

# PATENT SPECIFICATION

DRAWINGS ATTACHED

860,472

Date of Application and filing Complete

Specification: June 27, 1958.

No. 20712/58.

Complete Specification Published: Feb. 8, 1961.



Index at acceptance:—Class 137, A2C1.

International Classification:—F24f.

## COMPLETE SPECIFICATION

### Improvements in and relating to Adjustable Shutters or Louvres

I, WILLIAM HENRY TAYLOR, of 29, Crescent Flats, Meyer Road, Singapore, a British subject, do hereby declare the invention, for which I pray that a patent may be granted 5 to me, and the method by which it is to be performed, to be particularly described, in and by the following statement:—

This Invention relates to adjustable shutters or louvres operable in unison such as are 10 employed to regulate the amount of air or light required in a room or building, but is applicable to shutters for other purposes.

It is an object of the invention to provide improved operating means for such shutters 15 or louvres which is of relatively simple construction and is adapted for economical manufacture. It is a further object of the invention to provide such operating means with a simple and effective form of locking 20 mechanism.

According to the invention an operating means for adjustable shutters or louvres comprises a displaceable operating member of flat bar shape provided with spaced pairs 25 of projections corresponding to the louvres or shutters, each of the pivotally mounted louvres or shutters having attached thereto a lever formed with a cam-shaped head which is engaged between the corresponding 30 pairs of projections, and means for actuating said member for adjustment purposes. In a preferred construction the projections are formed by lugs pressed out from the material of the operating member.

35 In a preferred arrangement according to the invention the operating member or bar is located between a side of a jamb or frame member, on which the shutters or louvres are pivoted, and cam levers attached to the 40 said shutters or louvres.

The invention also comprises locking means for an operating handle engaged with the operating member.

In the accompanying drawings which 45 illustrate one embodiment of the invention,

[Price 3/6]

Fig. 1 is a side elevation partly in section of an adjustable louvre shutter assembly, showing the shutters in open, half closed, and closed positions;

Fig. 2 is a front elevation of part of the 50 assembly of Fig. 1;

Fig. 3 is a plan view partly in section of the assembly of Fig. 1;

Fig. 4 is a plan view partly in section of a 55 cam lever.

In carrying the invention into effect according to one convenient mode as illustrated, the louvre or shutter assembly comprises a pair of vertical jambs or side frame members 1 preferably formed from suitable 60 metal and at least one of said jambs having a channel cross section as seen in Fig. 3. The jambs are secured at opposite sides of the window or other opening which is desired to control. The louvres or shutters 65 extend horizontally over the full width of the opening and comprise strips 2 of glass or other suitable material which are supported at their ends in channel shaped metal louvre clips 3. These clips are cut away as at 4 70 and have end flanges 5 for securing the louvre strips in position. Any desired number of louvres may be provided and they are pivotally mounted in the jambs for movement between open and closed positions. The 75 pivot arrangements for one of the jambs comprise pivot pins 6 each of which is secured by riveting or other means to the centre of the clip 3. Each pin has a circular flange 7, adjacent the inwardly facing side 80 of the jamb, and the part of the pin extending into the clip has a rectangular cross section to tenon into a rectangular hole in the clip. Each pin extends through a recessed pivot hole 8 in the jamb and is of sufficient length 85 to extend through and to be secured to a cam lever 9, the pin having a flat face 10 or being otherwise suitably formed to be non-rotatably secured in a similarly shaped hole in the lever. Each lever is formed with a 90



it is/



rivetting/

cam or head 11 having a rounded portion merging into a pair of relatively inclined and substantially flat faces 11a providing a pointed end. It will be understood that any suitable pivot means for the other ends of the louvres may be provided. The cam levers 9 are cranked as shown in Figs. 3 and 4 so that the cam head 11 is spaced away from the jamb.

