

[54] **AUTOMATIC SWITCH FOR  
SLAUGHTERHOUSE AND MEAT PACKER  
RAILS**

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[22] Filed: **July 28, 1971**

[21] Appl. No.: **166,695**

[52] U.S. Cl. .... **104/103, 104/130**

[51] Int. Cl. .... **E01b 25/26**

[58] Field of Search ..... **104/96, 100, 101,  
104/103, 130, 131**

[56] **References Cited**

**UNITED STATES PATENTS**

2,746,397	5/1956	Le Fiell.....	104/101
1,750,802	3/1930	Haferkorn.....	104/100
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[57] **ABSTRACT**

A pair of rail switch sections supported for alternate movement into and out of operative position with each initially moving in an upward inclined direction upon initial shifting from its operative position and thereafter being swung to an out-of-the-way position, while one switch rail section is being raised out of initial operative position and then swung to an inoperative position the other switch rail section is being swung in the same direction toward a position elevated slightly above its operative position and then lowered into final operative position.

**10 Claims, 5 Drawing Figures**

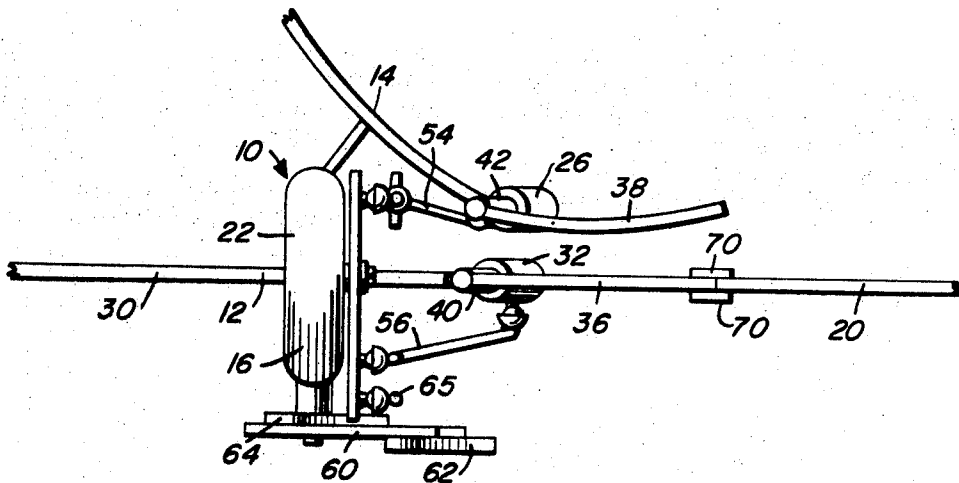


Fig. 1

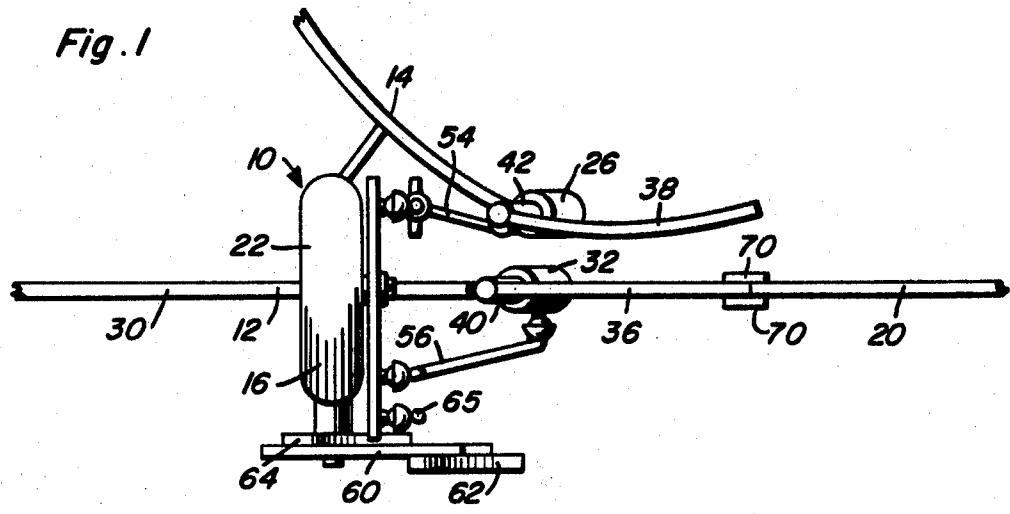


Fig. 2

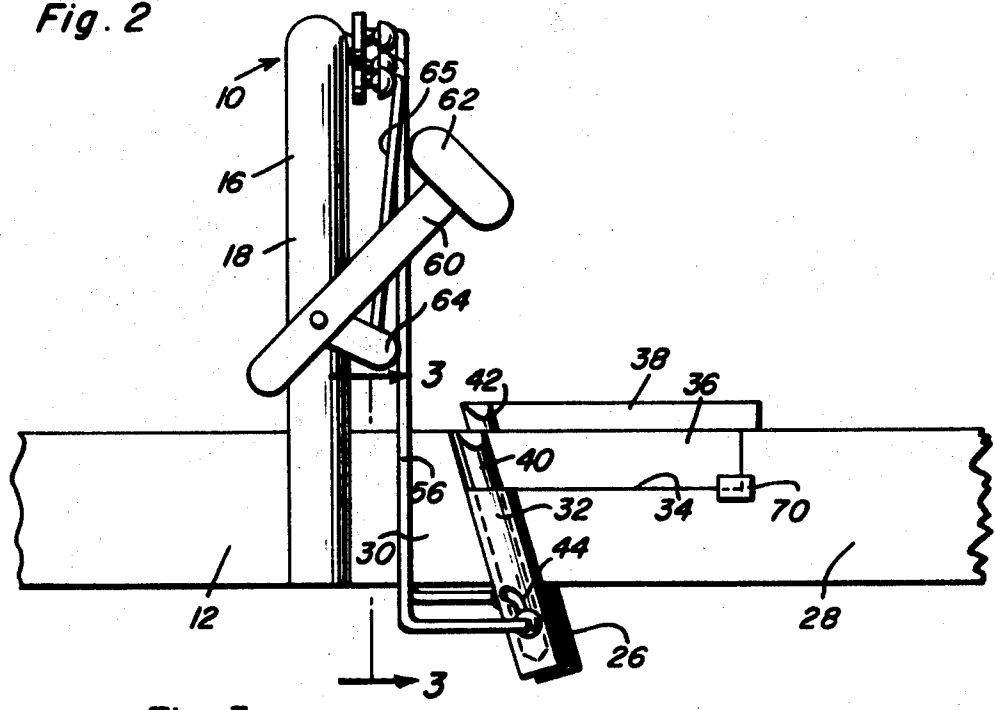
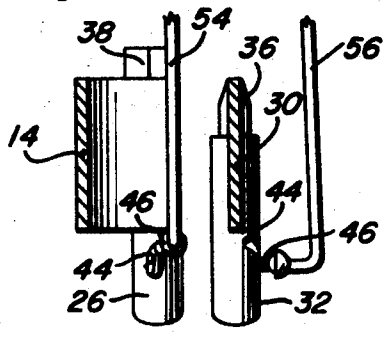


