

from 20/57.5

BEST AVAILABLE COPY

April 22, 1941.

L. MILLER

2,239,242

AWNING

Filed Dec. 4, 1939

2 Sheets-Sheet 1

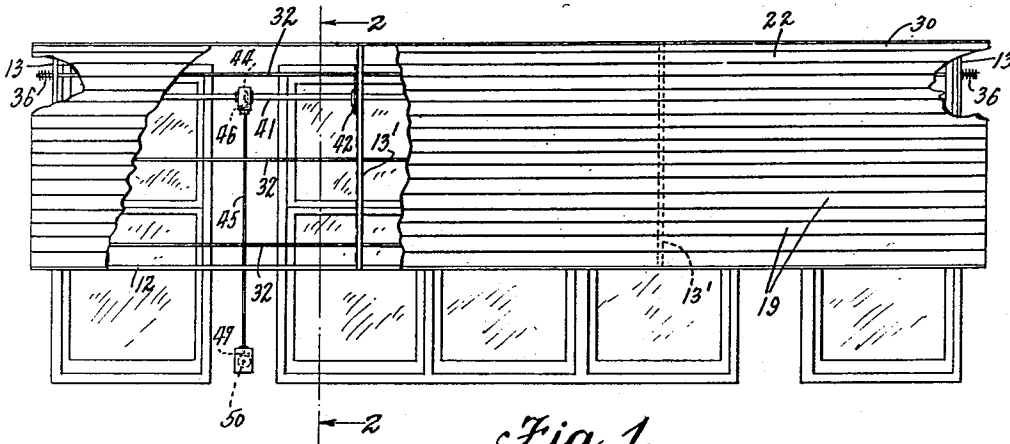


Fig. 1.

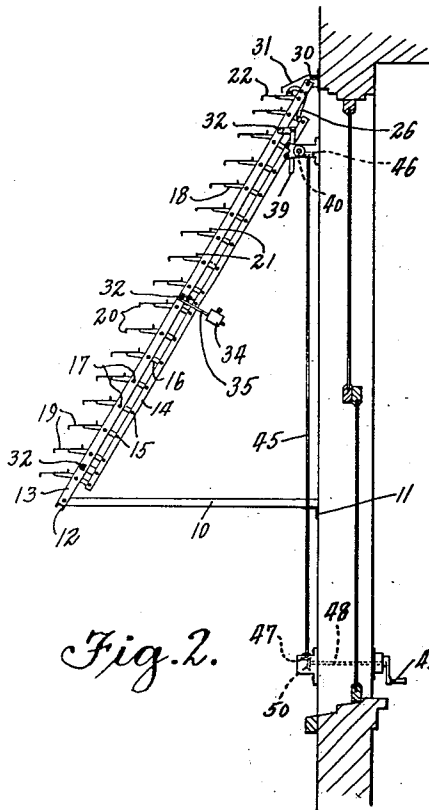


Fig. 2.

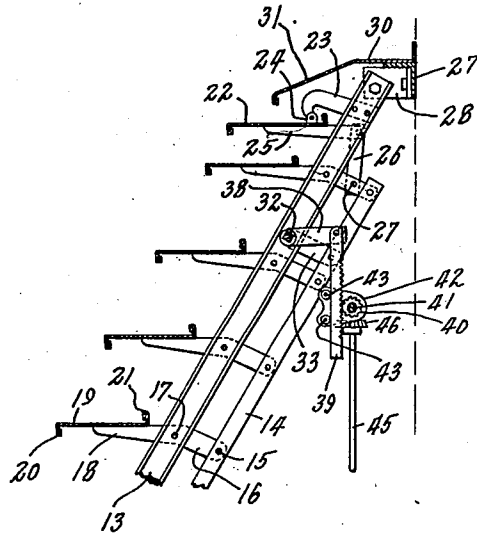


Fig. 3.

Lee Miller Inventor

Lyon & Lyon Attorneys

April 22, 1941.

L. MILLER

2,239,242

AWNING

Filed Dec. 4, 1939

2 Sheets-Sheet 2

Fig. 4.

