

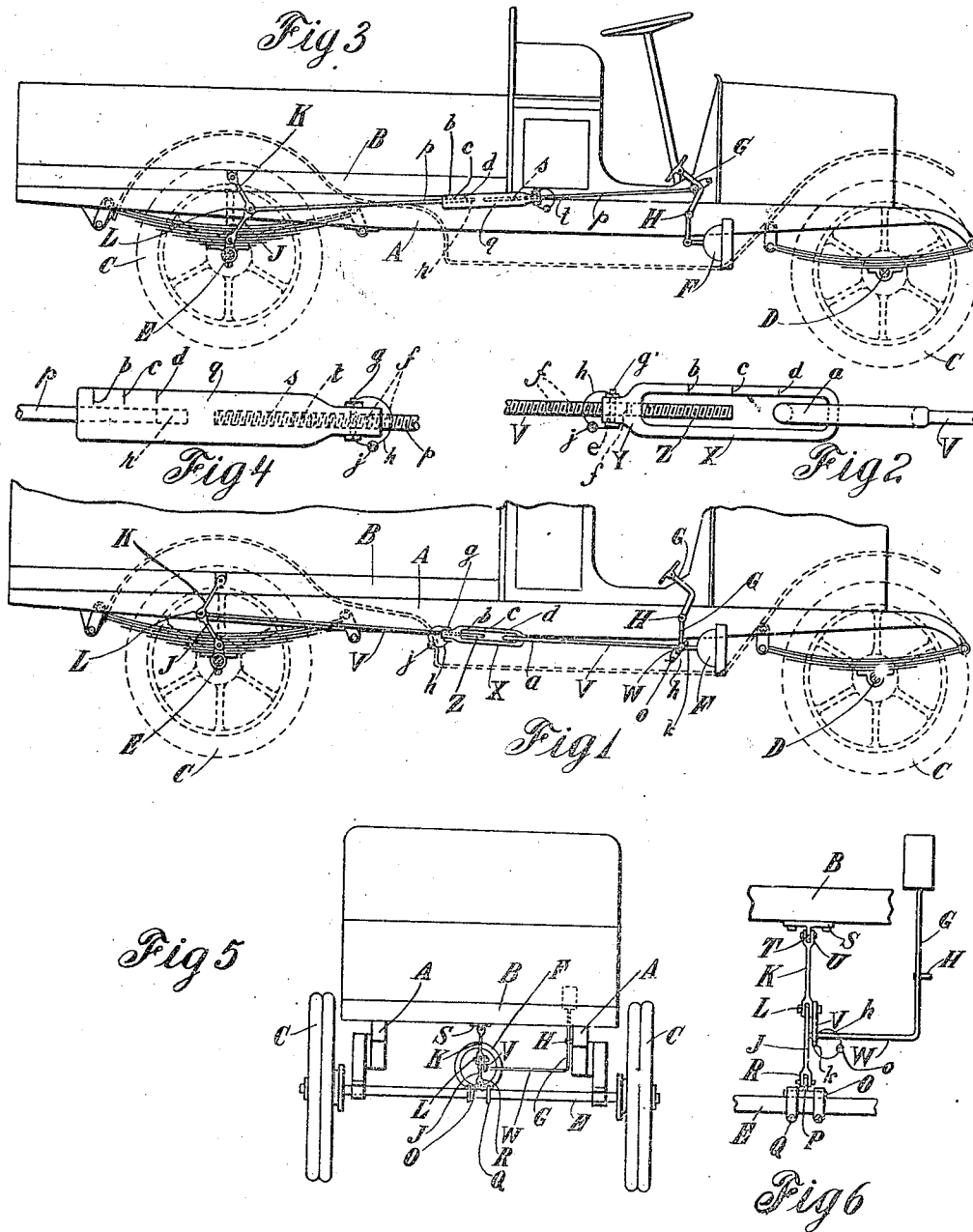
W. D. OSTERHOUDT.
 MEANS FOR PREVENTING OVERLOAD ON SELF PROPELLED VEHICLES.

