

Dec. 4, 1928.

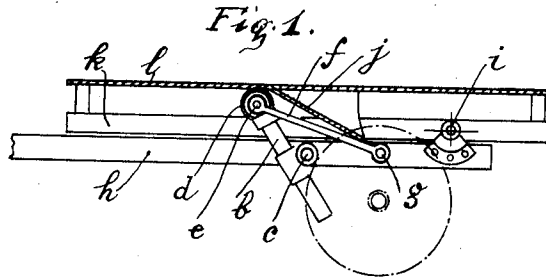
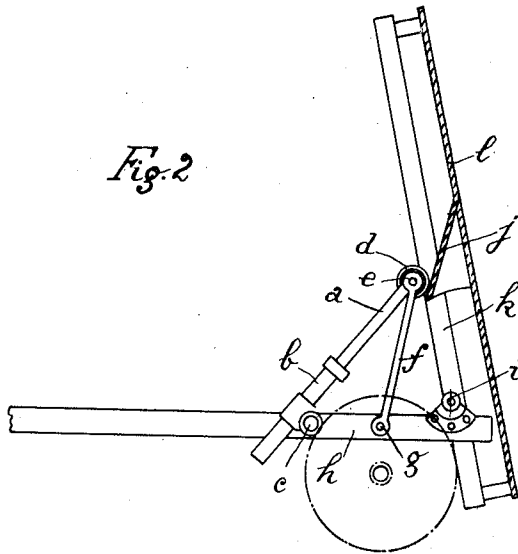
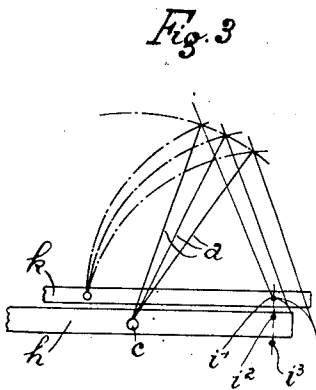
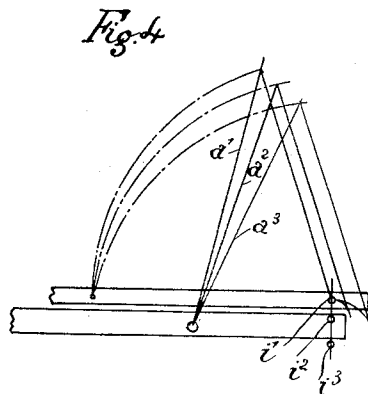
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C. R. SIROT

TIPPING DEVICE FOR WAGONS

Filed April 5, 1927

2 Sheets-Sheet 1



Inventor
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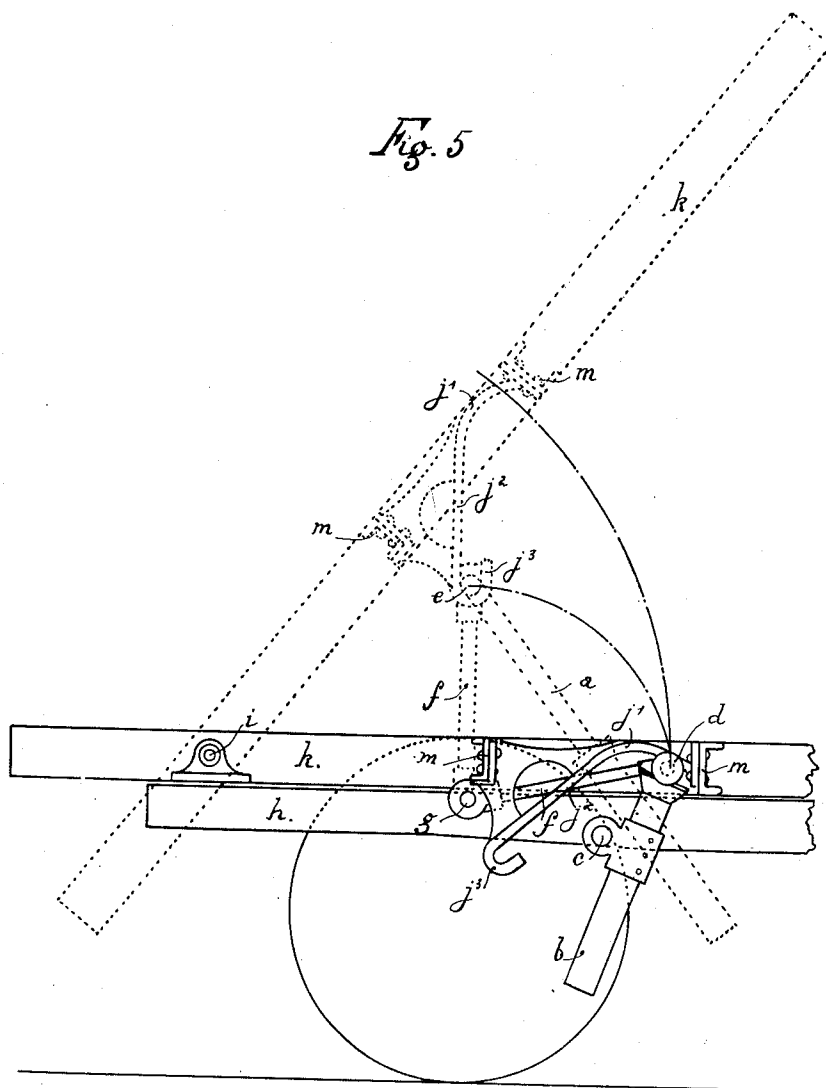
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TIPPING DEVICE FOR WAGONS

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

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TIPPING DEVICE FOR WAGONS.

