(No Model.) 3 Sheets—Sheet 1.

W. H. BRODIE.

MULTIPLE SWITCH FOR OVERHEAD TROLLEY LINES.

No. 492,526. Patented Feb. 28, 1893.

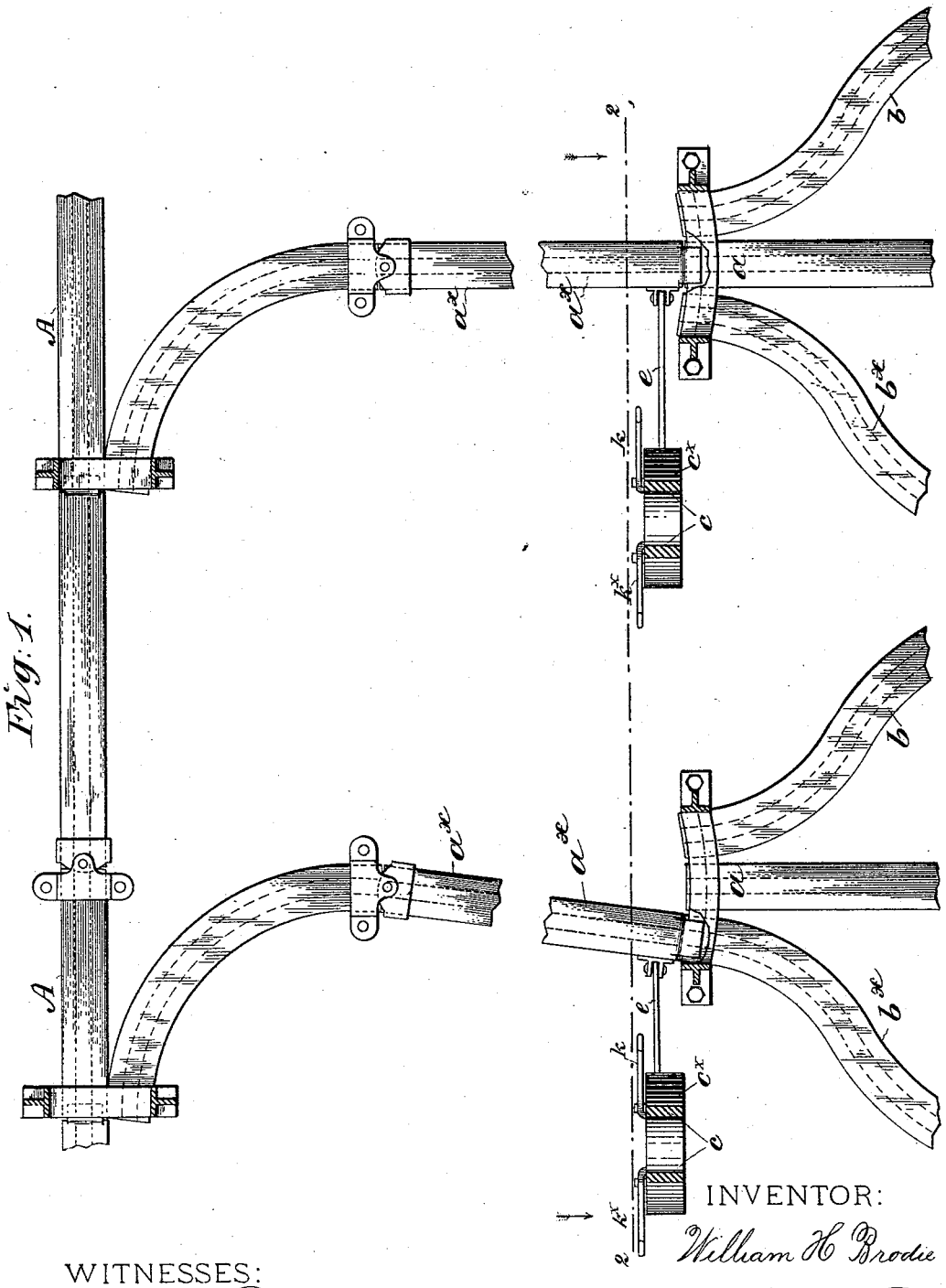

Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

