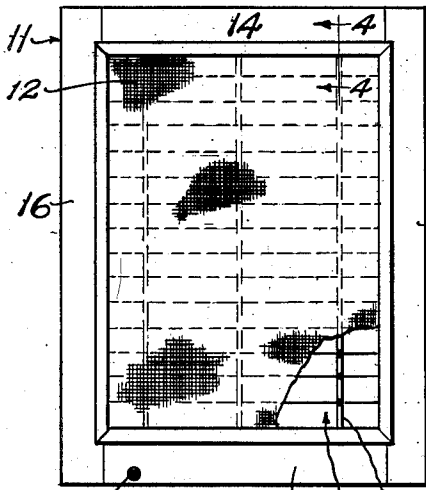


Fig. 1

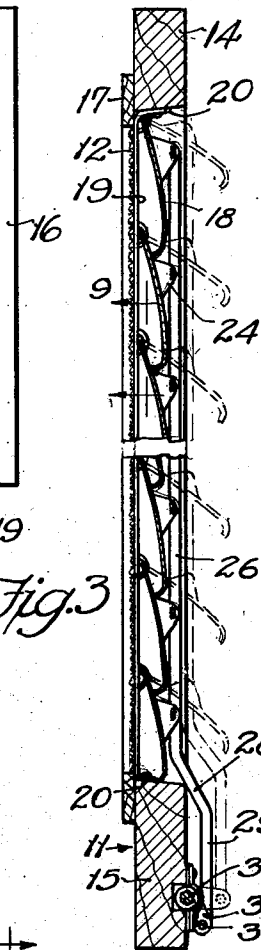


Fig. 3

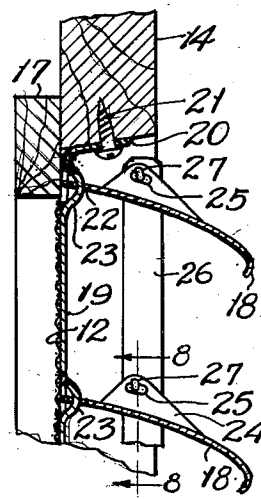


Fig. 4

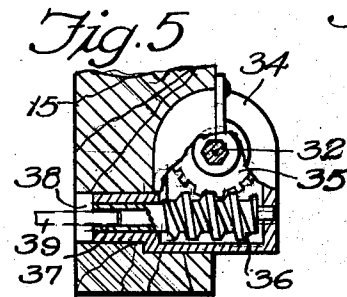


Fig. 5

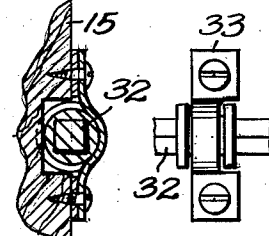


Fig. 6 Fig. 7

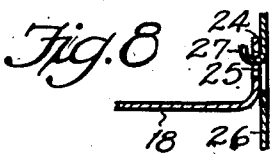
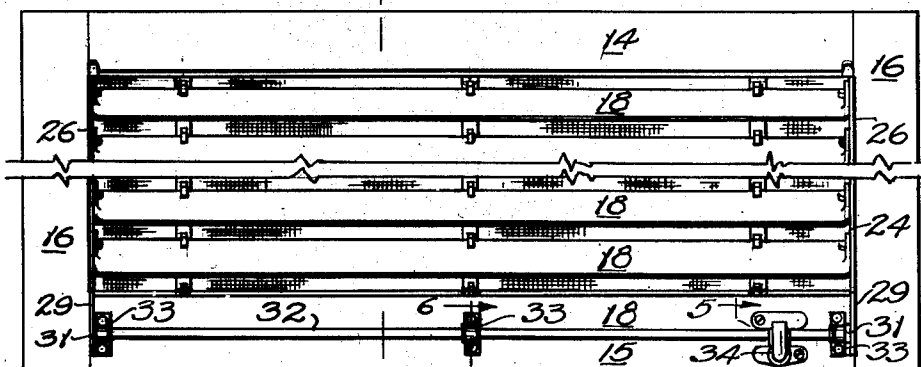