Application filed April 5, 1927, Serial No 181,098, and in France May 22, 1926.

The invention relates to tipping devices for wagons of the kind in which the casing of a lifting jack is pivotally mounted so as to rock backwards and forwards when the body of the wagon is being raised. The object of this invention is to provide means whereby the lifting angle can be greatly widened and at the same time overbalancing completely eliminated.

According to this invention the point of contact of the jack with the tipping body is caused to move backwards towards the rear of the vehicle while the body is being raised, and is further caused to move along an inclined surface provided on the underside of the body.

According to a convenient construction, the end of the screw or like member of the lifting jack which bears against the underside of the body of the wagon is pivotally connected by means of a link or rod to a point on the vehicle chassis frame. The said end of the member is also provided with a roller, which, when the body is being raised, is caused to run along an inclined surface which is rigidly secured to the underside of the body. The body of the wagon is, of course, hinged to the vehicle chassis at the rear end thereof in the usual manner.

If it is desired to use a lifting jack of small dimensions or a lifting jack which is pivotally secured to the underside of the body, the maximum lifting angle can be obtained by lowering the position of the hinge by which the frame of the body is secured to the vehicle chassis.

In order that the invention may be clearly understood, I will now describe the same with reference to the drawings herewith, of which:—

Fig. 1 is a part sectional view, showing the body in its horizontal or travelling position.

Fig. 2 is a part sectional view showing the body raised to its full extent.

Fig. 3 is a diagrammatic view illustrating the variations of the lifting angle obtained by lowering the back hinge while the length of the lifting jack remains unchanged.

Fig. 4 shows a decrease in the length of the lifting jack, obtained by lowering the back hinge, the tipping angle of the body remaining unchanged.

Fig. 5 shows by way of example a practical embodiment of my invention.

Referring first to Figs. 1 and 2, *a* is the inner member of the lifting jack *b*, which

latter may be of any well-known construction. The casing of the lifting jack is pivoted to the chassis frame at a point *c*. *d* is a roller provided on the end of the member *a* which bears against the underside of the body *l*. *f* is a link one end of which is pivotally secured to the top end of the member *a* by means of a pivot pin *e*, which latter may form the axis of the roller *d*. The other end of the link is pivotally secured to the vehicle chassis at a point rearwards of the pivotal connection of the lifting jack casing.

The pivotal connection *g* of the link *f* is entirely independent of the connection between the frame *k* of the body and the chassis *h* of the vehicle, which may be hinged together at *i*. *j* is an inclined surface which is secured between the underside of the body *l* and the frame *k*, against which surface the roller *d* of the member *a* bears. As the body of the wagon is raised, the roller *d* rides along this inclined surface, thereby increasing the angle between the frame of the body and the chassis of the vehicle.

The inclined surface *j* is preferably formed of U-shaped section so as to provide a guide and runway for the roller *d*. The sides of the U-shaped channel can be closed at each end of the inclined surface to provide a stop to limit the movement of the roller, and consequently, limit the raising or lowering of the body.

As the body of the wagon is raised, the lifting jack with its member *a* will be rocked towards the rear of the vehicle by the link *f* and the roller *d* will ride along the inclined surface *j*. These two combined movements will cause the body to be tipped to its maximum angle.

Referring now to Figs. 3 and 4, if it is desired to use a lifting jack which is pivotally connected to the frame of the body and which has a direct thrust on the underside of the body, the maximum tipping angle can be obtained by lowering the hinge *i* as far as possible. The maximum elevation of the body will of course be obtained when the hinge is at the position *i*³, that is to say in the lowest position shown in Fig. 3. The lowering of this hinge will enable a lifting jack of reduced size to be used for a given angle, as will be obvious by reference to Fig. 4 of the drawings. It is therefore possible to obtain any desired lifting angle with a particular maximum length of jack by lowering the point *i* to *i*² or *i*³. When a convenient

lifting angle for the body has been decided upon, the maximum length for the lifting jack can be ascertained.

Lifting means as above described may of course be applied to wagons which are desired to tip sideways.

In the modified form shown in Fig. 5, the part j which is fixed at both ends to the frame k of the body has a curvilinear portion j^1 extended by an inclined surface j^2 , the latter ending in a hook j^3 which forms an abutment for the spindle e acting itself as a roller when the body is raised to its fullest extent.

It will be understood that the lifting means herein described may be duplicated on both sides of the wagon. However, it is thought unnecessary to show this provision, since the lifting arrangement on either side is an exact duplicate of that on the other.

I declare that what I claim and desire to secure by Letters Patent of the United States is:—

1. Control mechanism for tilting wagons

which comprises a lifting jack having a piston, a pivot fixed for the jack on the frame of the vehicle, a pivot at the end of the piston of the jack; a jointed link on this pivot, a pivot on the frame of the vehicle for the other end of the link, a pivot on the wagon connecting it to the frame and means to stop the jack at the end of the lifting movement.

2. Control mechanism for tilting wagons which comprises a lifting jack, a pivot fixed on the frame of the vehicle, a pivot at the end of the piston of the jack, a roller on a portion of this pivot, a jointed link on another part of the pivot, a pivot on the frame of the vehicle for the other extremity of the link, a pivot for the wagon connecting it to the frame and an integral sliding surface for the frame of the wagon and placed in contact with the roller.

In testimony that I claim the foregoing as my invention, I have signed my name.

CHARLES ROBERT SIROT.