Oct. 10, 1933. L. S. SIMON 1,930,254

LIGHT REGULATING DEVICE

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Fig. 1.

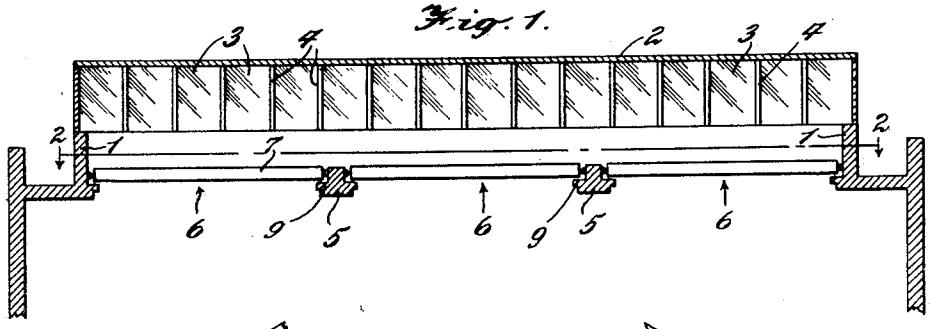


Fig. 4.

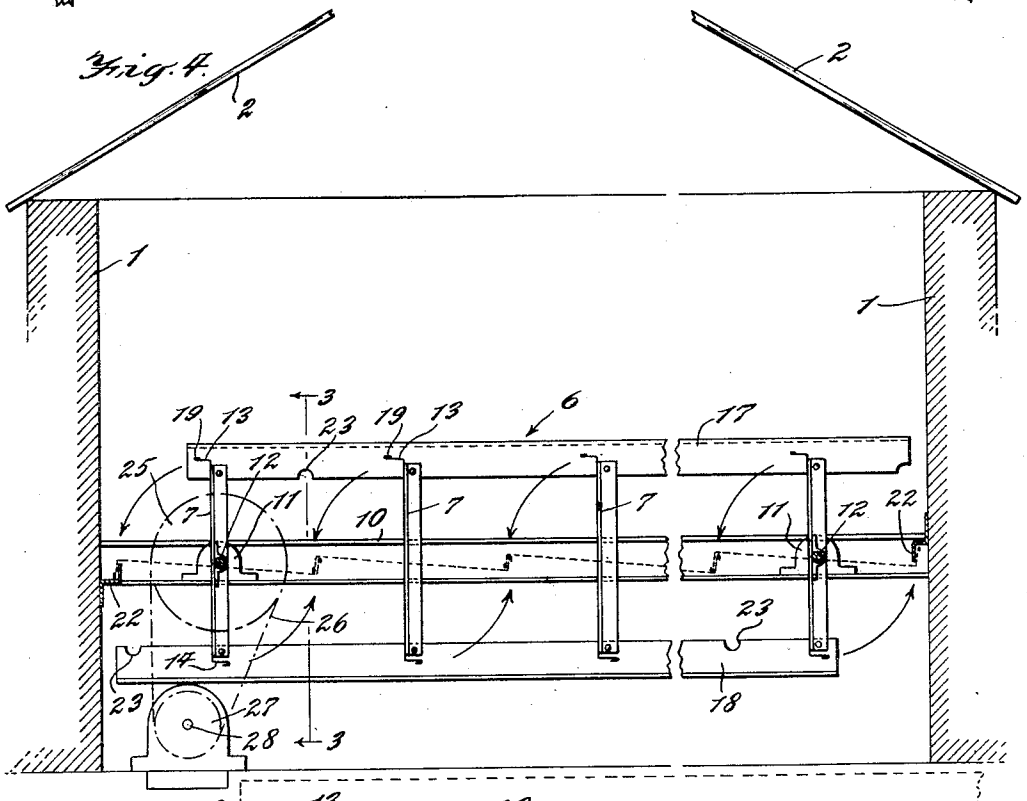
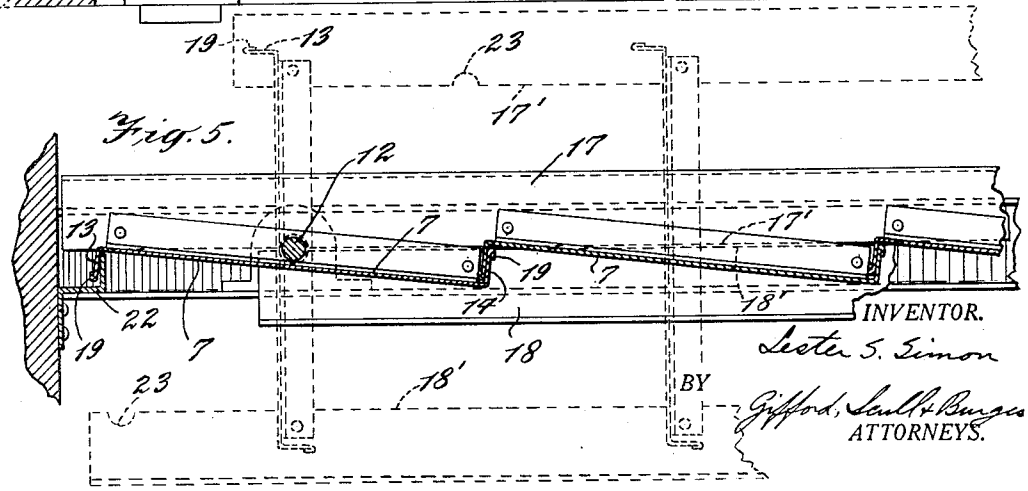