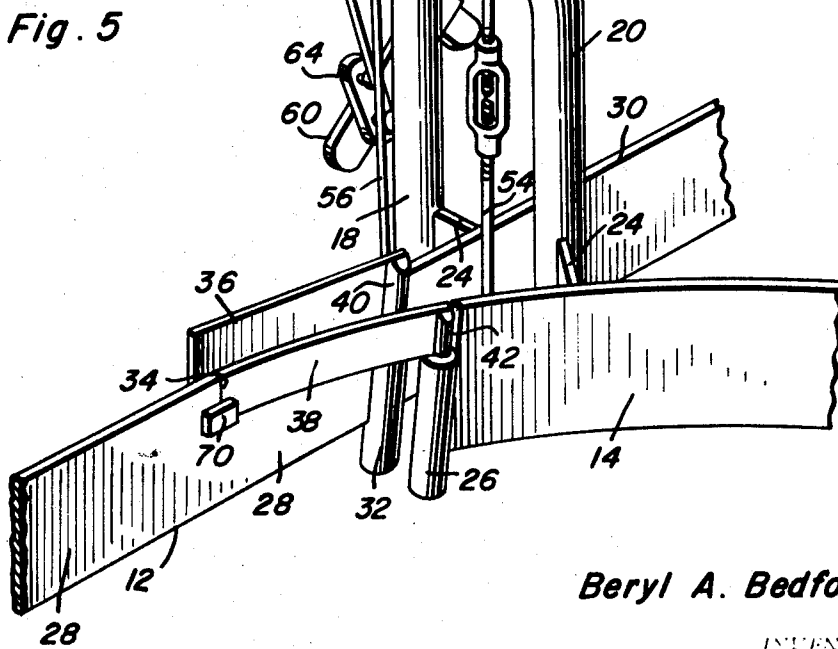
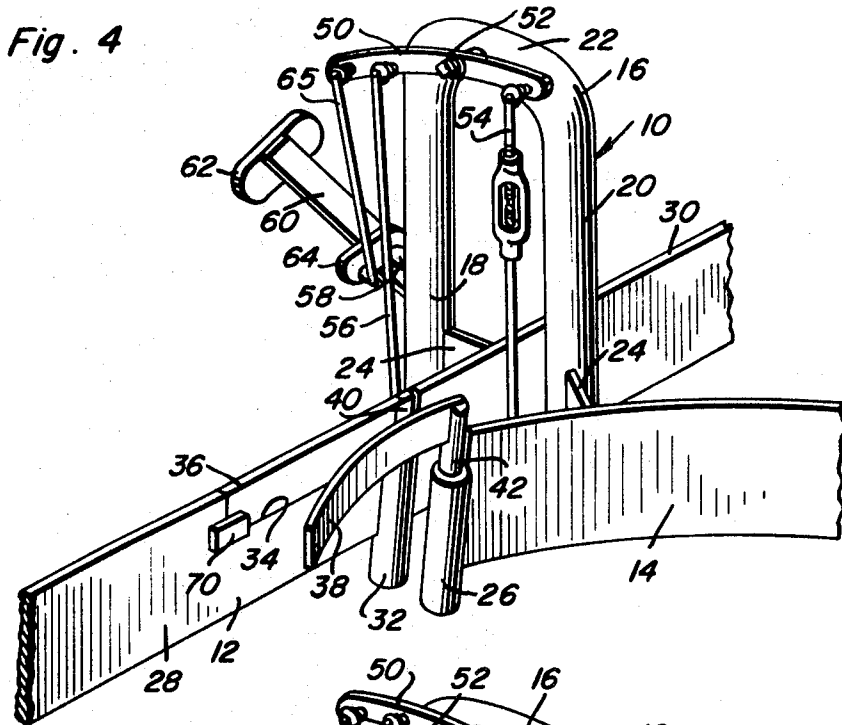
Fig. 3



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## AUTOMATIC SWITCH FOR SLAUGHTERHOUSE AND MEAT PACKER RAILS

The switch of the instant invention has been designed to provide a switch mechanism including a pair of switch rail sections that may be precisely guided into and out of operative positions. The switch is constructed in a manner whereby its switch rail sections are interconnected and inversely shifted between operative and inoperative positions by means of an elongated bell crank or walking beam, as is conventional in many similar switch mechanisms such as those disclosed in U. S. Pat. Nos. 2,746,397, dated May 22, 1956 and 3,503,336, dated March 31, 1970. However, the switch of the instant invention does not include switch rail sections mounted solely for swinging movement about fixed axes of rotation. Instead, the switch rail sections of the instant invention are mounted for both axial shifting and angular displacement relative to the axes of rotation thereof and the axes of rotation thereof are inclined in a manner such that the switch rail sections complete their movement into operative positions by being lowered while in horizontal position along a path slightly inclined relative to the vertical.

The main object of this invention is to provide an overhead track switch including inversely shiftable switch rail sections which may be precisely shifted into and out of operative position.

Another object of this invention is to provide a switch assembly whose switch rail sections are operatively supported for shifting between operative and inoperative positions in a manner such that the length of the switch rail sections may be maintained at a minimum so as to decrease the unsupported length of the switch rail sections and afford more precise guiding of the rail sections during their movement between the operative and inoperative positions.

A further object is to provide a track switch which may be automatically thrown when a trolley is approaching along two of the associated track sections.

Another object is to provide a track switch including a pair of swing sections whose free ends are closely spaced to prevent derailment of a trolley therebetween.

