PATENT SPECIFICATION

Application Date: March 23, 1925. No. 7733/25. 250,378

Complete Left: Dec. 22, 1925.

Complete Accepted: April 15, 1926.

PROVISIONAL SPECIFICATION.

Improvements in and relating to the Tracks of Toy Railways.

I, FRANK HORNBY, of Meccano Limited, Binns Road, Old Swan, Liverpool, British, do hereby declare the nature of this invention to be as follows:—

This invention relates to an improved type of fitting for use in connection with the signal or switch point operating gear of toy or miniature railway tracks. Where it is desired to transform the thrust of an operating rod for the signals or switch points into a pull it is usual to intereonnect the rods through a pair of separately pivoted bell cranks, the inner arms of which are linked together, and in the case of a toy railway where the elements are required to be fixed by young persons it is desirable that such a mechanism should be capable of being easily and yet accurately fitted relatively to the track. Hitherto such bell crank coupling mechanisms have been carried on sole plates fixed near but independently of the miniature track railway, and in consequence some considerable skill was required to fix them in position relatively to the track, while a further disadvantage from such an arrangement arose from the fact that as the coupling element required to be secured to the table, floor or other surface, such surface was damaged by the connection and the position of the coupling element could not be altered without further damage to the surface. The present invention provides a simple and accurate means whereby such coupling element may be carried from the track itself, and readily secured at any desired position along the track.

According to this invention a pair of bell crank levers separately pivoted are mounted on a sole plate which is adapted to be passed beneath the rails of a toy railway track. The sole plate carries a gripping means which may be a pivoted cam element or a gripping screw or screws, the cam element or the screws being adapted to close against the rail or sleepers when the plate has been fixed in the desired position and grip the rail or sleeper by pressing it against a rear abutment which may be a fin or web stamped up from the sole plate. This fin, web, or the like, may be arranged to engage the opposite side of the same rail the one side of which is gripped by the cam or screws, or the web, fin or other projection may engage behind the opposite rail of the track. The former arrangement is however preferable as thereby the gauge of the rails is not disturbed by the gripping action.

Instead of the cam or grip screws engaging directly against the side of the rail or sleeper they may be arranged to bear against a plate pivotally or resiliently carried from the sole plate and in this way the frictional grip when the connection is closed is distributed over a large area of the rail and the whole device is consequently less liable to move under the thrust or pull of the signal operating rods.

Where a cam grip is fitted, owing to the facility by which it may be closed or released the mechanism may be readily positioned at different points along the track to suit the particular requirement of the switch point or signal operating gear.

In order to ensure the frictional grip against the rails the end of the cam and the rib or the like against which the rail is pressed may be serrated or corrugated.

Dated this 20th day of March, 1925.

For the Applicant,
A. J. DAVIES,
Patent Agent,
24, Moorfields, Liverpool.

[*Price* 1/-]

Price 4s 6d

COMPLETE SPECIFICATION.

Improvements in and relating to the Tracks of Toy Railways.

I, FRANK HORNBY, of Meccano Limited, Binns Road, Old Swan, Liverpool, British, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to an improved type of fitting for use in connection with the signal or switch point operating gear of toy or miniature railway tracks. Where it is desired to transform the thrust of an operating rod for the signals or switch points into a pull or otherwise to translate the motion of a rod it is usual to interconnect the rods through a pair of separately pivoted bell cranks, the inner arms of which are linked together, and in the case of a toy railway where the elements are required to be fixed by young persons it is desirable that such a mechanism should be capable of being easily and yet accurately fitted relatively to the track. Hitherto such bell crank coupling mechanisms have been carried on plates fixed near but independently of the miniature track railway, and in consequence some considerable skill was required to fix them accurately in position relatively to the track, while a further disadvantage in such an arrangement arose from the fact that as the plate required to be secured to the table, floor or other surface, such surface was damaged by the connection and the position of the plate could not be altered without further damage to the surface. The present invention provides a simple and accurate means whereby a bell crank or cranks may be carried from the track itself, and readily secured at any desired position along the track.