Fig. 5.



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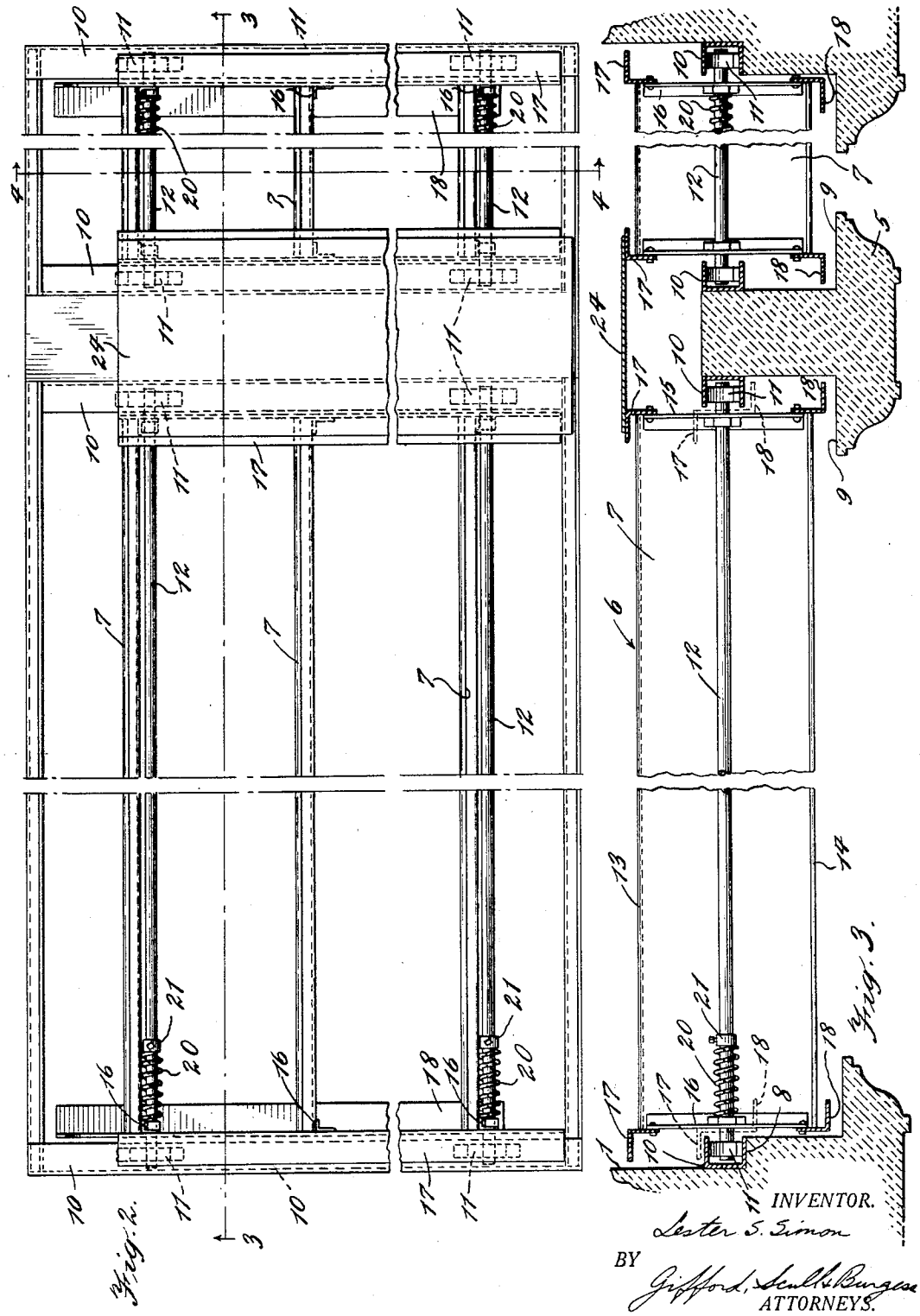


Fig. 2.

