

Jan. 12, 1960

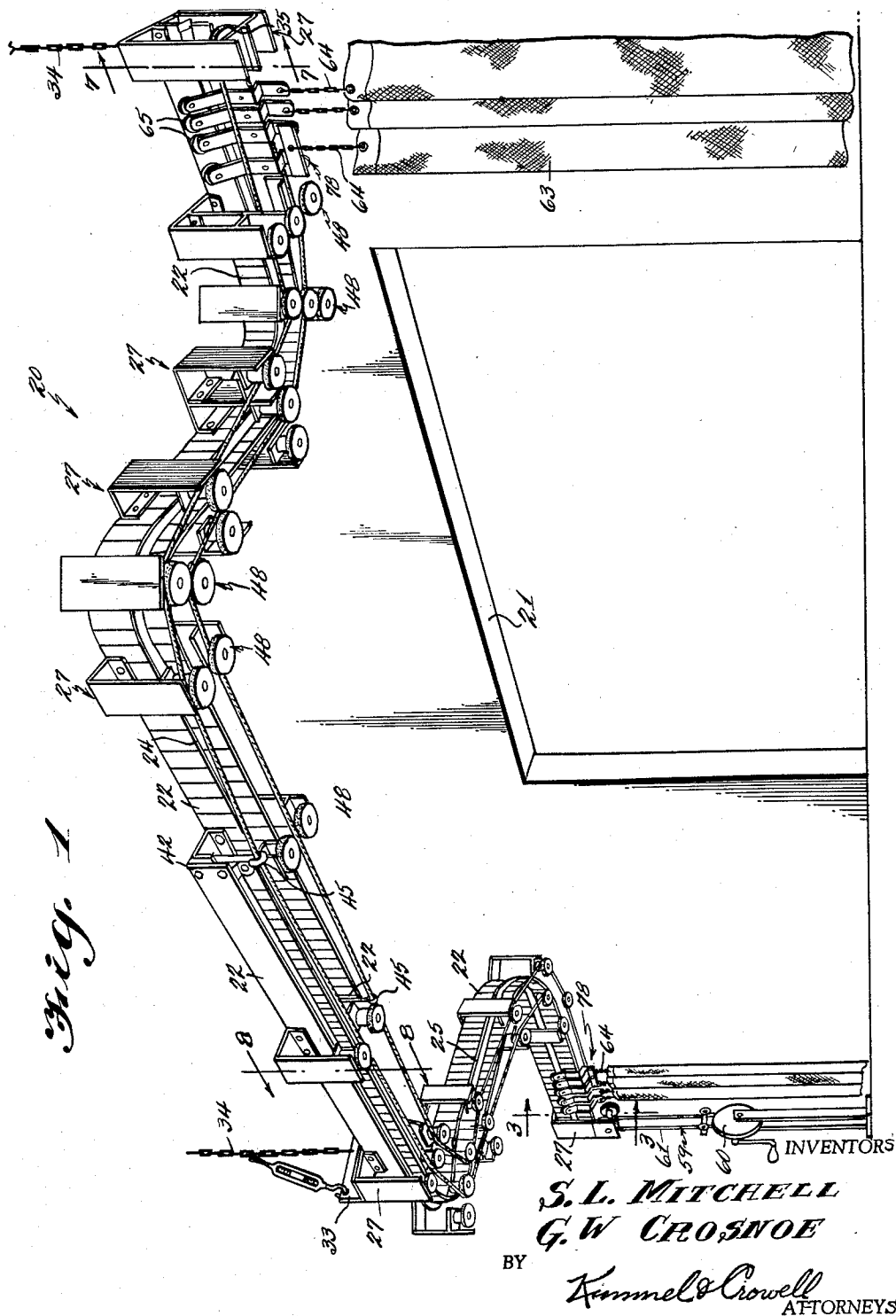
S. L. MITCHELL ET AL

2,920,696

CURTAIN TRACK

Filed Oct. 11, 1957