According to this invention the bell crank lever or levers for translating the motion of a rod for the switch or signal gear are mounted on a sole plate which is positioned beneath the rails of a toy railway track in the manner of a sleeper and secured thereto. The sole plate may be detachable and carry a gripping means such as a pivoted cam element or a gripping screw or screws, the cam element or the screws being adapted to close against the rail or sleepers when the plate has been fixed in the desired position and grip the rail or sleeper but preferably the rail by pressing it against a rear abutment which may be a fin or web stamped up from the sole plate. This abutment may be arranged to engage the opposite side of the same rail the one side of which is gripped by the cam or screws, or the abutment may engage behind the opposite rail of the track. The former arrangement is however preferable as thereby the gauge of the rails is not disturbed by the gripping action. The bell crank or cranks are thus carried from the track itself. In a modification instead of a detachable sole plate for carrying the bell cranks a short section of track may be provided having a special sleeper to which a bell crank or cranks are pivoted so that by interposing such short section of track in the main track to which it is adapted readily to be coupled the bell crank levers may be quickly and accurately fixed near the rails in a standard position.

Apparatus in accordance with this invention is illustrated in the accompanying drawings in which Fig. 1 is a plan view of a detachable element adapted to be inserted under the track rails and gripped thereto, the element carrying two bell crank levers. Fig. 2 is a side view of Fig. 1 and Fig. 3 an enlarged fragmentary sectional view of the cam grip. Fig. 4 is a plan and Fig. 5 an inverted plan of a short section of track having a special fixed sleeper on which the bell cranks are pivoted. Fig. 6 is a plan of a switch point operating gear for a toy railway showing the bell crank pivoted on a special sleeper and Fig. 7 is an inverted plan view of the special sleeper.

In carrying out the invention and referring first to the form shown in Figs. 1, 2 and 3 the bell crank levers 1, for translating the motion of the operating rod 2 to the rod 3 on the other side of the track or for other analogous purposes such as changing the pull of the rod 2 into a thrust or for operating the switch points, are pivoted at 4 to a sole plate or sleeper element 5 which is adapted to be passed beneath the rails 6 of a toy railway track in the manner of a sleeper. The sleeper element is provided with any suitable means by which it may be gripped to the track rails after it has been positioned as desired along the track. In the arrangement shown rotary cam elements 7 are eccentrically pivoted at 8 on the element and are rotated by the tails 9.

Formed on the sleeper element 5 are abutments 10 which when the element 5 is a sheet metal stamping may be fins or webs stamped up from the metal of the element, as shown. This abutment 10 is preferably arranged to engage the opposite side of the same rail which is gripped by the cam 7 on the other side as shown, but if desired only one cam and one abutment may be provided, the abutment engaging behind one rail while the cam engages the other rail. Such an arrangement is, however, likely to bend slightly one or both rails and disturb the gauge. The former method is therefore preferable. The bell cranks 1 on opposite sides of the track are connected by a link 11 the pivotal connections 12 working in curved slots 13. Consequently the motion of the rod 2 is transferred to the rod 3.

Instead of the cam or grip screws engaging directly against the side of the rail or sleeper they may be arranged to bear against a plate pivotally or resiliently carried from the sole plate and in this way the frictional grip when the connection is closed is distributed over a large area of the rail and the whole device is consequently less liable to move under the thrust or pull of the operating rods 2, 3.

Where a cam grip such as 7 is fitted, owing to the facility by which it may be closed or released the mechanism may be readily positioned at different points along the track to suit the particular requirement of the switch point or signal operating gear, the bell cranks always being the same standard distance out from the track.

In order to ensure a good frictional grip against the rails the edge of the cam 7 and the rib 10 or the like against which the rail is pressed may be serrated or corrugated.

In the modification shown in Figs. 4 and 5 the bell cranks 1 are pivoted on a sole plate 5*a* in the form of a special sleeper permanently secured to short lengths of rail 6*b*. Consequently the sleeper and these rails form an independent short section of track. The bell crank or bell cranks 1 are pivoted at 4 to this sleeper and connected again by a link 11. Such a short section of track may be interposed at any desired point in the main track, and its bell cranks will thus be set at a standard distance out from the track.

In Figs. 6 and 7 the invention is shown applied to a switch point gear a sleeper 5*b* carrying a bell crank 1 pivoted at 4 at a standard distance from the track by the rod 2, the other arm of the bell crank being connected at 14 by a link 11*a* to the switch rail 16 which is itself pivoted at 17 on the next sleeper 18. The pivotal connection 14 of the link 11*a* slides in a slot 19 cut in the sleeper 5*b*. As the rod 2 is actuated in one or other direction, the switch rail opens or closes the branching track rail 6*c*.

