

Nov. 17, 1953

S. D. GRUBBS, SR
DAYLIGHT SHIELD FOR DRIVE-IN OR OTHER OUTDOOR
MOVING PICTURE THEATER PROJECTION SCREENS

2,659,429

Filed April 26, 1951

4 Sheets-Sheet 1

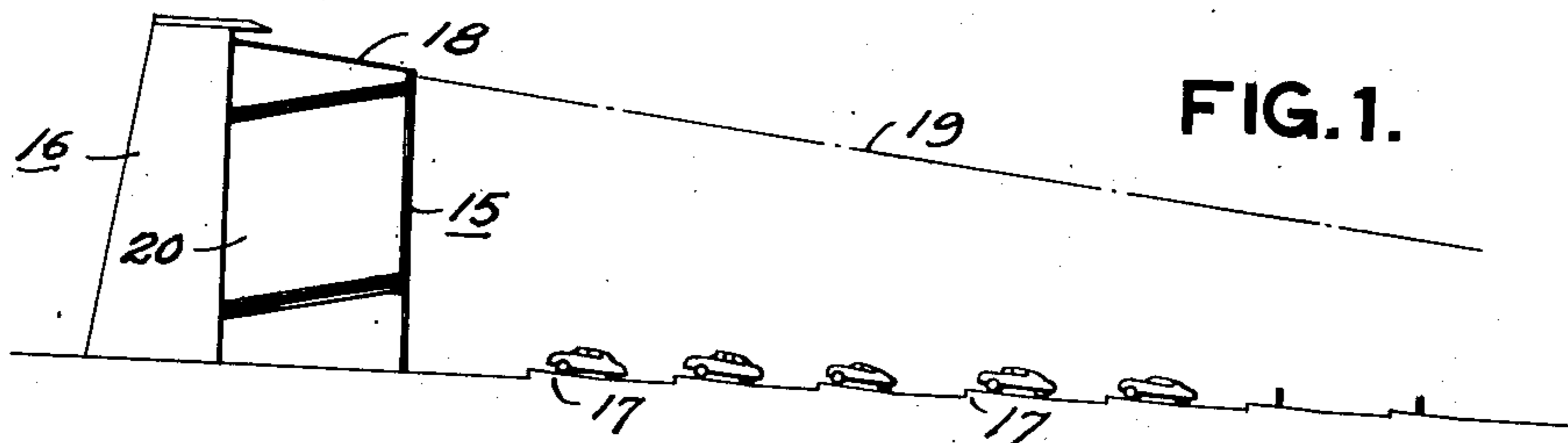


FIG. 2.

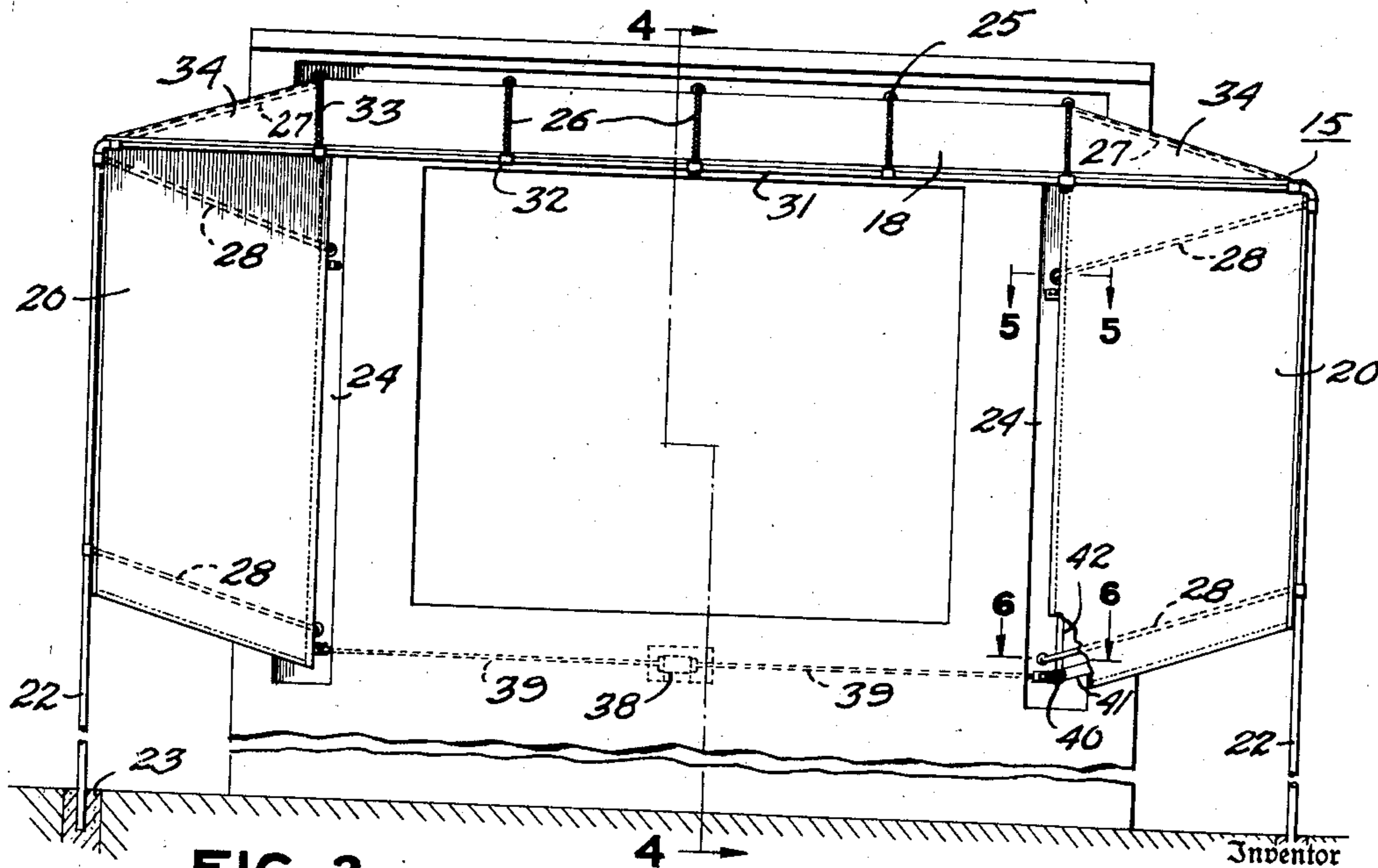
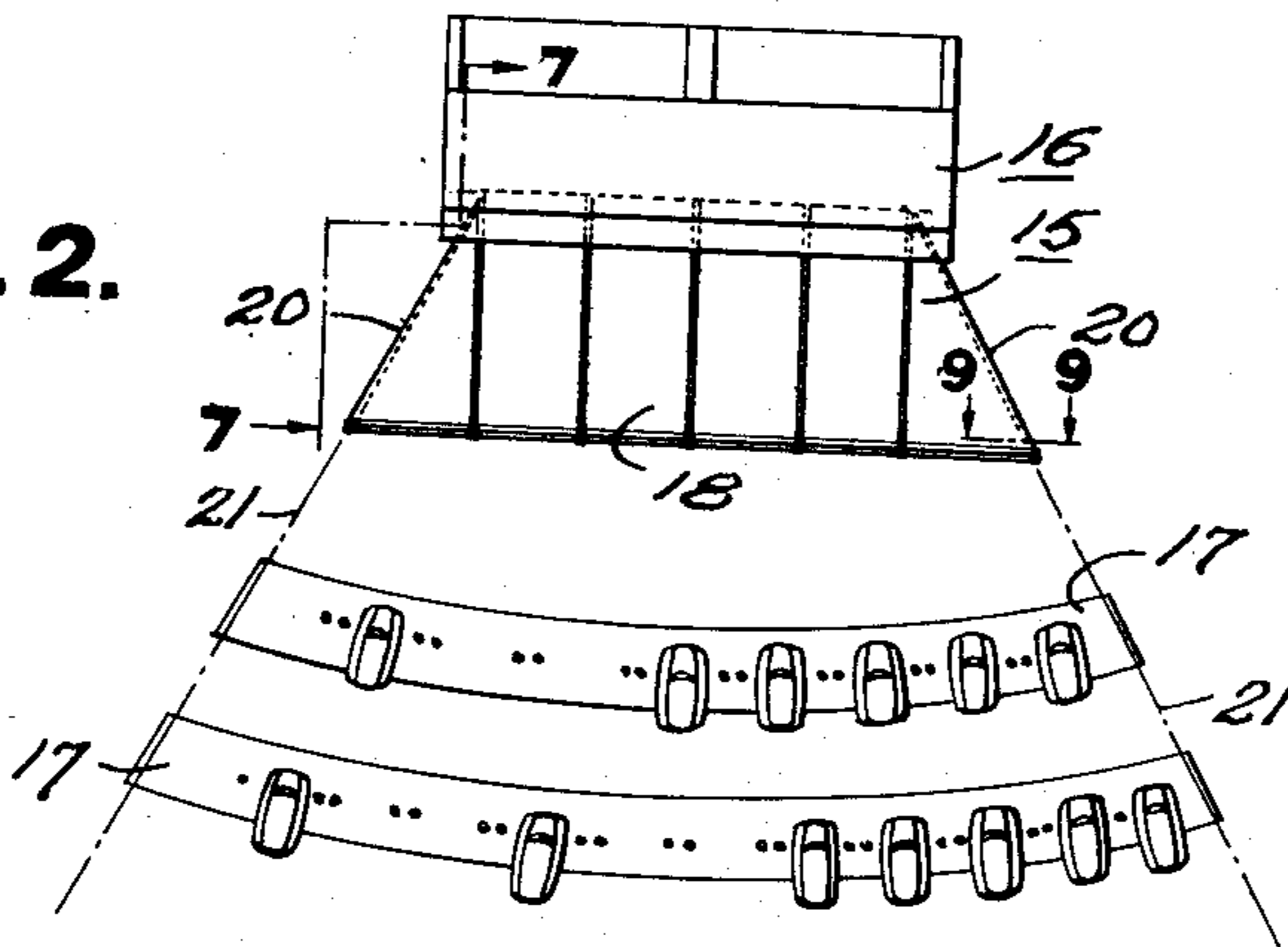


