Oct. 25, 1932. H. KRAMER 1,883,964

DOLLY AND RETURN TRACKWAY

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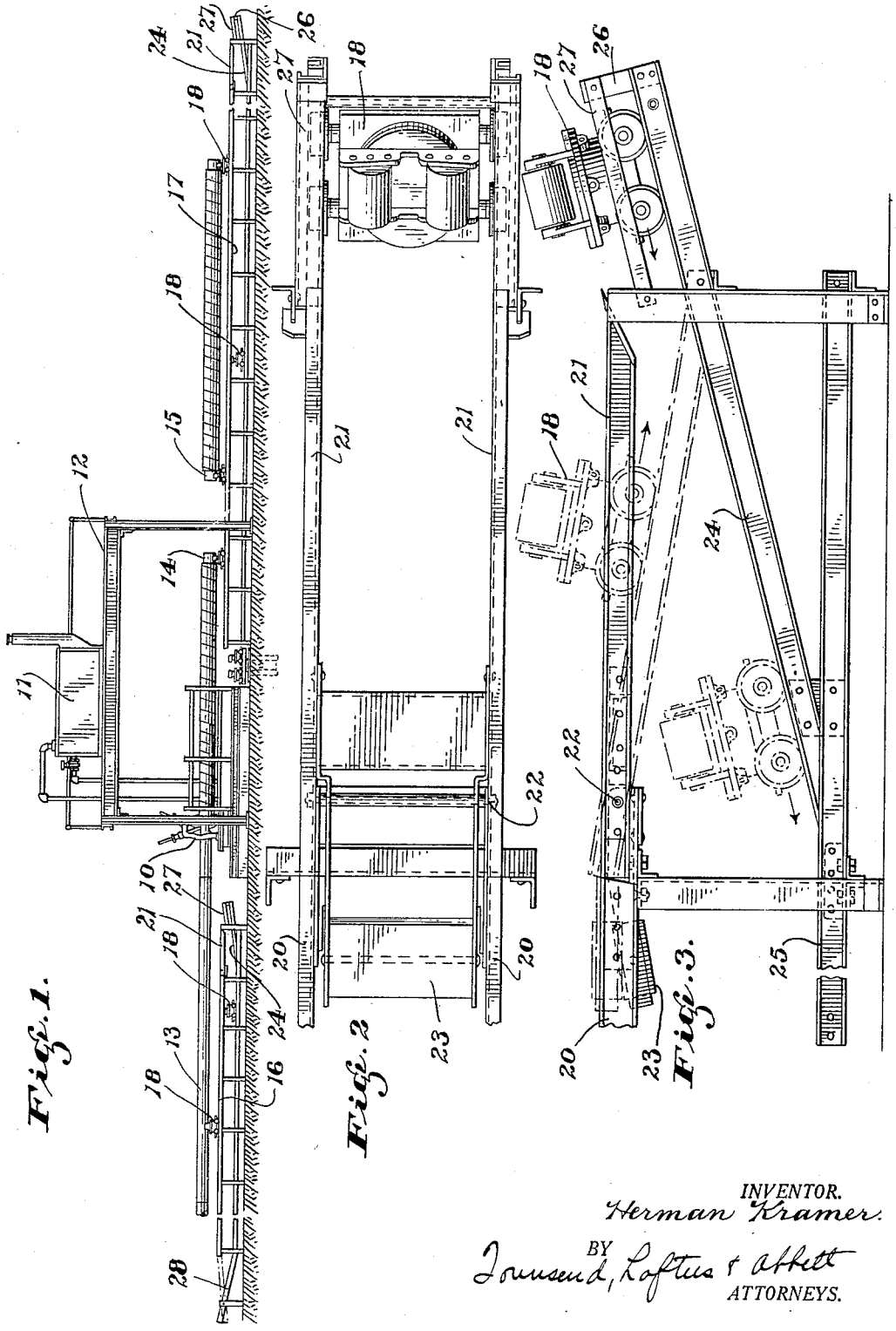


Fig. 1.