With all the arrangements described it is ensured that the pivots 4 of the bell crank levers shall be readily and yet quite accurately set at a standard distance from the track rails, thus eliminating any necessity for accurately setting out the positions for such pivotal connections as is necessary in the present systems where the bell cranks 1 are pivoted to the floor independently of the track, and further owing to these pivots being carried from the sleeper elements 5, 5*a*, 5*b* and not from the table or other surface on which the track is laid no damage occurs to such surface which is a feature of considerable importance in the building of a toy railway system.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Apparatus for use with a toy or miniature railway track comprising a sleeper element positioned beneath the track rails and secured thereto and on which is pivotally mounted one or more bell crank levers to which the operating rod for the signal gear, switch point mechanism or the like is adapted to be coupled.

2. In apparatus as claimed in Claim 1, a sole plate or sleeper element adapted to be detachably gripped to the track rails and carrying one or more pivotally mounted bell crank levers.

3. In apparatus as claimed in Claim 2 the means for gripping the element to the track rails which consists in forming an abutment or abutments on the element and a cam or cams on the element, the rails being gripped between the cam and the abutment whereby the element may be detachably positioned at different points along the track.

4. Apparatus as claimed in Claim 1 in which the element on which the bell crank or cranks are pivoted takes the form of a sleeper permanently secured to the track rails.

5. Apparatus as claimed in Claim 1 in which the element takes the form of a sleeper carrying short lengths of track rail to which it is permanently secured, the sleeper and rails forming a short section of track adapted to be built into or interposed in the main track.

6. In apparatus as claimed in any of the preceding claims providing the element with two pivotally mounted bell cranks one at each side adapted to be coupled to the operating rods of the railway the ends of the bell cranks being interconnected by a link and working in curved slots formed in the element.

7. The improved element for use in a toy railway track substantially as described and shown in Figs. 1, 2 and 3 of the accompanying drawings.

8. The improved track section for use in a toy railway substantially as described and shown in Figs. 4 and 5 of the accompanying drawings.

9. The improved switch rail operating device for use in a toy railway track substantially as described and shown in Figs. 6 and 7 of the accompanying drawings.

Dated this 21st day of December, 1925.

A. J. DAVIES,
Patent Agent,
24, Moorfields, Liverpool.

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FIG. 6.

FIG. 7

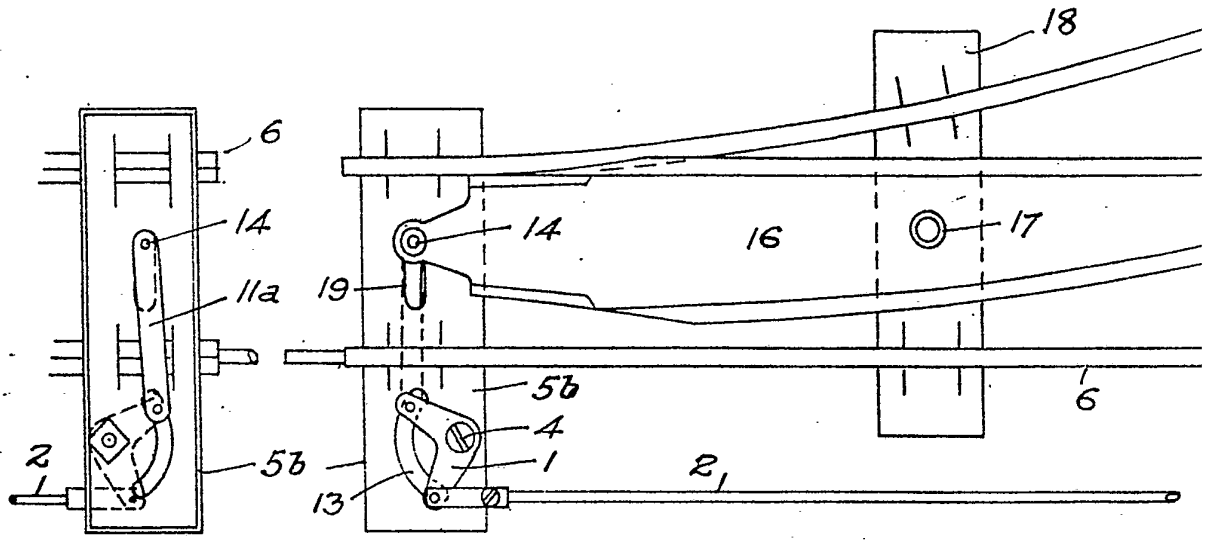


FIG. 4.

