

(No Model.)

J. M. K. PENNINK.
TRUCK.

2 Sheets—Sheet 1.

No. 518,535.

Patented Apr. 17, 1894.

Fig. 1.

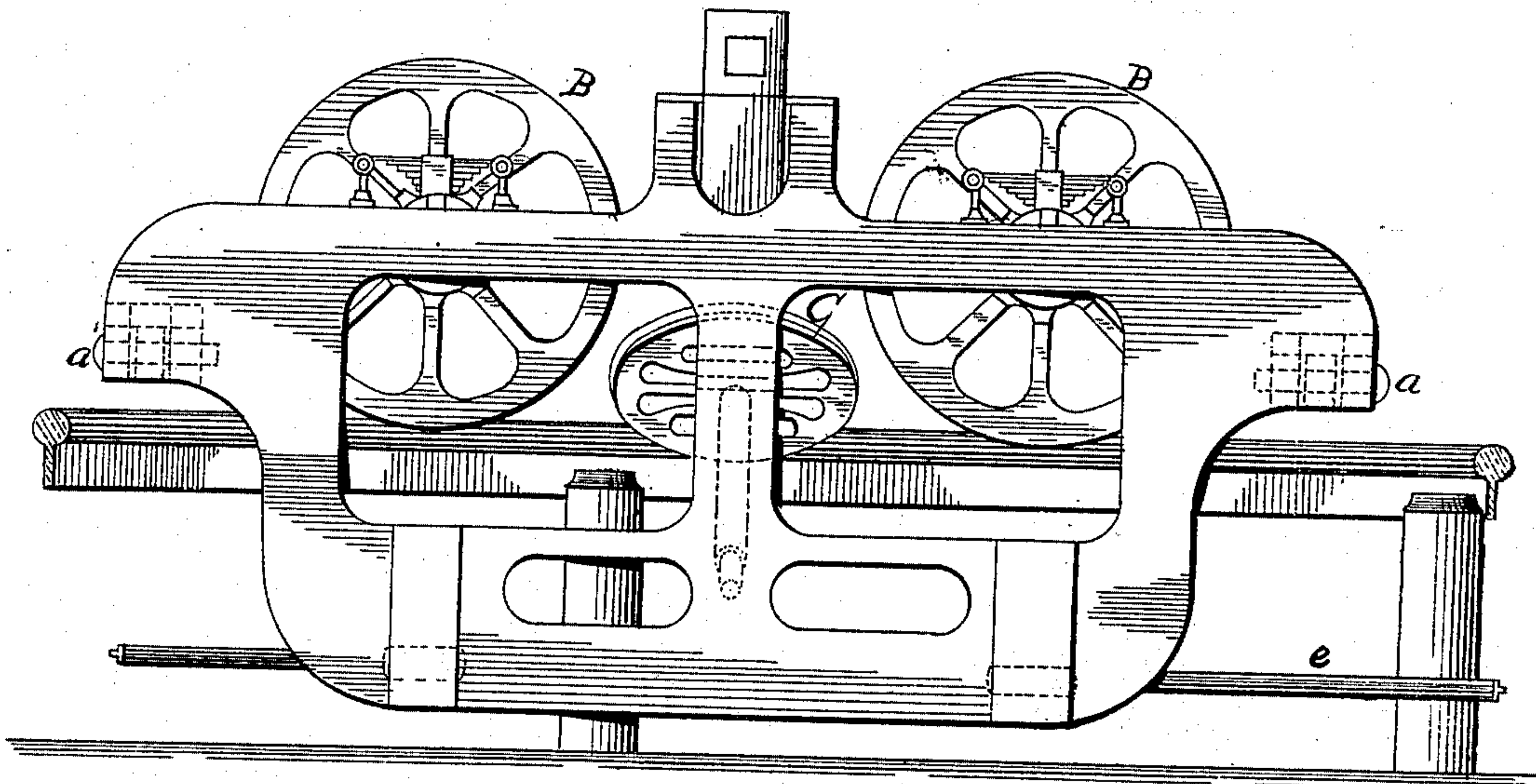
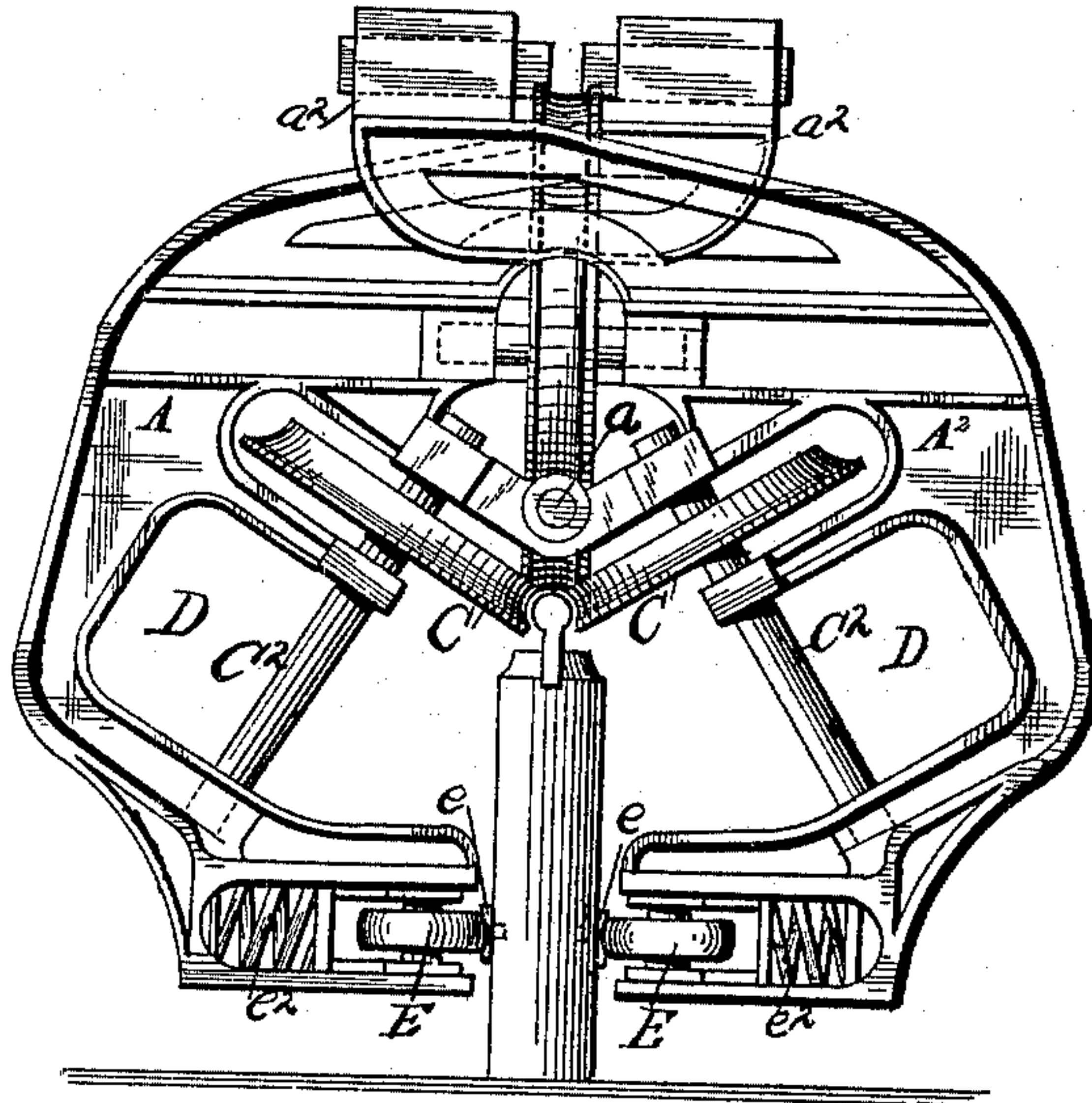


