March 6, 1951 S. JACOBI 2,544,500

SHUTTER ARM

Filed May 13, 1948 2 Sheets-Sheet 1

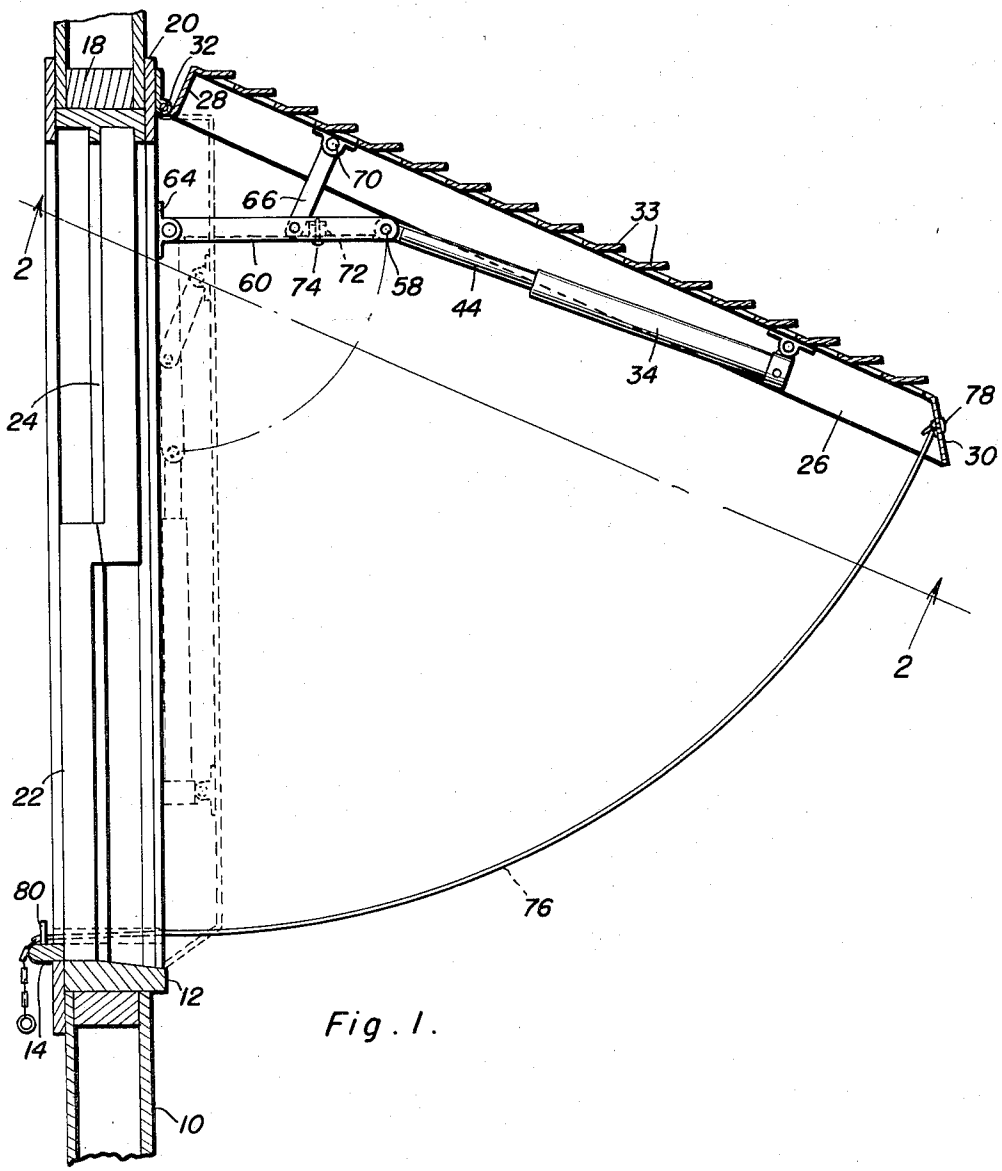

Fig. 1.

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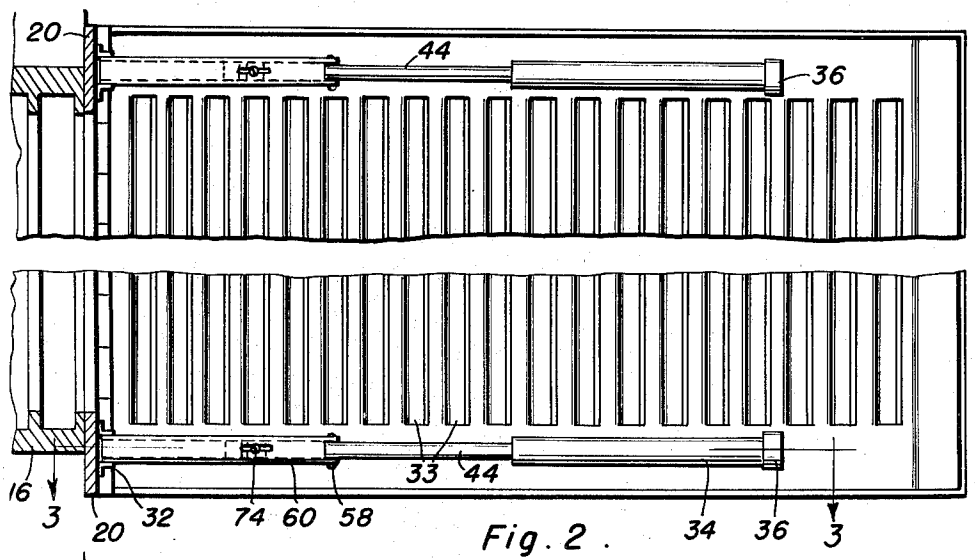