FIG. 3.

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4 Sheets-Sheet 2

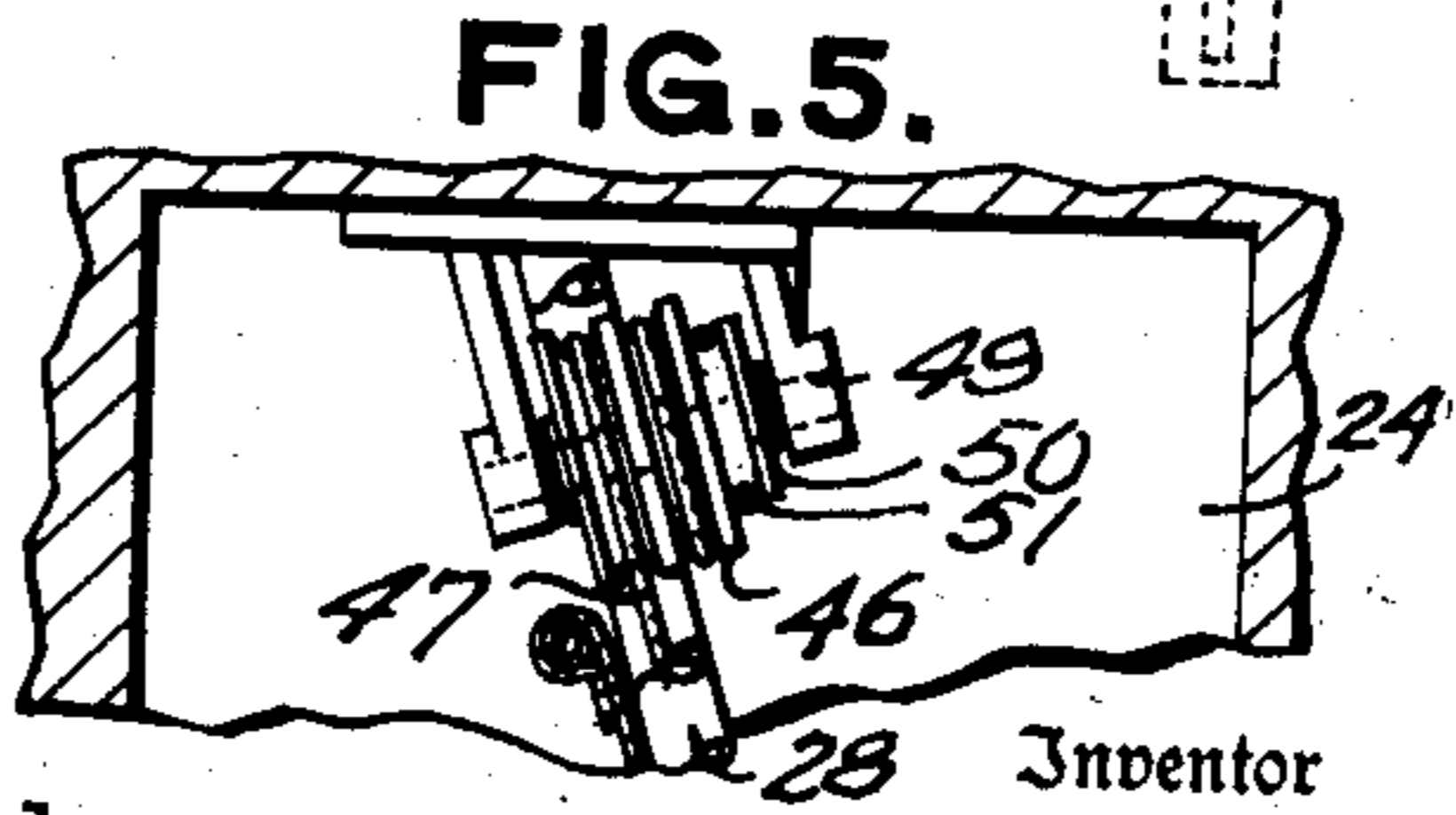