Fig. 2.



WITNESSES
Thos. J. Rust, Jr.,
Frank H. Hitchcock.

INVENTOR
Johan M. K. Pennink
By *A. S. Dyrenforth*,
his Attorney

(No Model.)

2 Sheets—Sheet 2.

J. M. K. PENNINK.
TRUCK.

No. 518,535.

Patented Apr. 17, 1894.

Fig. 3.

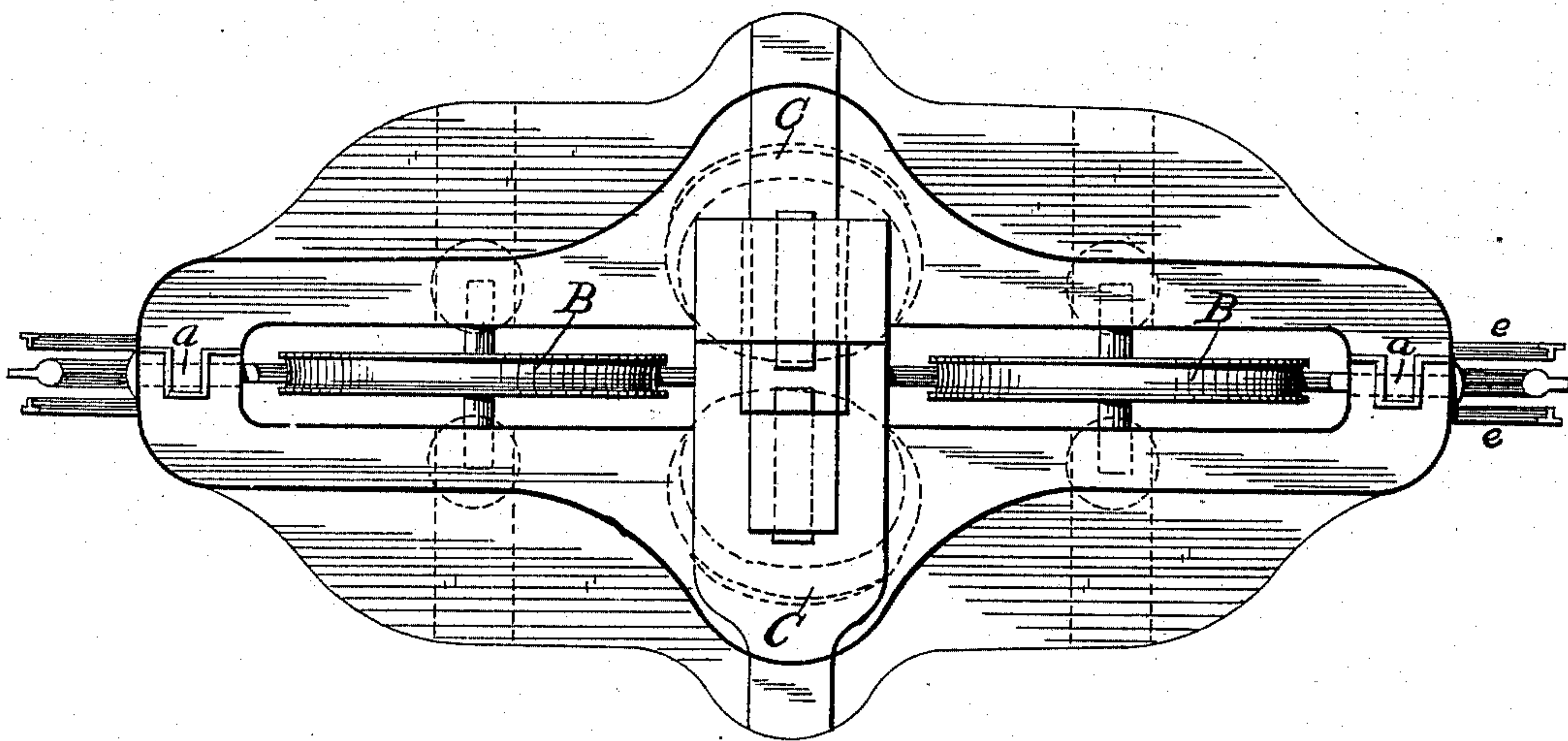
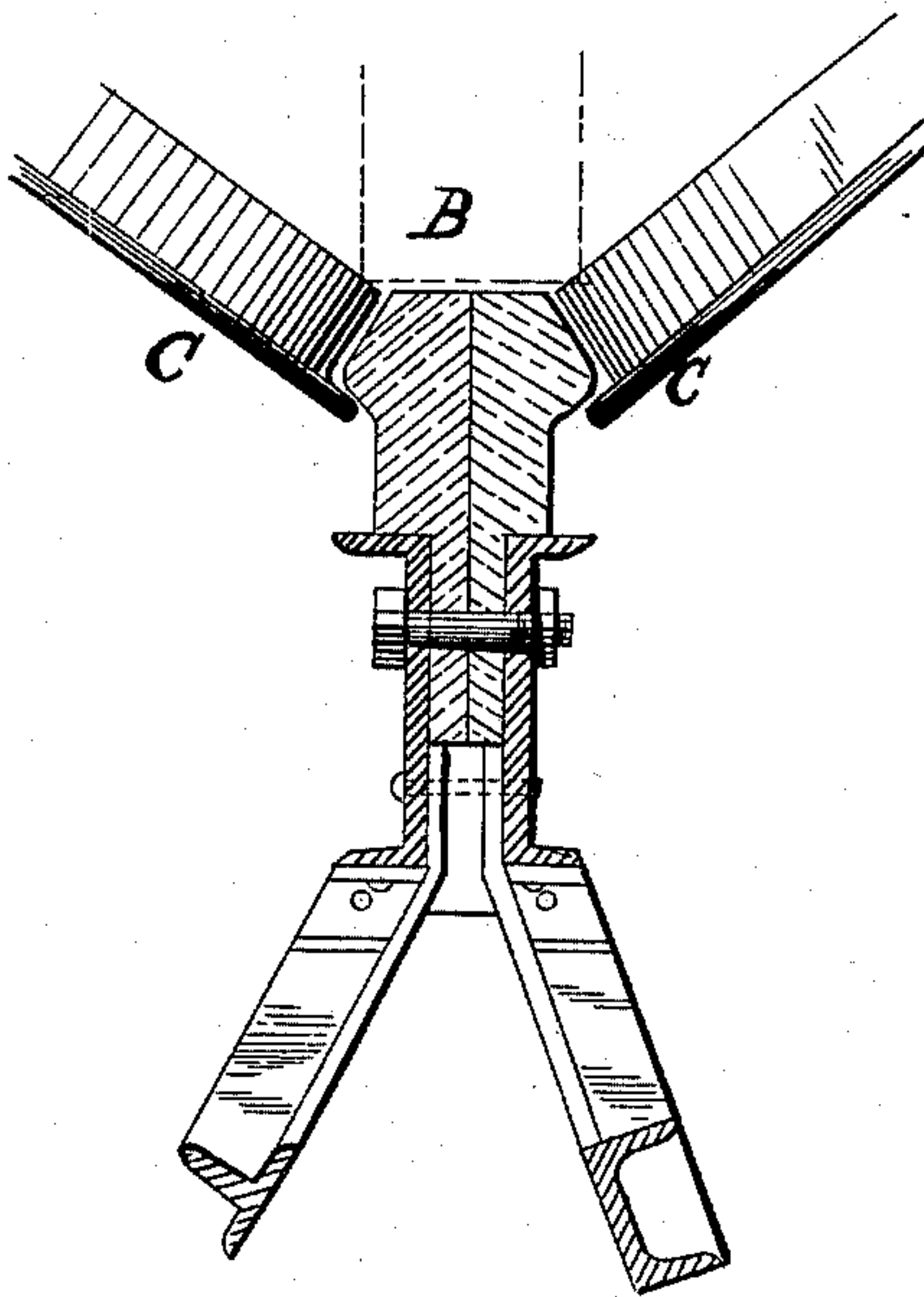