Fig. 2.

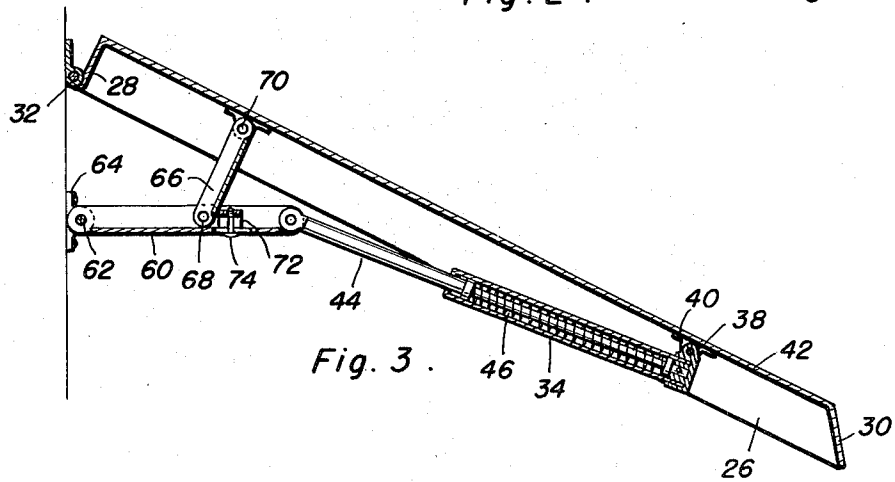

Fig. 3.

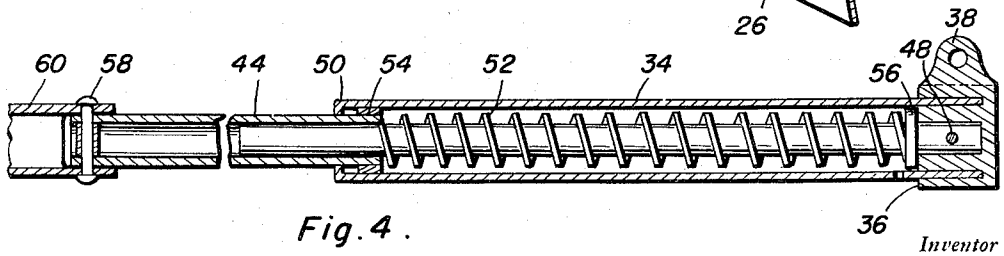

Fig. 4.

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UNITED STATES PATENT OFFICE

2,544,500

SHUTTER ARM

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Application May 13, 1948, Serial No. 26,841

3 Claims. (Cl. 267—1)

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This invention relates generally to shutters and the like which are pivoted at the top in fixed structure.

A primary object of this invention is to provide means whereby such a shutter may be adjustably positioned outwardly from the opening in the wall as at a window, the shutter being biased into open position automatically and held either fully opened or partially opened by a cable means associated therewith.

Another object of this invention is to provide an improved shutter structure in which lateral rails of channel form are employed and the adjustable brace structure incorporated with the shutter according to this invention is housed within the channel rails when the shutter is in closed position.

Another object of this invention is to provide means of the character mentioned above in which the biasing means is nicely balanced against the weight of the shutter so as to be fully automatic in its opening action, yet easy to close and free from any tendency to vibrate under the influence of wind when in partially or fully opened position.

Yet another object of this invention is to provide means incorporated with the adjustable brace of the shutter, whereby the shutter is adjustable to a predetermined opening angle irrespective of the use of the flexible cable associated with each shutter.

And a last object to be mentioned specifically is to provide a construction such as mentioned above which is relatively inexpensive and practicable to manufacture, which is safe, simple and very convenient to use, which incorporates several features of structural refinement whereby the operation and maintenance of the device is simplified, and which give generally efficient and durable service.

