

No. 896,129.

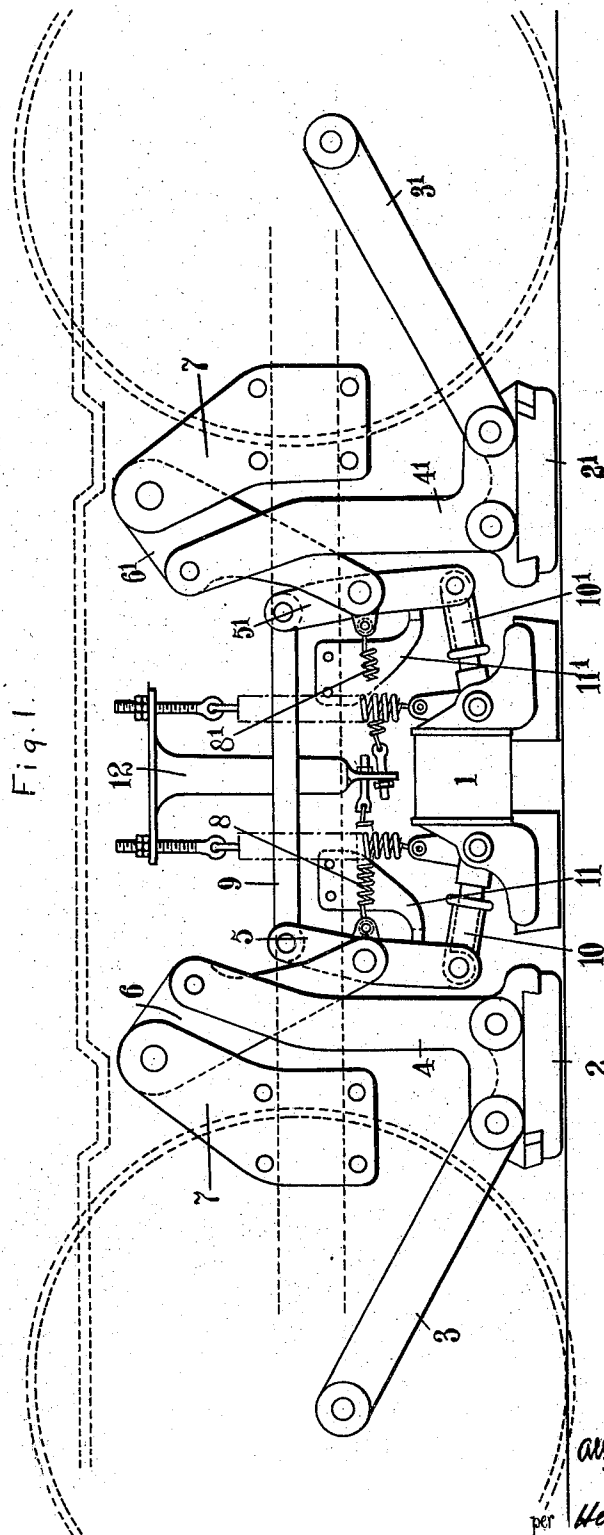
A. W. MALEY.

PATENTED AUG. 18, 1908.

BRAKE FOR ROLLING STOCK OF RAILWAYS AND TRAMWAYS.

APPLICATION FILED DEC. 10, 1907.

