

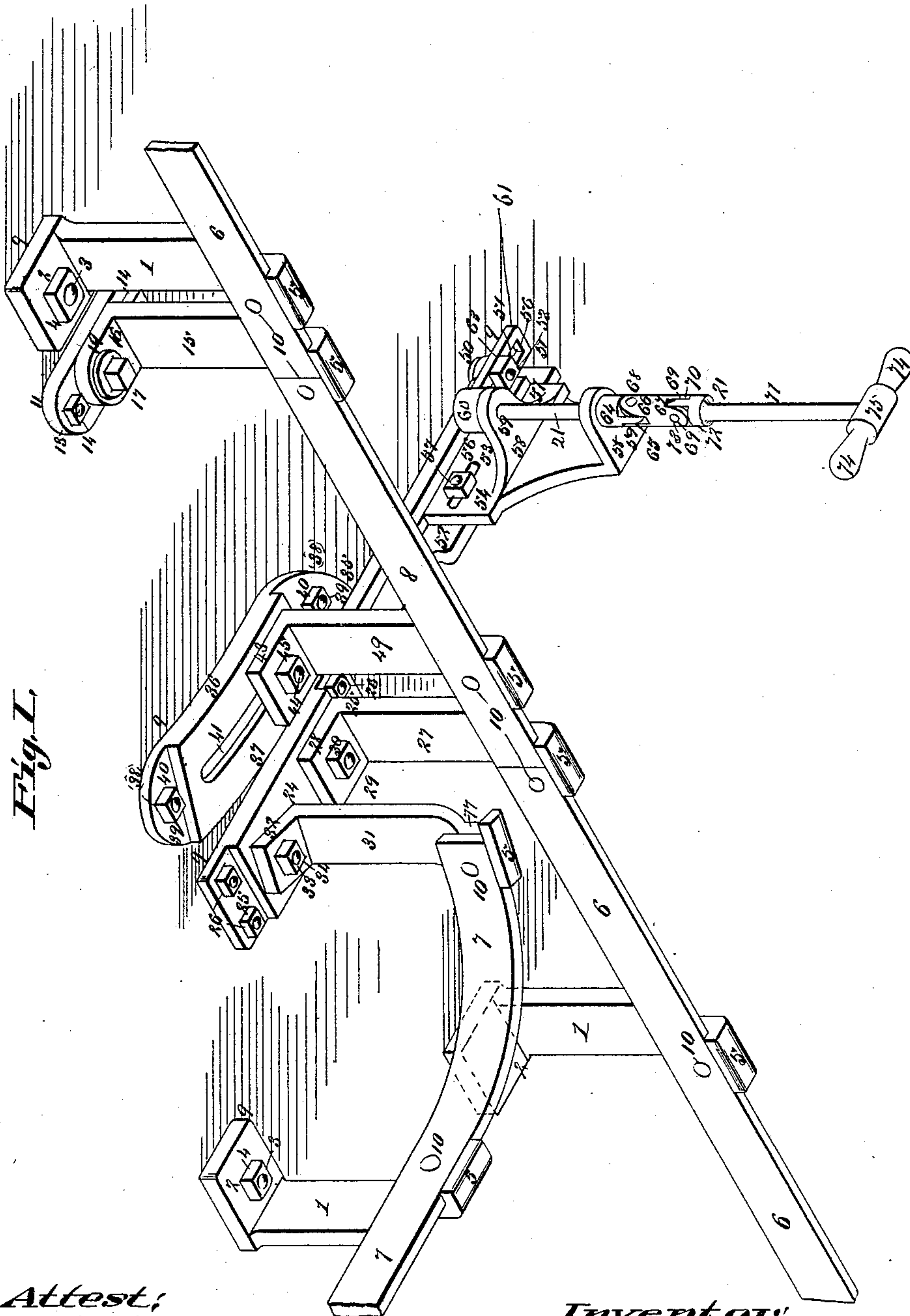
(No Model.)