Fig. 2

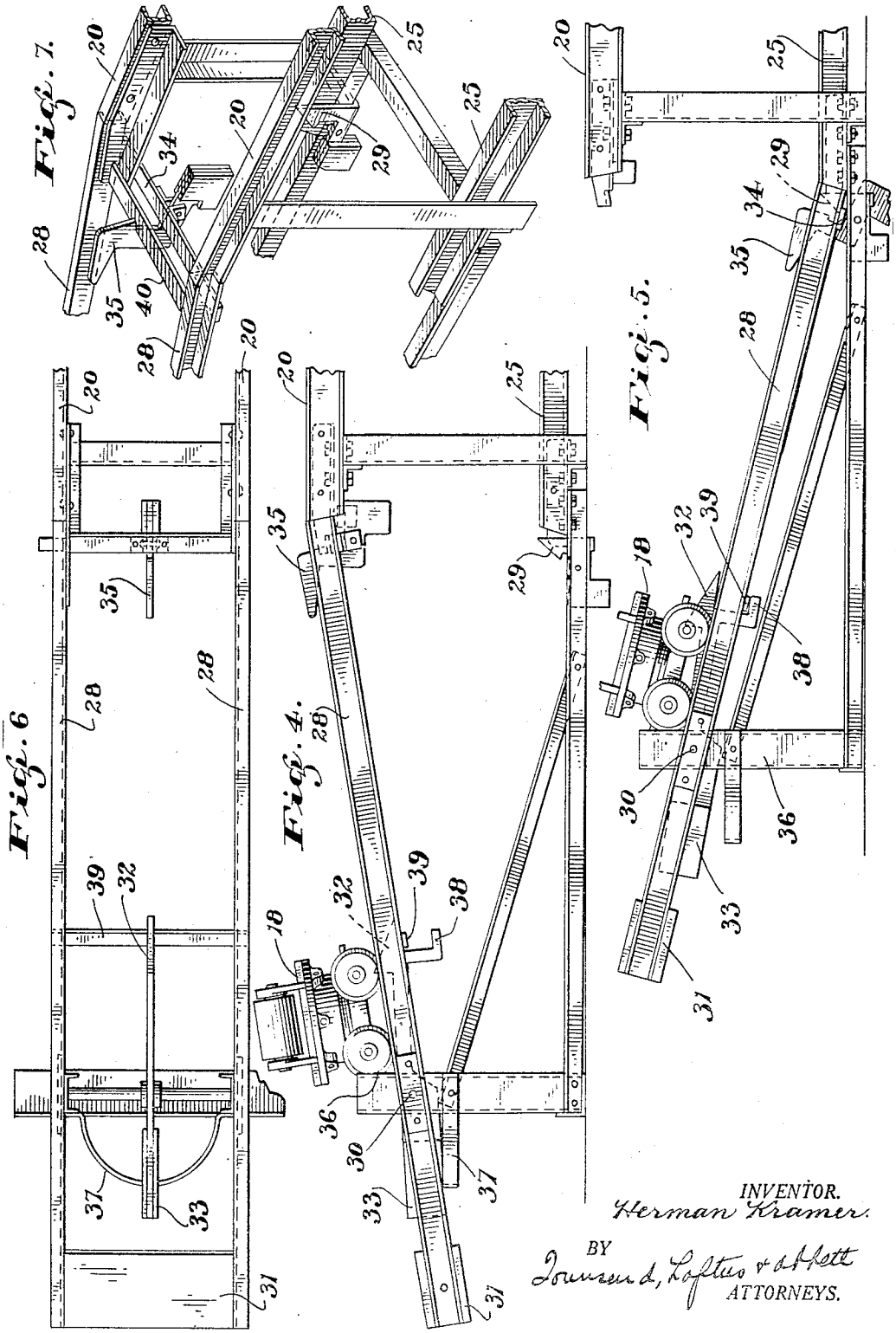
Fig. 3.

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UNITED STATES PATENT OFFICE

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DOLLY AND RETURN TRACKWAY

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My present invention relates to a conveyor system and more particularly to a novel type of trackway for moving dollies which is adapted to support relatively long and heavy articles.

An object of my invention is to provide a new, novel and effective trackway system for article supporting dollies.

A further object of my invention is to provide a conveyor system which is particularly well adapted for use in connection with machines through which relatively long articles are adapted to pass.

Another object of my invention is to provide in connection with my improved trackway, a means whereby the dollies or supporting carriages thereupon may be returned to their initial or starting position in a convenient, simple and efficient manner.

Other objects and advantages of my invention will be in part evident and in part pointed out as the description, taken in connection with the accompanying drawings, proceeds.

For the purpose of facilitating an understanding of my invention, I have shown by way of illustration and not of limitation, a preferred embodiment of my invention. I desire to have it understood, however, that my invention is not limited to the particular arrangement illustrated, as it will be readily appreciated that many changes in design and arrangement will suggest themselves to those skilled in the art.