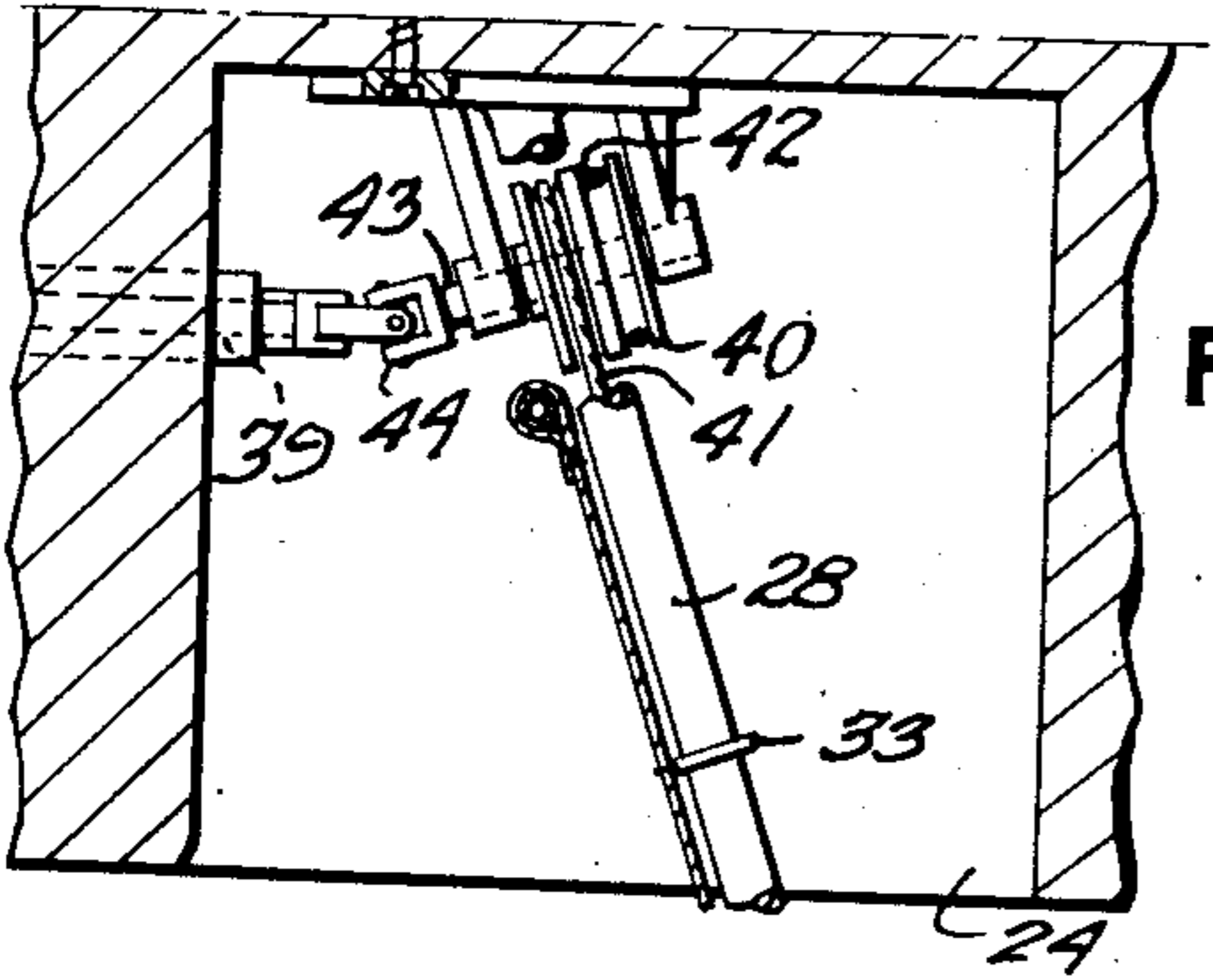
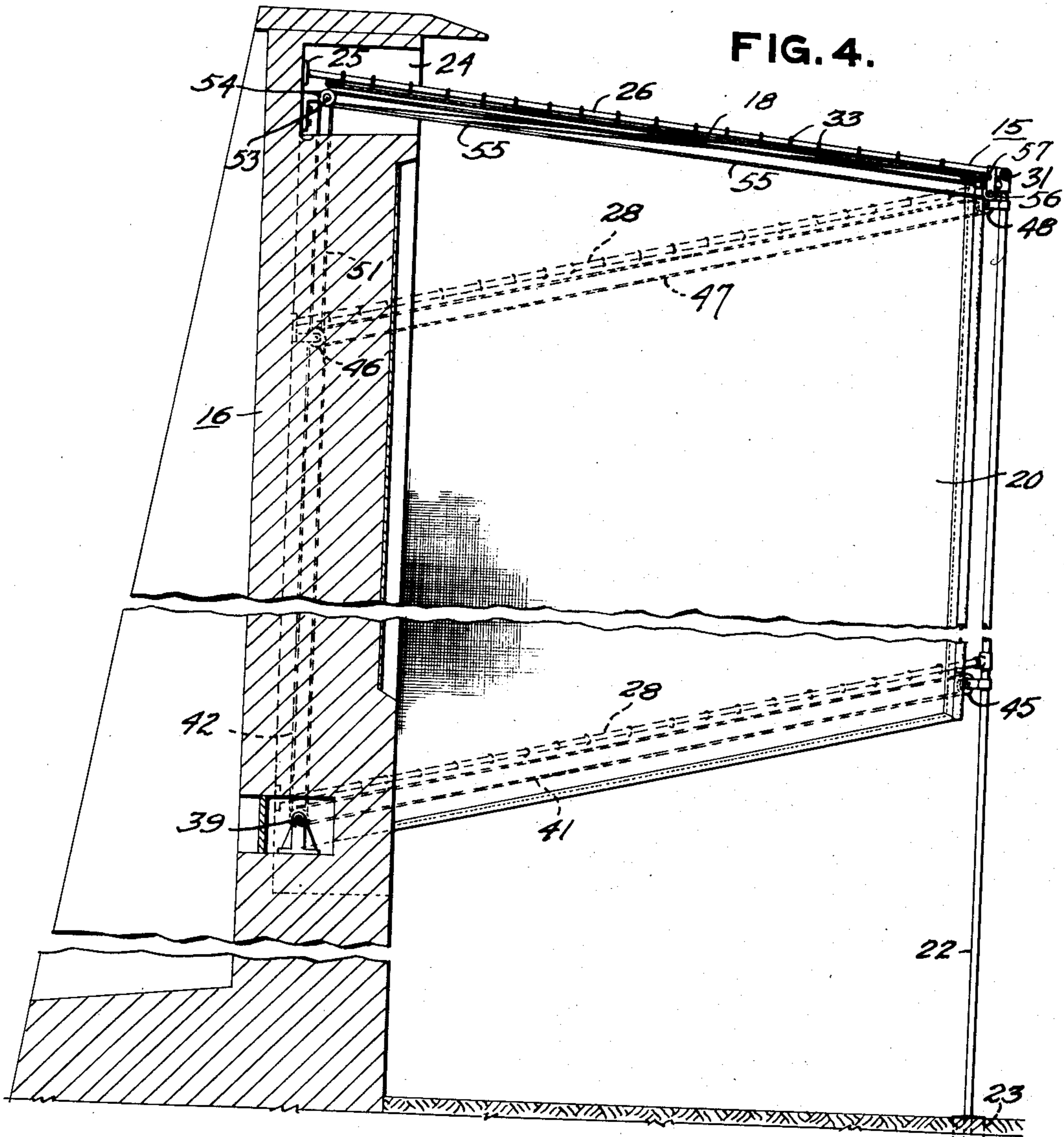


FIG. 6.