2 Sheets—Sheet 1.

F. SCHRAUDNER.  
OVERHEAD RAILWAY SWITCH.

No. 434,840.

Patented Aug. 19, 1890.



Attest:  
*E. Arthur*  
*S. H. Knight*

Inventor:  
*Frederick Schraudner.*  
*By Knight Bros.*

*Attys.*

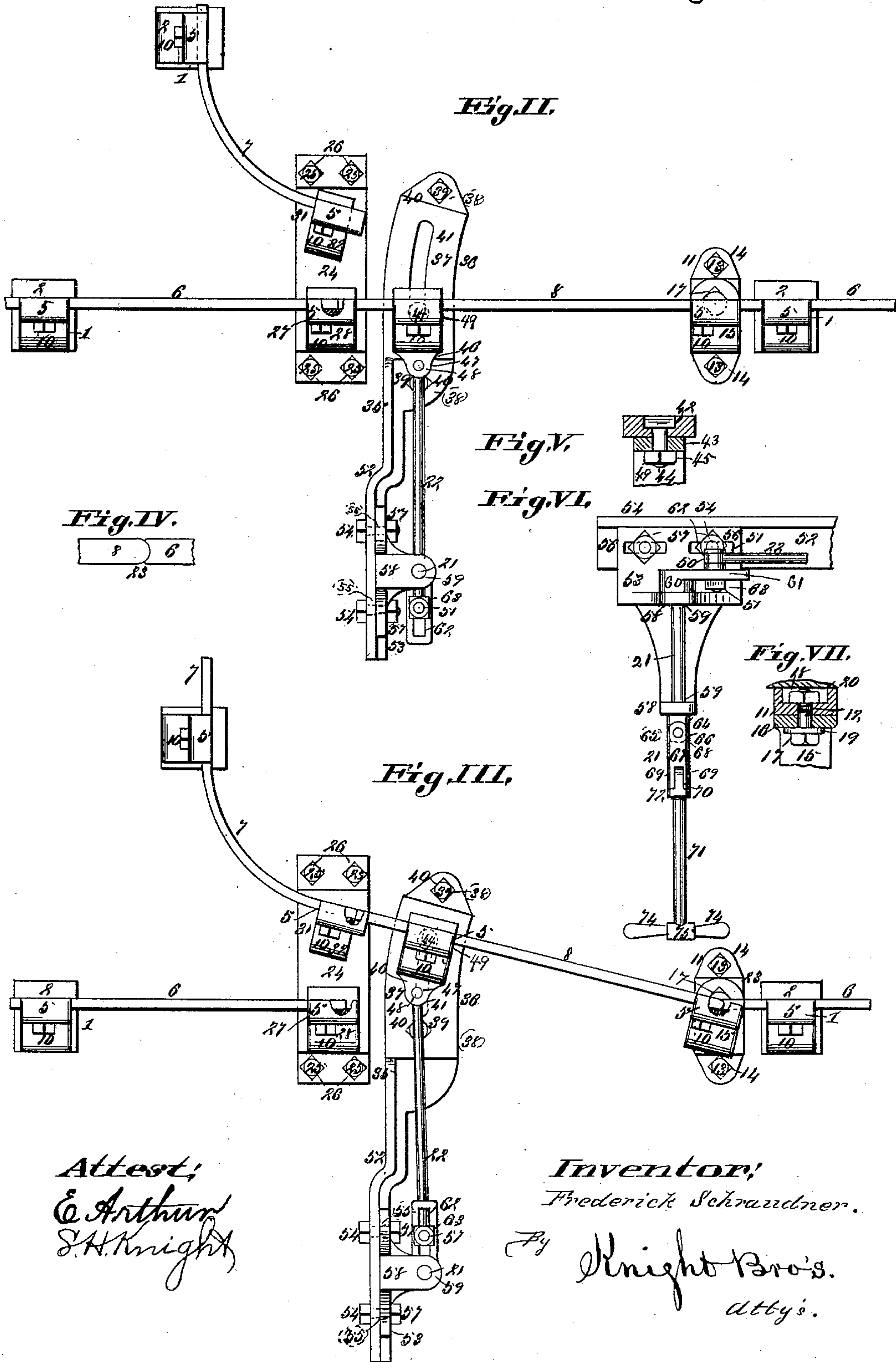
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# UNITED STATES PATENT OFFICE.