In the drawings—

Fig. 1 is an elevation showing my invention as applied to a pipe wrapping machine,

Figs. 2 and 3 are, respectively, a plan view and side elevation showing the details of construction at the discharge end of my improved conveyor system, showing the position of the dolly thereupon during the switchback operation,

Fig. 4 is a side elevation showing the starting end of my improved conveyor with the dolly trackway in the dolly starting position,

Fig. 5 is a view similar to Fig. 4, showing the dolly trackway in the dolly receiving position,

Fig. 6 is a plan view of the trackway illustrated in Fig. 4, with the dolly removed, and

Fig. 7 is a fragmentary, perspective view showing the latching arrangements upon the dolly transferring trackway illustrated in Figs. 4, 5, and 6.

In these drawings, for the purpose of illustration, my invention is shown as associated with a pipe wrapping machine of the type illustrated and described in United States Patent 1,572,258 to Wieland and Jansen.

In Fig. 1, 10 designates the pipe wrapping head of the type disclosed in the above patent. Associated with the pipe wrapping head 10, there is, as described in the above patent, a suitable supply of wrapping material and a plastic liquid which may be tar or other water-proofing material. This latter material is maintained fluid in a tank 11 which is supported upon a suitable framework 12 above the machine 10. In the operation of such a machine, it is customary to feed lengths of pipe endwise therethrough in a continuous manner so that the wrapping of successive lengths of pipe can be carried out in an expeditious and convenient manner.

In the drawings I have shown three lengths of pipe which I have designated from left to right by the numerals 13, 14 and 15. These lengths of pipe, in being fed to the machine 10, are usually connected in some manner so that the pipe within the machine will operate to draw the following length of pipe into the machine as the leading length of pipe is discharged therefrom. For the purpose of feeding these pipes which are relatively large and heavy, I have provided a suitable trackway upon which pipe supporting dollies may travel and thus, while supporting the pipe, permit it to move axially therealong into and out of the machine.

My conveyor system may be said to consist of two parts, one located at the feeding end of the machine which I shall designate as the feed conveyor 16; and one located at the discharge end of the machine which I shall designate as the discharge conveyor 17. These conveyors 16 and 17 consist of a pair of horizontally disposed trackways located one above the other, and the dollies designated by the numeral 18 co-operating there-

with are so designed that they may travel without interference with each other over one trackway and back on the other so that in this manner the dollies may be said to make a complete circuit about the trackways. At the ends of the trackways I have provided a novel means for transferring the dollies from one trackway to the other in such a manner that they will readily engage and disengage the article to be carried in a simple and practical manner.

For a more detailed description of the conveyor system and particularly the switch-back arrangement for the dollies, reference should be had to Figs. 2 and 3 of the drawings, wherein it will be seen that at the point where the upper rails, designated by the numeral 20, terminate I provide a balanced length of rail 21 out upon which the dolly may travel. This rail 21 is hinged at a point 22 and is counterbalanced by a weight 23. Normally, the rail 21 will be disposed in the position illustrated in Fig. 3 and as the dolly rides outwardly thereupon it will tip the trackway 21 downwardly into the position illustrated by dot and dash lines and thus cause the dolly to roll downwardly by gravity into the position illustrated in this figure. As soon as the dolly 18 has reached the position here illustrated and is free of the track portions 21, these portions will switch upwardly in response to the counterbalancing weight 23 and the dolly 18 will then ride down inclined rail sections 24 and along an under trackway 25. At the point where the dolly 18 engages the rail sections 24, there is provided a suitable stop 26 and safety guides 27 so that, should the dolly be discharged from the trackway 20 with any considerable force, it will not be displaced upon the conveyor. With respect to this aspect of my invention and upon reference to Fig. 1, it will be seen that when the dolly 18 is thus transferred from the upper trackway to the lower trackway, the end of the pipe formerly carried thereby will be supported either by the preceding length of pipe, as in the case of the feeding conveyor, or will have been removed from the dolly by means of a suitable crane, as in the case of the discharge conveyor; or, in other words, as illustrated in Fig. 1, the leading end of length of pipe 13 which was formerly supported by the dolly 18 shown on the lower trackway is now supported by reason of its connection with the length of pipe 14. By the time the dolly 18 shown on the upper trackway has approached the switch-back point of the conveyor 16, the pipe 13 will be completely supported by means of the machine and a dolly at the other end thereof. With this arrangement, it will be seen that as the dolly drops down with the counterbalanced rail sections 21, it will move downwardly free of the pipe and thus will not interfere with the rotation and travel of the same as controlled by the machine 10. As the dollies 18 are thus transferred to the lower trackway, they will gain sufficient momentum to carry them to the far end of the conveyor system and into a position where they may be readily switched, as will hereinafter appear, again to the upper trackway and into a supporting position for a subsequent length of pipe.