Fig. 4.



WITNESSES
Thos. J. Root, Jr.
Frank H. Ketcher

INVENTOR
Johan M. K. Pennink
by *A. S. Wrenforth*,
his Attorney

UNITED STATES PATENT OFFICE.

JOHAN MATHIAS KAREL PENNINK, OF HAARLEM, NETHERLANDS.

TRUCK.

SPECIFICATION forming part of Letters Patent No. 518,535, dated April 17, 1894.

Application filed December 8, 1893. Serial No. 493,141. (No model.)

To all whom it may concern:

Be it known that I, JOHAN MATHIAS KAREL PENNINK, a subject of the Queen of the Netherlands, residing at Haarlem, in the Province of North Holland and Kingdom of the Netherlands, have invented certain new and useful Improvements in Trucks for Engines, Motor-Cars, or Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to the construction of the bodies of engines, motor-cars, and cars.

The object of the invention is to produce a body for an engine, motor-car, or car, of such construction that the running of trains at a very high rate of speed will be made possible without danger of derailment, and without injury to the track or to the engines, motor-cars, or cars.

With these objects in view, the invention consists, primarily, of a body of an engine, motor-car, or car, made of sections pivotally connected, supporting-wheels designed to bear upon and run over a single rail, and driving and guide-wheels connected to the pivoted sections and designed to bear upon the rail upon which the supporting rails run.

Furthermore, the invention consists of an engine, motor-car, or car, the frame whereof is composed of sections pivotally-connected, supporting-wheels designed to run on a single rail, and driving or guide-wheels attached to the pivoted sections of the frame, the parts of the frame being pivotally connected at a point above the rail and the driving and guide-wheels being mounted below the point at which the frames are pivoted.

Furthermore, the invention consists of an engine, motor-car, or car, the frame whereof is composed of sections pivotally-connected, supporting wheels designed to run on a single track, driving and guide-wheels attached to the pivoted sections of the frame, the driving-wheels and guide-wheels being arranged at a point below that at which the parts of the frame are pivotally-connected, and means for drawing the parts of the frame together, to increase the pressure of the driving or guide-rails on the rail.

Furthermore, the invention consists of va-

rious novel details of construction, whereby the objects of the invention are accomplished and the effectiveness of the device insured. 55

The invention is illustrated in the accompanying drawings, in which—

Figure 1— is a side elevation of the frame of an engine, motor-car, or car, constructed in accordance with my invention, the same being shown in position on a rail. Fig. 2— is an end elevation of the motor shown in Fig. 1. Fig. 3— is a plan view of the same; and Fig. 4— is a detail view, partly in section, showing the preferred form of rails to be used in connection with my invention, the positions of the supporting and guide-wheels relative to the rail, being shown. 60 65

The frame of the engine, motor-car, or car, when made in accordance with my invention, consists of two sections A, A², which are each of the same or similar construction. Suitably connected with the frame, are the supporting-wheels B, of which any desired number may be employed. These supporting-wheels are arranged in line with each other, and are designed to bear upon and to be supported by a single rail. Ordinarily, the peripheries of these wheels will be grooved as illustrated in Fig. 3 of the drawings. The frame-sections are coupled together by a suitable number of hinge or other joints a, whereby the sections are retained in proper position in relation to each other and to the rail upon which the cars are to be run, and, at the same time, the movement of the sections on the joints is permitted. The hinge-joints are located in the upper part of the frame, preferably, at a point which will be above the rail when the engine, motor-car, or car, is on the rail, so that, the weight of the frame and parts attached thereto, tends to press the driving or guide wheels C, attached to the frame sections below the point at which the sections are connected, against the rail, and thus furnish the requisite traction for propulsion. 70 75 80 85 90 95

The driving and guide-wheels C are mounted on suitable shafts C², C³, mounted at angles of, approximately, forty-five degrees in respect of the frame sections. The driving and guide-wheels are provided with flanges corresponding to those of the ordinary railway-rail, and their position is such that, when the supporting-wheels are on the single rail upon 100

which the cars are to run, the driving and guide-wheels bear upon the sides of the rail which is of the general contour of the ordinary T-rail, and the flanges extend beneath the under face of the tread of the rail.

Each frame section is constructed with an opening D for the reception of a steam-engine, or an electric or other motor, which is suitably geared or otherwise connected with the shafts C^2 , C^2 , and furnishes the propelling power for driving the engine or motor-car. By the form and arrangement of the driving and guide-wheels, the raising of the frame, with which the guide-wheels are connected, from the rail, is prevented, under all circumstances.

If the pressure of the driving and guide-wheels on the rail is not sufficient, as, for instance, in ascending steep grades, or when a heavy train is to be drawn, more traction can be obtained by drawing the lower parts of the frame toward each other, thereby pressing the driving- and guide-wheels more closely against the rails. To accomplish this, a screw may be passed through the upper parts a^2 , a^2 , so that, by turning the same, the sections may be drawn toward each other and greater pressure of the driving and guide-wheels on the rail produced. Instead of a screw, electro-magnets may be used when the motive power employed is electricity. Magnets may be arranged opposite each other on the parts a^2 , a^2 , so that, when they are energized, they will be drawn toward each other, and the necessary traction produced. When means such as those described are employed, the adhesion between the rail and the supporting-wheels may be increased or decreased rapidly and at will, according to the requirements. If desired, the supporting-wheels may be entirely removed from the rails, or they may be placed so firmly against the rails that turning is rendered almost impossible, and, in this way, may serve as a brake.