FREDERICK SCHRAUDNER, OF ST. LOUIS, MISSOURI.

## OVERHEAD RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 434,840, dated August 19, 1890.

Application filed April 2, 1890. Serial No. 346,306. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK SCHRAUDNER, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Overhead Railway-Switches for Slaughter-Houses, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to an overhead switch in which the switch-rail swings on a pivoted hanger instead of being itself hinged to the fast track-rail, from which it is swung; in which also the switch is operated by an adjustable crank-throw, that at the limit of its throw invariably brings the switch in registering line, respectively, with either the main track or the side track; and the invention consists in features of novelty hereinafter fully described and pointed out in the claims.

Figure I is an under perspective view of my system of overhead hanging rails and shows the switch-rail on line with the main track, its pivotal end suspended on a hanger, which hanger is itself pivotally suspended from above, thereby avoiding the necessity of a direct hinge attachment of the rails themselves. Fig. II is a bottom view with the switch-rail closed to the main track, the siding open. Fig. III is a like view with the switch-rail closed to the siding. Fig. IV is an enlarged detail of the switch-rail and of the main-track rail, and shows the concavo-convex abutting joint between the same. Fig. V is a detail of the sliding-hanger with a cross-section of its angle attachment-lug and of the slotted bearer-plate in which the sliding bolt moves, which bolt carries the pendent sliding hanger. Fig. VI is a side view or inverted elevation of the operative switch-stem; and Fig. VII is a detail of the pivotal switch-hanger, with a cross-section of its angle attachment-lug and of the bearer-plate to which it is pivotally attached, and shows the means of attachment of said pivot-bolt.

Referring to the drawings, 1 represents the stationary main hangers, whose perforated attachment angle-lugs 2 fit against the surmounting beam 9 or other object alike numbered, that supports the overhead-railway

system, the said stationary hanger being firmly secured to said beam by the screw-bolts 3, that preferably pass through and are seated in said beam, and are there secured with the hangers they hold by the screw-nuts 4, which engage on the screw ends of said bolts.

5 represents the pendent angle-hooks at the lower ends of the stationary hangers and of all the other hangers yet to be described, and which pendent hooks sustain, respectively, the main-track rails 6, the siding rails 7, and the switch-rails 8, which are also secured to said hangers by the bolts or rivets 10.

11 represents a bearer-plate, which has a screw-threaded perforation 12, as shown in Fig. VII, through near the middle of said plate, for the purpose yet to be described. 13 are screw-bolts that pass through the bearer-beam 11 and through near the ends of said bearer-plate, and 14 are nuts that engage on the screw-tips of said bolts and secure the attachment of the bearer-plate to said beam.

15 represents a pivotally-attached hanger whose perforated attachment angle-lug 16 fits and works against the bearer-plate 11, and the square-headed screw-bolt 17 presents upward through the perforation of the said angle-lug and its screw engages in the aforesaid screw-threaded perforation 12 in the middle of said bearer-plate, the square head of said screw-bolt providing the means with a wrench for screwing it up to its seat, which, however, is effected before the attachment of the bearer-plate 11 to the beam 9. The upper end of said screw-bolt 17 extends beyond the bearer-plate, and the jam-nut 18 is screwed thereon until it is seated on the upper surface of said bearer-plate. An anti-friction washer 19 is mounted on said bolt between its square head and the angle-lug of said pivotal hanger, or an integral collar-flange to the head of the bolt may be used instead of said washer and be alike numbered. A socket 20 is recessed in the upper side of the bearer-plate 11, and thus room is provided for said jam-nut and for the extended end of the bolt 17.

