Aug. 19, 1958 A. E. ZINGONE 2,847,729

ADJUSTABLE LOUVER UNIT

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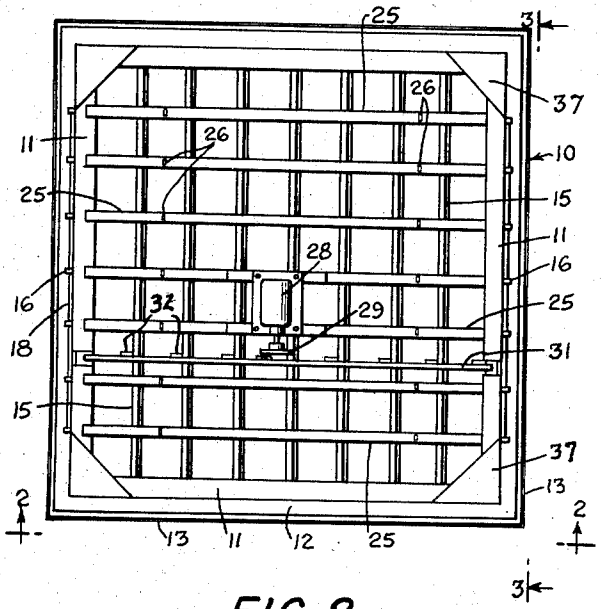