APPLICATION FILED MAY 10, 1912.

1,122,797.

Patented Dec. 29, 1914.

4 SHEETS—SHEET 1.



Witnesses:
 James S. Shelton
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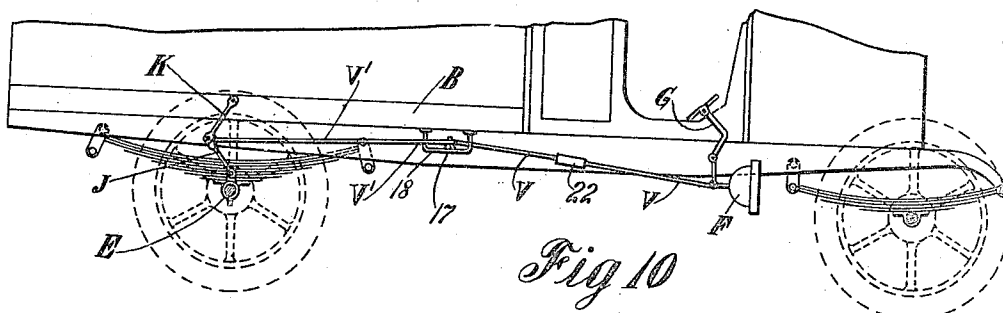
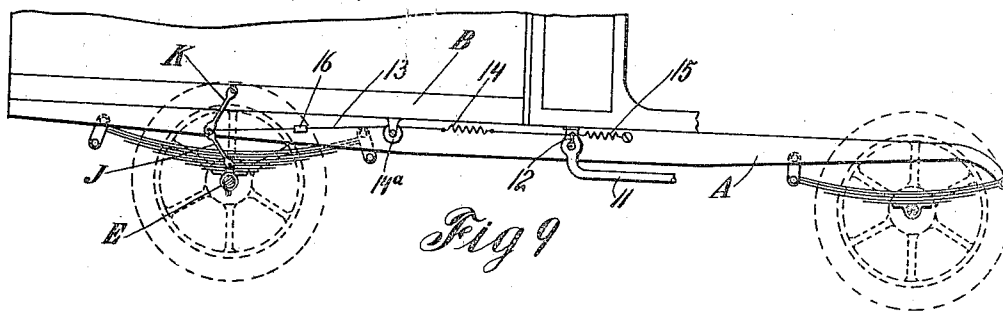
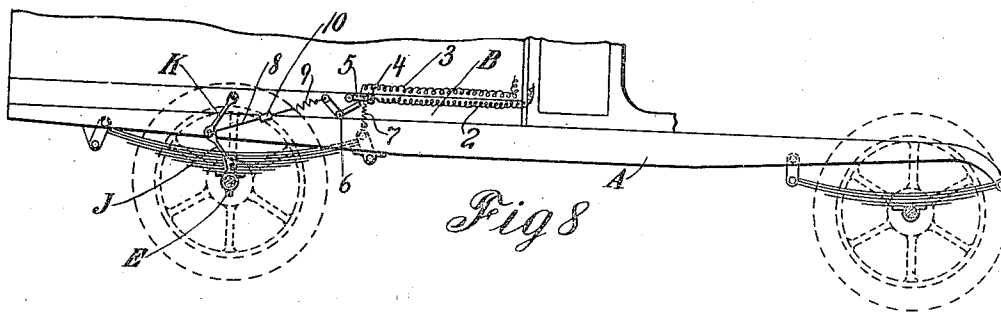
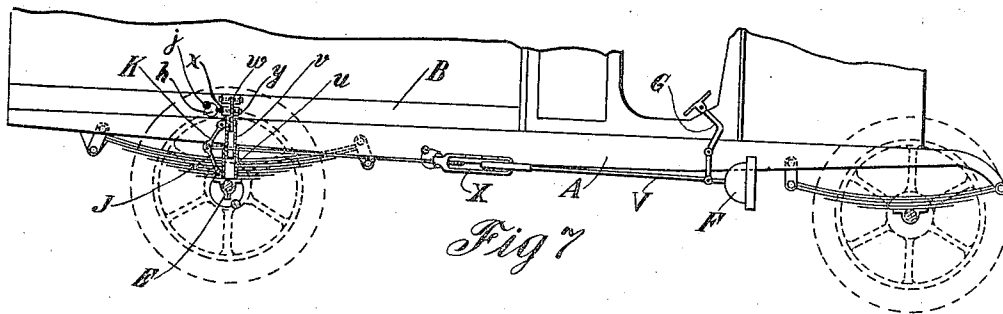
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 Inventor
 By his Attorney
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4 SHEETS-SHEET 2.