The end of the switch-rail that is supported by the pivotally-attached hanger 15 is secured to said hanger by one of the aforesaid rivets or bolts 10, and is under the control of the pivot action of said hanger, as said pivot-



hanger itself is by the operative action of the switch-stem 21 and its throw-rod 22, hereinafter described. It will thus be seen that the location of the usual hinges connecting the switch-rail to the main-track rail is dispensed with, thereby providing a clear, unobstructed track, so that the carrier-wheels from which the carcass of the animal is suspended may have free passage. It will also be seen that one of the stationary hangers is secured to the beam almost immediately adjacent to the attachment of the pivotal hanger, so that the end of the main rail next the switch-rail and whose extreme end surmounts the angle-hook 5 of said pivotal hanger is mainly supported by the adjacent stationary hanger, it having a loose surmount of the hook of the pivot-hanger, so as not to obstruct its pivotal action and yet to provide a re-enforce hold when the weight of the loaded carrier-truck is immediately above it. The stationary hanger thus bears the main burden of that end of the main track and its load, and said track-rail is secured to it from lateral displacement by one of the bolts or rivets 10. The pivot end of the switch-rail is of a convex form and the abutting end of the main-track rail in the continuous-track line with which it works is of a concave form, so that together they make a concavo-convex joint 23, as shown in Fig. III, and still more clearly in the enlarged view thereof in Fig. IV. Thus it will be seen that this concavo-convex joint in the track prevents the usual opening at the outer side of the switch-joint incident to the switching of the rail to the siding when the usual obstructive hinge is used.

24 represents the perforated junction bearer-plate common to the suspension attachment of both the main track and the siding at the switch ends thereof. The ends of said junction bearer-plate are secured to the bearer beam or beams by the screw-bolts 25, that pass through said beam and the perforations on the ends of said plate, where they are secured, and secure the plate by the screw-nuts 26.

27 represents the hanger whose hook 5 sustains the end of the main track, with which the variable end of the switch-rail connects when said switch lines with said main track, and to which hanger said end of the main track is secured by one of the bolts or rivets 10. The angle attachment perforated lug 28 of said hanger is secured to the bearer-plate 24 and to the bearer-beam above said plate by the screw-bolt 29, which passes through said beam, through the perforation suitably located in said bearer-plate, and through the perforation in said angle-lug, which angle-lug is seated to said bearer-plate and is secured by the screw-nut 30, which engages on the screw-tip of the bolt 29, and thereby secures in suspension the hanger and track-rail attached thereto. The further extension of the main track is held in suspension by certain of the aforesaid hangers 1, whose angle-lugs are

bolted to the bearer-beam, as has been already described.

31 represents the hanger whose hook 5 sustains the end of the siding-track, with which the variable end of the switch-rail connects when said switch lines with said siding-track, and to which hanger said connecting end of the siding-track is secured by one of the bolts or rivets 10. The angle attachment perforated lug 32 of said hanger is seated to the same bearer-plate 24 as that to which the hanger 27 is secured, and is secured to said bearer-plate and to the beam above said plate by the screw-bolt 33, which passes through said beam, through the perforation suitably located in said bearer-plate, and through the perforation in said angle-lug, which angle-lug is secured to said bearer plate and beam by the screw-nut 34, that engages on the screw-tip of said bolt, and which thereby secures in suspension the hanger and siding-track rail attached thereto. A recess 77 on the outer edge of the lower end of the hanger 31, which recess stops short of the angle-hook 5, allows free passage for the switch-rail as it passes to and from its connection with the side track, while the extension of said angle-hook beneath said recess forms a re-enforce hold for the extreme variable end of the switch-rail when it is thrown in line with the siding, the angle-hook of the hanger 27 providing a re-enforce hold for the same when it is in line with the main track. The further extension of the side track is held in suspension by certain of the aforesaid hangers 1, whose angle-lugs are bolted to the bearer-beam, as has been already described.