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4 Sheets-Sheet 3

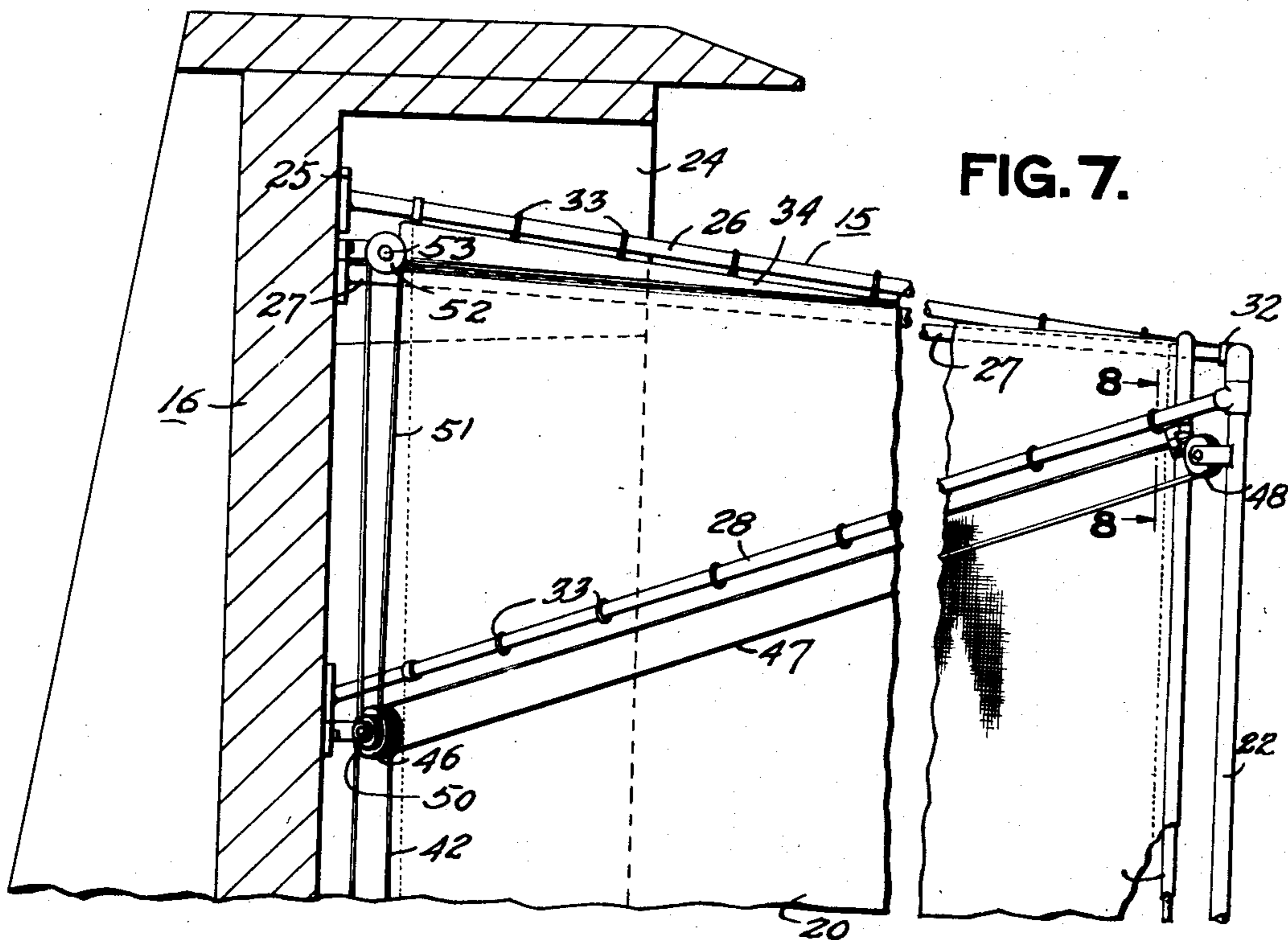


FIG. 7.

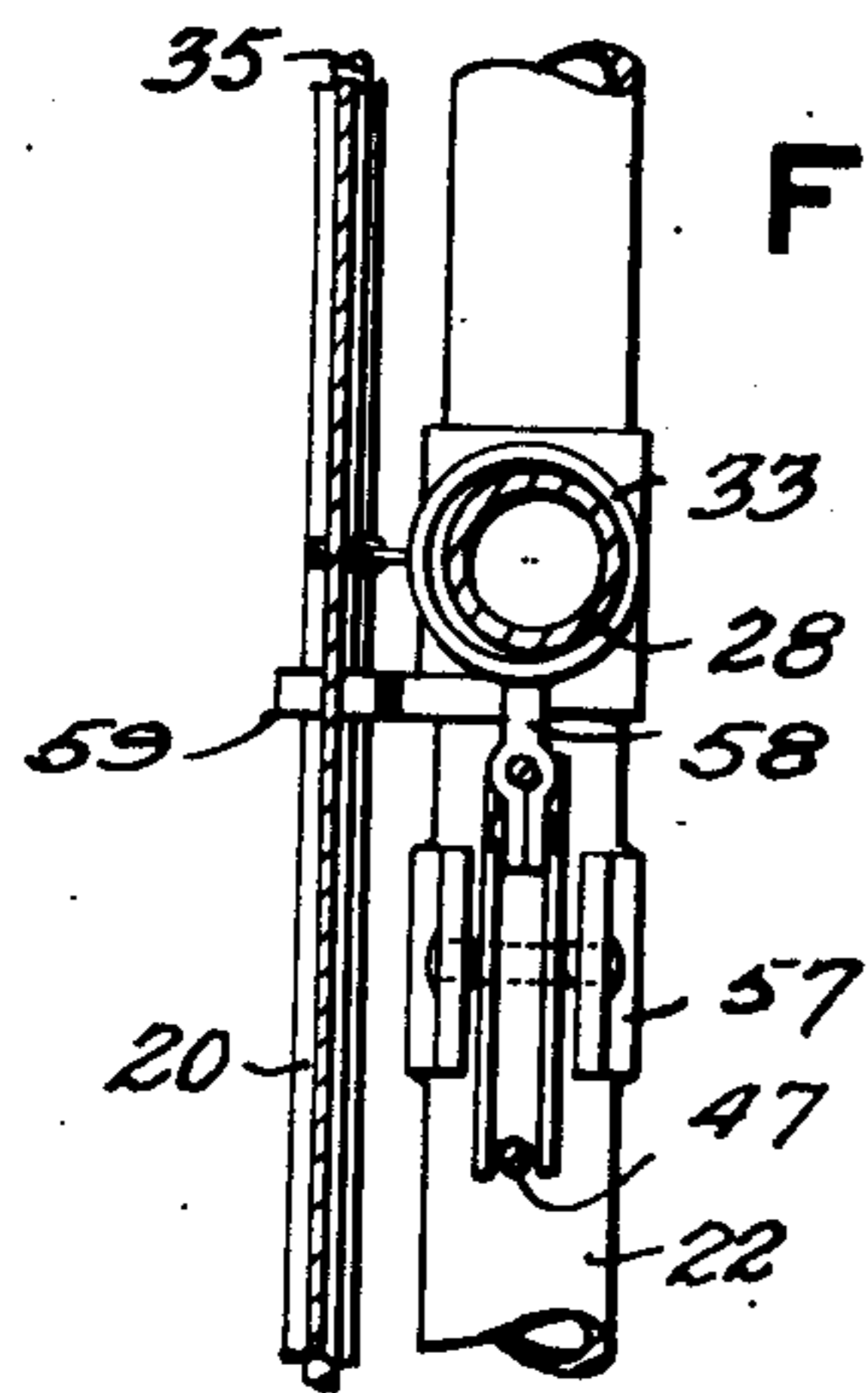


FIG. 8.