5 Sheets-Sheet 1



Jan. 12, 1960

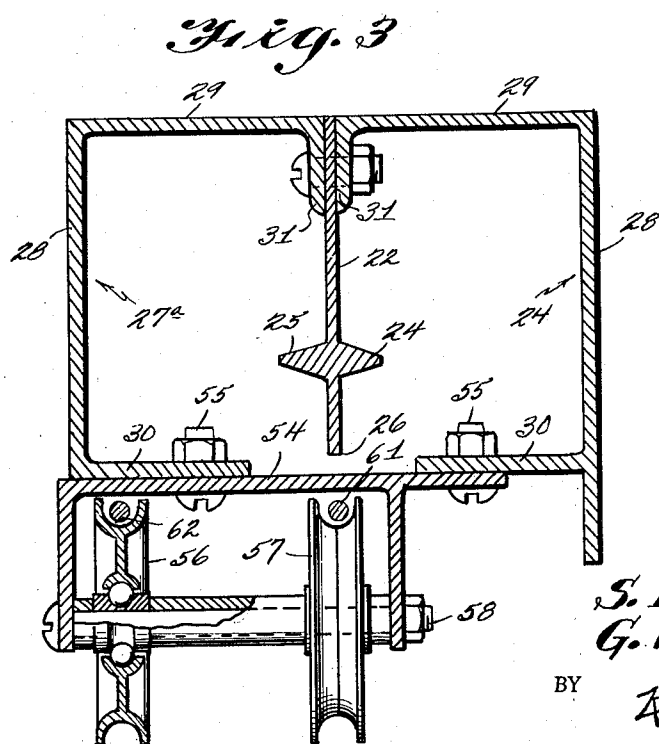
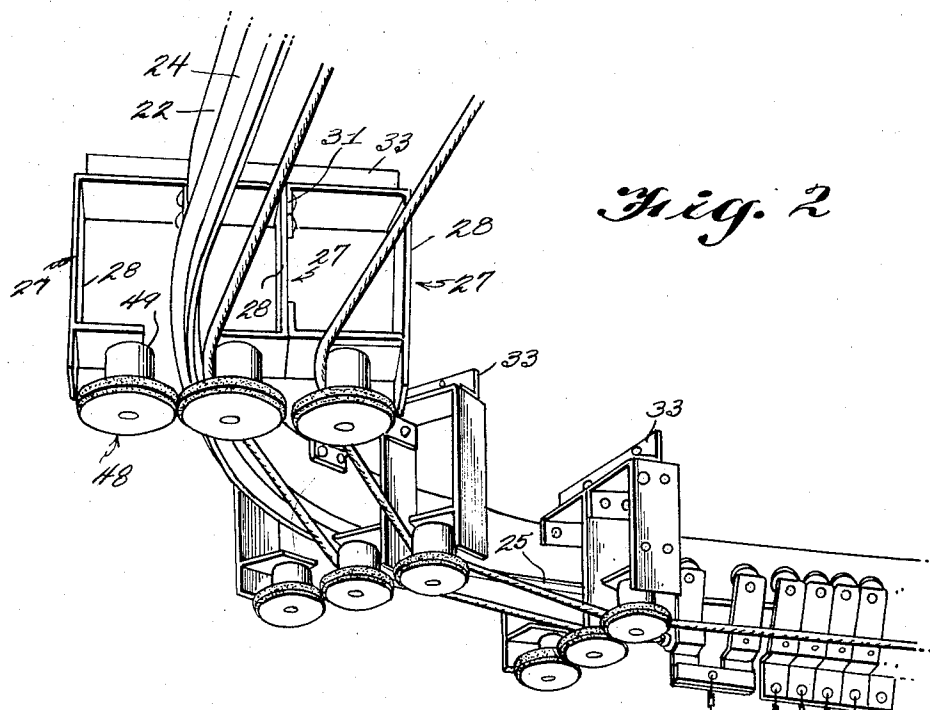
S. L. MITCHELL ET AL