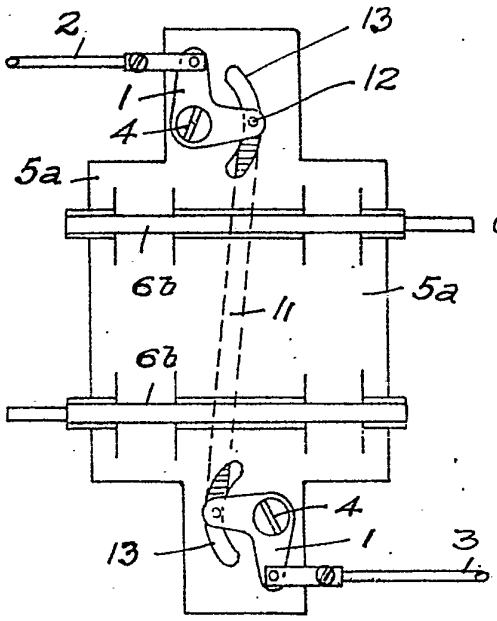
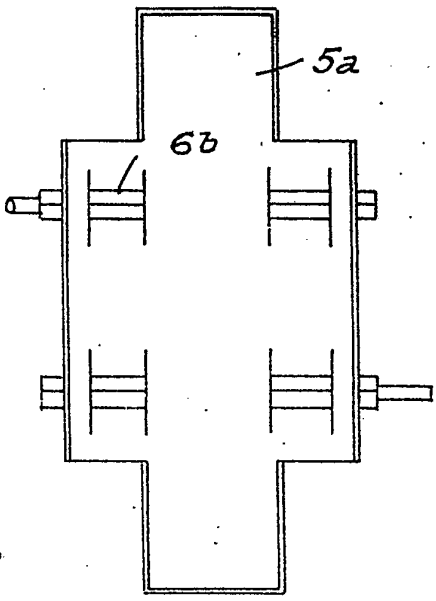


FIG. 5.



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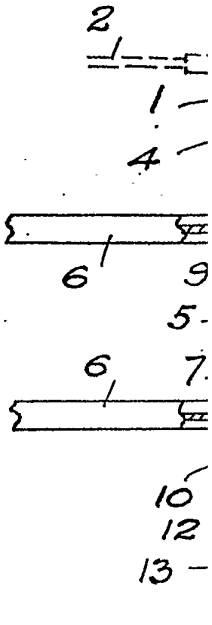

FIG. 6.

