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BLIND FOR CURVED, SINOUS AND IRREGULAR OPENINGS

Filed June 28, 1954

3 Sheets-Sheet 1

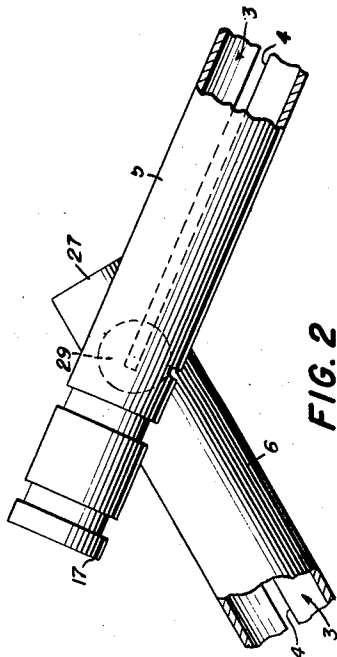


FIG. 2

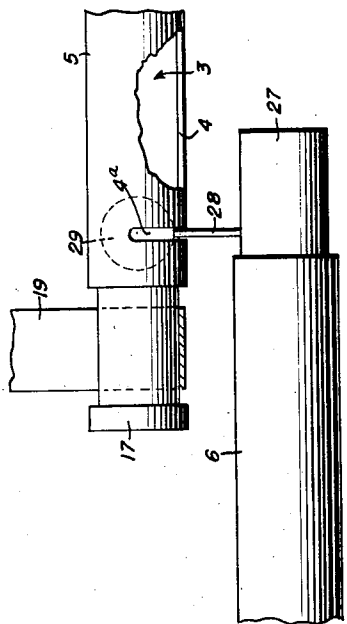


FIG. 1

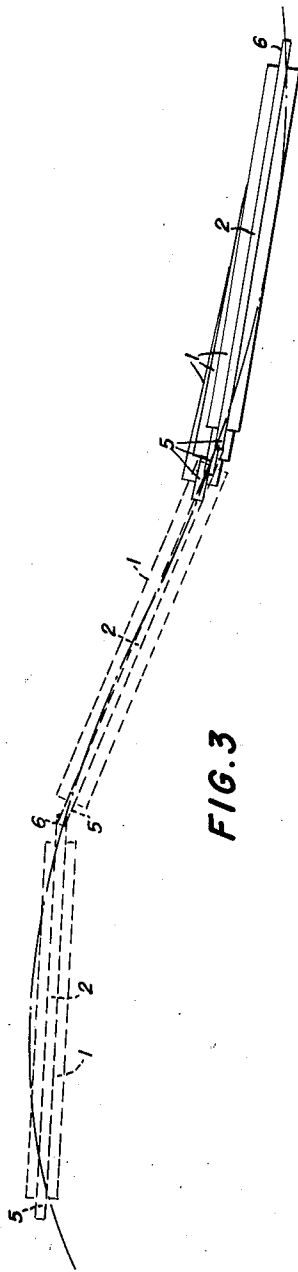


FIG. 3

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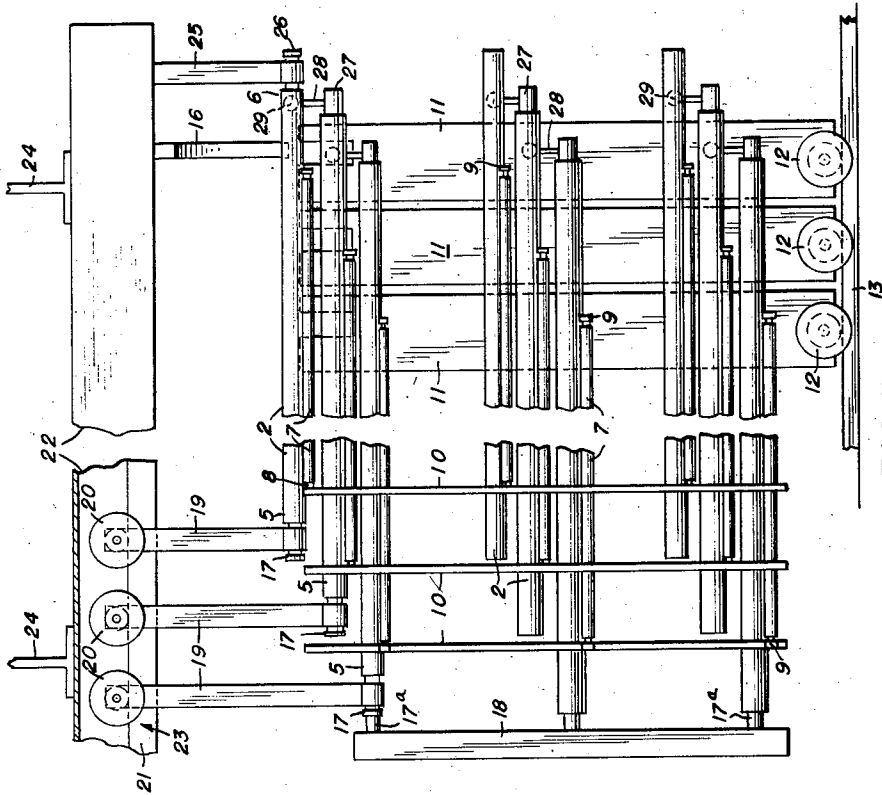