Fig. 8

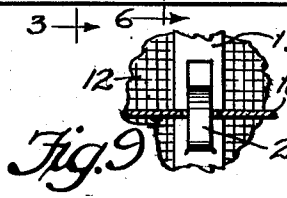


Fig. 9

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WINDOW SCREEN WITH ADJUSTABLE
LOUVERArthur Seth Wisner and Clarence Raymond
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2 Claims. (Cl. 160—104)

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This invention relates to a window screen having outside louvers of the Venetian blind type, adjustable from closed positions completely closing a window opening to open positions providing ventilation through the screen, and, at the same time, functioning to exclude rain. Such devices are in some cases called outside blinds and in other cases louver screens. The general object of the present invention is to provide, in a device of this class, a relatively simple and inexpensive construction and arrangement for pivotally mounting the Venetian blind louvers with their upper edges pivoting on parallel horizontal axes located at the plane of the screen. In prior devices of this general class, it has been proposed to attach the louvers directly to the woven mesh of the screen, and in some instances to pivot them at their ends. Pivotal attachment of the louvers directly to the screen has the advantage of mutual support and reinforcement between screen and louvers, but has the disadvantage of being difficult and expensive to fabricate. One of the specific objects of the present invention is to provide a louver screen having the advantages of direct attachment of the louvers to the screen, insofar as adequate pivotal support for the louvers is concerned, without incurring the attendant disadvantage of difficult and costly fabrication. To this end, the invention provides an arrangement in which the louvers are pivotally attached to metal supporting straps lying flatly against the screen, pivotal attachment being provided by a series of tongues struck upwardly from the supporting straps and passed through slots in the upper edge portions of the louvers.

Another object is to provide a relatively simple arrangement for adjusting the louvers between open and closed positions. In this respect, the invention provides a series of sheet metal louvers each having an ear at one or both ends thereof, the ears being bent at right angles to the longitudinal axes of louvers, being slotted, and receiving tongues struck upwardly from an operating bar interposed between the respective ears and the side member or members of the frame in which the screen and louvers are mounted.

Other objects will become apparent in the ensuing specifications and appended drawings in which:

Fig. 1 is a face view of the screen side of a louver screen embodying my invention;

Fig. 2 is a face view of the outer side of the same, only the upper and lower portions thereof being illustrated;

Fig. 3 is a vertical sectional view of the same taken on the line 3—3 of Fig. 2;

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Fig. 4 is a detail vertical sectional view thereof taken on the line 4—4 of Fig. 1;

Fig. 5 is a detail sectional view of the same taken on line 5—5 of Fig. 2;

Fig. 6 is a detail sectional view taken on the line 6—6 of Fig. 2;

Fig. 7 is a front view of the detail shown in Fig. 6;

Fig. 8 is a detail sectional view taken on the line 8—8 of Fig. 4; and

Fig. 9 is a detail sectional view taken on the line 9—9 of Fig. 3.

As an example of one form in which the invention may be embodied, we have shown in the drawings a louver screen or outside blind embodying a frame 11, a screen 12 mounted in frame 11, and a Venetian blind type louver assembly, indicated generally at 13, also mounted in frame 11.

Frame 11 includes top and bottom members 14 and 15 respectively, and side members 16. Screen 12, which may be of woven wire or woven plastic fabric, may be mounted in frame 11 in a conventional manner by having its marginal portions secured between frame members 14, 15, 16 and a binding frame 17, fastened to members 14, 15 and 16.

Blind assembly 13 comprises a series of louvers 18 of sheet metal, conventionally bowed in transverse section to impart stiffness thereto, and a series of mounting straps 19 to which the upper edge portions of louvers 18 are pivotally attached. Mounting straps 19 extend vertically, parallel to and spaced equidistantly between side members 16. The respective ends are bent to form ears 20 which lie flatly against the inner edges of upper and lower members 14, 15 and are secured thereto as by means of screw 21 (Fig. 4). Hinged connections between louvers 18 and mounting straps 19 are formed by slots 22 in the upper marginal portions of louvers 18, and tongues 23 struck upwardly from straps 19 and hooked through the slots 22. Tongues 23 are shaped to form half loops projecting forwardly from mounting straps 19 to provide spaces to receive the marginal web portions of louvers 18.