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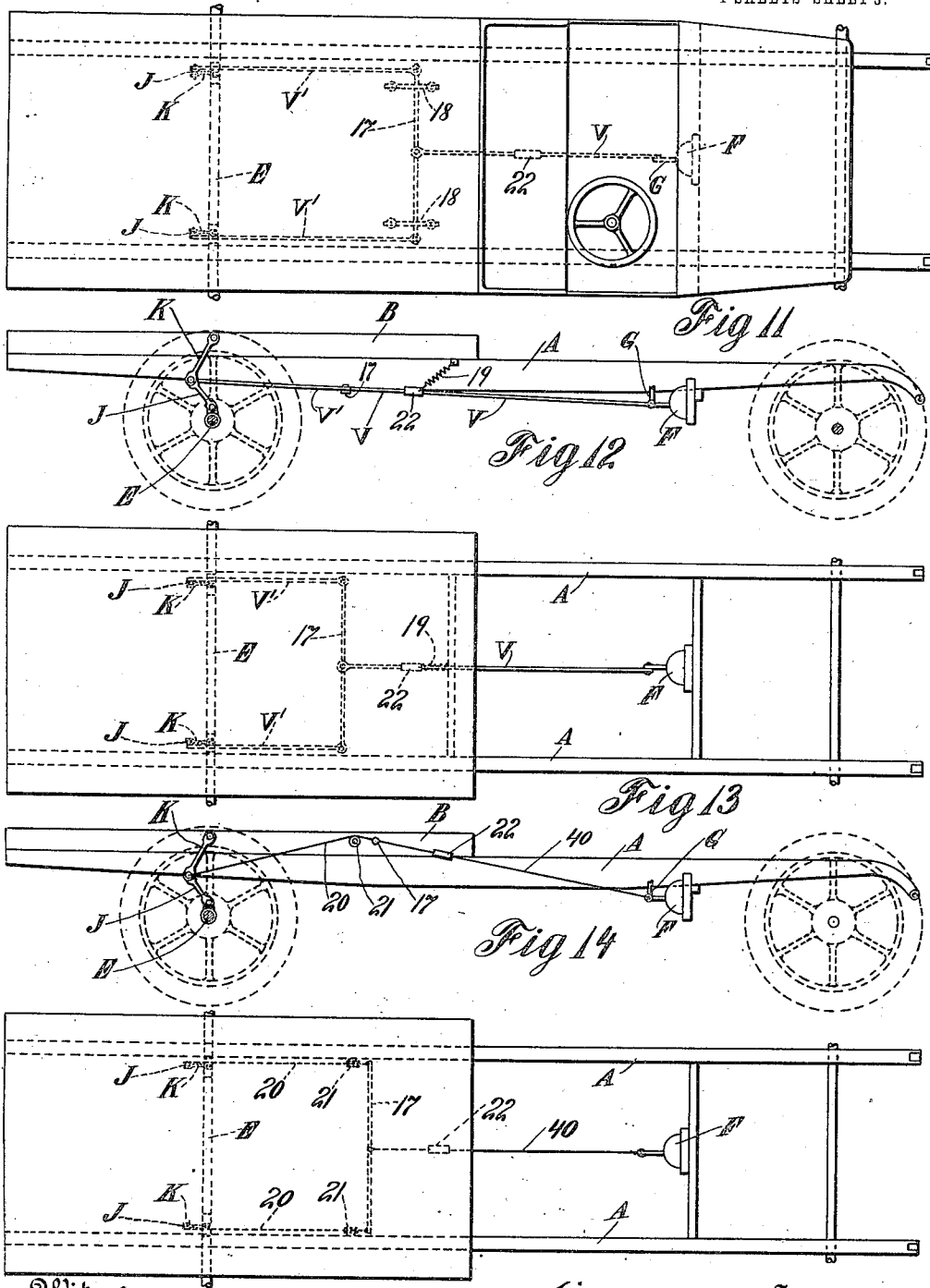
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4 SHEETS-SHEET 3.