FIG. 1

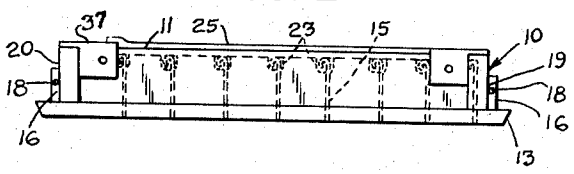


FIG. 2

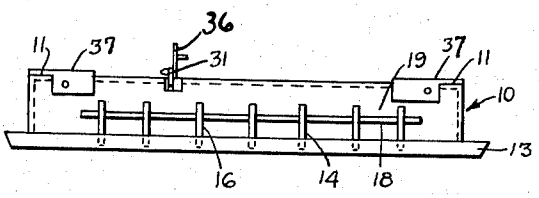


FIG. 8

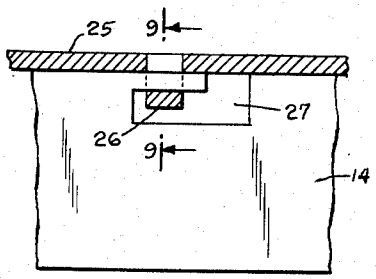


FIG. 9

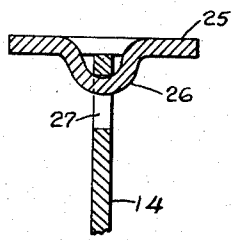


FIG. 3

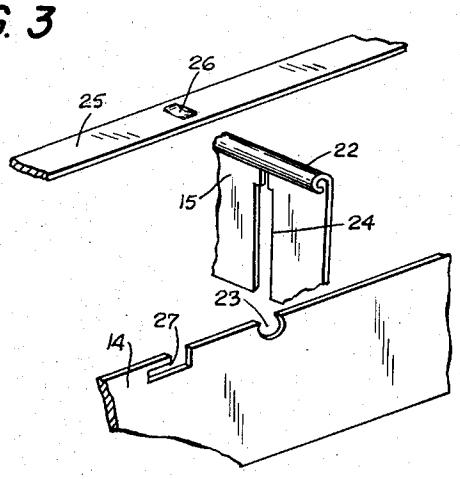


FIG. 7

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FIG. 4

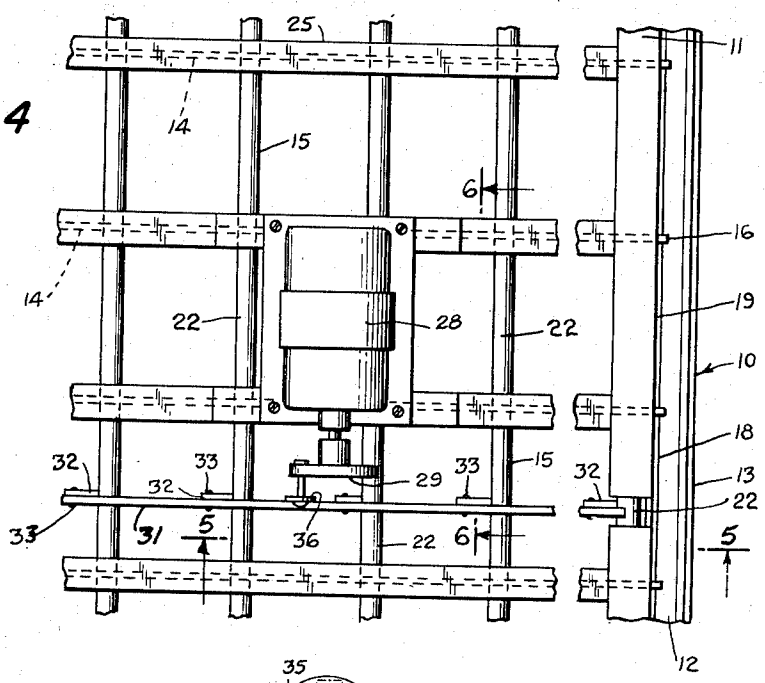
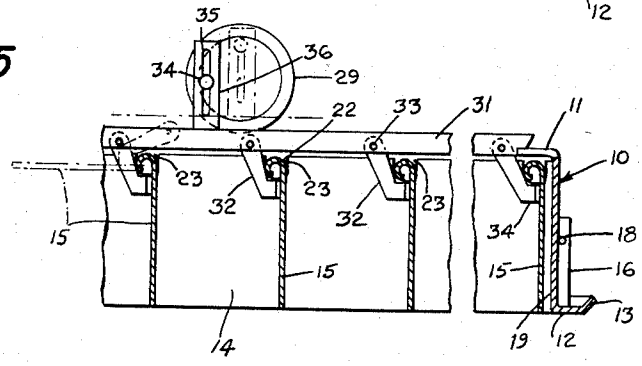


FIG. 5



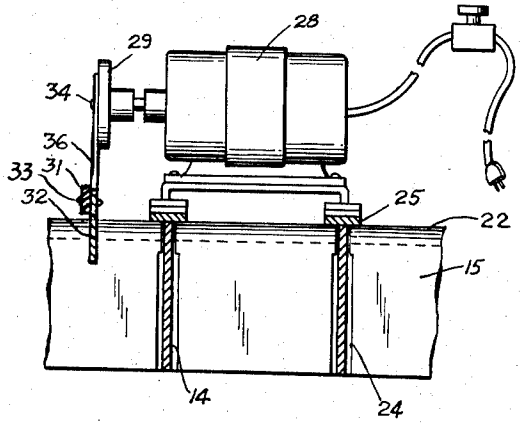


FIG. 6

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ADJUSTABLE LOUVER UNIT

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Application July 1, 1957, Serial No. 669,042

5 Claims. (Cl. 20—62)

This invention relates to an adjustable louver construction for skylights and the like.

An object of the invention is to provide a louver unit for controlling the transmission of light rays into a room from a source of light such as through a skylight in the roof of a building.

Another object of the invention is to provide a louver unit arranged in adjacent relation to a skylight and with power means for swinging one of the sets of plates of the louver unit to any desired position for varying the area of the openings through the louver unit.

Another object of the invention is the provision of electrically actuated means having a rotatable disk for moving one of the sets of louver plates to open and closed relation by turning movement of the disk in one direction.

Still another object of the invention is to provide an improved construction of louver unit and arrangement and manner of assembly of the parts thereof.

With the foregoing and other objects in view, reference is now made to the following specification and accompanying drawings in which the preferred embodiment of the invention is illustrated.

In the drawings:

Fig. 1 is a top plan view of a louver unit constructed in accordance with the invention.

Fig. 2 is a side view thereof taken on line 2—2 of Fig. 1.

Fig. 3 is a side view taken on line 3—3 of Fig. 1.

Fig. 4 is an enlarged top plan view of a fragmentary portion of the unit.

Fig. 5 is a fragmentary sectional view taken approximately on line 5—5 of Fig. 4.

Fig. 6 is a fragmentary sectional view taken approximately on line 6—6 of Fig. 4.

Fig. 7 is a fragmentary perspective view of parts of the louver unit shown in separated juxtaposition.

Fig. 8 is a side view of the parts shown in Fig. 7 in assembled relation.

Fig. 9 is a sectional view taken approximately on line 9—9 of Fig. 8.

The louver unit is arranged in the ceiling of a room below a skylight for shutting off, opening up and controlling the amount of light rays entering the room from the skylight. The louver unit is of rectangular formation in plan and includes a peripheral frame **10** having an inwardly directed top flange **11** and an outwardly directed bottom flange **12** provided with an upwardly inclined lip **13**. Arranged within the peripheral frame **10** are a plurality of parallel plates **14** which are intersected by a plurality of transversely extending parallel plates **15** so as to provide a plurality of rows of cells opening through the top and bottom of the unit.