2,920,696

CURTAIN TRACK

Filed Oct. 11, 1957

5 Sheets-Sheet 2



INVENTORS

S. L. MITCHELL
G. W. CROSNOW

BY

Kimmel & Crowell

ATTORNEYS

Jan. 12, 1960

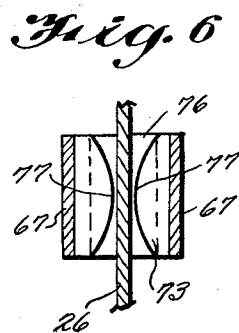
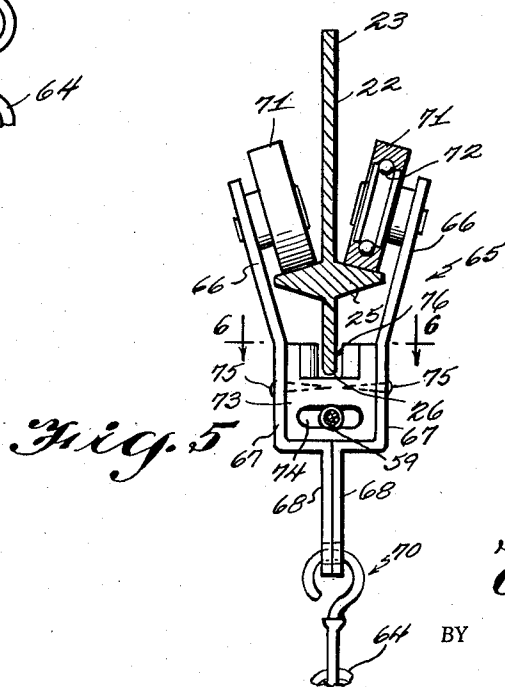
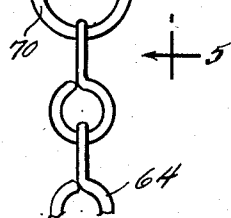
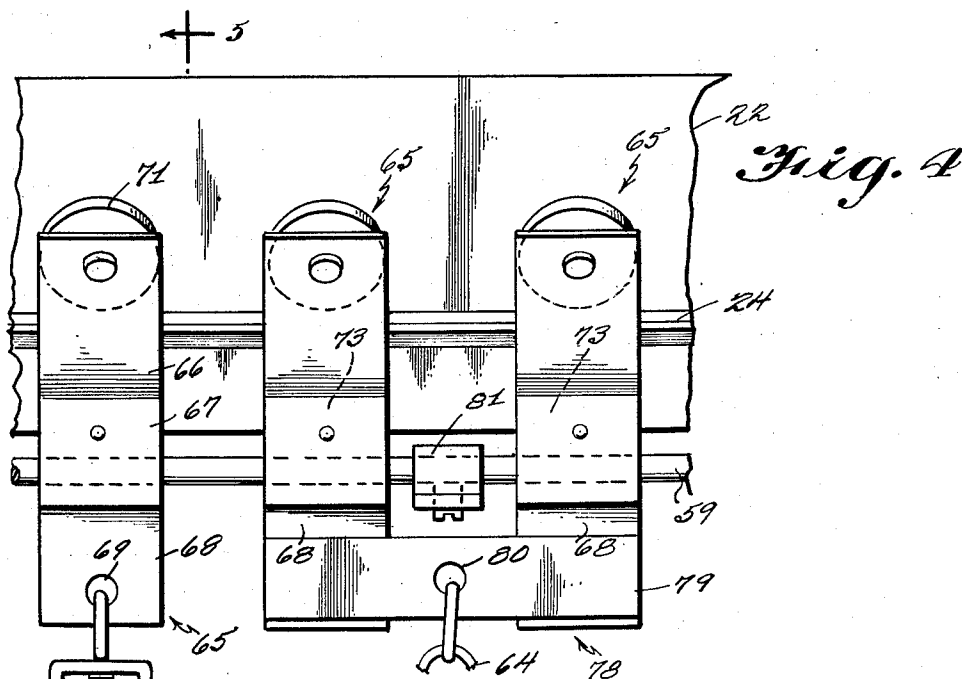
S. L. MITCHELL ET AL