35 represents the combined integral switch-bearer slide-plate and angle bracket-bar. The switch-bearer-slide end 36 of said integral combination is formed of a flat laterally-curvilinear plate that has a corresponding are to that described by the switch-rail in its movements from the main line to the siding and back. The middle part of said plate has a swell 37 or increased thickness of plate, for a purpose soon to be described. The ends of said curvilinear flat portion of said integral combination are provided with bolt-holes 38. Screw-bolts are passed through and seated in the bearer beam or beams 9 and through said bolt-holes 38, when said combined switch sliding bearer-plate and angle-bar are elevated to their position on the under side of the beams, and the screw-nuts 40 are then screw-seated on the screw-tips of said bolts 39 and securely hold said combination bearer-plate to the bearer-beams.

41 represents an elongated curvilinear slot in the switch-bearer plate 36, whose arc runs parallel with the curved edges of said plate, and said slot is surmounted by an enlarged channel-groove recess 42, as shown in Fig. V, in which the square head 43 of the traveler-bolt 44 slides as the switch operates. The said bolt 44 passes through and is seated in both the curvilinear slot 41 and the perforate an-



gle-lugs 43 of the switch-hanger 49, the angle-hook 5 of which hanger carries the traveling end of the switch-rail, which rail is secured to said hanger by one of the bolts or rivets 10, and said hanger itself is secured through its angle-lug 43 by the screw-nut 45, which engages on the projecting screw-tip end of said traveler-bolt 44. The traveler end of the switch-rail is thus securely held in its passage between the hangers 27 and 31 in the process of switching.

46 represents an integral, or, it may be, a bolt-attached lug that projects from the rear of the switch-hanger, and in the perforation 47 of said lug the actuating-hook 48 of the aforesaid operative throw-rod 22 engages. The perforate swell rear end 50 of said operative rod provides a seat for the operative tie-bolt 51, that adjustably connects the actuating devices of the switch.

52 represents the angle bracket-bar that integrally extends rearward from the switch-bearer slide-plate, and is thus firmly held, both in parallel position, immediately beneath the bearer-beams, and in undeviating connection with the switch-hanger, which the switching devices control.

53 represents a pendent adjustable hanger-plate that is secured to the vertical section of the angle-bar by screw-bolts 54, which pass through their perforate seats 55 in the said angle-bar and through the slots 56 in the hanger-plate, the said slots providing the means for the adjustment of said plate as regards the respective positions of the switch-rail and of the rails to which it switches. When the bracket hanger-plate is thus adjusted to the position required and the bolts inserted, the screw-nuts 57 are turned in engagement on the screw-tips of said bolts, so as to secure it in its adjusted position.

58 represents two forwardly-projecting lugs that are integral with said hanger-plate, and 59 are perforate bearings in said lugs, in which the pendent actuating switch-stem 21 is seated and works. The said switch-stem is of a compound double-knuckle adjustable-crank construction, and is constituted of the following parts: The crank-head has a swell perforate neck 60, in which the shoulder-arm 61 of said stem is seated, and in which it is secured by being riveted or otherwise suitably fastened. 62 is an elongated slot that runs longitudinally of said crank-head, but is closed at each end. The said crank-head slot provides the means for the adjustment of the attachment of the tie coupling-bolt 51, which projects from its perforate seat in the swell-head of the operating-rod, which adjustment is set and secured by the screw-nut 63, which engages on the screw-tip of said bolt. 64 represents a pendent collar on the lower end of the shoulder-arm of said actuating-stem, which collar fits and works under the lower hanger-lug 58, in which said arm is seated. A flat perforate lug 65 projects downward from said collar, and the upper perforate lugs 66 of the

double bifurcated knuckle 67 are pivotally coupled thereto by the bolt or rivet-pin 68. The lower perforate lugs 69 of said double bifurcated knuckle are pivotally engaged on the perforate flat lug or head 70 of the wrist-arm 71, immediately above the collar-flange 72 thereon, and the bolt or rivet-pin 73 secures said pivot-coupling. 74 represents a cross-handle, whose perforate center 75 is mounted and riveted on the lower end of said wrist-arm of said adjustable actuating-stem that throws the switch.

