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PATENT SPECIFICATION



Application Date: Aug. 26, 1933. No. 23773/33.

424,644

Complete Specification Left: Aug. 27, 1934.

Complete Specification Accepted: Feb. 26, 1935.

PROVISIONAL SPECIFICATION

**Improvements in or relating to Cycles, Motor-cycles and the like
Provided with a Passenger or Luggage Carrying Platform**

We, PHILIP CONRAD VINCENT, of the Vincent "H.R.D." Company Limited, a British Subject, and the VINCENT "H.R.D." COMPANY LIMITED, a British Company, both of The Great North Road, Stevenage, Hertfordshire, do hereby declare the nature of this invention to be as follows:—

This invention relates to cycles, motor-cycles and the like of the kind having a main frame adapted to carry the rider of the cycle and a rear frame in which the rear road-wheel is carried and a spring or springs interconnecting the two frames so as to minimise the shocks transmitted to the main frame from the rear road-wheel. It is customary to provide cycles with a platform forming a luggage carrier or a pillion seat for a passenger and arranged over the rear wheel. It is the object of this invention to provide an improved luggage or passenger platform for cycles of the above kind.

It has been proposed to provide cycles of the kind referred to above with a luggage or passenger platform secured to, and supported solely by, the rear frame. This arrangement is open to the objection that the unsprung weight acting on the rear wheels is increased, decreasing the riding comfort, and that the luggage or passenger is directly subjected to road shocks transmitted through the rear wheel. This arrangement has been adopted as being preferable to securing the platform to the main frame. The latter arrangement is open to the objections that a large clearance must be left below the platform to allow for the movements of the road-wheel relative to it, that the structure must be substantial since it extends considerably out from the main frame and that the spring interconnecting the two frames must be strong enough to carry the additional weight of the platform and luggage or passenger. In connection with the last of these three disadvantages it should be noted that not only is the dead-load on the spring increased but the live-load is increased to a much larger extent since the additional load is badly distributed and its moment of inertia about the point of articulation

of the two frames is excessive.

According to the present invention, there is provided the combination with a cycle of the kind specified above of a platform which is articulated at or near its front end to the main frame and at or near its rear end to the rear frame. The connection between the platform and the rear frame may comprise a link, or a pair of links, pivoted at one end to the platform and at the other end to the rear frame. The points of attachment of these links to the rear frame may be selected to give any desired ratio between the movement of the road-wheel axle and the consequential movement of the rear end of the platform but preferably the points of connection are selected so that the latter movement is substantially less than the former.

In one construction, according to the invention, the rear frame comprises a bifurcated triangular structure, the base of which is more or less horizontal. The road-wheel is mounted at one end of the base and the frame is pivoted to the main frame at the other end of its base. The spring interconnecting the two frames is upwardly from the rear wheel to the apex. This frame has two members extending upwardly from the rear wheel to the apex of the frames and two lugs are provided, one on each of them. Two stays are pivoted at their lower ends, one on each lug, and extend upwardly and rearwardly. At their upper ends the stays are pivoted to the rear end of a platform at its opposite sides. The platform may be of any convenient construction and is pivoted at its front end to a part of the main frame.

It will be understood that with this arrangement part of the load on the platform is transmitted direct to the rear frame and the remainder is transmitted to this frame through the main frame and the springs connecting the two frames. There is thus some increase in the load to be carried by the springs but since the load of the luggage or passenger is applied to the main frame at the point of articulation of the platform to that frame, the live-load effects are not excessive and the

springs can readily be arranged to be robust enough to carry this additional load.

The lower end of the stays may be articulated to the rear frame at any convenient point and the point of articulation may be made adjustable by arranging the lugs so that they are slidable along the frame members and can be clamped in position. The points of articulation between the stays and the rear frame can be selected so that the extent of movement of the rear end of the platform for any given movement of the rear road-wheel may be anything between zero and a movement in excess of that of the road-wheel. For riding comfort the movement of the rear end of the platform should be kept low, but if this movement is too low the clearance left beneath the platform becomes excessive; it is therefore preferred to arrange the points of articulation so that the movement is from half to two-thirds of the movement of the road-wheel.