With these objects definitely in view, this invention resides in certain novel features of construction, combination and arrangement of elements and portions as will be hereinafter described in detail in the specification, particularly pointed out in the appended claims, and illustrated in the accompanying drawings which form a material part of this application, and in which:

Figure 1 is a transverse vertical sectional view of a fragment of a wall with a window therein and with this invention operatively mounted thereon:

Figure 2 is a lower plan view of the structure illustrated in Figure 1, this view being taken on the line 2—2 in Figure 1;

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Figure 3 is a transverse sectional view, taken on the line 3—3 in Figure 2; and

Figure 4 is an enlarged fragmentary sectional view of what is hereinafter referred to as the tube, the plunger and the fragment of the first link, together with a spring which is compressed between one end of the plunger and a cap on the end of said tube.

Similar characters of reference designate similar or identical elements and portions throughout the specification and throughout the several views in the drawings.

Referring now to the drawings in detail, the environment wherewith this invention is adapted to be used includes a wall 10, which is represented as having a sill 12, an inner sill plate 14 and the wall opening is represented as comprised of a window with vertical side members 16, a lintel 18 and outer window frame flashing 20. The window may also include a lower sash 22 and an upper sash 24.

The invention is represented as embodied in a shutter 26 which is of inverted U-shape in cross section and closed at the top and bottom end by walls 28 and 30, respectively. The upper walls 28 are hinged at 32 to a flashing 20, at each side of the window. The shutter may have louvers 33 or other types of ventilating openings.

Since the structure of each side of the shutter is identical, only one unit thereof will be described in detail. A tube 34 is provided with a terminal cap 36 which has a lug 38 pivoted to a bracket 40 on the bight portion 42 of the shutter 26, near the lower end 30 of this shutter and at one side thereof.

A hollow plunger 44 is telescopically associated with said tube and a plunger guide rod 46 is fixed at one end to the cap 36 by a transversely disposed pin 48. The plunger 44 extends coaxially of the tube 34 and extends beyond the end 50 of this tube. A helical spring 52 is compressed between the inner end of the plunger, which may be enlarged as at 54, and a bushing or washer 56 encircling the plunger guide rod 46 and abutting said terminal cap 36, whereby the plunger is biased to shift out of said tube, that is, to increase the total length of the assembly. The other end of the plunger is pivoted, as at 58, to one end of a first link 60, the other end of which link is pivoted at 62 to a bracket 64 secured to the fixed structure represented by the flashing 20.

A second link 66 is pivoted at one end 68 to the first link and at the other end 70 to an upper part of the bight portion 42 of the shutter 26. Both links are constructed of channel iron or the

like, and a stop member 72 is longitudinally adjustably secured within the first link 60 by means of a set screw 74. Finally, a cable 76 is secured terminally at 78 to the end wall 30, and fastening means 80 which may comprise simply a pair of upstanding pins is provided on the inner sill plate 14, as indicated in Figure 1.

The operation of this invention will be clearly understood from a consideration of the foregoing description of the mechanical details thereof, taken in connection with the objects above and the drawings. In recapitulation, it should be noted carefully that when the shutter is in closed position, the adjustable brace assembly is collapsed within each rail of the shutter. The spring 52 biases the plunger 44 outwardly and urges the shutter into open position, while the chain 76 may be used to hold the shutter against further opening if desired. The stop member 72 also limits the outward movement of the shutter.

It is clear that all these objects recited above are amply achieved by this invention. Obviously minor variations in structure may be resorted to without departure from the spirit of this invention and the scope of this invention should be limited only as determined by a proper interpretation of the terms used in the subjoined claims.

Having described the invention, what is claimed as new is:

1. An automatically extensible brace assembly for use with shutters and the like pivoted at the top on fixed structure, comprising a tube pivoted at one end to a lower portion of the shutter, a plunger within said tube, a spring within said tube biasing the plunger to extend beyond said tube, a first link pivoted to the outer end of said plunger and to said structure, and a second link pivoted at its ends to an intermediate portion of said first link and to a portion of said shutter between the upper end of the shutter and the pivot connection of said tube on said shutter.

2. An automatically extensible brace assembly for use with shutters and the like pivoted at the top on fixed structure, comprising a tube pivoted at one end to a lower portion of the shutter, a plunger within said tube, a spring within said tube biasing the plunger to extend beyond said tube, a first link pivoted to the outer end of said plunger and to said structure, a second link pivoted at its ends to an intermediate portion of said first link and to said shutter between the upper end of the shutter and the pivot connection of said tube on said shutter, and a stop on said first link to engage said second link in the limiting position thereof when the shutter is fully opened.

3. An automatically extensible brace assembly for use with shutters and the like pivoted at the top on a fixed structure, comprising a tube pivoted at one end to a lower portion of the shutter, a plunger within said tube, a spring within said tube biasing the plunger to extend beyond said tube, a first link pivoted to the outer end of said plunger and to said structure, a second link pivoted at its ends to an intermediate portion of said first link and to said shutter between the upper end of the shutter and the pivot connection of said tube on said shutter, a stop on said first link to engage said second link in the limiting position thereof when the shutter is fully opened, a cable secured terminally to said shutter, and cable fastening means on said fixed support so that the opening of said shutter may be limited.

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