Fig. 3.

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Fig. 6.

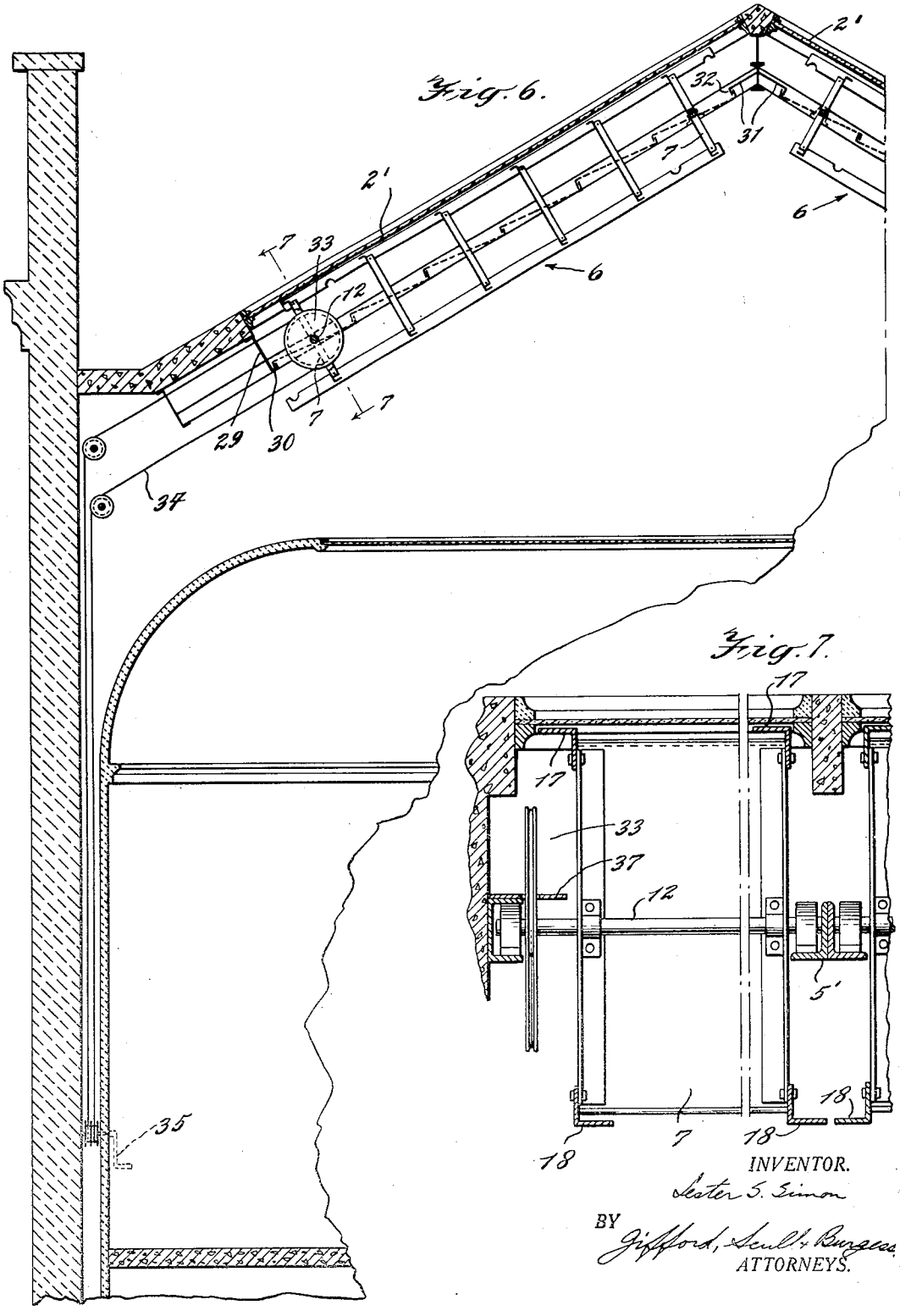


Fig. 7.