The means of setting up and securing the above-described overhead-switch main and siding tracks and the general features of their operation have been largely pointed out in conjunction with the description of the several elements of the invention, and so it is only needed to emphasize some of the important and unique features for which large practical functional advantages are claimed.

First. I provide a pivotally-suspended hanger 15 for the support of the pivotal end of the switch-rail, and thereby avoid the necessity of hinging the switch-rail to the main-track rail. Thus this obstructive coupling attachment is avoided, and the loaded wheel runs with more freedom on the track unclogged by the cumbrous hinge.

Second. The pivotal suspension of the hanger being out of interference with the track and of the side flanges of the truck-wheels that run thereon, the wear and breakage from the usual obstructive concussion against the hinges is avoided. The counter-laps of the ends of the rails and the perforations therein for the insertion of the hinge-pin are in the hinged-rail construction points of weakness, where at the same point the obstruction of the hinge causes an extra strain from the passage of the loaded wheel.

Third. The concavo-convex joint at the abutting ends of the rails, as shown in Fig. IV, provides a peripheral pivot movement at said joint that prevents any open intermission in the continuity of either side of the track-rail, and thus avoids the concussive jar incident to the passage of the wheels past the open joint on the outside of the hinged connection of the switch-rail when it switches out of line with the main track to the siding.

Fourth. The combined switch-bearerslide-plate and integral angle-bar in connection therewith, that in conjunction carry both the throw end of the switch-rail and the hanger-stem system that controls the throw of said switch, being integral, makes a stiffer connection than could otherwise be obtained, where unlike in this device said bearer attachments are disintegral.

Fifth. The hanger-stem bearer-plate 53, that holds said stem which controls the throw of the switch, is made adjustable in its attachment by means of the slotted bearings 56 for its screw attachment-bolts, so as to adjust the respective attachment of the different members of the switch system, and provide a



take-up or relaxing adjustment of said parts, as the case may be. This adjusting device is both useful when the system is being put up and also for readjustment afterward, should (as is frequently the case) the bearer-beams that sustain the system warp or spring.

Sixth. The adjustable slotted crank-head of the operative switch is adjustable at the terminal of its throw in either direction to bring the switch exactly in line, respectively, with the main line on the one hand and with the siding on the other. This is an evident advantage to reduce the number of accidents from misplaced switches, as the full throw always bringing the switch in line the switching is effected with machine regularity.

Seventh. The adjustable operative switching-stem, while it hangs pendent to an advantageously low position to be conveniently worked by the operator, at the same time its double-knuckle joint between its shoulder and wrist-arms provides the means for its swinging out of the way in any direction when struck by operators, who are frequently passing with loads, thus being always in the way for its work and always out of the way as an obstruction.

I have shown and described an overhead double switch or switch and siding system; but I do not confine myself to the application of this device to a double system alone, for it is equally applicable to a triple, quadruple, or any multiple system to which it is required to attach it.

I claim as my invention—

1. In an overhead railway-switch for slaughter-houses, &c., the combination of the bearer-plate 11, having screw-threaded perforation 12, the screw-bolts 13, the nuts 14, the hanger 15, having lug 16, and hook 5, the headed screw-bolt 17, passed through the lug and secured in the perforation, and the nut 18, substantially as described.

2. In an overhead railway-switch for slaughter-houses, &c., the combination of the hanger 15, having a pivotal suspension, the switch-rail, whose pivot end is carried by said hanger, the combined integral switch-bearer, slide-plate, and angle bracket-bar secured to the bearer-beams that carries the switching devices, the switch-hanger 49, that carries the adjustable end of the switch-rail, the slide-bearer plate being provided with an elongated guide-slot and enlarged channel-groove recess, and the traveler-bolt 44, whose head travels in said recess and whose stem travels in said slot as the rail is switched, substantially as and for the purpose set forth.