2,920,696

CURTAIN TRACK

Filed Oct. 11, 1957

5 Sheets-Sheet 3



INVENTORS

S. L. MITCHELL
G. W. CROSNOW

BY

Kimmel & Crowell
ATTORNEYS

Jan. 12, 1960

S. L. MITCHELL ET AL

2,920,696

CURTAIN TRACK

Filed Oct. 11, 1957

5 Sheets-Sheet 4

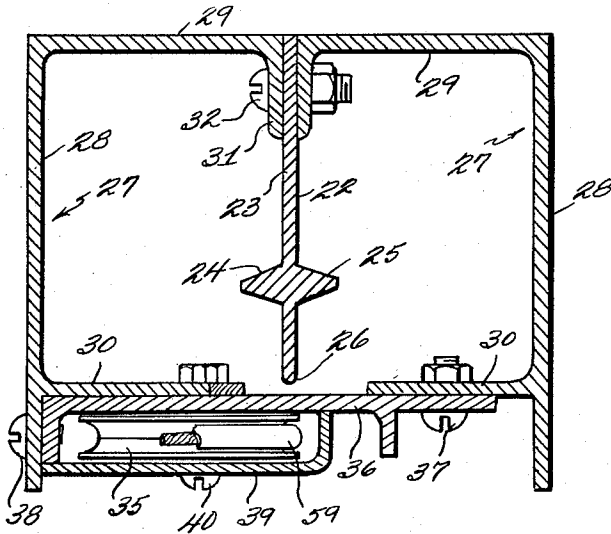


Fig. 7

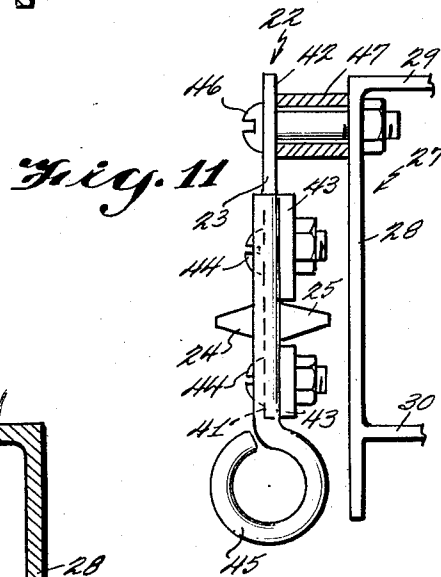


Fig. 11

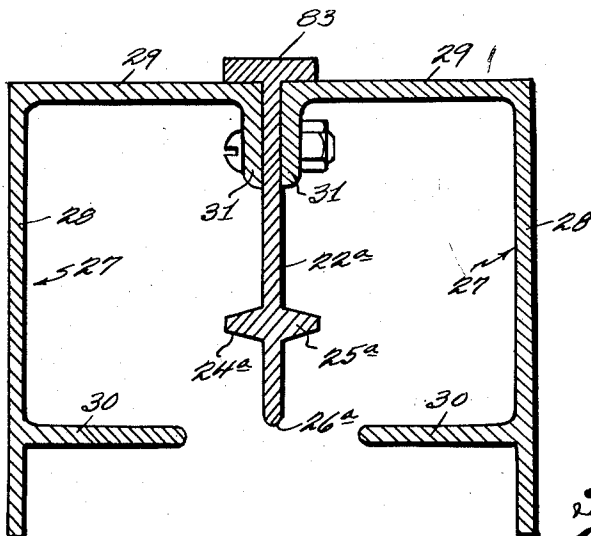