It is within the invention to construct each of the stays in two parts telescoped together and held extended by a spring so that the rear end of the platform is sprung as well as the front end. The stays may be designed so that they are adjustable in length. A shock-absorber or other damping device may be incorporated for damping out vibrations on the platform. The platform may be arranged to carry luggage or a pillion seat may be mounted on it by means of springs. It will be understood that the means by which the platform is supported partly on the main frame and partly on the rear frame may be varied, the construction described above being merely illustrative.

Dated this 26th day of August, 1933.

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Chartered Patent Agents,
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E.C.1.

COMPLETE SPECIFICATION

Improvements in or relating to Cycles, Motor-cycles and the like Provided with a Passenger or Luggage Carrying Platform

We, PHILIP CONRAD VINCENT, of the Vincent "H.R.D." Company Limited, a British Subject, and the VINCENT "H.R.D." COMPANY LIMITED, a British Company, both of The Great North Road, Stevenage, Hertfordshire, 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 cycles, motor-cycles and the like of the kind having a main frame adapted to carry the rider of the cycle and a rear frame in which the rear road-wheel is carried and a spring or springs interconnecting the two frames so as to minimise the shocks transmitted to the main frame from the rear road-wheel. It is customary to provide cycles with a platform forming a luggage carrier or a pillion seat for a passenger and arranged over the rear wheel. It is the object of this invention to provide an improved luggage or passenger platform for cycles of the above kind.

It has been proposed to provide cycles of the kind referred to above with a luggage or passenger platform secured to, and supported solely by the rear frame. This arrangement is open to the objection that the unsprung weight acting on the rear wheels is increased, decreasing the riding comfort, and that the luggage or

passenger is directly subjected to road shocks transmitted through the rear wheel. This arrangement has been adopted as being preferable to securing the platform to the main frame. The latter arrangement is open to the objections that a large clearance must be left below the platform to allow for the movements of the road-wheel relative to it, that the structure must be substantial since it extends considerably out from the main frame and that the spring interconnecting the two frames must be strong enough to carry the additional weight of the platform and luggage or passenger. In connection with the last of these three disadvantages it should be noted that not only is the dead-load on the spring increased but the live-load is increased to a much larger extent since the additional load is badly distributed and its moment of inertia about the point of articulation of the two frames is excessive.

According to the present invention, there is provided the combination with a cycle of a kind specified above of a platform which is pivoted directly at or near its front end on the main frame and is connected at or near its rear end to the rear frame by a link, or a pair of links, articulated at one end to the platform and at the other end to the rear frame and so arranged that the movement of the road-wheel produces a proportional

movement of the rear end of the platform. Preferably the point of articulation of the, or each, link to the rear frame is so selected that the movement of the road-
 5 wheel axle produces a substantially smaller movement of the rear end of the platform.

One construction of platform in accordance with the present invention will now
 10 be described, by way of example only, with reference to the accompanying drawings, in which:—

Figure 1 is an elevation,

Figure 2 is a plan and

15 Figure 3 is an end elevation of the rear portion of the frame of a motor bicycle.

The motor bicycle comprises a main frame 10 on which a rear frame 11 is pivoted at 12. The rear frame is bifurcated triangular structure of conventional design and the axle of the rear wheel of the motor bicycle is secured in the usual manner in forks 13. The rear frame is connected to the main frame through
 20 suitable springs contained in cylinders 14 in a known manner. The rear frame can thus pivot about the pivot 12 relatively to the main frame under the control of the springs.

30 A T-shaped extension 15 extends rearwardly from the main frame and the front end of a platform 16 is pivoted on this extension at 17 and 18. A pair of links 19 and 20 are pivoted to the rear end of the platform 16 at 21 and 22 respectively. The lower ends of the links 19 and 20 are respectively pivoted on lugs 23 and 24 welded on to the rear sloping members of the frame 11. The platform 16 is thus
 40 supported on the main frame at its front end and on the rear frame at its rear end.