Yet another object of this invention is to provide a switch for overhead tracks constructed in a manner whereby the shiftable switch rail sections thereof may be shifted between their operative and inoperative positions with a minimum clearance requirement.

Another important object of this invention is to provide an automatic switch constructed in a manner whereby the free swinging ends of the switch rail sections thereof may be precisely mated with the associated stationary rail end as the switch rail sections are swung to their operative positions.

A final object of this invention to be specifically enumerated herein is to provide an automatic switch assembly which will conform to conventional forms of manufacture, be of simple construction and easy to use so as to provide a device that will be economically feasible, long lasting and relatively trouble free in operation.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof,

wherein like numerals refer to like parts throughout, and in which:

FIG. 1 is a top plan view of a preferred embodiment of the rail switch assembly of the instant invention with the straight and curved switch rail sections thereof disposed in operative and inoperative positions, respectively;

FIG. 2 is a side elevational view of the assembly illustrated in FIG. 1 as seen from the side of FIG. 1;

FIG. 3 is a fragmentary vertical sectional view taken substantially upon the plane indicated by the section line 3—3 of FIG. 2;

FIG. 4 is a perspective view of the switch assembly with the straight switch rail section in the closed operative position and the curved rail section in the inoperative position; and

FIG. 5 is a perspective view similar to FIG. 4 but illustrating the curved rail section in the operative position and the straight rail section in the inoperative position.

Referring now more specifically to the drawings and to FIGS. 4 and 5 specifically, the numeral 10 generally designates the switch assembly of the instant invention which is operatively associated with both a main straight rail 12 and a curved spur rail 14. Any suitable means (not shown) may be utilized to support the rails 12 and 14 in operative association. Further, the switch assembly 10 includes a rigid inverted U-shaped yoke 16 including a pair of generally parallel upstanding legs 18 and 20 interconnected at their upper ends by means of an integral bight portion 22. Suitable mounting and anchoring flanges 24 are secured between the legs 18 and 20 and the rails 12 and 14 whereby the yoke 16 is rigidly supported from the rails 12 and 14 and also serves to brace the adjacent free end of the rail 14 from the rail 12.

With attention now invited more specifically to FIGS. 2 and 4 of the drawings, it may be seen that an upstanding but slightly inclined support sleeve 26 is supported from the free end of the rail 14 and that the rail 12 includes first and second longitudinally spaced rail elements 28 and 30 with adjacent ends of the rail elements being similarly cut on the bias and having a second support sleeve 32 welded therebetween. It will also be noted that the end of the rail element 30 adjacent the rail element 28 has an upwardly opening notch or window formed therein.

A straight switch rail section 36 is provided for the rail 12 and a curved switch rail section 38 is provided for the rail 14. The rail sections 36 and 38 include depending and inclined supporting shank portions 40 and 42 axially shiftable and rotatably received in the support sleeves 32 and 26, respectively. Also, each of the sleeves is provided with a lower end guide slot 44 through which a radial pin 46 carried by the corresponding shank portion extends. Each of the pins 46 is snugly and guidingly received in the corresponding slot 44 and it will be seen that the slots 44 extend longitudinally of the support sleeves 26 and 32 and include substantially straight lower end portions and curved upper end portions. Accordingly, initial lowering of each shank portion 40 and 42 causes angular displacement of that shank portion because of the camming action between the corresponding pin 46 and associated slot 44. Thereafter, after the shank portion has been angularly displaced generally 25°, the shank portion is free to drop to its lower limit position independent of angu-

lar displacement and in a direction paralleling the corresponding support sleeve.

The central portion of a bell crank or walking beam 50 is pivotally supported from the bight portion 22 by means of a suitable pivot fastener and an adjustable length connecting rod 54 is connected to one end of the walking beam 50 by means of a universal socket connection and the other lower end of the connecting rod 54 is connected to the outer end of the pin 46 of the shank portion 42. Further, a second connecting rod 56 is connected at its upper end to the other end portion of the bell crank or walking beam 50 while its lower end is connected to the pin 46 of the shank portion 40 by means of a universal socket connection. Still further, the leg 18 of the yoke 16 includes an outstanding mount portion 58 to whose outer end a weight arm 60 is pivotally secured for oscillation about a horizontal axis and the weight arm is inclined and includes a weight 62 at its upper end. Further, a crank arm 64 is carried by the weight arm 60 and the outer end of the crank arm 64 is connected to the end of the bell crank or walking beam 50 to which the connecting link or rod 56 is secured by means of a connecting link 65, the weight arm 60 being swingable between the position thereof illustrated in FIG. 4 of the drawings and the position thereof illustrated in FIG. 5 of the drawings which positions define limit positions of oscillation of the weight arm as determined by movement of the rail sections 36 and 38 into their operative positions.