The plates **14** extend from one side to the other of the peripheral frame **10** and are formed with reduced ends **16** which project through vertical slots in side walls **19** and **20** of the frame. The projecting ends **16** are supported upon the flanges **12** and rods **18** extend through

aligned apertures in the said ends for securing the plates **14** in assembled relation with the frame.

The plates **15** are mounted for swinging movement from a vertical relation in which the louver unit is open for the passage of light rays therethrough to a horizontal relation in which the louver unit is closed. For this purpose the plates **15** are formed into arcuately curved upper ends **22** which fit correspondingly shaped recesses **23** in the upper edges of the plates **14** at the points of intersections of the plates **14** and **15**. The plates **15** are formed with slots **24** extending from the lower edges thereof to the arcuately curved upper ends **22** so as to slideably interfit with the plates **14** at the points of intersections therewith. This construction provides means by which the plates **15** have swinging movement with reference to the plates **14** about the arcuate upper ends as the centers thereof. The plates **15** are retained in assembled relation with the plates **14** by means of metallic straps **25** corresponding in number to the number of plates **14** and which overlie the upper edges thereof and are cut and punched to provide longitudinally spaced depressed looped portions **26** which slideably engage in slots **27** formed in the upper edges of the plates **14** for securing the plates **14** and **15** in assembled relation. The metal straps **25** extend from side to side of the louver unit and at their ends overlie the inwardly directed flanges **11** of the peripheral frame **10**.

The plates **15** are swung in unison on their pivotal connections with the plates **14** by means of an electric motor **28** which is fixedly mounted on the top of the louver unit centrally thereof and is provided with a disk **29** affixed to the motor drive shaft. The disk **29** is operatively connected with the plates **15** for swinging the plates to closed relation by a partial rotation of said disk and for swinging the plates to open relation by a partial rotation of said disk, the rotation of the disk for swinging the plate to open and closed relation requiring a single rotation thereof in a clockwise direction as viewed from in front of the disk.

The disk **29** is operatively connected with the plates **15** by means of a reciprocatory bar **31** which overlies the upper ends of said plates and is connected therewith by means of levers **32** pivoted at their upper ends to said bar on pivot pins **33**. The levers **32** are of angulated formation with the ends **34** thereof secured to side faces of said plates below their curved upper ends **22**. The bar **31** is connected with the disk **29** by a headed pin **34** slideable in a vertical slot **35** in an upstanding arm **36** affixed at its lower end to said bar. The pin **34** projects outwardly from the disk **29** adjacent its periphery whereby rotation of the disk in a clockwise direction will effect movement of the bar **31** to the right with the movement of the pin **34** through an arc at the top of the disk and will effect movement of the bar **31** to the left with the movement of the pin **34** through an arc at the bottom of the disk. With the movement of the bar **31** to the right, the same will be elevated to the broken line position shown in Fig. 5 of the drawings. It will be understood that movement of the bar **31** to the right will rock the plates **15** about their curved upper ends **22** as the centers thereof to effect swinging of the plates into closed relation as shown in broken line in Fig. 5 of the drawings and movement of the bar **31** to the left will rock the plates **15** about their curved upper ends as the centers to effect swinging of the plates to the full line open relation shown in Fig. 5 of the drawings.

In addition to serving as means for connecting the plates **14** and **15** in assembled relation, the straps **25** extend beyond the side edges of the slots **24** for closing off said slots when the plates **15** are in closed relation to thereby prevent light entering through said slots.

The lower ends of the plates **15** overlap the curved upper ends of the adjacent plates respectively when in closed relation so as to prevent light entering through the unit between adjacent plates.

The frame **10** is reinforced at the top thereof by corner members **37** which are riveted or otherwise secured to the side walls thereof and extend over the flanges 11.

While the preferred form of the invention has been shown and described herein, it is to be understood that the same is not so limited but shall cover and include any and all modifications thereof which fall within the purview of the invention.

What is claimed is:

1. In an adjustable louver unit for a skylight, a peripheral frame having an inwardly directed top flange and an outwardly directed bottom flange, a plurality of spaced parallel fixed plates arranged within the peripheral frame and having end portions projecting through slots in opposite sides of said frame, a rod extending through openings in the projecting ends of said plates at each of said opposite sides of the frame fixedly securing said plates to said frame, a plurality of spaced parallel movable plates arranged within the peripheral frame and extending transversely of and intersecting the fixed plates to thereby provide a plurality of rows of cells opening through the top and bottom of the unit, said movable plates having vertical slots for slideably interfitting with the fixed plates at the poitns of intersections therewith, straps overlying the upper edges of said fixed plates, said straps and said fixed plates having interengageable means securing the same together and securing said fixed and movable plates in assembled relation, means swingably connecting said movable plates with said fixed plates for movement of said movable plates for opening up and closing off said cells, a bar mounted for reciprocatory movement on said unit, and links secured to said movable plates and pivotally connected with said bar for moving said movable plates in unison.