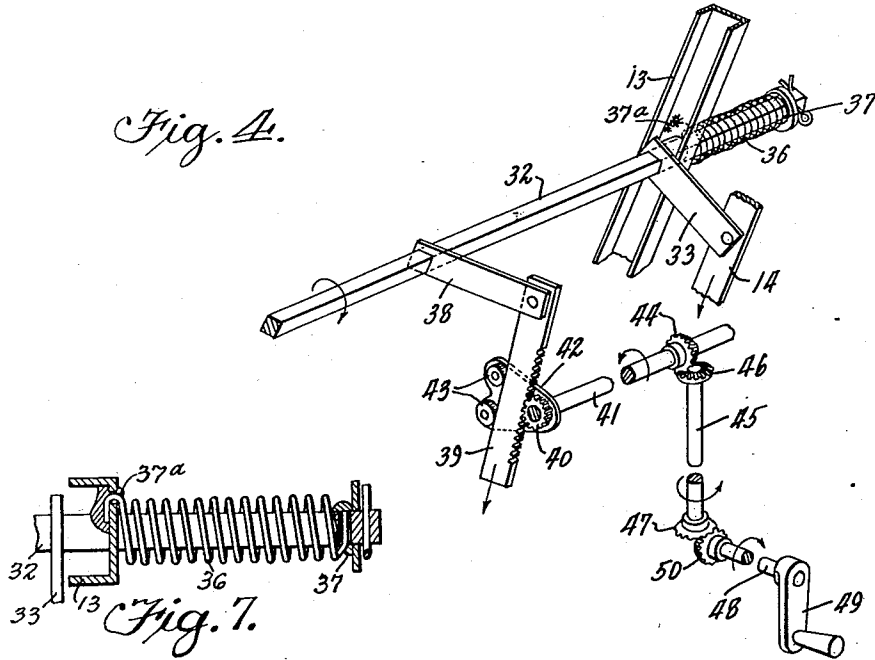


Fig. 5.

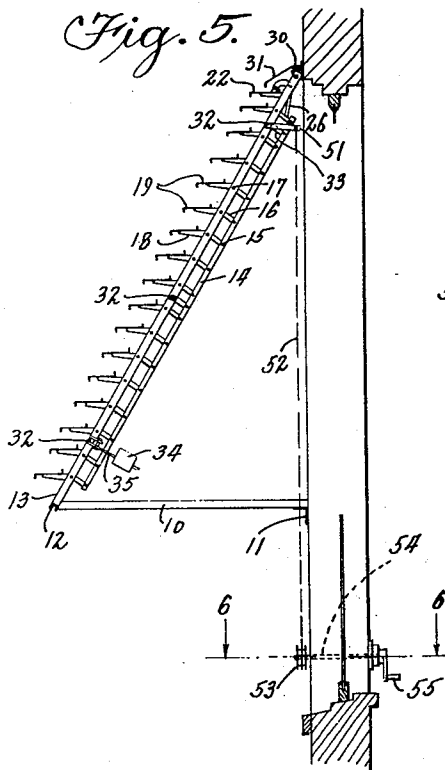
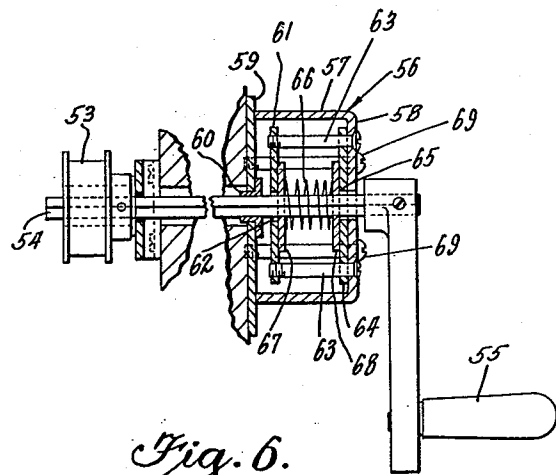


Fig. 6.



Inventor

Lee Miller

By

Lyon & Lyon

Attorneys

UNITED STATES PATENT OFFICE

2,239,242

AWNING

Lee Miller, Los Angeles, Calif.

Application December 4, 1939, Serial No. 307,468

15 Claims. (Cl. 156—17)

This invention relates to awnings having a plurality of louvers or vanes pivotally mounted for parallel adjustment to regulate the admission of light and exclude rain.

In the awnings now in use it is common to provide a plurality of metallic louvers pivoted on a frame. The attempt to apply such awnings to long windows, such as are usual in schools, stores, public buildings, and other similar structures, has, however, raised problems due to the weight of these louvers and their tendency to bend or to be twisted from their desired shape.

So, also, it is desirable in an awning that the various louvers present a substantially uniform appearance both when opened and closed. To achieve such uniform appearance and also exclude all light and rain, particularly at the upper louver of the awnings, has raised difficulties.