With this arrangement part of the load on the platform is transmitted directly to the rear frame and the remainder is transmitted to the rear frame through the
 45 main frame and the springs connecting the two frames. The springs thus carry only a part of the load on the platform and this part of the load is applied to the main frame at the pivot axis 17—18, so that the live load effects are much less than they would be if the platform was rigid with the main frame. The lugs 23 and 24 are so positioned that a given vertical movement of the axle of the road
 55 wheel results in the rear end of the platform 16 moving vertically to approximately one-half the extent. The road shocks transmitted to the platform will thus be considerably reduced. The ratio between movement of the road wheel and the movement of the rear end of the platform 16 can be varied by adjusting the position of the lugs 23 and 24. If these
 65 lugs are arranged on the line joining the

pivot 12 and the common axis of the pivots 21 and 22, the movement at the rear end of the platform will be nearly zero for any movement of the road wheel. Such an arrangement would, however, necessitate mounting the platform 15 in a higher position than that shown in order to allow sufficient clearance between it and a mudguard 25 which is carried by the rear frame. On the other hand, the nearer the lugs 23 are to the forks 13, the less clearance need be provided between the platform 16 and the mudguard 25 but the larger are the movements of the rear end of the platform. The arrangement shown is believed to be the most suitable compromise between the conflicting desiderata of a small movement of the platform and a small clearance between the platform and the mudguard.

Instead of the lugs 23 and 24 being fixed in position they could be adjustable on the rear frame 11 and provided with means for clamping them in position. The links 19 and 20 could each be formed in two parts telescoped together and provided with means for clamping the two parts together. This would allow of the length of the links being adjusted to suit requirements. Further, each of the links 19 and 20 could be made in two telescopic parts and provided with a spring holding them separated so that the rear end of the platform is sprung as well as the front end. A shock absorber or other
 100 damping device may be incorporated for damping out vibration of the platform. The platform may be arranged to carry luggage or a pillion-seat may be mounted on it by suitable springs.

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

1. A combination with a bicycle of the kind specified of a platform which is pivoted directly at or near its front end on the main frame and is connected at or near its rear end to the rear frame by
 115 a link, or a pair of links, articulated at one end to the platform, and at the other end to the rear frame and so arranged that an upward movement of the rear wheel produces a proportional movement of the rear end of the platform.

2. The combination according to Claim 1 wherein the point of articulation of the, or each, link is selected as hereinbefore described so that the movement of the
 125 road wheel axle results in a substantially smaller movement of the rear end of the platform, for example that the latter movement is about one-half of the former movement