Fig. 12

INVENTORS

S. L. MITCHELL
G. W. CROSNOW

BY

Kummel & Crowell

ATTORNEYS

Jan. 12, 1960

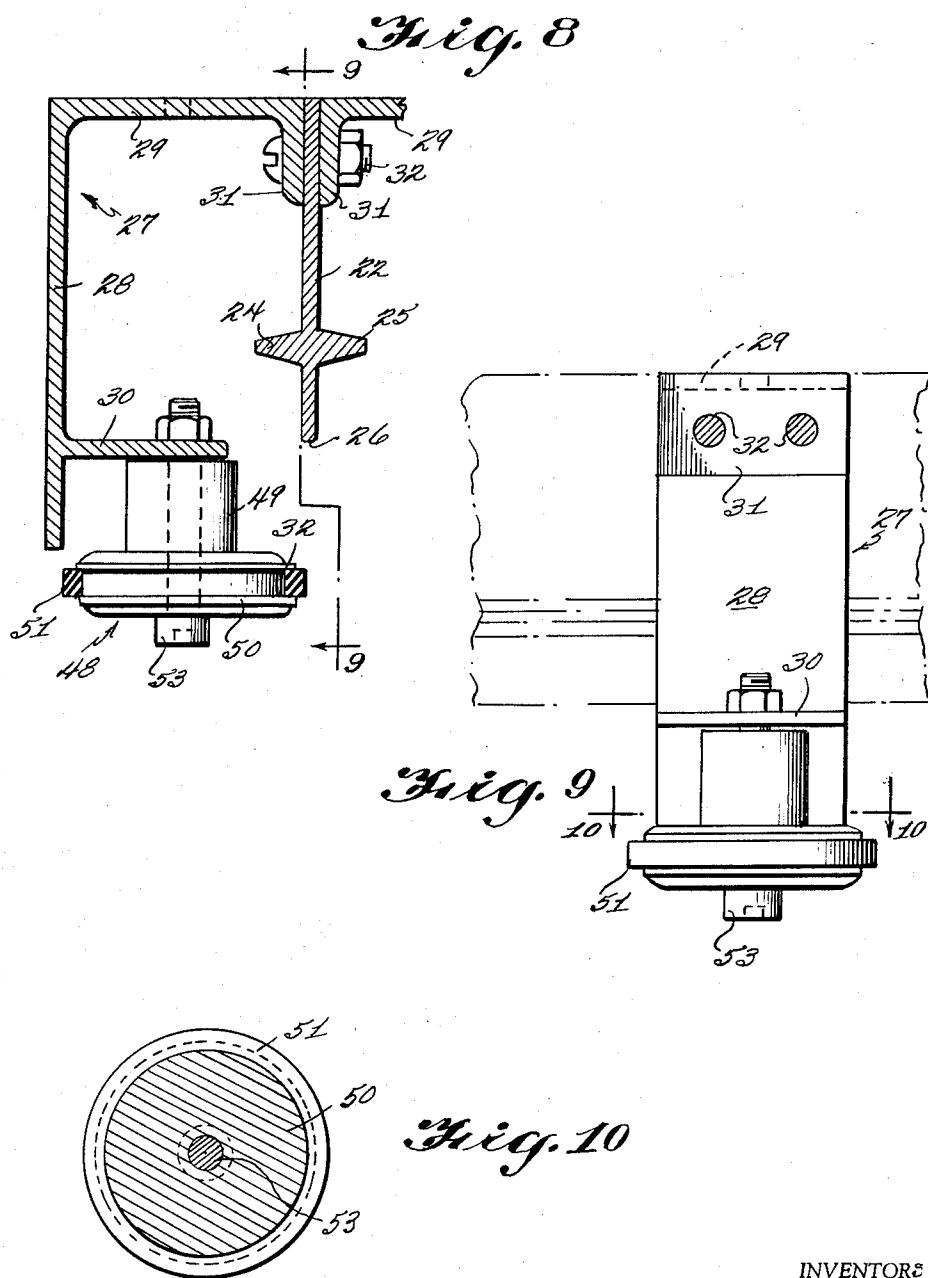
S. L. MITCHELL ET AL

2,920,696

CURTAIN TRACK

Filed Oct. 11, 1957

5 Sheets-Sheet 5



INVENTORS

S. L. MITCHELL
G. W. CROSNOW

BY

Kimmel & Crowell

ATTORNEYS

1

2,920,696

CURTAIN TRACK

Sherrill L. Mitchell and Guy W. Crosnoe,
Knoxville, Tenn.