FIG. 5

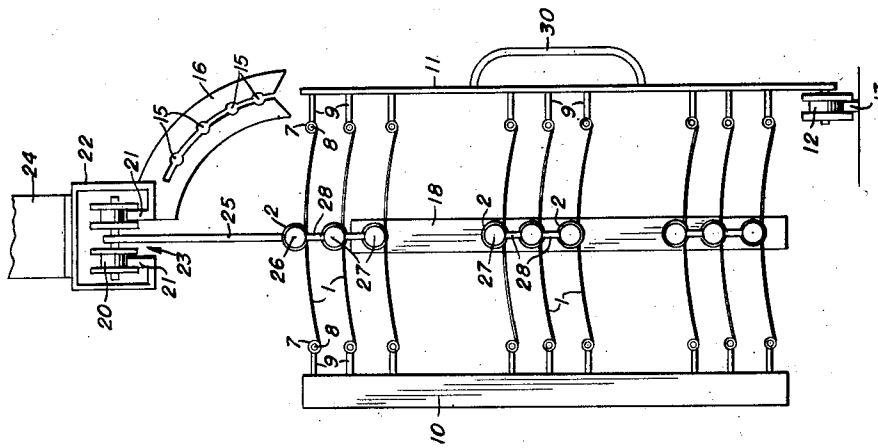


FIG. 4

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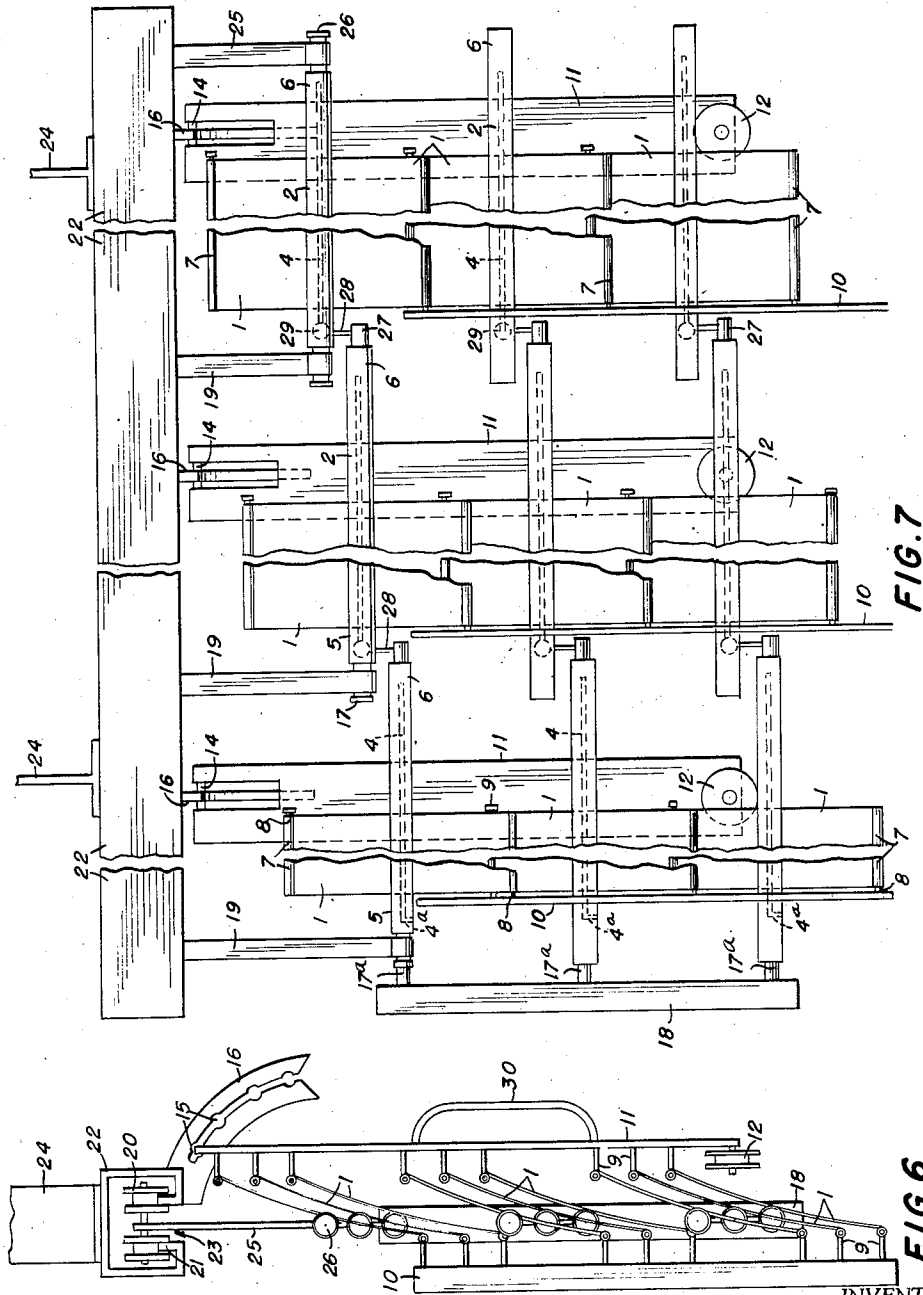
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## BLIND FOR CURVED, SINUOUS, AND IRREGULAR OPENINGS