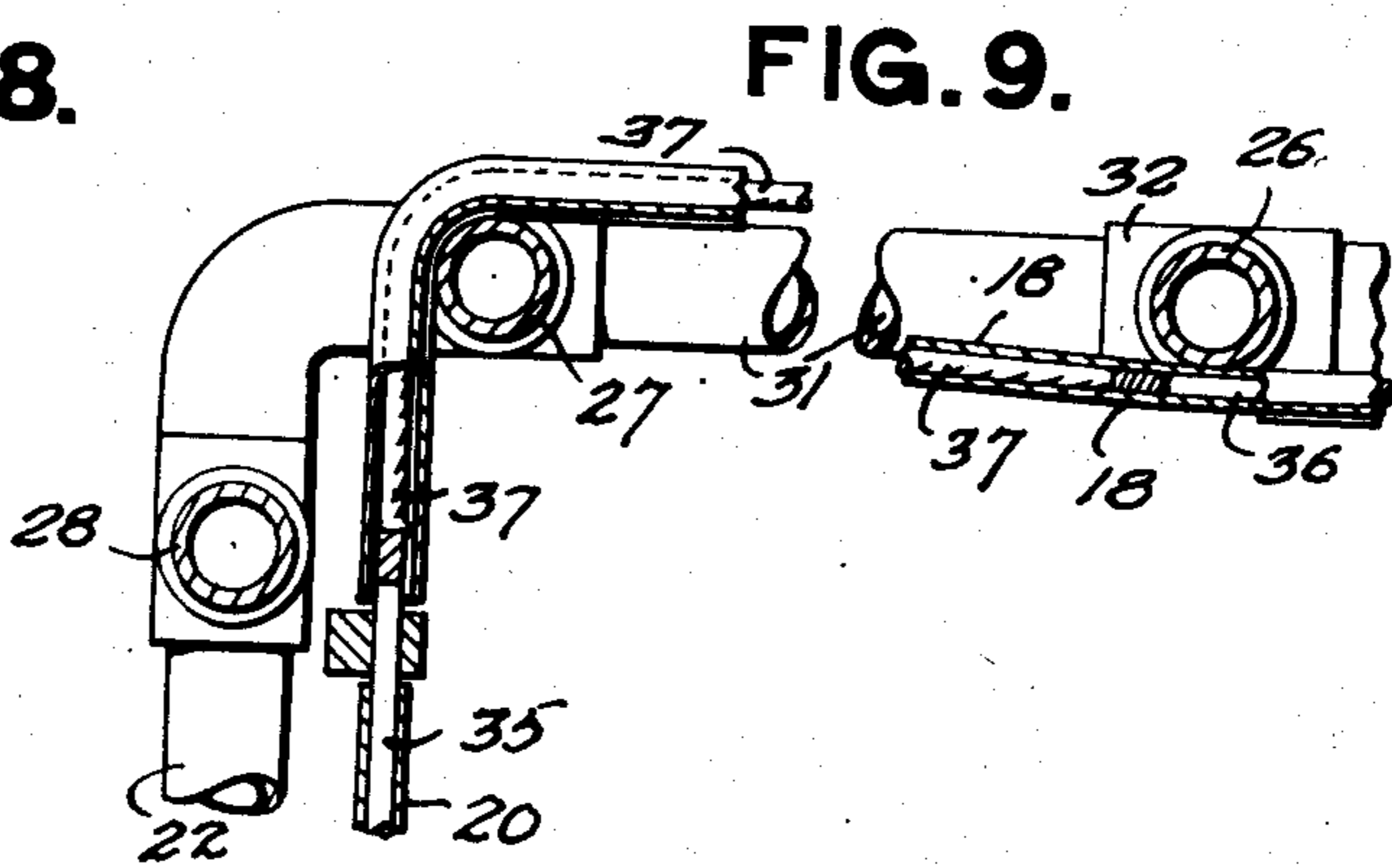


FIG. 9.