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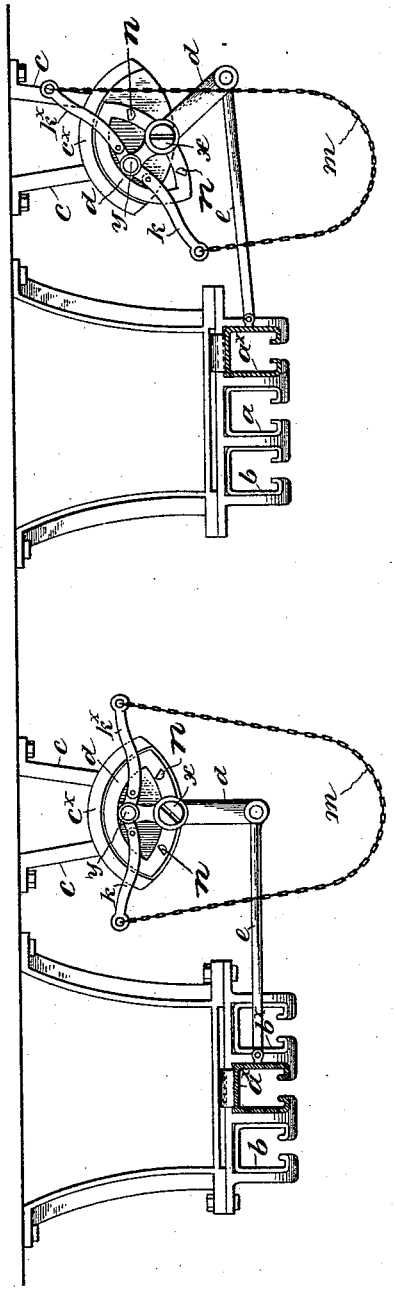
Fig: 2.



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(No Model.) 3 Sheets—Sheet 3.

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Fig. 3.