2. In an adjustable louver unit for a skylight, a peripheral frame having an inwardly directed top flange and an outwardly directed bottom flange, a plurality of spaced parallel fixed plates arranged within the peripheral frame and under said top flange at the ends thereof and having end portions projecting through slots in opposite sides of said frame with said end portions supported upon said bottom flange, a rod extending through openings in the projecting ends of said plates at each of said opposite sides of the frame fixedly securing said plates to said frame, a plurality of spaced parallel movable plates arranged within the peripheral frame and extending transversely of and intersecting the fixed plates to thereby provide a plurality of rows of cells opening through the top and bottom of the unit, said movable plates having vertical slots for slideably interfitting with the fixed plates at the points of intersections therewith, straps overlying the upper edges of said fixed plates, said straps and said fixed plates having interengageable means securing the same together and securing said fixed and movable plates in assembled relation, means swingably connecting said movable plates with said fixed plates for movement of said movable plates for opening up and closing off said cells, a bar mounted for reciprocatory movement on said unit, and links secured to said movable plates and pivotally connected with said bar for moving said movable plates in unison.

3. In an adjustable louver unit, a peripheral frame, a plurality of spaced parallel fixed plates arranged within and secured to the peripheral frame, a plurality of spaced parallel movable plates arranged within the peripheral frame and extending transversely of and intersecting the fixed plates thereby provide a plurality of rows of cells opening through the top and bottom of the unit, said movable plates having vertical slots for slideably interfitting with the fixed plates at the points of intersections therewith, straps overlying the upper edges of said fixed plates, said straps and said fixed plates having interengageable means securing the same together and securing said fixed and movable plates in assembled relation, means swingably connecting said movable plates with said fixed plates for movement of said movable plates for opening up and closing off said cells, and said straps extending beyond the edges of said slots for closing off said slots when said movable plates are in closed relation to thereby prevent light entering through said slots.

4. In an adjustable louver unit, a peripheral frame, a plurality of spaced fixed parallel plates arranged within and secured to the peripheral frame, a plurality of spaced parallel movable plates arranged within the peripheral frame and extending transversely of and intersecting the first mentioned plates to thereby provide a plurality of rows of cells opening through the top and bottom of the unit, said movable plates having vertical slots for slideably interfitting with the fixed plates at the points of intersections therewith, means swingably connecting said movable plates with said fixed plates for movement of said movable plates for opening up and closing off said cells, a bar mounted for reciprocatory movement, links secured to said movable plates and pivotally connected with said bar for swinging said movable plates in unison, an upstanding bar affixed to said last mentioned bar, an electrically driven disk mounted for rotation above said unit, and said disk and said last mentioned bar having pin and slot connection for moving said movable plates to closed relation by partial rotation of said disk and for moving said plates to open relation by partial rotation of said disk.

5. In an adjustable louver unit for a skylight, a peripheral frame having an inwardly directed top flange and an outwardly directed bottom flange, a plurality of spaced parallel fixed plates arranged within the peripheral frame and under said top flange at the ends thereof and having end portions projecting through slots in opposite sides of said frame with said end portions supported upon said bottom flange, a rod extending through openings in the projecting ends of said plates at each of said opposite sides of the frame fixedly securing said plates to said frame, a plurality of spaced parallel movable plates arranged within the peripheral frame and extending transversely of and intersecting the fixed plates to thereby provide a plurality of rows of cells opening through the top and bottom of the unit, said movable plates having vertical slots for slideably interfitting with the fixed plates at the points of intersections therewith, straps overlying the upper edges of said fixed plates, said straps and said fixed plates having interengagable means securing the same together and securing said fixed and movable plates in assembled relation, means swingably connecting said movable plates with said fixed plates for movement of said movable plates for opening up and closing off said cells, a bar mounted for reciprocatory movement on said unit, links secured to said movable plates and pivotally connected with said bar for moving said movable plates in unison, an upstanding bar affixed to said last mentioned bar, an electrically driven disk mounted for rotation above said unit, and said disk and said last mentioned bar having pin and slot connection for moving said movable plates to closed relation by partial rotation of said disk and for moving said plates to open relation by partial rotation of said disk.

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