This switch-back arrangement may be said to be automatic in transferring the dollies from the upper trackway to the lower trackway upon the feeding conveyor 16 as the attendant need give this no attention since the dollies will immediately, upon reaching this point, disengage the pipe and return to the starting point. With respect to the switch-back feature of the discharge conveyor 17, it should be pointed out that it is upon this conveyor system that the lengths of pipe are disconnected and removed one at a time to their proper storage or destination. At this point, as the lengths of pipe are removed from the dollies, the operator will merely need push the dollies along toward the switch-back point and they will transfer themselves to the lower trackway and return to their starting point.

Returning now to a further description of the feeding conveyor system 16 and upon reference to Figs. 4, 5, 6 and 7 of the drawings, it will be seen that at the starting point of the conveyor system 16 there is also provided a switching means for transferring the dollies from the lower trackway to the upper trackway. This switching means, unlike the switch-back means previously described at the trailing end of the conveyor system, does not operate in an automatic manner but must be manipulated by hand. However, in order to facilitate an easy transfer of the dollies 18 by hand in a convenient manner, I have provided several details of construction which make possible the transfer of these dollies in a novel and convenient manner. As the dollies 18 return along the lower trackways 25 to the starting point, they engage inclined trackway sections 28 which are normally retained in engagement with the trackway 25 by means of a suitable gravity actuated latch 29, as will hereinafter appear. The trackway section 28 is pivoted at a point 30 and beyond the point 30 there is provided a suitable counterbalancing weight 31 which is adapted to counterbalance the weight of the projecting trackway 28 and thus make the operation of transferring the dollies a relatively easy matter.

In Fig. 5 of the drawings, I have illustrated a dolly 18 in the position which it will assume when being transferred from the lower trackway 25 to the upper trackway 20. Immediately beneath the dolly 18 it will be seen that there is provided a latching member 32 which engages one of the axles of the dolly

and thus retains it in position upon the trackway 28 closely adjacent the pivotal point 30. This latch 32 is normally biased upwardly by means of a weight 33 so that as the dolly 18 runs upwardly thereover, it will be automatically latched in the position shown and, as a result of its nearness to the pivotal point 30, the problem of tipping the trackway 28 into its uppermost position will be a comparatively easy matter.

At the outer end of the trackway sections there is provided a transversely extending member 34 which serves to hold the ends of the real sections in spaced relation and also provide a means which the latch 29 may engage and hold the same in their lowermost position. This member 34 also serves as a support for an additional latch 35 which operates as will hereinafter appear to hold the trackway sections 28 in their uppermost position as when the dolly is being placed thereupon.

After the dolly 18 has been latched in the position shown in Fig. 5 and the latch 29 released, the trackway sections 28 will immediately swing under the influence of the counterbalancing weight 31 into the position shown in Fig. 4. This will leave the dolly 18 with its wheels against a supporting column 36 which carries the previously referred to pivotal point 30. As the rail sections 28 thus swing up into their uppermost position, the latch 35 will serve to hold them in this position and the dolly 18 may then be pushed along the rail sections 28 and upon the upper trackway 20.

It will be noted in this figure of the drawings that the latch 32 has moved out of engagement with the dolly 18 so that the latter may be moved freely. With respect to this aspect of my invention, it will be noted that there is provided upon the column 36 an arcuately shaped bracket 37 upon which the latch counterbalancing weight 33 will rest when the latch 32 is tipped upwardly with the rail sections 28. The disposition of this bracket 37 is such that as the rail sections 28 pivot upwardly, the latch 32 will be prevented from traveling along therewith after the counterbalancing weight 33 has engaged the bracket 37. In order that the latch 32 will be carried downwardly with the trackway 28 when moved into the position illustrated in Fig. 5, there is provided upon the latching end an underhanging lug 38 which engages a transversely extending strap 39 extending between the trackways 28.

By referring now to Fig. 7, it will be noted that the ends of the upper and lower trackways 20 and 25 terminate at points so that they will be engaged by the ends of the moving rack section 28 as the same is pivoted from its lower to its uppermost position. This view also very clearly discloses the arrangement of the latches 29 and 35. With respect to the latch 35, it will be noted that there is provided at the end of the trackway 20 a cross-bar 40 with which the latch 35 may engage so that when in this position the track section 28 will be held in its uppermost position and in line with the tracks 20 so that the dolly may be rolled upwardly and into position on the tracks 20.