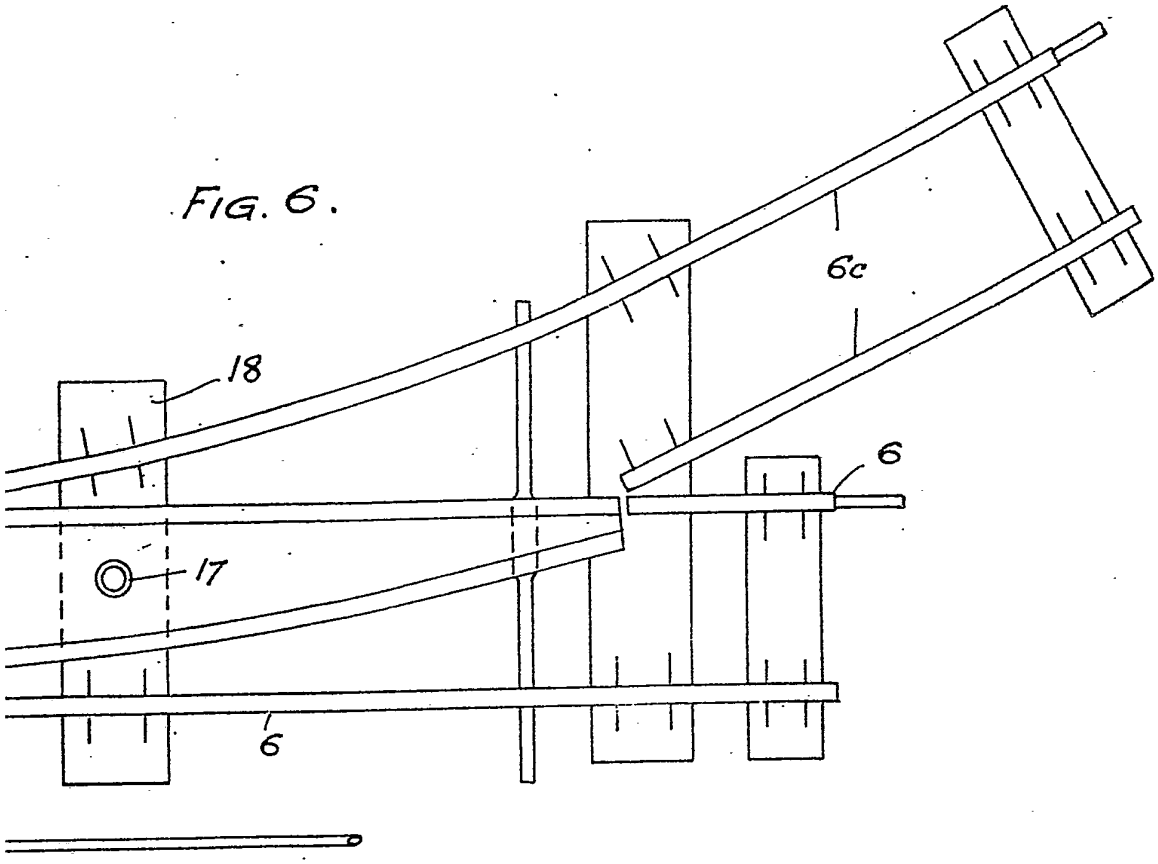

FIG. 1.

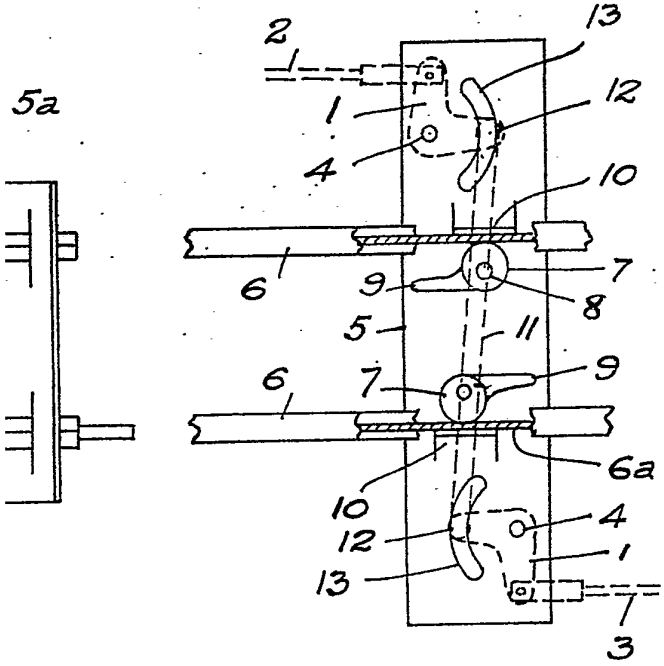

FIG. 2.

FIG. 3.

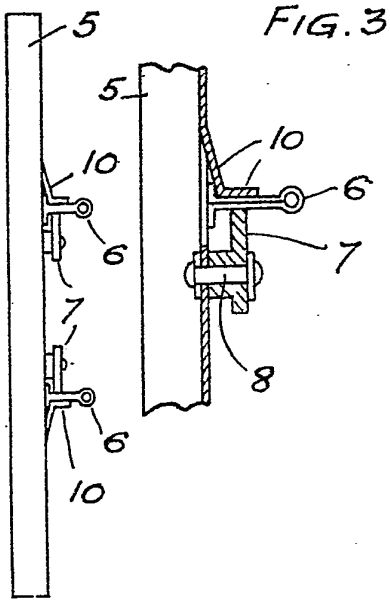

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FIG. 6.