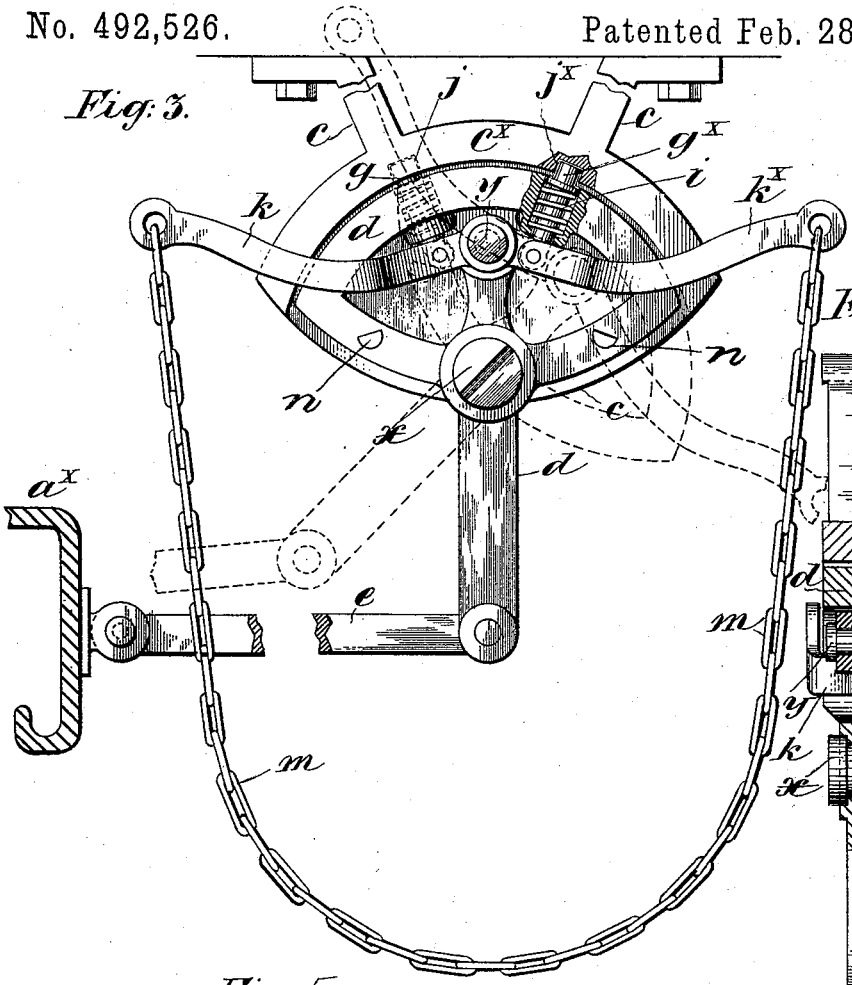


Fig. 4.

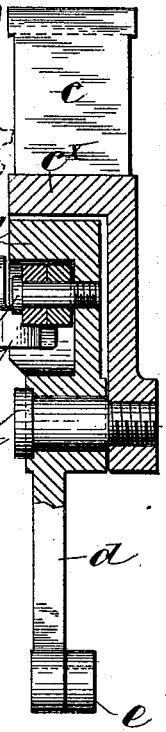


Fig. 5.

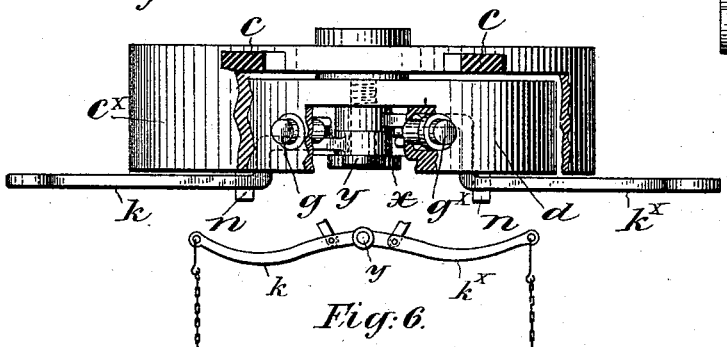
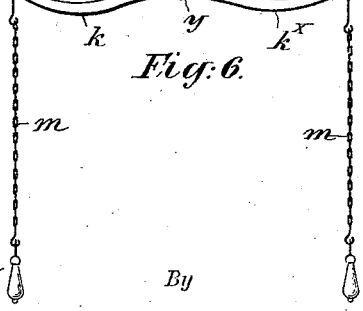


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM HENRY BRODIE, OF NEW YORK, N. Y.

MULTIPLE SWITCH FOR OVERHEAD TROLLEY-LINES.

SPECIFICATION forming part of Letters Patent No. 492,526, dated February 28, 1893.

Application filed September 29, 1892. Serial No. 447,279. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENRY BRODIE, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Multiple Switches for Overhead Trolley-Lines, of which the following is a specification.

My invention relates to switches for overhead trolley lines such as those employed in abattoirs, and the object is to provide a locking, hand switch for shifting the trolley from one track on to either of three tracks.

In the accompanying drawings I have shown an embodiment of my invention.

Figure 1 is a general plan view of an arrangement of tracks to which my switch is adapted, and Fig. 2, is a transverse vertical section in the plane indicated by line 2, 2, in Fig. 1. These views are on a small scale. Fig. 3 is a front elevation, on a larger scale, of the mechanism for operating and locking the switch. Fig. 4 is a vertical mid section of the same and Fig. 5 is a sectional plan of the same, with some of the parts broken away. Fig. 6 illustrates a slight modification which will be described hereinafter.

In an abattoir there are commonly parallel tracks, *a*, leading from the point where the beef is slaughtered to a main track, A, at right angles to the tracks *a*. The trolleys carry the halves of beef along these tracks to the elevator which carries them to the cold rooms or stores. The trolleys are shifted from the tracks *a* to the track A by means of switches of known construction.