3. In an overhead railway-switch for slaughter-houses, &c., the combination of the main-track rails 6, the siding-rails 7, the switch-rails 8, the stationary main hangers 1, that hold the stationary, main, and siding rails in suspension, the pivot-hanger 15, that carries the pivot end of the switch-rail to which said end of the rail is secured, the switch-hanger 49, that carries the adjustable

end of the switch-rail which is secured to it, the junction bearer-plate 24, secured to the bearer-beams, and the hangers 27 and 31, that respectively carry the switch-junction ends of said main and siding rails, substantially as and for the purpose set forth.

4. In an overhead railway-switch for slaughter-houses, &c., the combination of the main hangers 1, the pivot-suspended hanger 15, the switch-hanger 49, the switch junction-hangers 27 and 31, the pendent angle carrier-hooks 5 at the bottom of all said hangers, the main, siding, and switch rails carried on said carrier-hooks, the pivot end of the switch-rail and the abutting end thereof of the main rail being respectively provided with corresponding concave and convex ends, that together make a concavo-convex joint, and the rivets or bolts that secure said rails to said hangers, substantially as and for the purpose set forth.

5. In an overhead railway-switch for slaughter-houses, &c., the combination of the combined integral switch-bearer, slide-plate, and switch-stem angle-bracket, the said slide plate provided with a curvilinear slot 41 and channel-groove, recess 42, the switch-hanger 49 by which the switching end of the switch-rail is carried, the traveler-bolt 44, which provides a sliding connection of said switch-hanger to said slide-switch bearer-plate, the perforate lug at the rear side of said switch-hanger, the throw-rod 22, that connects the operating-stem to said perforate lug of the switch-hanger, and said operating stem that actuates the switch, substantially as and for the purpose set forth.

6. In an overhead railway-switch for slaughter-houses, &c., the combination of the combined switch-bearer, slotted slide-plate, and angle bracket-bar that carries the operative stem, the adjustable bracket-plate 53, provided with adjustment-slots 56, the screw-nuts 57, that adjustably secure said bracket-plate to the angle bracket-bar, the perforate lugs integral with said adjustable bracket-plate, the pendent operative double-knuckle stem, and the throw-rod by which said stem controls the action of the switch, substantially as and for the purpose set forth.

7. In an overhead railway-switch for slaughter-houses, &c., the combination of the combined switch-bearer, slotted slide-plate, and angle bracket-bar that carries the operative stem, the switch-hanger 49, that has a sliding connection with said slotted slide-bearer plate, the adjustable bracket-plate 53, the perforate lugs on the side of said bracket-plate, the shoulder-arm of the operating-stem that is loosely seated in said perforate lugs, the swell perforate head 60, that surmounts and is mounted on said shoulder-arm, the elongated crank-loop that projects from said swell-head, the throw-rod 22, whose attachment-hook connects with the switch-hanger, the perforate swell-head of said rod, and the tie-screw bolt and nut that adjusts



the attachment of said throw-rod to said crank-loop of said operative stem and consequently adjusts the action of the throw, substantially as and for the purpose set forth.

- 5 8. In an overhead railway - switch for slaughter-houses, &c., the combination of the throw-rod secured to the switch-hanger, the shoulder-arm of the operating-stem loosely seated in its bearings, the loop crank-head  
10 that surmounts said shoulder-arm, the screw-tie bolt and its nut that adjustably connects the throw-rod to said loop crank-head, the

pendent collar 64 on said operative stem, the perforate lug dependent from said collar, the double bifurcated knuckle pivoted to said 15 shoulder-arm, the wrist-arm 71, pivoted to said double knuckle, and the cross-handle 74, that is secured transversely on the bottom of said wrist-arm, substantially as and for the purpose set forth.

FREDERICK SCHRAUDNER.

In presence of—

BENJN. A. KNIGHT,  
SAML. KNIGHT.