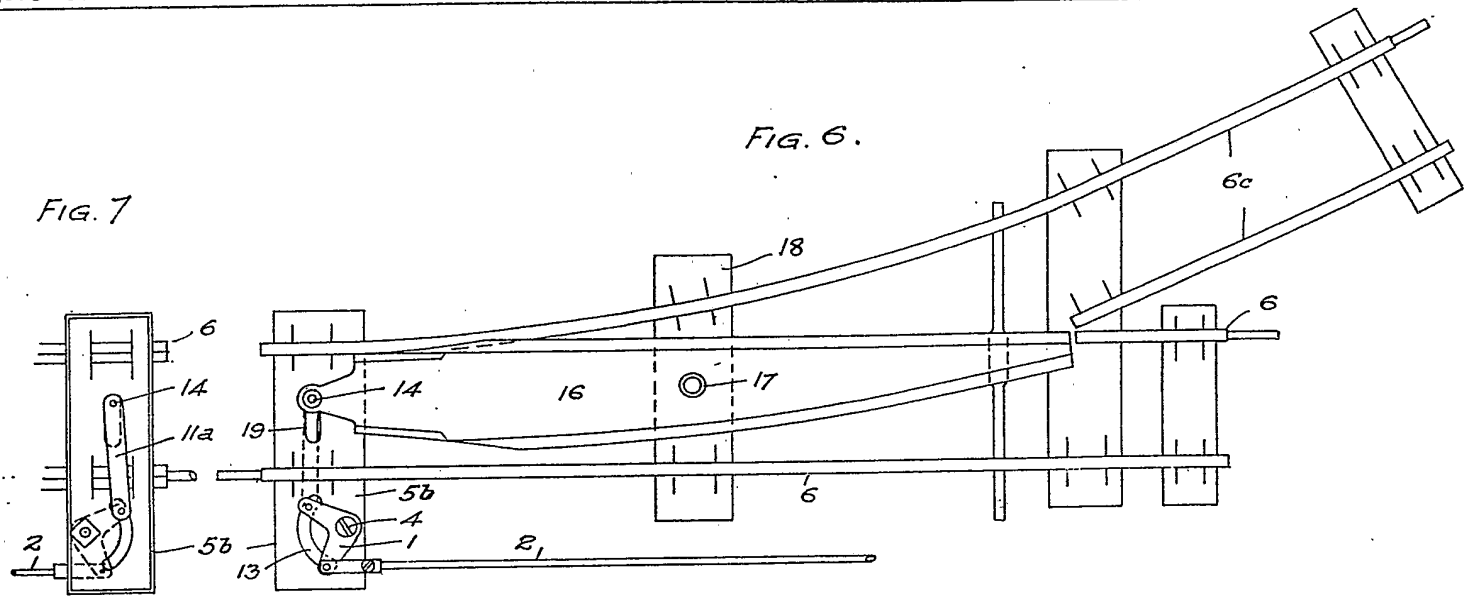
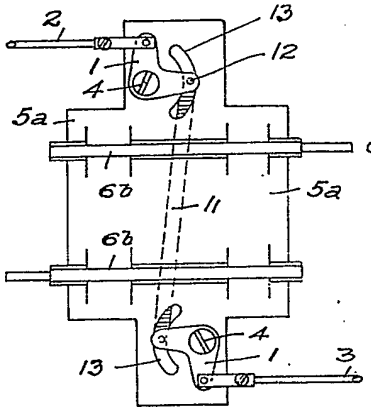


FIG. 7

FIG. 4.



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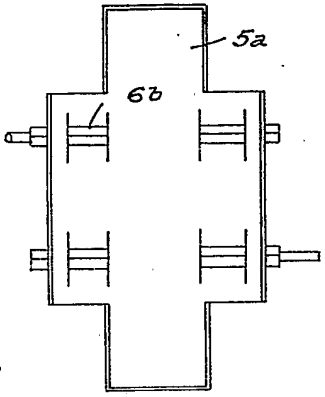


FIG. 1.

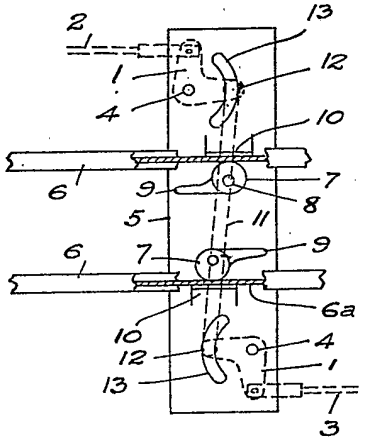


FIG. 2.

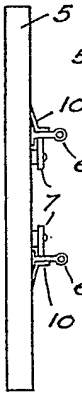
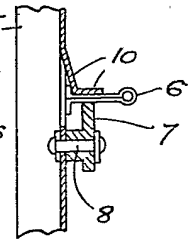


FIG. 3.



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