Accordingly, it is one object of this invention to provide an awning in which provision is made to balance the forces tending to open and close the louvers as equally as may be desired.

It is another object of this invention to provide an awning in which the forces balancing the weight of the louvers and tending to open the awning are distributed to a plurality of points and across the width of the awning.

It is another object of this invention to provide operating means for such awning which are positive in action and in retaining the louvers at the desired position, and which are capable of handling the weight of large awnings.

It is another object of this invention to provide a novel means of suspending and operating the upper louver of such awning in order to prevent interference with the other members of the awning and yet provide an upper louver of uniform appearance with the other louvers.

Other objects and advantages of this invention will appear hereinafter.

In the accompanying drawings:

Figure 1 is a front elevation of an awning embodying my invention.

Figure 2 is a section taken on the line 2—2 of Figure 1, with the louvers open.

Figure 3 is an enlarged side elevation, similar to Figure 2.

Figure 4 is a fragmentary elevation of one form of my operating mechanism.

Figure 5 is a section similar to Figure 2 illustrating another form of my invention.

Figure 6 is a section taken on the line 6—6 of Figure 5 showing one type of operating crank and brake.

Figure 7 is a fragmentary view illustrating the

connection between the torque spring and torque rod.

Referring more particularly to the drawings, there is shown an awning including suitable supporting members 10 fastened to the building on one end, as at 11, and attached to an awning frame at the other end, as at 12. A frame consisting of a plurality of frame members 13 is provided. It will be appreciated that in short awnings there will be one such frame member 13 at each side of the awning, but that in longer awnings additional frame members 13' may be added for strength, as in Figure 1.

A parallel operating link 14 is provided pivoted at a plurality of points 15 to a plurality of louver supporting levers 16.

The levers 16 are pivoted upon the frame members 13, as at 17. The levers 16 preferably have their louver supporting portion 18 formed at a slight angle to the remainder of the lever to permit full closing and opening of the louvers.

Attached to the portions 18 are a plurality of louvers 19 having a downwardly bent flange 20 at one edge and an upwardly bent flange 21 at the other edge. It will be appreciated that when the louvers are closed the outer flange 20 of the louver will contact the next lower louver, and together with the inner flange 21 of said next lower louver will effectively seal out all light and rain.

The uppermost louver 22 is pivoted in an exteriorly mounted or overhanging hook 23 by means of a bracket 24, and a lever 25 is attached to the inner side of the louver 22. A link 26 is pivoted to the lever 25 and to a pivot point 27 intermediate the ends of the levers 16 of the next lower louver.

An angle iron bracket 27 is provided secured to the wall of a structure to which the awning is applied, and the frames 13 are secured to a bracket 28 attached to the bracket 27.

At the top of the awning a shielding member 30 is provided, bent downward as at 31 to overhang the louver 22 and prevent light and rain from entering between the shield 30 and louver 22.

One or more torque rods 32 may be provided mounted for rotation in the frames 13 and having links 33 secured thereto and pivotally connected with the parallel operating links 14. Upon one or more of the torque rods 32 means to balance the weight of the louvers 19 may be provided. This balancing means may consist of a counterweight 34 attached to the torque rod 32 by means of an arm 35, as in Figure 5. If desired, a plurality of such counterweights 34 may be provided upon each torque rod 32 and such coun-

terweights may be distributed throughout the length of said torque rods and of said awning so as to distribute the balancing forces and prevent any tendency to twist or bend the various members.

In long awnings the frame members 13' may carry additional operating links and levers, similar to the links 14 and levers 16, and thus aid in distributing the balanced forces to the louvers 19.

Either as an alternative to the counterweights 34 or in addition to and in combination with such counterweights I may provide torque springs 36 upon the torque rods 32, as shown in Figure 4. One end of such torque springs 36 will be fastened to the frames 13 and the other end to the torque rods 32 by suitable fastening means 37.

Referring particularly to Figures 4 and 7 I have illustrated the manner of securing the torque spring 36 to the torque rod 32 and the frame 13. As illustrated, the suitable fastening means 37 consists of a groove in the torque rod 32 into which one end of the spring 36 is soldered. The other end of the spring 36 is secured to the frame by passing the same through a hole therein and soldering said end of the spring to the frame, as clearly shown at 37^a.