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Application June 28, 1954, Serial No. 439,824

4 Claims. (Cl. 160—114)

This invention relates to a blind for curved, sinuous and, in general, irregular openings.

This blind can be applied to advantage on openings with curved or sinuous lines, and also on irregular lines for large or small openings in buildings.

The blind is of the type in which the inclination of the slats can be varied. It also has the advantage that it can be applied to curved, sinuous openings, or it can follow irregular openings, as it has a number of sections or panels of slats that can be extended to increase its length, or shortened to reduce its length.

This blind, applied to curved or sinuous openings, as well as having a varied inclination of the slats to regulate the passage of air and light or cut off the same, can also leave the opening totally or partially free.

Its application covers a broad field because, as well as being applicable to buildings, it can also be applied to openings in any kind of vehicles.

In order that the invention may be fully understood, references will now be made to the drawings, in which:

Fig. 1 shows in elevation a rotary and sliding connection that unite one end of a slat of one panel to a slat of an adjacent panel;

Fig. 2 is a view similar to Fig. 1 as seen from the top;

Fig. 3 shows in dotted lines how the slats of the blind may be extended to cover an opening of sinuous lines and at the same time shows in full lines how the slats are positioned when they are drawn back and overlap in the form of "stairs" when the length of the blind is shortened;

Fig. 4 is an end elevation with all slats in a horizontal position, showing how they remain when they are drawn back and are overlapping;

Fig. 5 is a fragmentary front elevation of Fig. 4;

Fig. 6 is a view similar to Fig. 4 with the slats tilted and extended; and

Fig. 7 is a view similar to Fig. 5 but with the slats tilted and the blind extended.

The blind is composed of a number of panels of rectangular slats 1, preferably made of duraluminum or other appropriate material, the width and length of which will be in accordance to the opening in which it will operate. Each one of these slats, which present a concave-convex profile, have in the middle a hollow cylindrical rib 2 extending the full length, forming a cylindrical cavity 3 which communicates with the lower or concave face of the slats through a longitudinal opening 4 and transverse slots 4<sup>a</sup> at the ends of the openings 4. Said cylindrical rib 2 extends beyond the ends of said slats and forms the connections 5 and 6 that support the slats. Said slats are formed on both sides with tubular borders 7 which terminate in bolts 8 at their ends to articulate with the supporting bushes 9 that are fastened to vertical supports 10 and 11, which vertical supports 11 act as a cover for the connections. At their lower ends the supports 11 are provided with grooved wheels 12 so that they can be guided on rail 13. The upper end carries a bolt 14 which fits into the holes 15 of anchorage supports 16.

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Bolts 17 are fixed to connecting links 5 and are supported from above by straps 19. Bolts 17<sup>a</sup> are provided in the ends of the ribs 2 on the end sliding panel and are united one with the other by a support 18 which simultaneously works each series of overlapping slats.