Application October 11, 1957, Serial No. 689,556

4 Claims. (Cl. 160—347)

The present invention relates to curtain tracks and more particularly to tracks for supporting draw curtains.

The primary object of the invention is to provide a curtain track system for supporting and drawing a curtain along a curving path.

Another object of the invention is to provide a curtain track having an irregular path and means for maintaining a draw cable in alignment with the path under constant tension.

A still further object of the invention is to provide a curtain track of the class described above having reversely curved sections and means for maintaining the draw cable under constant tension when used therewith.

Another object of the invention is to provide a curtain track structure which is inexpensive to manufacture, simple to use and which is completely effective in providing for irregular pathways under all conditions.

Other objects and advantages will become apparent in the following specification when considered in light of the attached drawings in which:

Figure 1 is a fragmentary perspective view illustrating the invention applied to the proscenium arch of a theatre.

Figure 2 is a fragmentary perspective view illustrating in detail one curve of the curtain illustrated in Figure 1.

Figure 3 is an enlarged transverse cross section taken along the line 3—3 of Figure 1, looking in the direction of the arrows.

Figure 4 is an enlarged fragmentary side elevation of a detail of the track structure.

Figure 5 is a vertical cross section taken along line 5—5 of Figure 4, looking in the direction of the arrows.

Figure 6 is a fragmentary cross section taken along the line 6—6 of Figure 5, looking in the direction of the arrows.

Figure 7 is an enlarged vertical cross section taken along the line 7—7 of Figure 1, looking in the direction of the arrows.

Figure 8 is an enlarged fragmentary vertical cross section taken along the line 8—8 of Figure 1.

Figure 9 is an enlarged fragmentary longitudinal cross section taken along the line 9—9 of Figure 8, looking in the direction of the arrows.

Figure 10 is a fragmentary horizontal cross section taken along the line 10—10 of Figure 9, looking in the direction of the arrows.

Figure 11 is an enlarged fragmentary end elevation of one end of the track structure shown partially broken away and end section for the convenience of illustration.

Figure 12 is a view similar to Figure 3 illustrating a modified form of track member.

Referring now to the drawings in detail wherein like reference characters indicate like parts throughout the several figures the reference numeral 20 indicates generally a curtain track system constructed in accordance with the invention.

The curtain track system 20 as illustrated in Figure 1 is used in conjunction with the proscenium arch 21 of a theatre. The track system 20 is adapted for use on ir-

2

regular and reverse curves and includes a pair of elongated rail member 22. The rail members 22 each include a relatively flat upright plate 23 having a pair of oppositely disposed outwardly diverging flanges 24, 25 integrally formed thereon. The flanges 24, 25 are spaced above the lower edge 26 of the plate 23 as can be seen in Figure 8.

The rail 22 is supported on a plurality of brackets indicated generally at 27 and having an upright outer wall 28 with an integral perpendicularly extending top wall 29 formed thereon. The upright wall 28 is provided with a horizontal flange 30 arranged parallel to the top wall 29 and spaced downwardly therefrom. A depending flange 31 is formed on the edge of the top wall 29 opposite the upright wall 28 and parallel to the upright wall 28 as is shown in Figure 8.