The operation of moving the parts of the frame on their pivots may be effected either by screws, electro-magnets, or other devices placed at the center, at the ends, or at all three places.

To accomplish the purpose of the invention, very little movement of the driving or guide-wheels is necessary. Great adhesion between the rails and the wheels can be obtained by a very slight movement of the wheels toward the rail, and, in ordinary cases, the movement will not exceed one millimeter.

In order to prevent side movement or oscillation of the engines, motor-cars, or cars, made in accordance with my invention, spring-seated wheels or rollers E are mounted in the lower parts of the frame-sections and these are designed to bear upon suitable rails e embodied or carried by the frame, or the like, upon which the rails are supported.

The wheels E, E, are caused to bear upon the rails e , by springs e^2 , e^2 , arranged to press against the bearings of the wheels or rollers

E, E. Any degree of pressure may be imposed by putting more or less tension on the springs.

When electricity is to be used as the motive power for driving the cars, the rail e , may be used for conducting a current of electricity from a suitable generator, and the wheels or rollers E may be made part of the electrical connection between these conductors and the motors to be arranged in the spaces D, D, in the frame sections of a motor-car.

The preferred form of rail for use in connection with my invention, is that shown in Fig. 4 of the drawings. The rail is divided through its center, forming two sections and is retained in place by suitable clamps or angle-irons retained by screw-bolts passing through the angle-irons and the rail-sections. In placing the parts together, the ends of no two rail-sections are allowed to come opposite each other, and the ends of no angle-iron or clamp is allowed to come opposite the end of a rail-section against which it is placed. By this arrangement, a practically continuous rail may be made of any length, and this form is particularly advantageous where the entire strain is to come upon one rail.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A truck for an engine, motor-car, or car, composed of sections hinged together, and supporting-wheels designed to bear upon and run over a single rail, attached to the frame, substantially as described.

2. A truck for an engine, motor-car, or car, composed of sections hinged together, supporting-wheels attached to the frame and designed to bear upon and run over a single rail, and driving and guide wheels connected to the frame and designed to bear upon the rail, substantially as described.

3. A truck for an engine, motor-car, or car, composed of sections hinged together, supporting-wheels attached to the frame and designed to bear upon and run over a single rail, driving-wheels and guide-wheels attached to the frame and designed to bear upon the rail, the sections of the frame being connected by a point above the rail, whereby the weight of the frame and appurtenances tends to hold the driving and guide-wheels in contact with the rail, substantially as described.

4. A truck for an engine, motor-car, or car, composed of sections hinged together, supporting-wheels attached to the frame, a single rail, and driving and guide-wheels arranged at an angle on the frame, and provided with flanges bearing upon the under side of the tread of the rail, the frame being pivotally connected at a point or points above the rail, substantially as described.

5. A truck for an engine, motor-car, or car, composed of sections hinged together, supporting-wheels arranged on the frame, driving and guide-wheels connected to the piv-

oted sections, and means for drawing the sections together to press the driving and guide-wheels upon the rail, substantially as described.

5 6. A truck for an engine, motor-car, or car, made of sections hinged together, the frame being provided with openings for the reception of a steam-engine, electric motor, or the like, supporting wheels designed to bear upon
10 and run over a single rail attached to the body, and driving and guide-wheels connected to the pivoted sections and designed to bear upon the rail upon which the supporting-wheels run, substantially as described.

15 7. A truck for an engine, motor-car, or car, composed of sections hinged together, supporting-wheels attached to the frame and designed to bear upon and run over a single rail, driving and guide-wheels, and spring-
20 seated wheels or rollers arranged in the lower

ends of the sections and designed to bear upon the rail, substantially as described.

8. A truck for an engine, motor-car, or car, composed of duplicate sections arranged one
25 on each side of a single main rail and hinged together at a point above the rail, the upper portions of these sections being crossed or extended to opposite sides of the rail, suitable means for adjusting these opposing upper
30 portions, whereby they may be moved toward or away from each other, a plurality of supporting and guide-wheels, and a motor or motors carried by the truck, substantially as described.

In testimony whereof I affix my signature in
35 presence of two witnesses.

JOHAN MATHIAS KAREL PENNINK.

Witnesses:

T. ALSTORPHIUS VON HOMERT,
A. S. GLACE.