Supports 19 are joined to upper bolt 17 or 17<sup>a</sup> of each section or panel of slats 1. At the upper ends of supports 19 are two grooved wheels 20 which run on rails 21 formed in the support or tubular lintel 22 to permit the passage of hanging supports 19 through the opening 23. The top part of lintel 22 is held by a number of anchorage supports 24.

Supports 25 are similar to the hanging supports 19 and are also provided with wheels that run on the rails of the hollow support 22. The lower end of support 25 is joined to bolt 26 that is fixed to the hollow connecting link 6 of slat 1 of one panel of slats. All other lower slats 1 have a bolt 27 fixed to them, which overlaps a perpendicular rod 28 provided with a sphere 29 at its upper end. Rod 28 enters the longitudinal opening 4 to the cavity 3 where said sphere 29 is placed and works as a sliding connection between the two overlapping slats.

A handle 30 is joined to one or more vertical supports 11 to operate the blind and vary the inclination of the slats.

When the blind is folded longitudinally, that is, in a transverse direction to the opening to which it is applied, all slats are overlapped in groups, in this manner reducing to the minimum the length of the blind, as can be seen in Figs. 4 and 5, duly guided into place by tubular lintel 22 and rail 13, which should have the same curves, sinuosities and irregular lines to coincide one with the other, so that the blind may be extended and drawn back correctly.

Pulling the support 18 from right to left, pulls, through bolts 17<sup>a</sup>, connecting links 5 of the slats of the first panel of slats.

On pulling bolts 17<sup>a</sup>, the slats 1, link 6, bolt 27, rod 28 and sphere 29 slide longitudinally until the ball 29 runs against bolt 17, which then pulls the immediate upper slat, repeating this operation according to the number of panels of overlapping slats the blind has.

The blind is then extended, guided in both upper and lower ends by lintel 22 and rail 13 following the outline of the opening. The blind can easily follow the sinuous or irregular path travelled, because between each lower and upper slat there is a connection that, as well as being a slide, acts as an articulation on the vertical axis, permitting it to travel any distance to extend it partially or totally or to draw it back.

Inclination of slats can be varied when the blind is extended by taking the handle 30 and having bolt 4 fit into one of the anchorage holes 15, as can be seen in Fig. 6.

In order that slats 1 may revolve on the axis of bolts 17 and 17<sup>a</sup>, the connecting link 5 has a radial cut 4<sup>a</sup>, which can be seen in Figs. 1 and 7, so that rods 28 that connect elements 27 to spheres 29 permit rotation of the slats 1. While rods 28 are in opening 4 the slats 1 cannot rotate into inclined position.

In order to draw back these blinds the slats are placed horizontally, as shown in Fig. 4. Support 18 is pushed from left to right so that the lower slats of each panel or section of slats runs beneath the slats of the next adjacent panel until spheres 29 in each case run against bolts 27 of the next panel, drawing it back. Then, as shown in Fig. 5 in which there are only three sections, on keeping on pushing the intermediate panel of slats run against bolt 26 to reduce the length of the blind still further, and in these conditions the entire blind can be guided into place by tracks 22 and 13 to one side of the opening, or be hidden in a cavity formed for this purpose on one side

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of the frame of the opening to which the blind has been applied, (not shown).

It is evident that when putting this invention into practice the most appropriate materials may be used and modifications of constructive details may be introduced without, however, departing from the sphere of the invention.

I claim exclusive rights on my invention as follows:

1. A laterally extensible Venetian blind comprising a first panel made up of a first vertical column of concave-convex horizontal slats, each slat having a central longitudinal hollow rib extending the length of the slat and therebeyond at each end, said hollow rib presenting a narrow longitudinal opening on the under surface of each slat, a second panel made up of a second vertical column of slats similar to said above-described first column of slats, one end of each slat in said second column being slidably suspended from a slat in said first column by means slidable within said hollow ribs of a slat in said first column, and means slidable in a track at the head of said columns to support the free ends of said second column slats.

2. The laterally extensible Venetian blind of claim 1,

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in which the sliding support between adjacent panels is such that the several panels are articulated whereby the blind may be mounted on a curved track to follow the shape of a curved window.

3. A laterally extensible Venetian blind for windows or other openings comprising a stationary and a plurality of sliding panels of tiltable slats, one end of the slats of the sliding panels being supported from the slats of an adjacent panel, the other ends of the slats of the sliding panels and the slats of the stationary panel being supported from a track at the top of the opening.

4. The extensible Venetian blind of claim 3, in which the slats of each sliding panel are supported from the adjacent panel by means of a pivotal and sliding member whereby the panels may follow a curved track to conform to the plan of the opening.

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