The bracket 27 is secured to the rail 22 with the flange 31 engaging the upper portion of the rail 22 on each side thereof with a bolt 32 extending therethrough securing the rail 22 between the brackets 27. A third bracket 27 can be secured to the brackets 27 supporting the rail 22 by having the flange 31 thereof secured to upper portion of the upright wall 28 of one of the first pair of brackets as is illustrated in Figure 2. An angle iron mounting member 33 is secured to the top wall 29 of the brackets 27 as shown in Figures 1 and 2 to permit supporting chains 34 to be secured thereto to support the track 20 in suspended relation.

In Figure 7, the bracket 27 used at the outer end of the track 22 is illustrated supporting a return pulley 35. A horizontal pulley support plate 36 is secured to the flange 30 of one of the brackets 27 by means of a bolt 37 and to the upright wall 28 of the other bracket 27 by means of a bolt 38. The pulley 35 is positioned below the flange 30 and has a support plate 39 positioned on the opposite side thereof. A bolt 40 secures the pulley 35 to the bracket 27 for rotary movement thereabout.

A stop 41 is secured to the inner end 42 of each of the rails 22 by means of horizontally extending cleats 43 secured to the rail 22 by means of bolts 44. The stop 41 has an eye 45 integrally formed on the lower end thereof and depending below the track 22. A bolt 46 secures the end 42 of the rail 22 to a bracket 27 supporting an adjacent rail 22. A spacer collar 47 maintains the end 42 of the rail 22 in spaced relation with respect to the bracket 27. A combined guide roller and pulley indicated generally at 48 includes a relatively wide flat pulley portion 49 having a guide roller 50 secured to the lower end thereof. The guide roller 50 is provided with an annular rubber contact ring 51 seated in a groove 52 extending annularly thereabout. A bolt 53 extends upwardly through the guide roller 50 and the pulley 49 securing them for rotational movement to the underside of the flange 30 of the bracket 27. The guide roller 50 is arranged with the peripheral edge of the tire 51 in approximate vertical alignment with the center line of the rail 22. The combined pulley and guide roller 48 may, however, be adjusted laterally on the flange 30 by providing additional bores or slots to receive the bolt 53.

The brackets 27 and 27a which the track 22 at the end thereof opposite the pulley 35 are provided with a yoke 54 secured thereto by bolts 55 and having a pair of pulleys 56, 57, journaled in the yoke 54 by means of a journal bolt 58. The pulley 57 is arranged in underlying aligned relation to the rail 22 and the pulley 56 is laterally spaced therefrom. The bracket 27a is identical to the bracket 27 with the exception that the upright wall 28 has been terminated at the flange 30 to permit the yoke 54 to be secured thereto.

A cable generally indicated at 59 is trained over a hand crank pulley 60 and is provided with a pair of spaced parallel runs 61, 62. The run 61 of the cable 59 is trained over the pulley 57 and is engaged over a plurality

of pulleys 49 in underlying relation with respect to the track 22 to its inner end 42. The run 61 of the cable 59 passes through the eye 45 of the stop 41 and is trained over a plurality of pulleys 49 in laterally spaced relation to the opposite track 22. The run 62 of the cable 59 is trained over the pulley 56 and over a plurality of pulleys 49 in spaced relation to the rail 22 passing through the eye 45 on the opposite track 22 and then being positioned beneath the opposite track 22 engaging over a plurality of pulleys 49. The runs 61, 62 of the cable 59 are trained about the horizontal pulley 35 and are integrally joined.

A flexible curtain 63 has a plurality of suspension chains 64 extending upwardly from the upper edge thereof in laterally spaced relation. A trolley indicated generally at 65 supports each of the suspension chains 64 and comprises a pair of outwardly divergent roller arms 66 having parallel lower extensions 67 formed thereon. The extensions 67 are inwardly offset to provide contacting lower end portions 68. A bore 69 is formed in the lower end portion 68 and has a swivel 70 mounted therein to support the chain 64. Rollers 71 having ball bearing mounts 72 are secured to the upper end of the divergent roller arm 66 with their axes inclined to each other for engagement with the flanges 24, 25 as can be seen in Figure 5. A block 73 formed of wood or fiber is provided with a flat aperture 74 through which the cable 59 extends. The block 73 is secured to the parallel portion 67 by means of securing element 75. A slot 76 is formed in the upper edge of the block 73 and is provided with convex side walls 77 engaging on opposite sides of the lower end 26 of the rail 22.