It is desirable to provide sidings or side-tracks, *b* and $b^{\times}$, between the tracks *a*, on which to shift trolleys laden with beef, in order that other trolleys laden with selected beef may be brought to the front, and for other reasons not necessary to name; and the object of my invention is to provide a triple switch whereby a trolley on the track *a* may be run onto the shifting portion, or switch rail, $a^{\times}$, of the track *a*, and be shifted thence onto either of the tracks *b* or $b^{\times}$.

The arrangement of overhead trolley tracks above described is here referred to merely as an illustration of one important adaptation of my switch, but it will be understood that the switch may as well be applied to trolley tracks for any purpose whatever where the same or similar requirements exist.

So far as the track is concerned I have herein shown it constructed of what is known as the Coburn rail or track, the trolley consisting, ordinarily, of two wheels, an axle and a hook suspended from the axle; but the special form of the rail and trolley have nothing to do with my present invention.

The mechanism for operating the switch,—that is, for shifting the switch-rail $a^{\times}$,—and for locking the switch-rail in either of its three positions, will be best understood by reference to Figs. 3, 4 and 5.

At the side of the switch-rail, near its free end, is fixed a pendent bracket, *c*, on which is pivotally mounted at *x*, the switch lever, *d*. At its lower, pendent end this lever is coupled to the switch-rail $a^{\times}$, by a link, *e*. The upper end of the lever *d*, above the fulcrum point *x*, is in the form of a segment, its upper, curved surface fitting under a projecting curved flange, or rim, $c^{\times}$, on the bracket *c*. The curve of the flange $c^{\times}$ is drawn from *x* as a center, and when the lever *d* turns about its fulcrum pivot, its upper end moves under said flange $c^{\times}$.

In the upper part of the lever *d* are mounted two bolts, *g* and $g^{\times}$, herein shown as mounted radially in sockets or bores formed in the lever *d*, and each provided with a spring, *i*, which keeps its upper end pressed outward, normally, against the flange $c^{\times}$.

In Fig. 3 I have shown the lever *d* partly broken so as expose the bolt and its spring.

In the flange $c^{\times}$, are two bolt-sockets, *j* and $j^{\times}$, so placed as to receive the respective bolts, *g* and $g^{\times}$, when the switch-rail $a^{\times}$ is aligned with the stationary portion of the middle track or track rail *a*, and to lock the switch-rail in this position.

In order to unlock and shift the switch-rail to the track *b* or $b^{\times}$, I employ the mechanism I will now describe. Pivotally mounted on the upper part of the lever *d*, and as here shown on a common pivot *y*, are two operating levers, *k* and $k^{\times}$, which will be connected by a slack and pendent chain, cord, or other flexible connector, *m*, the bight of which hangs within reach of the person operating the switch. These levers *k* and $k^{\times}$ are coupled, respectively, to the bolts *g* and $g^{\times}$, where

the lower or rear ends of the latter project through the bottoms of their respective sockets, so that, by pulling down on either lever the bolt to which it is coupled will be withdrawn from its socket.

To illustrate the manner of operating the switch, we will suppose that the switch rail is aligned with the stationary portion of the track *a*, and the switch-lever *d* is in the position seen in full lines in Fig. 3, the bolts *g* and $g^{\times}$ occupying their respective sockets, and that it is desired to shift the switch-rail into line with the side track *b*. The operator seizes the bight of the chain or connector *m*, and pulls down on the latter directly in such a manner as to withdraw both bolts from their sockets, and then while the connector is still under tension, he swings the connector to the left (as represented in Fig. 3) in such a manner as to turn the lever *d* about its fulcrum *x*, thereby shifting the switch-rail to the left. The upper end of the lever *d* turns to the right, carrying with it the bolts. By throwing the strain mainly or wholly on the portion of the connector *m* which is attached to the lever $k^{\times}$,—which he would naturally do in swinging the connector to the left,—the strain will be removed from the lever *k*, and the bolt *g*, connected to this lever, will thus be allowed to bear against the lower face of the flange $c^{\times}$, and when the switch-rail has been fully shifted, this bolt will be brought opposite to the socket $j^{\times}$ in the said flange and will shoot into the same, thus locking the switch in this position. The position of the parts so shifted is represented in dotted lines in Fig. 3.