Referring to Figure 4, I have illustrated one form of my operating mechanism. A link 38 is secured to torque rod 32 and is pivotally connected to a rack 39. A pinion 40 is mounted upon a shaft 41 and a guide bracket 42 is also mounted upon the shaft 41 and held adjacent the pinion 40. The bracket 42 carries one or more guide rollers 43. A rack 39 is adapted to be guided between the rollers 43 and the pinion 40.

The shaft 41 carries a beveled gear 44, and an upstanding shaft 45 carries a similar beveled gear 46 meshed with the gear 44. The lower end of the shaft 45 carries a beveled gear 47. A shaft 48 is provided which preferably extends through the wall or casement of the building and has an operating crank 49 upon its inner end. A beveled gear 50 in mesh with a beveled gear 47 is provided upon the outer end of the shaft 48.

A clockwise turn upon the crank 49 will impart the motion shown in the directional arrows in Figure 4 to the various members of the operating mechanism, lowering the parallel link 14 and opening the louvers 19. Conversely, a counterclockwise turn upon the crank 49 serves to close the louvers 19.

In Figures 5 and 6 alternative operating means are illustrated. In this embodiment a lever 51 is secured to the torque rod 32 and has a cable 52 secured to its free end. The cable 52 is secured to and wound about a pulley 53. The pulley 53 is mounted upon a shaft 54 extending through the wall or casement and carrying a crank 55.

A braking mechanism is employed with the shaft 54 and crank 55, comprising a housing 56 having sidewalls 57 and front and rear walls 58 and 59, respectively. The shaft 54 extends through bores in the walls 58 and 59, and a bearing 60 is provided for the shaft 54 in the rear wall 58.

A plate 61 having a bore 62 is mounted upon studs 63 within the housing 56. A second plate 64 having a bore 65 and also mounted upon the studs 63 is provided. The shaft 54 extends through the bores 62 and 65.

A pair of frictional washers 67 and 68 are provided having square openings to engage the square shaft 54 upon which they are mounted. A coil spring 66 is mounted upon shaft 54 be-

tween washers 67 and 68. The housing 56 is secured to the wall by means of screws 69.

Coil spring 66 urges the washers 67 and 68 against the plates 61 and 64, respectively, thereby exerting a braking force upon the shaft 54 and pulley 53. This braking force is readily adjustable by taking up or backing off the studs 63, and may thus be adjusted to the tension required to hold the louvers 19 in any desired position, yet loose enough to permit operation of the crank 55.

In the embodiment shown in Figure 4, in view of my practice of balancing the weight of the louvers 19 by counterweights 34 or torque springs 36, the friction of the various gears and pinions generally suffices to hold the louvers in any desired position, but it will be appreciated that a similar housing 56 containing similar braking mechanism may be provided upon shaft 48, if desired.

In the form of my invention shown in Figures 5 and 6 it is, of course, necessary to avoid entirely balancing the weight of the louvers 19, as some force to close the louvers must remain inasmuch as the action of the crank 55 and pulley 53 is positive only in opening the louvers.

While the particular forms of the invention herein described are well adapted to carry out the objects of the invention, it is to be understood that various modifications and changes may be made without departing from the principles of the invention, and the invention includes all such modifications and changes as come within the scope of the appended claims.

I claim:

1. In an awning of the type having a plurality of louvers pivoted upon a frame by means of levers and having said levers pivotally connected to an operating link, said operating link being parallel to said frame, an uppermost louver, means exterior to said frame for pivotally mounting said uppermost louver, and means operably connecting said uppermost louver to said operating link.

2. In an awning of the type having a plurality of louvers pivoted upon a frame by means of levers and having said levers pivotally connected to an operating link, said operating link being parallel to said frame, an uppermost louver, means overhanging said frame for pivotally mounting said uppermost louver, and means operably connecting said uppermost louver to said operating link.

3. In an awning of the type having a plurality of louvers pivoted upon a frame by means of levers and having said levers pivotally connected to an operating link, said operating link being parallel to said frame, an uppermost louver, means overhanging said frame for pivotally mounting said uppermost louver, and means operably connecting said uppermost louver to the lever of one of the lower louvers.

4. In an awning of the type having a plurality of louvers pivoted upon a frame by means of levers and having said levers pivotally connected to an operating link, said operating link being parallel to said frame, an uppermost louver, a lever attached to said uppermost louver, an overhanging hook mounted upon said frame for pivotally mounting said uppermost louver, and means operably connecting said lever to said operating link.