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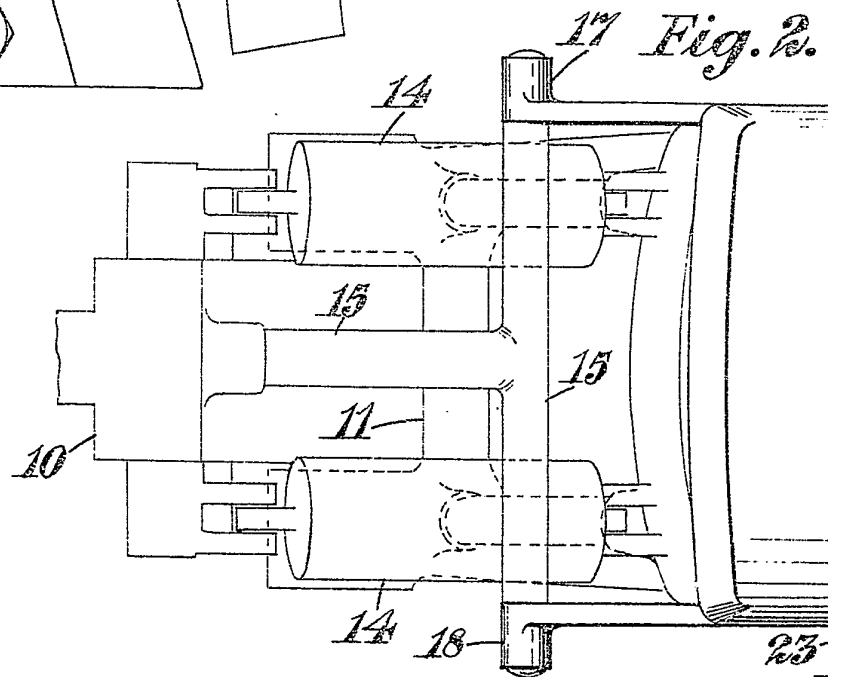
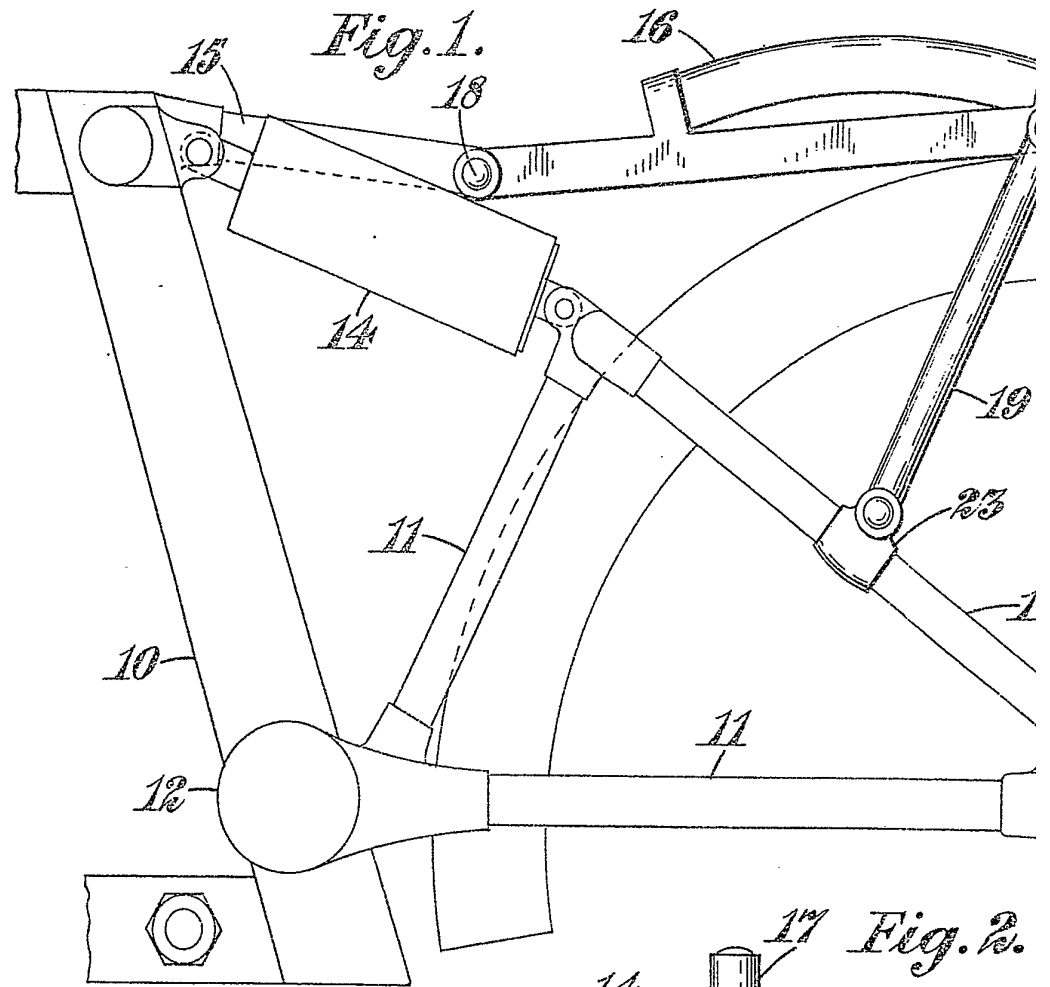
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