The operation of shifting the switch-rail in the opposite direction will be readily understood from the above explanation.

In order to avoid providing more than two sockets in the flange $c^{\times}$, to receive the bolts, I place these sockets at such a distance apart relatively to the extreme movement of the switch-lever *d*, that the distance between the centers of the two sockets shall be equal to the distance the ends of the bolts travel when the lever *d* is shifted to its fullest extent. Thus, when the switch-rail is aligned with the rail *a*, the bolts will both engage their respective sockets; when said rail is aligned with track *b*, the bolt *g* will engage the socket $j^{\times}$, and when the rail is aligned with track $b^{\times}$, bolt $g^{\times}$ will engage socket *j*. It is desirable, in shifting the switch rail that the bolt which is to lock it in position shall be left without restraint so that it may be free to shoot as it is brought into coincidence therewith.

I have shown the bolts coupled directly to their respective levers for the sake of simplicity and economy, as intermediate links would add two more parts to the device. It will be understood, however, that the bolts, when thus coupled directly to the levers, will have a litle looseness, or lateral play to compensate for the movements of the levers in a curve at the points where they are coupled to the bolts.

It is not absolutely essential that there shall be but one chain or connector *m*, secured at its respective ends to the levers, but this construction enables the operator to conveniently withdraw both bolts and shift the switch-rail with one hand which he could not do so well if the operating chains or cords pendent from the levers *k*, $k^{\times}$, were not connected at their lower ends. If two pendent operating cords or rods are employed, it will be best to provide them with balls or handles at their lower ends. The operator may then grasp both with one hand for withdrawing the bolts and afterward release one of them. This arrangement of the operating suspenders is illustrated in Fig. 5. In this view I have not shown the whole device but only the levers *k*, $k^{\times}$, and the suspended rods for operating them. There may be stops, *n*, on the lever *d*, to limit the downward movement of the respective levers *k* and $k^{\times}$.

As herein shown the levers *d*, *k* and $k^{\times}$, move in a vertical plane, the axes of their fulcrum pivots being horizontal. If they were arranged to move in a horizontal plane the pendent device or connector, as *m*, for operating the bolt-withdrawing levers should pass over pulleys or sheaves at the points where they change direction from horizontal to vertical.

Having thus described my invention, I claim—

1. As a means for shifting a switch-rail in an overhead track, the combination with a fixed bracket, having in it bolt-sockets a switch lever fulcrumed on said bracket, one arm of said lever being coupled to the switch rail and the other provided with a spring bolt adapted to engage the respective sockets in the bracket, an operating or bolt withdrawing lever fulcrumed on the switch lever and coupled to said bolt, and means connecting with said operating lever for first withdrawing the bolt and then shifting the switch rail, as set forth.

2. As a means for shifting the switch rail in an overhead track, the combination with a fixed bracket having in it bolt-sockets *j*, $j^{\times}$, of a switch lever, *d*, fulcrumed on said bracket and having one arm coupled to the switch rail and the other provided with locking bolts *g*, $g^{\times}$, adapted to engage the sockets in the bracket as described and lock the switch rail in the positions set forth, the operating levers *k* and $k^{\times}$, pivotally fulcrumed on the lever *d*, and coupled to the respective bolts for withdrawing the same, and means substantially as described for operating said levers *k* and $k^{\times}$, substantially as set forth.

3. The combination with an overhead trolley track, comprising the line *a*, the two side tracks *b* and $b^{\times}$, and the movable switch rail $a^{\times}$, arranged as shown, of the bracket *c*, provided with bolt-sockets, the switch lever *d*,

fulcrumed thereon and having its pendent arm coupled to the switch rail by a link, the said link, two spring bolts, g and $g^{\times}$, mounted in the upper end of lever d, and adapted to engage the sockets in the bracket under the conditions set forth, the operating levers k and $k^{\times}$, fulcrumed on the upper part of lever d and coupled to the respective bolts g and $g^{\times}$, and the pendent connector m, connecting said operating levers, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIAM HENRY BRODIE.

Witnesses:

PETER A. ROSS,

HERBERT BLOSSOM.