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LIGHT REGULATING DEVICE

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Application August 18, 1931. Serial No. 557,855

5 Claims. (Cl. 189—62)

This invention relates to a novel and improved means for regulating the passage of light and incidentally of air, and the novel features will be best understood from the following description and the annexed drawings, in which I have shown selected embodiments of the invention, and in which:

Fig. 1 is a more or less diagrammatic view in section through a skylight having my invention applied thereto.

Fig. 2 is a view on an enlarged scale, and taken approximately on the line 2—2 of Fig. 1.

Fig. 3 is a view on the line 3—3 of Figs. 2 and 4.

Fig. 4 is a view on the line 4—4 of Fig. 2.

Fig. 5 is a view similar to Fig. 4, but on a larger scale.

Fig. 6 is a fragmentary sectional view through a building having a slightly different embodiment of the invention applied thereto.

Fig. 7 is a section on the line 7—7 of Fig. 6.

Referring first to Figs. 1 to 5, inclusive, the numeral 1 designates the walls of an opening, here shown as being in the roof of a building. For the sake of convenience, I may hereafter use the terms "horizontal" and "vertical", but this is only for the sake of convenience, as it will be readily understood by those skilled in the art that the invention may be employed either in the roof of a building or in a vertical wall thereof or in any other location where found applicable. The terms "horizontal" and "vertical" are therefore not to be construed in any manner as limiting, but merely as relative.

The roof shown in the drawings is provided with a skylight 2 indicated as formed of a plurality of panels 3 separated by ribs or beams 4, and it is understood that light will normally pass through the panels 3 and through the opening bounded by the walls 1. This opening may be separated by a plurality of transversely extending beams 5, although, of course, if the opening is a small one, such beams may be omitted.

The beams 5 may conveniently be used as supports for my light controlling devices, which are indicated in Fig. 1 at 6. Each device consists of a plurality of vanes 7, and these vanes are disposed across the opening. In Figs. 1, 2, and 3, one device is shown as extending between the two supports 5, and one between each of said supports and the adjacent wall 1, upon which is formed a shoulder 8 for a purpose which will presently appear. In the form shown, each support 5 is likewise provided with a shoulder 9.

On the walls 1 and on the supports 5 are mounted members 10 in which are disposed bearings 11, and in these bearings are disposed shafts 12 extending across the opening. For the sake of convenience, the word "opening" will be used hereafter to refer to any space across which the vanes extend, in this instance the space between a wall 1 and one of the supports 5 being specifically referred to.

The vanes 7 are spaced apart as indicated in Fig. 4, and when light is passing through the opening, the vanes may occupy the vertical position shown in Fig. 4, which may be conveniently defined as a position parallel to the walls of the opening. The vanes are shown as rectangular in form and having a top edge 13 and a bottom edge 14 and ends 15 and 16 formed of rigid members. The ends are connected together at both top and bottom by means of plates 17 and 18, these plates being shown in the form of angle plates having their vertically extending legs pivoted to the ends of the vanes, these ends here being shown as angle plates. With this arrangement, it will be seen that all of the vanes are held in relation parallel to each other, regardless of how they are disposed with relation to the horizontal or vertical. It is unnecessary to have each vane provided with a shaft 12, and therefore, in the drawings, I have shown only certain of the vanes thus equipped. Enough shafts 12 are provided to support the entire device, and the plates 17 and 18 support the vanes intermediate the shafts.

Preferably, the top side 13 of each vane is formed as a flange extending in one direction from the vane, and the bottom side 14 is formed as a flange extending in the opposite direction, whereby, when the vanes are folded to a position such as shown in dotted lines in Fig. 4, these flanges may overlap to form a light seal. The position shown in dotted lines in Fig. 4 may conveniently be defined as a position substantially normal to the walls of the opening. The flange sides 13 and 14 add rigidity to the vanes, which may be made of sheet material, and in order to further strengthen the vanes, these flanges are folded back at their edges as indicated at 19. When the vanes are formed of flexible material, such as canvas, they may be maintained taut by means of a spring 20 acting between a collar 21 on the shaft 12 and one of the ends of the vane.