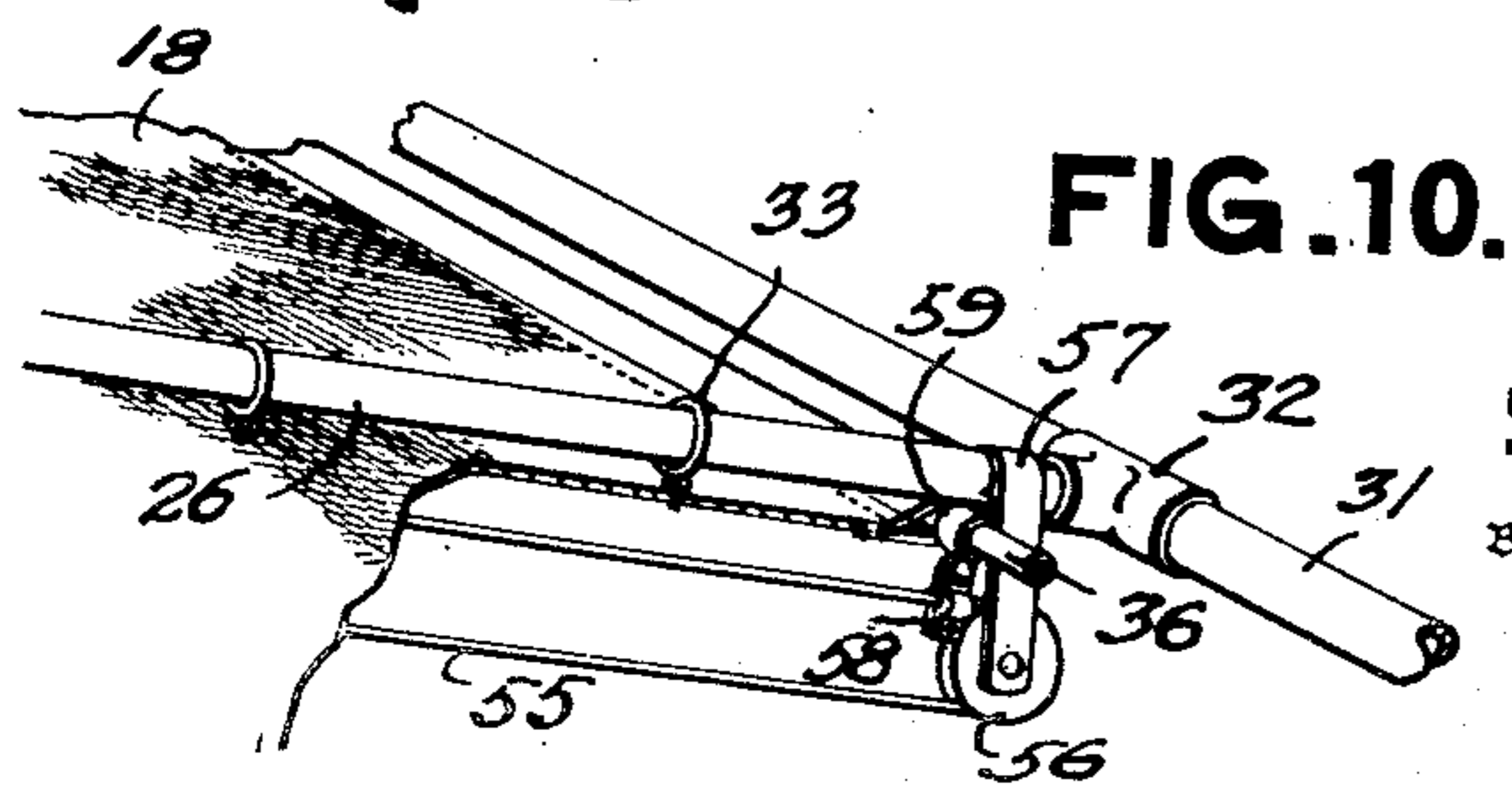


FIG. 10.

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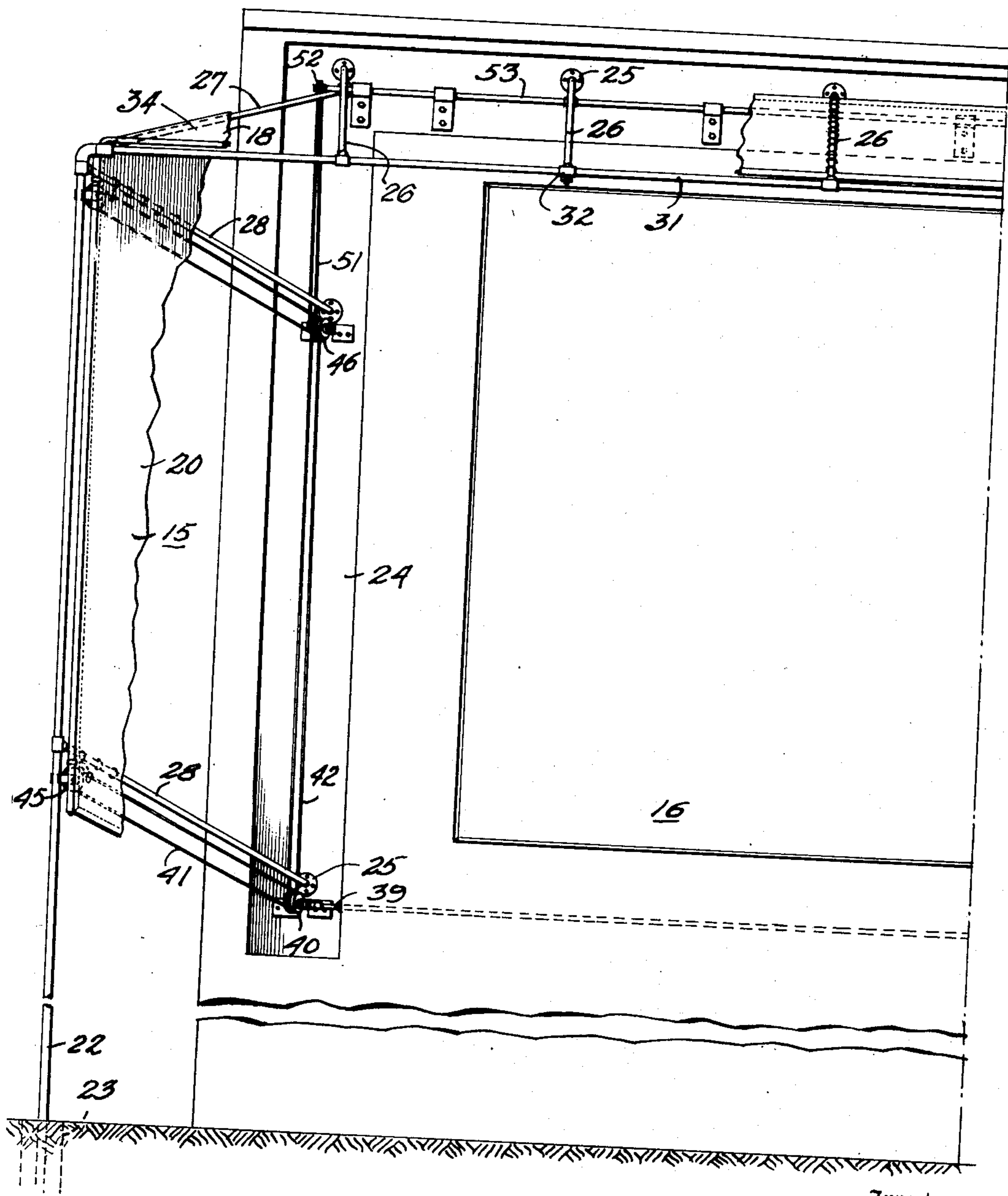
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FIG. 11.



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UNITED STATES PATENT OFFICE

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DAYLIGHT SHIELD FOR DRIVE-IN OR OTHER OUTDOOR MOVING PICTURE THEATER PROJECTION SCREENS

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Application April 26, 1951, Serial No. 223,114

6 Claims. (Cl. 160—22)

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This invention relates to a daylight shield for drive-in or other outdoor moving picture theater projection screens and more particularly to a daylight shield to be erected in front of and attached to the framework or tower that holds the moving picture projection screen.

A serious objection to outdoor moving pictures has been the necessity of waiting until darkness or deep dusk to commence the programs. The average show lasts from two to two and one-quarter hours. In this part of the country and with daylight saving in effect, this means that shows cannot commence until 8:30 or 8:45 p.m. Thus the first show is over at 10:30 or 10:45 p.m. and the second show is not out until about 1 a.m.

A particular object of this invention is to provide a curtain shade or shield for shutting out or shading the projection screen from the evening light with the result that a program could start from one and one-half to two hours earlier. As an example a black curtain extending out 15 or 20 feet from the picture projection screen at the sides and top brings out the picture clearly while it is still quite light outdoors.

Another object of this invention is to provide such a daylight shade or shield which is positioned or may be extended into position for shielding the picture projection screen to the fullest extent and yet provide full view of the projection screen from all viewing positions in the field in front thereof occupied by cars in the range of the projection screen. Accordingly the shield or movable curtain may be constructed so that its roof slopes downwardly outward from the top of the picture projection screen so that the line of full vision extends to the extreme rear of the field, and the side portions thereof flare outwardly from the sides of the projection screen, thereby limiting the full vision to the area for occupancy of cars. It is to be noted that such areas or fields may be of the type employing varying sloping ramps defining the viewing stations for the cars though the present invention is not limited to such viewing station arrangements except as the stations define the area of the viewing field.

Another object of the invention is to provide such a shield in the form of a curtain which may be extended into position or retracted into closets or compartments provided at the sides and top of the picture projection screen.

Further objects and advantages of my invention will appear in the following detailed description of a highly satisfactory movable curtain daylight shield and illustrated in the accompany-

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ing drawings forming a part of this specification.