Upon referring back to Fig. 1, it will be seen that at the starting end of the discharge conveyor 17 there is not provided the same type of switching means as is employed at the starting point of the feeding conveyor 16, that is, a switching means of the type disclosed in Figs. 4, 5, 6 and 7. The use of this type of switching means has been found to be impractical at this point as the trackway is at this point located within the limits of the machine where convenience of operation is not possible, and, in fact, at this point such a switching means has been found to be impractical as it is usually necessary to provide two dollies at this point, one for each length of pipe located at each side of the coupling joint.

For the purpose of returning the dollies of the conveyor system 17 from the lower trackway to the upper trackway, I propose to provide a simple elevating means which, in the present instance, is in the form of a hydraulic or pneumatic lift. This lift is normally disposed adjacent the ends of the lower trackway of the conveyor system 17 so that when the dollies return therealong they will run upon suitable rails provided on the lift. With this arrangement, the operator will, when the joined ends of the pipe come adjacent this lift, operate a valve to energize the same and raise the dollies into engagement with the lengths of pipe passing thereover, one of the dollies being placed on each side of the joint between the two lengths of pipe so that the leading length of pipe can then be detached from the length of pipe still in the machine and be then rolled out upon the dollies to a point where the pipe so freed may be lifted by means of a crane or other suitable means and placed at some temporary or final storage point. In this figure of the drawings the pipes 14 and 15 have thus been separated and the pipe 15 is shown in the position where it may be removed by any suitable means. As soon as the pipe, as for instance the pipe 15, has been thus detached and removed, the dollies 18 will then be given a push toward the downward switching means by the operator, where they will automatically switch themselves back to the starting point adjacent the previously described lift.

While I have, for the sake of clearness and in order to disclose my inventinon so that the same could be readily understood, described and illustrated specific devices and arrangements, I desire to have it under-

stood that this invention is not limited to the specific means disclosed but may be embodied in other ways that will suggest themselves, in view of this broad disclosure, to persons skilled in the art. It is believed that this invention is broadly new and it is desired to claim it as such so that all such changes as come within the scope of the appended claims are to be considered as part of this invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. In combination with a pair of horizontally disposed trackways located one above the other, a pivotally mounted section of trackway at one end of said trackways adapted to move into alignment with either of said trackways, and latching means adjacent the ends of said horizontally disposed trackways adapted to retain said pivotally mounted section of trackway so as to form a continuation of either of said trackways, whereby a dolly may be transferred from one of said trackways to the other.

2. In combination with a pair of horizontally disposed trackways located one above the other, a pivotally mounted section of trackway at one end of said trackways adapted to move into alignment with either of said trackways, latching means adjacent the ends of said horizontally disposed trackways adapted to retain said pivotally mounted section of trackway so as to form a continuation of either of said trackways, whereby a dolly may be transferred from one of said trackways to the other, a dolly adapted to travel over said trackways and track sections, and means adjacent the pivotal point of said section of trackway adapted to retain said dolly at this point when said section of trackway is in engagement with the lower trackway and release said dolly when said section of trackway is in engagement with said upper trackway.

3. In combination with a pair of horizontally disposed trackways located one above the other, a pivotally mounted section of trackway at one end of said trackways adapted to move into alignment with either of said trackways, a counter-balancing means for said section of trackway, and latching means adjacent the ends of said horizontally disposed trackways adapted to retain said pivotally mounted section of trackway so as to form a continuation of either of said trackways, whereby a dolly may be transferred from one of said trackways to the other.

4. In combination with a pair of horizontally disposed trackways located one above the other over which a dolly may travel, a pivotally mounted section of trackway at one end of said trackways adapted to move into alignment with either of said trackways, a counterbalancing weight for said section of trackway, latching means adjacent the ends of said horizontally disposed trackways adapted to retain said pivotally mounted section of trackway so as to form a continuation of either of said trackways, whereby a dolly may be transferred from one of said trackways to the other, and a latch adjacent the pivotal point of said section of trackway adapted to retain a dolly at this point when said section of trackway is in engagement with the lower trackway and release the dolly when said section of trackway is in engagement with said upper trackway.

5. A switch for transferring a dolly from a low trackway to a high trackway which comprises a section of track pivoted at a point intermediate the planes of the low and high trackways and free to swing into engagement with either trackway and means to lock said section of track in a position engaging either the low or high trackway.

6. A switch for transferring a dolly from a low trackway to a high trackway which comprises a switch element pivoted so as to form a continuation of either trackway, a latch carried by the switch element to automatically engage a dolly rolling upon it from the low trackway and means automatically releasing the engagement of said latch when the switch element is pivoted to form a continuation of the high trackway.

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