In order to provide further against leakage of light, the vane adjacent the end wall of the opening has its flange received behind an overlapping projection 22 upon the wall. The plates 17 and 18 are also of such form and arrangement that when the vanes are brought to the position shown

in dotted lines in Fig. 4 and in full lines in Fig. 5, the adjacent edges 17' and 18' of these plates will substantially contact as plainly shown in Fig. 5. These edges may be provided with notches 23 to receive shafts 12. The plate 17 adjacent a wall 1 is provided with an outwardly extending leg as plainly shown in Fig. 3, this leg cooperating with the member 10 as shown in dotted lines at the left of Fig. 3, to form a light seal, and, similarly, the plate 18 adjacent the support 5 in Fig. 3 will, when brought to the dotted line position shown in that figure, cooperate with the member 10 on the support 5, to form another light seal at that point. At the supports 5, a still further sealing means may be provided in the form of a plate 24 connecting adjacent plates 17.

In operation, when the maximum amount of light is required, the vanes may be brought to the position shown in full lines in Fig. 4 and in dotted lines in Fig. 5, or to any other position best adapted to pass light, and then the amount of light may be regulated by rotating the vanes together with respect to the vertical position shown in Fig. 4, either clockwise or counterclockwise. The minimum amount of light is obtained when the vanes are brought to the position shown in dotted lines in Fig. 4 and in full lines in Fig. 5. The vanes may be operated together by any suitable means, here shown as a pulley 25, secured to one of the shafts 12 and operated by a belt 26 from a second pulley 27 on a shaft 28, which may be operated by any suitable means, not shown.

In Figs. 6 and 7 is shown a slightly different embodiment, in which a device 6 is mounted parallel to and immediately beneath a pitched skylight 2', at the lower end of which is a depending structural member 29 having a flange 30 adapted to cooperate with a flanged side of one of the vanes 7. At the peak of the roof is another structural member 31 having a flange 32 to cooperate with a flanged side of the adjacent vane 7. In this instance, I have indicated a device 6 on either side of the peak of the roof, and each may be operated by means of a pulley 33 on one of the shafts 12, this pulley being operated by a cable 34 from a hand crank 35, it being understood that the arrangement shown may be duplicated on the other side of the building. In this embodiment, an intermediate support 5' is shown in Fig. 7, and a projection 37 is shown adjacent the wall in position to cooperate with the outwardly extending leg on the plate 17. In other respects, this embodiment operates in the same manner as that first described, and further detailed description will therefore be omitted.

While I have shown the invention as embodied in a specific form, it is to be understood that various changes in details may be made without departing from the scope of the invention, and I therefore do not intend to limit myself except by the appended claims.

I claim:

1. In a device of the class described, a plurality of parallel vanes extending across an opening, means for moving said vanes in unison from positions substantially parallel to the walls of the opening to positions substantially normal to said walls, in the second of which positions said vanes closely overlap to prevent passage of light therebetween, plates pivoted to the ends of said vanes adjacent opposite sides thereof and arranged to substantially contact with each other when the vanes are in said second position, and overlapping elements carried by the vanes and wall and adapted to prevent passage of light between the ends of said vanes and the adjacent walls of said opening when the vanes are in said second position.

2. In a device of the class described, a plurality of parallel vanes extending across an opening, means for moving said vanes in unison from positions substantially parallel to the walls of the opening to positions substantially normal to said walls, in the second of which positions said vanes closely overlap to prevent passage of light therebetween, plates pivoted to the ends of said vanes adjacent opposite sides thereof and arranged to substantially contact with each other when the vanes are in said second position, the adjacent walls of said opening having projections adjacent the ends of the vanes, and at least one of said plates having an outwardly extending flange overlapping one of said projections to prevent the passage of light.

3. In a device of the class described, a plurality of parallel vanes extending across an opening, means for moving said vanes in unison from positions substantially parallel to the walls of the opening to positions substantially normal to said walls, in the second of which positions said vanes closely overlap to prevent passage of light therebetween, plates pivoted to the ends of said vanes adjacent opposite sides thereof and arranged to substantially contact with each other when the vanes are in said second position, shafts supporting certain of said vanes, and said plates having notches adapted to receive said shafts when the vanes are in said second position.

4. In a device of the class described, a plurality of parallel vanes extending across an opening, means for moving said vanes in unison from positions substantially parallel to the walls of the opening to positions substantially normal to said walls, in the second of which positions said vanes overlap, plates pivoted to the ends of said vanes adjacent opposite sides thereof and arranged to substantially contact with each other when the vanes are in said second position, shafts supporting certain of said vanes, and the other vanes being supported entirely from the plates secured to the vanes which have shafts.

5. In a device for controlling passage of light, a vane formed of flexible material and rigid end members to which said material is connected, a shaft rotatably supporting said end members to cause them to move in unison, a collar on said shaft, and a spring acting between said collar and one of said end members to stretch said material taut, said end member being slidable on the shaft and the opposite end member secured thereto.

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