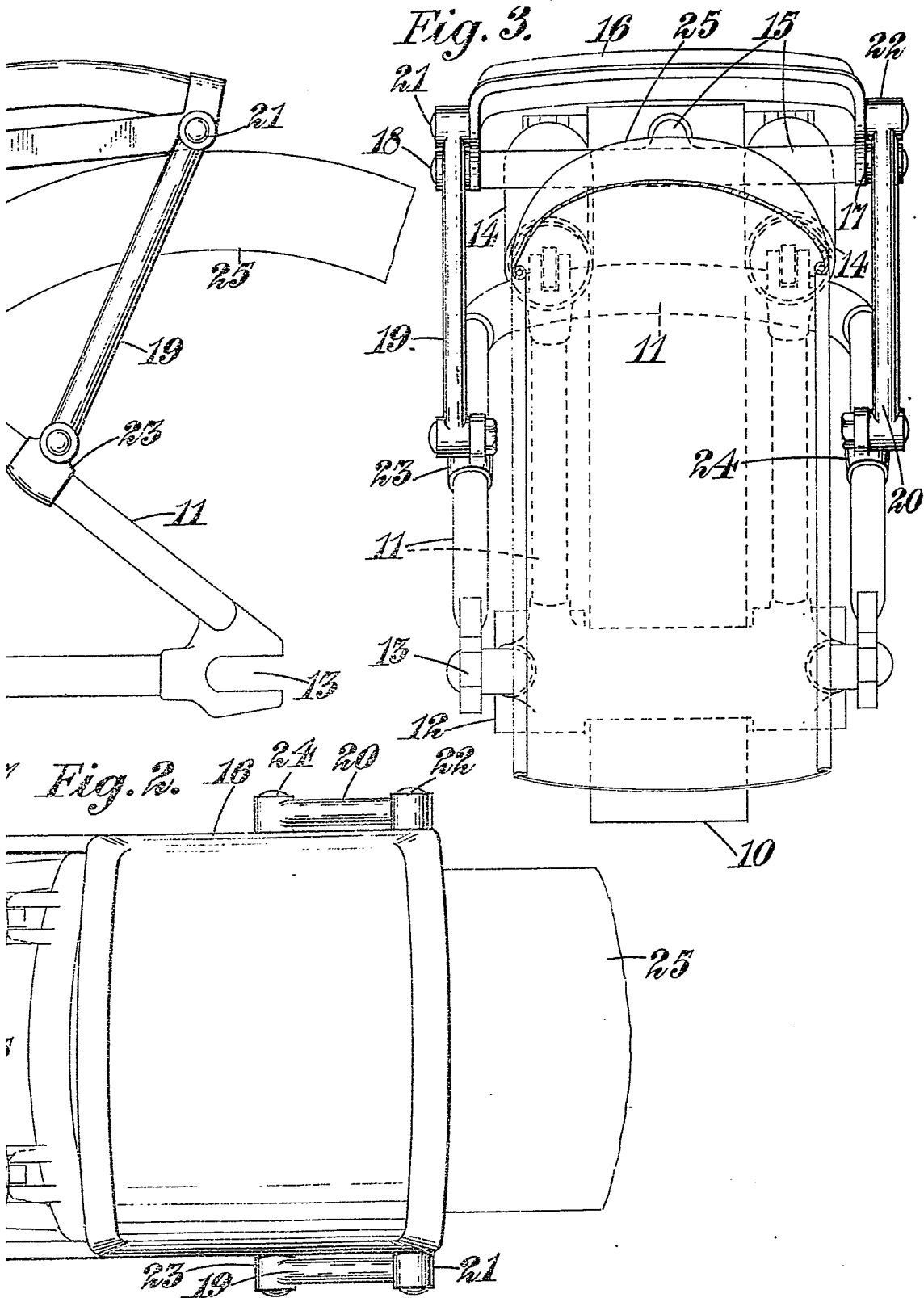
3. In a bicycle, a luggage or like platform substantially as herein described and as illustrated in the accompanying drawings.