2 SHEETS—SHEET 1.



Witnesses

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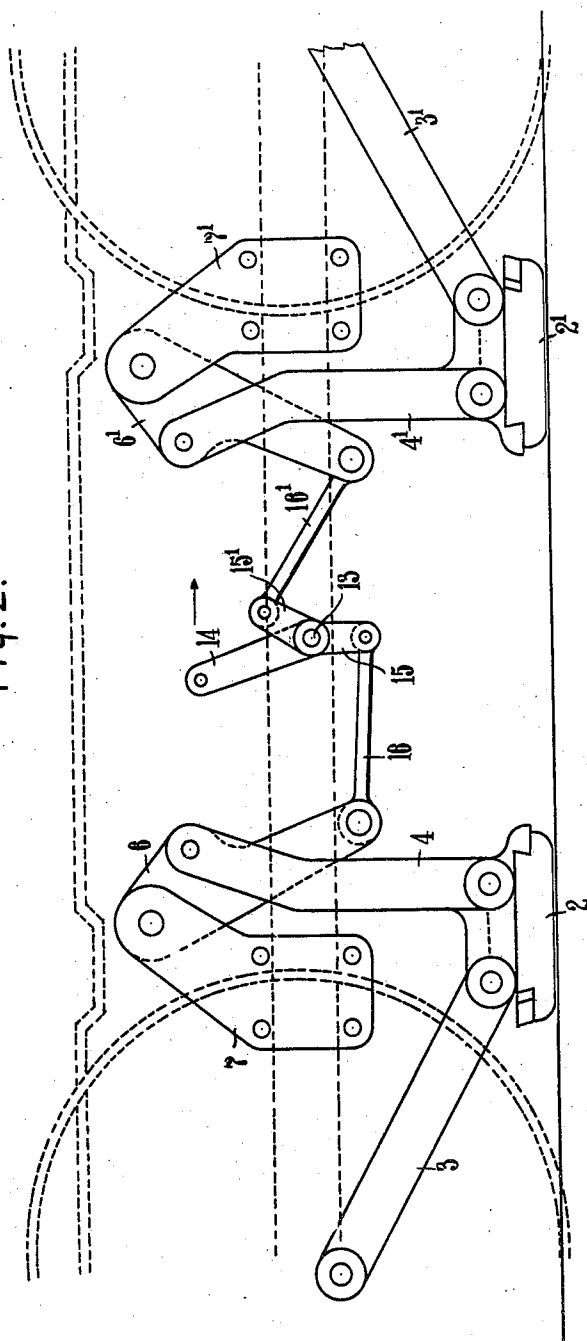
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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

ALFRED WALTER MALEY, OF LEEDS, ENGLAND.

BRAKE FOR ROLLING-STOCK OF RAILWAYS AND TRAMWAYS.

No. 896,129.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed December 10, 1907. Serial No. 405,855.

To all whom it may concern:

Be it known that I, ALFRED WALTER MALEY, electrical engineer, a subject of the King of Great Britain, residing at 7 Harehills Place, Leeds, in the county of York, England, have invented new and useful Improvements in Brakes for Rolling-Stock of Railways and Tramways, of which the following is a specification.

My invention relates to improvements in brakes for rolling stock of railways and tramways by means of which great retarding power and efficiency are obtained.

A well known form of brake for the rolling stock of railways and tramways comprises a track-block which is pressed against the rail for the purpose of retarding movement and the pressure of the said block upon the rail may be brought about electrically or mechanically or otherwise in various known ways as for example by steam, air pressure, manually or electro-mechanically. When such a brake block is applied to the rail there is a certain amount of drag between the rail and the block which causes a relative backward movement of the said block, and in a well known form of brake, namely the Westinghouse brake, this drag has been applied through suitable mechanism to press a brake block upon a wheel of the rolling stock.

In my invention I employ a track-block as aforesaid but instead of causing the drag thereof to press a brake-block against a wheel I employ the drag to press an auxiliary track-block or blocks upon the rail, and when desired I may cause the pressure of the said auxiliary block or blocks to be increased either by electrical, mechanical or other supplementary means.

I shall now proceed to describe how my invention is to be or may be carried into effect, and for that purpose I shall refer to the accompanying drawing which illustrates the best means of practicing my invention with which I am acquainted. I desire it to be understood however that I do not limit myself to the said means, as I believe that I am the first to have proposed the application of an auxiliary track-block for the purpose specified.

In the drawings, Figure 1 illustrates more or less diagrammatically one construction according to the invention. Fig. 2 shows brake mechanism of the ordinary type which may be added to the mechanism of Fig. 1.

In the drawings 1 is a track-block (herein-

after termed the main track-block) as already known in the art, the particular form shown being an electromagnetic one.

2, 2' are auxiliary track blocks actuated by the main track block in accordance with my invention.