10 For actuating the louvres there is provided an operating member 12 which is vertically slidable within the jamb and is formed at suitable intervals with laterally projecting lugs 13. The operating member is formed as a flat bar and the lugs 13 are formed by pressing out material of the bar as seen in the Figures. The bar 12 is located in the jamb behind the cam levers 9 with the lugs 13 engaging respectively above and below the cam heads 11. It will be seen that the bar 12 is maintained in position on the levers 9 by the adjacent side of the jamb, and is guided by pressed out portions 12a at each end of the bar. An operating lever is provided for the member 12 and comprises a part 14, preferably formed from flat metal and having a substantially circular cam part 15. This lever is pivoted at 16 to a bracket 17 secured by riveting or other convenient means to the jamb. A handle portion 18 is secured to the lever part 14. The cam part 15 of the lever extends through a slot in the jamb and is located between a pair of projecting lugs 19 on the operating member or bar 12, these lugs being formed in the same way as the lugs 13. The arrangement is such that vertical movement of the bar 12 is effected by turning the handle 18, this movement being transmitted as angular motion to the louvres through the levers 9. In Fig. 1 the upper louver is shown in closed position, the middle louver is shown half open, and the lower louver is shown in fully open position. It will also be seen that the shaping of the cams 11 to provide a pointed end assists in preventing the cams leaving their coacting abutments or lugs when the desired degree of opening or closing has been obtained.

In order to provide for locking of the louvres in a desired open or closed position, a locking member 20 having a slot 21 is slidably mounted on the operating handle by means of a screw or pin having a head 22 beneath which is located a spring washer. The member 20 has a projection 23 and the lever part 17 is formed as a quadrant having three recesses or slots 24 into which the projection 23 can enter to lock the louvres in either open, half open, or closed position, the member 20 being slidable by means of a finger or thumb piece 25.

Adjustment of the louvres or shutters is effected by turning the operating handle to the desired position, the locking member being withdrawn from its quadrant recess, and the locking member is then displaced to engage in the appropriate quadrant recess. Other locking arrangements may be employed if desired.

#### WHAT I CLAIM IS:—

1. Operating means for adjustable shutters or louvres comprising a displaceable operating member of flat bar shape provided with spaced pairs of projections corresponding to the louvres or shutters, each of the pivotally mounted louvres or shutters having attached thereto a lever formed with a cam-shaped head which is engaged between the corresponding pairs of projections, and means for actuating said member for adjustment purposes.

2. Operating means as claimed in Claim 1, in which the projections are formed by lugs pressed out from the material of the operating member.

3. Operating means as claimed in Claim 1 or 2, in which the operating member or bar is located between a side of a jamb or frame member, on which the shutters or louvres are pivoted, and cam levers attached to the said shutters or louvres.

4. Operating means as claimed in Claim 1, 2 or 3, in which the cam means comprise relatively inclined substantially flat portions affording the cam a pointed shape.

5. Operating means as claimed in any of the preceding claims, comprising a pivoted operating handle having a cam formation engaged with lateral projections on the displaceable operating member.

6. Operating means as claimed in Claim 5, in which the said lateral projections are lugs pressed out from the material of a flat bar constituting the operating member.

7. Operating means as claimed in any of the preceding claims, in which means is provided for locking a pivoted operating handle for the displaceable operating member in adjusted positions.

8. Operating means as claimed in Claim 7, in which a locking member displaceably mounted on the locking handle is engageable with recesses or slots in a fixed quadrant.

9. Operating means as claimed in Claim 8, in which the locking member is slidable under frictional restraint and has a finger or thumb piece for actuation thereof.

10. Operating means for adjustable shutters or louvres substantially as hereinbefore described with reference to the accompanying drawings.

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cam or head 11 having a rounded portion merging into a pair of relatively inclined and substantially flat faces 11a providing a pointed end. It will be understood that any suitable pivot means for the other ends of the louvres may be provided. The cam levers 9 are cranked as shown in Figs. 3 and 4 so that the cam head 11 is spaced away from the jamb.