5. In an awning, a combination of a frame, a plurality of louvers pivotally mounted upon said frame, levers attached to said louvers, an op-

erating link parallel to said frame, said levers being pivotally attached to said operating link, an overhanging supporting member mounted upon said frame, an uppermost louver pivotally mounted upon said overhanging supporting member, and means operably connecting said uppermost louver to said operating link.

6. In an awning of the type having a plurality of louvers pivoted upon a frame by means of levers and having said levers pivotally connected to an operating link, said operating link being parallel to said frame, a plurality of said operating links parallel to each other, a torque rod mounted in said frame parallel to said louvers and means connecting said torque rod to said operating links to distribute the operating forces to said louvers at a plurality of points.

7. In an awning of the type having a plurality of louvers pivoted upon a frame by means of levers and having said levers pivotally connected to an operating link, said operating link being parallel to said frame, a plurality of said operating links parallel to each other, a torque rod mounted in said frame parallel to said louvers, and a plurality of levers connecting said torque rod to said operating links.

8. In an awning of the type having a plurality of louvers pivoted upon a frame by means of levers and having said levers pivotally connected to an operating link, said operating link being parallel to said frame, a plurality of said operating links parallel to each other, a plurality of torque rods mounted in said frame parallel to said louvers, and means connecting said torque rods to said operating links to distribute the operating forces to said louvers at a plurality of points.

9. In an awning of the type having a plurality of louvers pivoted upon a frame by means of levers and having said levers pivotally connected to an operating link, said operating link being parallel to said frame, a plurality of said operating links parallel to each other, a torque rod mounted in said frame parallel to said louvers, means connecting said torque rod to said operating links to distribute the operating forces to said louvers at a plurality of points, a counterweight, and means mounting said counterweight upon said torque rod to oppose the weight of said louvers.

10. In an awning of the type having a plurality of louvers pivoted upon a frame by means of levers and having said levers pivotally connected to an operating link, said operating link being parallel to said frame, a plurality of said operating links parallel to each other, a torque rod mounted in said frame parallel to said louvers, a plurality of levers connecting said torque rod to said operating links, a counterweight, and means mounting said counterweight upon said torque rod to oppose the weight of said louvers.

11. In an awning of the type having a plurality of louvers pivoted upon a frame by means of levers and having said levers pivotally connected to an operating link, said operating link being parallel to said frame, a plurality of said oper-

ating links parallel to each other, a torque rod mounted in said frame parallel to said louvers, a plurality of levers connecting said torque rod to said operating links, and means mounted upon said torque rod balancing the weight of said louvers.

12. In an awning of the type having a plurality of louvers pivoted upon a frame by means of levers and having said levers pivotally connected to an operating link, said operating link being parallel to said frame, a plurality of said operating links parallel to each other, a torque rod mounted in said frame parallel to said louvers, means connecting said torque rod to said operating links to distribute the operating forces to said louvers at a plurality of points, a torque spring mounted upon said torque rod, one end of said torque spring being secured to said torque rod and the other end of said torque spring being secured to said frame.

13. In an awning of the type having a plurality of louvers pivoted upon a frame by means of levers and having said levers pivotally connected to an operating link, said operating link being parallel to said frame, a plurality of said operating links parallel to each other, a torque rod mounted in said frame parallel to said louvers, a plurality of levers connecting said torque rod to said operating links, a torque spring mounted upon said torque rod, one end of said torque spring being secured to said torque rod and the other end of said torque spring being secured to said frame.

14. In an awning of the type having a plurality of louvers pivoted upon a frame by means of levers and having said levers pivotally connected to an operating link, said operating link being parallel to said frame, a plurality of said operating links parallel to each other, a torque rod mounted in said frame parallel to said louvers, means connecting said torque rod to said operating links to distribute the operating forces to said louvers at a plurality of points, a counterweight, means mounting said counterweight upon said torque rod to oppose the weight of said louvers, and a torque spring mounted upon said torque rod, one end of said torque spring being secured to said torque rod and the other end of said torque spring being secured to said frame.

15. In an awning of the type having a plurality of louvers pivoted upon a frame by means of levers and having said levers pivotally connected to an operating link, said operating link being parallel to said frame, a plurality of said operating links parallel to each other, a torque rod mounted in said frame parallel to said louvers, a plurality of levers connecting said torque rod to said operating links, a counterweight, means mounting said counterweight upon said torque rod to oppose the weight of said louvers, and a torque spring mounted upon said torque rod, one end of said torque spring being secured to said torque rod and the other end of said torque spring being secured to said frame.

LEE MILLER.