3, 3' are links, the lower ends of which are pivoted to the auxiliary track blocks, and the upper ends of which are pivoted to the axle boxes or any convenient part of the car frame or body.

4, 4' are thrust rods attached to the auxiliary track blocks. As shown they are attached at two places the better to distribute the pressure upon the auxiliary track-blocks. Their upper ends are pivoted to the bent levers 6, 6' which latter are pivoted at their upper ends to the main brackets 7, 7', the latter being firmly bolted to the car frame. The lower ends of the bent levers 6, 6' are pivoted to the floating levers 5, 5' whose upper extremities are attached by pins to the common rod 9, and whose lower ends are pivoted to the telescope rods 10, 10' which latter are attached to the main track block.

8, 8' are tension springs which extend from the hanger 12 to the lower ends of the bent levers 6, 6' and which serve through the said bent levers and thrust rods to raise the auxiliary track-blocks from the rails when the brake is to be released.

11, 11' are stop brackets for limiting the movement of the lower extremities of the floating levers 5, 5' in an inward direction.

The action is as follows:—Let us assume that the main track block is pressed against the rail, which in the present instance would be done by passing an electric current through the electro-magnet of the said track-block. Let it be assumed also that the car is moving from right to left so as to cause a drag to be exerted upon the main track-block tending to move it towards the right relatively to the car. This drag will be transmitted through telescope rod 10' to the bottom of floating lever 5'. This floating lever will now adopt two movements, one an angular movement in a counter-clockwise direction round the pivot which connects it to the bent lever 6' and the second a simultaneous translatory movement of the lower part (at least) of the said floating lever 5'. This translatory movement will cause an angular movement of the bent lever 6' round the pin by which it is pivoted to the bracket 7' in a counter-clockwise direction, the result of which will be that

the thrust rod 4' will be moved downwards and will press the auxiliary track-block 2' against the rail. At the same time the angular movement of the floating lever 5' before mentioned will press rod 9 to the left, and thus will set up a counter-clockwise angular movement of the floating lever 5, which it may be assumed is abutting against the stop bracket 11, so that the center of movement will be at the point of abutment on the said stop bracket. This will cause bent lever 6 to move in a clockwise direction, so that the thrust rod 4 will be pressed downwards and bring track-block 2 against the rail, undue longitudinal movement of this block being prevented by the link 3. It will thus be seen that the drag of the main track block has caused pressure not only of the right hand auxiliary track-block 2', but also of the left hand auxiliary track-block 2; and it is obvious that if the car were moving in the other direction the drag of the main track-block to the left would actuate both auxiliary track blocks in the same way.

From what has been stated with respect to the double movements of the floating levers 5, 5', it will be understood that when the main track block is dragged to the right the tendency will be to shorten rod 10' and lengthen rod 10, but the movement of the connecting rod 9 to the left which is immediately produced will by the movement of the floating lever 5 tend to shorten rod 10 again. Further the action of the tension springs 8, 8' is also constantly tending to shorten these telescope rods. Thus the floating levers are kept in abutment against the stop brackets when the brake is out of action.

Although I have now described the best means with which I am acquainted of carrying my invention into effect I desire it to be understood that I do not limit myself in any way to the mechanism by which the drag of the main track-block is transmitted to the auxiliary track-blocks as I believe that I am the first to have employed an auxiliary track-block actuated by the drag of a main track-block.

I have hereinbefore referred to the main track-block as being actuated electrically. It is to be understood however that it may be actuated in any of the known ways, as for example manually or by fluid pressure; or it may be actuated by more than one of these as for example by means of a manual device of any convenient known kind acting in conjunction with an electro-magnetic device of any convenient known kind. Similarly instead of actuating an auxiliary track-block exclusively by means of the drag of the main track-block I may supplement the action by additional means of actuation. Such additional means are indicated in Fig. 2 in which the main track-block and its mechanism are omitted for the sake of clearness. This

auxiliary mechanism is of a quite usual type comprising a shaft 13 adapted to be turned by any convenient handle (not shown) connected to the crank 14, said shaft carrying other cranks 15, 15' joined by links 16, 16' to the levers 6, 6' respectively. Instead I might mount an electro-magnet upon the auxiliary track block so as to increase the pressure when current is switched on.