In operation, it may be seen from a comparison of FIGS. 4 and 5 of the drawings that each of the rail sections 36 and 38 may be swung into position with the free end thereof seated in the corresponding end of the notch or window 34. Further, positioning tabs 70 are secured to opposite sides of the rail element 28 and project into the corner of the notch or window 34 which receives a lower portion of the free ends of the rail sections 36 and 38. Also, should a trolley approach the rail element 28 from either the section 30 or the rail 14 and the switch assembly be in the wrong position, contact of the wheels of the trolley with either the rail section 36 or the rail section 38 will cause that rail section to be cammed to the closed position.

In order to operate the switch assembly 10, any suitable means may be operatively connected to the bell crank or walking beam 50 in order that the latter may be oscillated between the limit positions thereof illustrated in FIGS. 4 and 5 of the drawings.

Assuming that the rail sections 36 and 38 are disposed thereof illustrated in FIG. 4 of the drawings, a trolley moving along the rail element 28 toward the rail element 30 moves between these two rail elements on the switch rail section 36 which is seated in the window or notch 34. However, should it be desired for a trolley moving along the rail 12 to be switched onto the rail 14, the bell crank 50 is oscillated from the position thereof illustrated in FIG. 4 of the drawings to the position thereof illustrated in FIG. 5 of the drawings. During initial shifting of the bell crank 50 from the FIG. 4 position to the FIG. 5 position, the switch rail section 36 is shifted in a horizontal position upwardly in an inclined direction while the corresponding pin 46 rides upwardly through the straight lower portion of the associated slot 44 and the rail section 38 is swung from the position thereof illustrated in FIG. 4 in a slightly downward direction toward the notch or window 34 while the rail section 38 is maintained in a horizontal posi-

tion. Thereafter, continued pivotal movement of the bell crank or walking beam 50 toward the position thereof illustrated in FIG. 5 of the drawings results in the switch rail section 36 being swung upwardly and outwardly toward the outside of the rail 12 while being maintained in a horizontal position while the switch rail section 38 is swung into position vertically registered with and disposed above the bottom of the notch 34 and thereafter lowered straight downwardly in an inclined direction toward seated engagement in the notch or window 34. It may be appreciated that the free swinging ends of the rail sections 36 and 38 may be cut square and yet disposed in surface-to-surface contacting engagement with the opposing edge of the rail element 30 defining the notch or window 34 when in the closed operative position. Further, all swinging movement of the rail sections 36 and 38 toward the operative positions thereof is terminated prior to the free ends of the rail sections 36 and 38 being lowered downwardly along a straight path in an inclined direction to be received between the tabs or abutments 70.

The switch rail sections 36 and 38 therefore actuated from below and the support sleeves 26 and 32 may be spaced close together and the radius of curvature of the rail 14 may be maintained at a minimum to enable the shortest possible rail sections 36 and 38 to be utilized. By utilizing shorter rail sections the unsupported length of the rail sections is maintained at a minimum when the rail sections are in their operative positions, a guiding action on the free ends of the rail sections 36 and 38 is more precise and the weight of the rail sections 36 and 38 may be maintained at a minimum. Further, inasmuch as the rail sections 36 and 38 are both lowered straight downwardly in horizontal positions along inclined paths toward their final lowered operative positions, the free ends of the rail sections 36 and 38 may be more closely mated with the surfaces of the rail element 30 defining the closed end of the notch or window 34.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed as new is as follows:

1. A switch assembly for an overhead track of the type including a generally horizontal main track rail and a generally horizontal branch track rail, said branch track rail including an end portion disposed at an angle relative to and terminating a spaced distance from said main rail, said main rail having an upwardly opening elongated longitudinally extending notch formed therein, and a pair of track rail sections, means supporting said sections relative to said rails for shifting between operative and inoperative positions, one of said sections being positioned in and extending along said notch when in the operative position and the other section having one end thereof positioned in one end of said notch aligned with the adjacent unnotched portion of said main rail and the other end aligned with and forming a continuation of said end portion of said branch track rail when said other section is in its operative position, said means for shifting said rail sections including means pivotally supporting one pair of end

portions of said track rail sections from the corresponding main and branch rails for angular displacement relative thereto about upstanding axes and shifting of said rail sections along said axes with the rail sections being shifted downwardly and upwardly, respectively, along said axes as said rail sections are swung between the operative and inoperative positions thereof.

2. The combination of claim 1 wherein said means for shifting said rail sections includes means interconnecting said rail sections for inverse shifting between said operative and inoperative positions.

3. The combination of claim 1 wherein the upper ends of said axes are inclined away from a vertical plane containing said one end of said notch and disposed transverse to said main track rail.

4. A switch assembly for an overhead track of the type including a generally horizontal main track rail and a generally horizontal branch track rail, said branch track rail including an end portion disposed at an angle relative to and terminating a spaced distance from said main rail, said main rail having an upwardly opening elongated longitudinally extending notch formed therein, and a pair of track rail sections, means supporting said sections relative to said rails for shifting between operative and inoperative positions, one of said sections being positioned in and extending along said notch when in the operative position and the other section having one end thereof positioned in one end of said notch aligned with the adjacent un-notched portion of said main rail and the other end aligned with and forming a continuation of said end portion of said branch track rail when said other section is in its operative position, said means for shifting said rail sections including means for elevating said sections relative to said rails during initial shifting from their operative positions toward said inoperative positions and thereafter angularly displacing said sections about upstanding axes disposed adjacent the ends of the sections remote from said one end of said notch and swinging said sections about said axes during initial shifting from their inoperative positions toward the operative positions thereof and thereafter lowering said sections into their operative positions, each of said track rails including an upstanding sleeve, each of said rail sections including a depending shank portion rotatably and slidably disposed in the corresponding sleeve.

5. The combination of claim 4 wherein said sleeves include elongated guide slots extending longitudinally thereof and having generally straight lower ends and upper ends curving toward the horizontal, said shank portions including generally radially outwardly projecting followers guidingly shiftable through said slots.

6. The combination of claim 5 wherein said means

for shifting said rail sections includes means interconnecting said rail sections for inverse shifting between said operative and inoperative positions.

7. The combination of claim 6 wherein the last mentioned means includes an elevated oscillatable walking beam, and upstanding elongated connecting links secured at their upper ends to opposite ends of said walking beam and at their lower ends to said shank portions.

8. The combination of claim 7 including over center weight means operatively to yieldingly retain said walking beam in its limit positions of oscillation.

9. A switch assembly for an overhead track of the type including a generally horizontal main track rail and a generally horizontal branch track rail, said branch track rail including an end portion disposed at an angle relative to and terminating a spaced distance from said main rail, said main rail having an upwardly opening elongated longitudinally extending notch formed therein, and a pair of track rail sections, means supporting said sections relative to said rails for shifting between operative and inoperative positions, one of said sections being positioned in and extending along said notch when in the operative position and the other section having one end thereof positioned in one end of said notch aligned with the adjacent un-notched portion of said main rail and the other end aligned with and forming a continuation of said end portion of said branch track rail when said other section is in its operative position, said means for shifting said rail sections including means for elevating said sections relative to said rails during initial shifting from their operative positions toward said inoperative positions and thereafter angularly displacing said sections about upstanding axes disposed adjacent the ends of the sections remote from said one end of said notch and swinging said sections about said axes during initial shifting from their inoperative positions toward the operative positions thereof and thereafter lowering said sections into their operative positions, said means for shifting said rail sections including means interconnecting said rail sections for inverse shifting between said operative and inoperative positions, each of said track rails including an upstanding sleeve, each of said rail sections including a depending shank portion rotatably and slidably disposed in the corresponding sleeve.

10. The combination of claim 1 wherein said sleeves include elongated guide slots extending longitudinally thereof and having generally straight lower ends and upper ends curving toward the horizontal, said shank portions including generally radially outwardly projecting followers guidingly shiftable through said slots.

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