In the drawings:

Fig. 1 is a side view diagrammatically illustrating a daylight shield in accordance with my invention applied to an outdoor picture projection screen with automobile stations arranged for viewing the screen.

Fig. 2 is a diagrammatic plan view of the same.

Fig. 3 is a front elevation of the daylight shield applied to a picture projection screen on a larger scale.

Fig. 4 is a vertical sectional view thereof taken substantially on line 4—4 of Fig. 3.

Figs. 5 and 6 are fragmentary enlarged detail horizontal sectional views taken on lines 5—5 and 6—6 respectively of Fig. 3.

Fig. 7 is a vertical detail sectional view on a larger scale taken substantially on line 7—7 of Fig. 2.

Figs. 8 and 9 are enlarged detail vertical sectional views taken on line 8—8 of Fig. 7 and on line 9—9 of Fig. 2 respectively.

Fig. 10 is a fragmentary detail perspective view of a portion of the roof of the shield.

Fig. 11 is an enlarged front elevation of one side of the projection and daylight shields with portions thereof broken away.

Referring to the drawings, in general as illustrated in Figs. 1 and 2 a daylight shield or curtain 15 is illustrated as attached to a picture projection screen 16 for a drive-in outdoor moving picture theater with car stations comprising the usual accessories and arranged in an arcuate viewing field in front of the projection screen. In accordance with this invention the daylight shield has a roof portion 18 inclined forwardly from the top of the projection screen so that the projected line 19 thereof extends above the entire viewing field, and its side portions 20 flaring outwardly from the sides of the projection screen so that the projected lines 21 thereof extend along the outer sides of the viewing field. By such arrangement of the daylight shield the daylight although not entirely excluded is reduced to such an extent that clear pictures can be seen on the screen and it makes possible the earlier starting of drive-in and outdoor moving picture programs. This permits the theater an extra two hours or more of show time before darkness which is an additional show per evening and permits the patrons to see an entire program and leave the theater as early as 9:30 p.m. instead of 10:30 or 11:00 p.m. The arrangement of the daylight shield also permits

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clear vision of the entire projection screen to the entire viewing field and limits the view of the entire projection screen to such viewing field beyond which viewing area of projection screen is materially reduced.

In accordance with a preferred highly satisfactory construction the drawings show a daylight shield 15 for use in conjunction with and attached to the tower or framework which holds the projection screen 16 in drive-in or other outdoor moving picture theaters.

Supports for the daylight shield 15 are preferably of metal of tube or rod formations and include two vertical, outside, corner posts or supports 22 which are set in concrete bases 23 or are otherwise firmly imbedded in the ground. Other daylight shield supports which extend to these posts and other posts are fastened firmly by threaded fittings such as T's, L's and flanges. Lateral rods or supports 26, 27 and 28 extend from the corner posts 22 and are attached to the tower or framework of the projection screen 16 being fastened to the inside of curtain storage closets 24 with wall flanges 25. The curtain or shield storage space or recess extends around the projection screen area and at the side to some distance below the projection screen. This closet or recess is for storing curtain when not in use and for protection of the equipment from weather.

The shield 15 is made of canvas, cloth, rubber, plastic or other material and extends along the rods 26, 27 and 28, being firmly attached at the back of the storage closet 24. The insides of the side walls 20 and the underside of the top 18 of shield 15 is preferably a black material or painted black. The supporting framework is arranged so that angle of the side walls 20 of shield or curtain 15 will give a clear and unobstructed view of the projection screen from cars on the outside ramps and so that that the top 18 of the screen 15 will give a clear and unobstructed view of the projection screen from cars on the outside ramps and so that the top 18 of the shield 15 will slope to the front but leave an unobstructed view of the projection screen by cars parked on the rear ramps.

Referring to the construction of the shield supporting framework more particularly, the corner posts or supports 22 are connected between their upper ends by a horizontal member 31 of rod or tubular construction which is in front of and parallel to the front of the picture projection screen but at a lower level than the ends of rods 26 which are secured by means of wall flanges 25 in the upper horizontal portion of the storage closet 24. These rods 26 are parallel to each other, slope downwardly from the closet or curtain receiving recess and are secured at the corresponding spaced intervals to the horizontal member 31 as by means of T-pipe fittings 32.

Rods 27 flare outwardly from the projection screen tower daylight shield closet 24 and are secured therein on flanges at a slightly lower level than the flanges to which rods 26 are secured and substantially under the flanges of the outer side rods 26. The rods 27 are secured to upright posts or rods 22 substantially at their juncture with the horizontal rod member 31.

The side rods 28 are secured in the closet 24 side portions by similar wall flanges 25, the upper of these rods being secured below the rod 27 at substantially the same distance as the outer end of this rod is from the outer end of the side

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rod 26 where they are secured to the corner support 22 and horizontal support 31 respectively. The two rods 28 thus slope upwardly from their connections in the shield or curtain closet side portions to their outer connections with the corner posts 22. This arrangement affords a smooth supporting arrangement for the daylight shield 15 as will be further described.

The daylight shield or curtain 15 has iron rings 33 secured to it that encircle and slide along the supporting rods 26 and 28 along the top and sides thereof respectively so that the curtain extends below the top rods 26 and on the inner sides of rods 28. The side portions 20 are obviously wider than the major top portion 18 of the shield 15 due to the difference in angularity of the side portions with respect to the slope of the top portion, thus necessitating triangular portions 34 forming a connection between the top portion and these wider side portions and providing a continuous smooth surface of the shield portions when extended or unfurled over the framework. This triangular portion engages over the top of the flaring side rods 27 and when the curtain is drawn into the cabinet or closet 24 it has a sliding engagement therewith, its outer edge sliding lengthwise thereof with its inner portions also having proportionate lengthwise sliding movement with respect thereto.

By this arrangement the outer edge of the daylight curtain or shield 15 has a total length equivalent to the total length of the inner edge as also the lengths of intermediate portions. Thus the shield may be drawn into the recess or closed smoothly when not in use so as to be protected from the weather. As shown in detail in Fig. 9 the outer edge of the shield is reinforced by rods 35 and 36 in the hem at the outer edges of the side and top portions 20 and 18 respectively and a flexible reinforcing element 37 which may bend in lengthwise sliding over rod 27. Element 37 is shown as a cable connecting adjacent ends of rods 35 and 36 by welding or the like.

As a satisfactory means for extending and retracting the daylight shield 15 I have employed a system of cables which is operated by an electric motor 38 having shafts 39 extending endwise therefrom adjacent the lower portion of the projection screen tower as indicated in Fig. 3. The outer ends of these shafts extend into the lower ends of the shield closet side portions and are provided with pulleys 40 for driving a cable system for operating the daylight screen. As shown in detail in Fig. 6 pulley 40 is a double pulley or a pair of pulleys, sheave type, for receiving belts shown as cables 41 and 42 which extend outward and upwardly therefrom respectively. These pulleys, instead of being mounted directly on shaft 39, are secured on a stub shaft 43 at an angle, corresponding to angle of the side portion of the daylight shield, and are connected to the drive shaft 39 by a universal joint, knuckle or connection 44.

Cables 41 and 42 are endless belts, the former, at its outer portion passing over a pulley 45 as shown in Fig. 4, and the latter at its upper portion extending over one of a pair of pulleys 46. The other of the pair of pulleys 46 carries a belt or cable 47 which extends outwardly therefrom and passes over a pulley 48 in a similar manner as belt 41 is mounted and so that both of these belts will be driven at the same speed.