What I claim is:—

1. In a brake for railway, tramway, and like vehicles the combination with a main track block and means for applying said block, of an auxiliary track-block, and means for causing the drag on the main track-block to press the auxiliary track-block upon a rail.

2. In a brake for railway, tramway, and like vehicles the combination with a main track block and means for applying said block, of an auxiliary track-block, a slanting link supporting said block, and connections between said link and the main track-block whereby lateral movement of the main block turns the link and depresses the auxiliary block.

3. In a brake for railway, tramway and like vehicles the combination with a main track block and means for applying said block, of an auxiliary track-block, links forming a toggle joint supporting said track-block, and connections between said link and the main track block whereby lateral movement of the main block turns the links and depresses the auxiliary block.

4. In a brake for railway, tramway and like vehicles, the combination with a main track block and means for applying said block, of an auxiliary track-block, a link connected to said main and auxiliary track-blocks, said link being so shaped and pivoted that lateral movement of the point connected to the main track-block causes vertical movement of the point connected to the auxiliary track block.

5. In a brake for railway, tramway and like vehicles, the combination with a main track-block and means for applying said block, of an auxiliary track-block, a roughly triangular link pivoted at one angle, and means connecting the other angles respectively to the main and auxiliary track-blocks in such manner that lateral movement of the main track-block depresses the auxiliary track-block.

6. In a brake for railway, tramway, and like vehicles, the combination with a main track-block and means for applying said block, of a plurality of auxiliary track-blocks, and means for causing the drag on the main track-block to press the auxiliary track-blocks upon a rail.

7. In a brake for railway, tramway and like vehicles, the combination with a main track-block and means for applying said block, of an auxiliary track block, a pivoted

link supporting said block, a second pivoted link adapted to be turned by the lateral movement of the main track-block, and connections between the links so that the turning of one turns the other, and depresses the auxiliary track-block.

8. In a brake for railway, tramway and like vehicles, the combination with a main track-block and means for applying said block, of a pair of auxiliary track-blocks, pivoted links, a rod connecting the upper ends of said links, springs pressing the lower ends of said links towards the main track-block, and connections between said links and the respective auxiliary track-blocks, whereby these latter are depressed on movement of their links in one direction, and raised on reversal of the movement.

9. In a brake for railway, tramway and like vehicles, the combination with a main track-block and means for applying said block, of a pair of auxiliary track-blocks, pivoted links, a rod connecting the upper ends of said links, telescopic rods joining the lower ends of said links to the main track-block, and connections between said links and the respective auxiliary track-blocks, whereby these latter are depressed on movement of their links in one direction, and raised on reversal of the movement.

10. In a brake for railway, tramway, and like vehicles, the combination with a main track-block and means for applying said block, of a pair of auxiliary track blocks, links, a rod connecting the upper ends of said

links, brackets, springs pressing said links against said brackets so as to make the point of abutment a pivoting point, telescopic rods joining the lower ends of said links to the main track-block, and connections between said links and the respective auxiliary track-blocks, whereby these latter are depressed on movement of their links in one direction, and raised on reversal of the movement.

11. In a brake for railway, tramway and like vehicles, the combination with a main track-block and means for applying said block, of an auxiliary track-block, a thrust rod joined at a plurality of points to said auxiliary track-block, and connections between said thrust rod and the main track-block whereby lateral movement of said main block causes depression of the auxiliary block

12. In a brake for railway, tramway, and like vehicles, the combination with a main track-block and means for applying said track-block, of an auxiliary track-block, connections between said auxiliary block and the main block whereby lateral movement of the latter causes vertical movement of the former and separate means for applying said auxiliary track-block.

In testimony whereof I have signed my name to this specification in the presence of the two subscribing witnesses.

ALFRED WALTER MALEY.

Witnesses:

E. H. COCKSHOTT,
THOS. THACKRAH.