The chain 64 from the inner end of the curtain 63 is secured to a drive carriage generally indicated at 78 and consisting of a pair of supports 65 having their lower end portions 68 connected by a horizontally extending flexible strap 79. A bore 80 is formed in the center of the flexible strap 79 to support the upper end of the suspension chain 64. A collar 81 is positioned between the block 73 in the carriage 78 and is secured to the cable 59 by means of a set screw 82. Thus, it can be seen that horizontal movement of the cable 59 will cause the collar 81 to engage one of the blocks 73 and thus move the carriage 78 therewith.

In Figure 12 a modified form of the invention is illustrated wherein a rail 22a of heavy duty construction is provided with flanges 24a and 25a adjacent the lower end 26a thereof and has a horizontally extending T-flange 83 formed on its upper end for engagement over the horizontal walls 29 of the brackets 27. The rail 22a is otherwise identical to the rail 22 and is used where extremely heavy curtains require the reinforcement of the rail 22.

In the use and operation of the invention the cable 59 being trained over the pulleys 49 follows the contours of the rail 22 and hence is maintained in taut condition at all times. Movement of the cable 59 by means of the pulley 60 will move the carriages 78 and hence the supports 65 along the rail 22 to open and close the curtains 63. The supports 65 are guided on the rail 22 by the roller 71 and also by the slot 76 formed in the block 73.

The convex side 77 of the block 73 permit the support 65 to negotiate curves in the rail 22 without binding. The lower end portion 68 of the supports 65 engage the rubber tires 51 on the guide rollers 50 to maintain the supports 65 in aligned relation with respect to the cable 59 as the curtain is opened and closed.

It should be noted that the pulleys 49 cooperate with the lower ends of the upright wall 28 of the brackets 27 as well as with the guide rollers 50 to maintain the cable 59 on the pulleys 49. While we have disclosed one irregular track form 20 as illustrated in Figure 1, it should be understood that various arcuate and irregular track formations may be constructed without departing from the scope of the appended claims.

What is claimed is:

1. A curtain track for supporting a flexible curtain in depending relation thereto comprising a pair of generally horizontal oppositely disposed rails having adjacent inner ends and remote outer ends with said rails following an irregular path in a generally horizontal plane, a plurality of horizontally spaced brackets supporting said rails with the inner ends of said rails arranged in closely spaced parallel relation, a plurality of longitudinally movable curtain supports mounted on said rails, a longitudinally horizontally apertured block rigidly secured to each of said curtain supports, an elongated cable freely movable through and supported in said apertured blocks on said curtain supports for a portion of its length, means mounted on said rails for connecting said cable to said curtain to move said curtain on movement of said cable, and a plurality of anti-friction means mounted on said brackets for supporting and maintaining another portion of the length of said cable in aligned relation to said rails in generally parallel relation to the first named portion of said cable.

2. A device as claimed in claim 1 wherein the means on said brackets maintaining said cable in aligned relation with said rails includes a plurality of pulleys journaled on said brackets with their axes extending vertically.

3. A device as claimed in claim 1 wherein said rail consists of an elongated upright flat plate having opposed flanges extending outwardly therefrom intermediate the upper and lower edges thereof and with said flanges each having their upper and lower faces outwardly convergent.

4. A device as claimed in claim 1 wherein said rail is provided with a horizontal T-flange integrally formed on its upper edge for reinforcing said rail.

References Cited in the file of this patent

UNITED STATES PATENTS

1,569,680	Sarkisian	Jan. 12, 1926
2,732,929	Delaney	Jan. 31, 1956

FOREIGN PATENTS

382,317	Great Britain	Oct. 27, 1932
688,971	Great Britain	Mar. 18, 1953