As shown in Fig. 5 the pair of pulleys 48 is

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mounted on a shaft 49 upon which is also mounted a pulley 50 of smaller diameter for driving an upwardly extending belt cable 51 at relatively lower speed. This cable 51 passes over a pulley 52, see Fig. 7, on a drive shaft 53 extending crosswise through the upper horizontal portion of the daylight shield closet 24. This shaft is provided with similar driving pulleys 54 which drive belt cables 55 extending outwardly and sloping downwardly and carried over pulleys 56 mounted in brackets 57 carried by the outer ends of rods 23 as best shown in Figs. 4 and 10.

As just indicated the speed of belt 51 is lower than that of belts 41 and 47, the ratio being such that belts 41, 47 and 55 will be driven at speeds directly in proportion to their lengths and the drive of shaft 52 by the cables 51 and pulleys 52 at both ends insures the proper speeds being uniformly maintained. Each of the cables 41, 47 and 55 has a clamping member 58 secured to it and extending therefrom with its other end provided with clamping means 59 for engaging the corresponding reinforcing rods 35 and 36. Thus when the cable system is operated the outer margin of the daylight shield will be uniformly moved inwardly or outwardly for retracting the screen into the closet 24 or extending it outwardly therefrom into daylight shielding position.

It will be seen that this daylight shield when used in connection with drive-in or other outdoor theater, pavilion or auditorium projection screen towers or supports, protects from and aids in screening or shutting out natural and artificial light rays and brings the projected pictures into clearer focus, shades the projection screen from highway lights, advertising signs or automobile headlights and protects it from bright moonlight rays and from the late evening or twilight and thereby permits the earlier commencing of drive-in theater or other outdoor programs where moving or still pictures are projected upon a screen.

Among other advantages the heavy supports or rods of the daylight shield framework with the corner uprights firmly imbedded in the ground or in concrete act as an additional support and brace to the screen tower during heavy winds.

I claim:

1. A daylight shield for attachment to the forward portion of the tower for an outdoor moving picture projection screen, said shield having side and top portions of flexible material extending forwardly from the sides and top of the projection screen to prevent extraneous lights from reaching the projection screen, supporting structure for the shield including upright standards in front of and to the sides of the tower, and framework extending outwardly from the tower and connected to said upright standards for supporting the shield, the top portion of the framework sloping outwardly and downwardly from the tower above the projection screen and the side portions of the shield and flaring laterally outward from the sides of the projection screen along the sides of tower.

2. A daylight shield for the forward portion of an outdoor moving picture projection screen having side and top portions of flexible material extending forwardly from the sides and top of the projection screen to prevent extraneous lights from reaching the projection screen, a tower for supporting the projection screen, and a frame structure for supporting said daylight shield, the top of said shield sloping forwardly and downwardly from the tower above the projection screen and side portions of the shield flaring out-

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wardly from the tower at the sides of the projection screen including, a supporting post in front of and at each side of the projection screen tower, a horizontal element connected to the upper ends of said supporting posts, and lateral supporting elements connected with and extending from the tower from points above the top of the projection screen and beyond the sides of the screen and having their forward ends connected to said horizontal element and said posts.

3. A daylight shield for the forward portion of an outdoor moving picture projection screen having side and top portions of flexible material extending forwardly from the sides and top of the projection screen to prevent extraneous light from reaching the projection screen, a tower for supporting the projection screen, and a frame structure for supporting said daylight shield, the top of said shield sloping forwardly and downwardly from the tower above the projection screen and side portions of the shield flaring outwardly from the tower at the sides of the projection screen including, a supporting post in front of and at each side of the projection screen tower, a horizontal element connected to the upper ends of said supporting posts, lateral supporting elements extending from the tower from points above the top of the projection screen and beyond the sides of the screen and having their forward ends connected with said horizontal element and said posts, said tower having a recess extending into its upper and side portions beyond the projection screen area providing a closet for the daylight shield, means securing the inner ends of said lateral supporting elements within said recess, and means for extending the flexible material shield over said lateral supporting elements and for retracting the same therefrom and into the screen closet.

4. A daylight shield for the forward portion of an outdoor moving picture projection screen having side and top portions of flexible material extending forwardly from the sides and top of the projection screen to prevent extraneous lights from reaching the projection screen, a tower for supporting the projection screen, and a frame structure for supporting said daylight shield, the top of said shield sloping forwardly and downwardly from the tower above the projection screen and side portions of the shield flaring outwardly from the tower at the sides of the projection screen including, a supporting post in front of and at each side of the projection screen tower each positioned at an angle outwardly therefrom a horizontal element connected to the upper ends of said supporting posts, and lateral supporting elements extending from the tower from points above the top of the projection screen sloping forwardly therefrom and beyond the sides of the screen extending at an angle laterally outwardly and downwardly therefrom with their forward ends connected to said horizontal element and said posts respectively.

5. A daylight shield for the forward portion of an outdoor moving picture projection screen having side and top portions of flexible material extending forwardly from the sides and top of the projection screen to prevent extraneous lights from reaching the projection screen, a tower for supporting the projection screen, and a frame structure for supporting said daylight shield, the top of said shield sloping forwardly and downwardly from the tower above the projection screen and side portions of the shield flaring outwardly from the tower at the sides of the projection

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screen including, a supporting post in front of and at each side of the projection screen tower each positioned at an angle outwardly therefrom a horizontal element connected to the upper ends of said supporting posts, lateral supporting elements extending from the tower from points above the top of the projection screen sloping forwardly therefrom and beyond the sides of the screen extending at an angle laterally outwardly and downwardly therefrom with their forward ends connected to said horizontal element and said posts respectively, and a supporting element connected substantially to the juncture of each corner post and said horizontal element and extending therefrom and each connected to the tower and being substantially in the plane of the laterally extending supporting elements connected to sides of the tower and slightly below the plane of the supports connected to the tower above the projection screen.

6. A daylight shield for the forward portion of an outdoor moving picture projection screen having side and top portions of flexible material extending forwardly from the sides and top of the projection screen to prevent extraneous lights from reaching the projection screen, a tower for supporting the projection screen, and a frame structure for supporting said daylight shield, the top of said shield sloping forwardly and downwardly from the tower above the projection screen and side portions of the shield flaring outwardly from the tower at the sides of the projection screen including, a supporting post in front of and at each side of the projection screen tower each at an angle outwardly therefrom, top supporting elements extending in parallel relationship from the tower from points above the top

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of the projection screen sloping forwardly and downwardly therefrom with their forward ends connected to said horizontal element, lateral supporting elements at the sides of the projection screen extending laterally outwardly and sloping upwardly in parallel relationship with their outer ends connected with said supporting posts, respectively, a supporting element connected substantially to the juncture of each corner post and said horizontal element and extending therefrom and each connected to the tower and being substantially in the plane of the lateral supporting elements connected to sides of the tower and slightly below the plane of the top supporting elements connected to the tower above the projection screen, and said flexible daylight shield having rings secured thereto and encircling each of the said top and lateral supporting elements, the flexible shield extending inside of said lateral supporting elements and under said top supporting elements and having a sliding engagement over the last named supporting elements.

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