10 For actuating the louvres there is provided an operating member 12 which is vertically slidable within the jamb and is formed at suitable intervals with laterally projecting lugs 13. The operating member is formed as 15 a flat bar and the lugs 13 are formed by pressing out material of the bar as seen in the Figures. The bar 12 is located in the jamb behind the cam levers 9 with the lugs 13 engaging respectively above and below the cam 20 heads 11. It will be seen that the bar 12 is maintained in position on the levers 9 by the adjacent side of the jamb, and is guided by pressed out portions 12a at each end of the bar. An operating lever is provided for the 25 member 12 and comprises a part 14, preferably formed from flat metal and having a substantially circular cam part 15. This lever is pivoted at 16 to a bracket 17 secured by riveting or other convenient means to the 30 jamb. A handle portion 18 is secured to the lever part 14. The cam part 15 of the lever extends through a slot in the jamb and is located between a pair of projecting lugs 19 on the operating member or bar 12, these lugs 35 being formed in the same way as the lugs 13. The arrangement is such that vertical movement of the bar 12 is effected by turning the handle 18, this movement being transmitted as angular motion to the louvres through 40 the levers 9. In Fig. 1 the upper louver is shown in closed position, the middle louver is shown half open, and the lower louver is shown in fully open position. It will also be seen that the shaping of the cams 11 to 45 provide a pointed end assists in preventing the cams leaving their coacting abutments or lugs when the desired degree of opening or closing has been obtained.

In order to provide for locking of the 50 louvres in a desired open or closed position, a locking member 20 having a slot 21 is slidably mounted on the operating handle by means of a screw or pin having a head 22 beneath which is located a spring washer. 55 The member 20 has a projection 23 and the lever part 17 is formed as a quadrant having three recesses or slots 24 into which the projection 23 can enter to lock the louvres in either open, half open, or closed position, 60 the member 20 being slidable by means of a finger or thumb piece 25.

Adjustment of the louvres or shutters is effected by turning the operating handle to the desired position, the locking member being withdrawn from its quadrant recess, and the 65 locking member is then displaced to engage in the appropriate quadrant recess. Other locking arrangements may be employed if desired.

#### WHAT I CLAIM IS:—

1. Operating means for adjustable shutters or louvres comprising a displaceable operating member of flat bar shape provided with spaced pairs of projections corresponding to the louvres or shutters, each of the 75 pivotally mounted louvres or shutters having attached thereto a lever formed with a cam-shaped head which is engaged between the corresponding pairs of projections, and means for actuating said member for adjust- 80 ment purposes.

2. Operating means as claimed in Claim 1, in which the projections are formed by lugs pressed out from the material of the operating member. 85

3. Operating means as claimed in Claim 1 or 2, in which the operating member or bar is located between a side of a jamb or frame member, on which the shutters or louvres are pivoted, and cam levers attached to the said 90 shutters or louvres.

4. Operating means as claimed in Claim 1, 2 or 3, in which the cam means comprise relatively inclined substantially flat portions affording the cam a pointed shape. 95

5. Operating means as claimed in any of the preceding claims, comprising a pivoted operating handle having a cam formation engaged with lateral projections on the displaceable operating member. 100

6. Operating means as claimed in Claim 5, in which the said lateral projections are lugs pressed out from the material of a flat bar constituting the operating member.

7. Operating means as claimed in any of the preceding claims, in which means is provided for locking a pivoted operating handle for the displaceable operating member in adjusted positions.

8. Operating means as claimed in Claim 7, 110 in which a locking member displaceably mounted on the locking handle is engageable with recesses or slots in a fixed quadrant.

9. Operating means as claimed in Claim 8, in which the locking member is slidable 115 under frictional restraint and has a finger or thumb piece for actuation thereof.

10. Operating means for adjustable shutters or louvres substantially as hereinbefore described with reference to the accompanying 120 drawings.

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