The respective ends of each louver 18 have integral ears 24 bent at right angles to the longitudinal axis of the louver, and provided with slots 25. An actuator bar 26 of strap metal has a series of tongues 27 struck therefrom, passed through the respective slots 25 and bent upwardly so as to embrace the ears 24 between them and the operating rod 26. Thus the operating rods 26 are pivotally attached to ears 24 for transmitting vertical swinging movement to the louvers 18.

The lower ends of operating rods 26 are offset

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outwardly, as at 28 and are thence extended downwardly as at 29, lower end portions 29 being pivotally connected, by pivots 30, to a pair of actuator arms 31. Arms 31 are secured to the respective ends of an operating shaft 32 which is journaled in bearing 33 and, at one end, in a gear unit 34. Gear unit 34 includes a casing, a gear 35 therein, secured to shaft 32, and a worm 36 meshing with gear 35, worm 36 having a socket 37 which extends through an opening 38 in lower frame member 15 and which may be actuated from inside the window by a suitable actuator crank a portion of which is indicated at 39. Gear unit 34 is of conventional construction and its specific details form no part of the present invention.

Rotation of worm 36 will impart swinging movement to arms 31 to raise or lower actuator rods 26, opening or closing louvers 18. The closed positions of louvers 18 are shown in full lines in Fig. 3 and the open positions, in dotted lines. The open positions are shown in full lines in Fig. 4.

Our improved louver screen can be mounted as a unit in the conventional window frame, in place of a conventional screen. The louvers will be positioned on the outside of the window and the screen will face the inside. Crank socket 37 also faces the inside so that the blind may be opened and closed from inside a building.

We claim:

1. In a louver screen structure, an open frame including top and bottom and side members defining a rectangular ventilating opening adapted to be covered by a screen attached to one face of said frame; a plurality of sheet metal louvers each having a plurality of aligned slots adjacent its inner edge; a plurality of support bars of flat ribbon metal each secured at its respective end to said top and bottom members respectively and extending in laterally spaced relation to each other and to said side members across said opening from top to bottom thereof in a common plane lying adjacent said one face of the frame, whereby said bars may lie in contact with said screen; said bars having upstruck tabs hooked through the respective slots of said louvers to hingedly attach said louvers to said bars for movement between (a) closed positions in which they extend downwardly from their respective hinge axes, with each louver outwardly overlapping the louver below it, and (b) open positions projecting outwardly from said hinge axes; each of said louvers having at least one end thereof pro-

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vided with an integral ear bent at right angles to its longitudinal axis, said ears being disposed in spaced parallel relation to an adjacent side member of said frame; and an operating rod disposed in the space between said ears and the last mentioned side member and pivotally connected to the respective ears at points intermediate the respective louver hinge axes and the outer edges of the respective louvers, whereby upward movement of said operating rod will transmit upward swinging movement of the respective louvers, said ears being relatively short so that said rod will be disposed, along with said louvers, in the space framed by said frame and embraced between the planes of the inner and outer faces of said frame respectively, said operating rod having a lower end portion offset outwardly from the body portion thereof at the upper side of said bottom frame member and extending downwardly adjacent the outer face of said bottom member, an operating shaft disposed substantially in the plane of the outer face of said bottom member and journaled therein, a crank arm secured to said shaft and extending therefrom in a direction substantially parallel to the direction of orientation of the respective pivotal connections between said operating rod and the louvers, from the respective louver axes, and means for transmitting rotation to said shaft to shift said operating rod vertically and thereby move said louvers between said open and closed positions.

2. A screen structure as defined in claim 1, wherein said support bars each have their upper and lower ends bent substantially at right angles to their intermediate portions and secured to the inner faces of the top and bottom frame members respectively.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,544,326	Lelansky	June 30, 1925
2,110,145	Loehr	Mar. 8, 1938
2,301,150	Sienicki	Nov. 3, 1942
2,359,289	Brown	Oct. 3, 1944
2,422,704	Russell	June 24, 1947