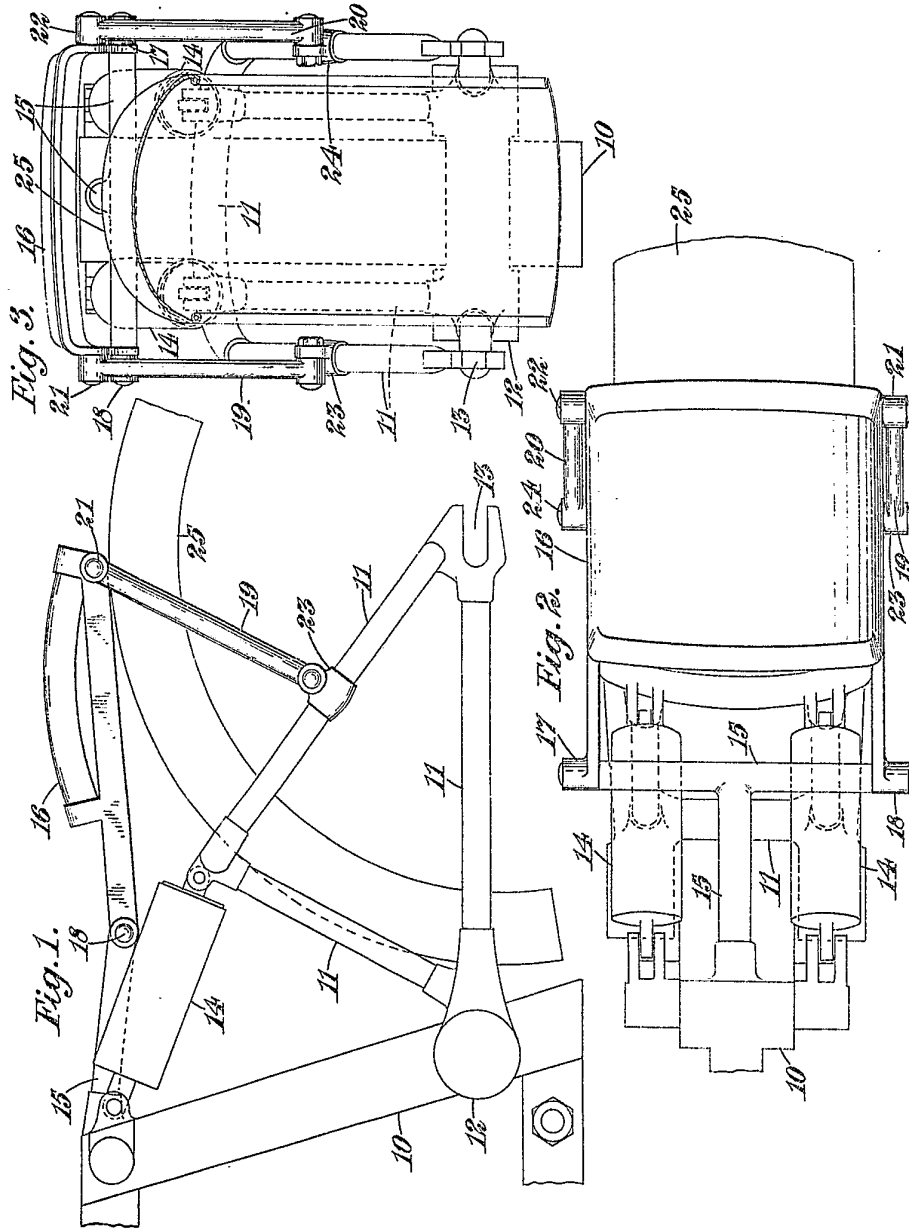
Dated this 27th day of August, 1934.
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Leamington Spa: Printed for His Majesty's Stationery Office, by the Courier Press.—1935.

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