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Fig 15

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4 SHEETS—SHEET 4.

Fig 16

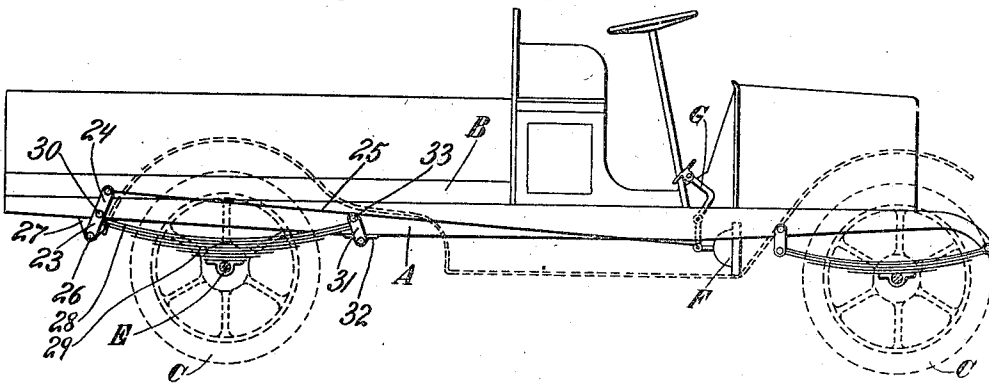
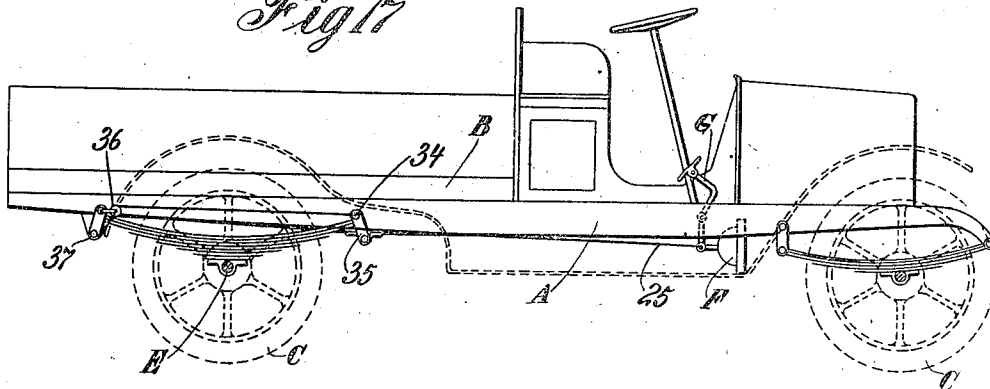


Fig 17



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UNITED STATES PATENT OFFICE.

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MEANS FOR PREVENTING OVERLOAD ON SELF-PROPELLED VEHICLES.

1,122,797.

Specification of Letters Patent.

Patented Dec. 29, 1914.

Application filed May 10, 1912. Serial No. 696,401.

To all whom it may concern:

Be it known that I, WILLIAM D. OSTERHOUDT, a citizen of the United States, and a resident of Poughkeepsie, county of Dutchess, State of New York, have invented certain new and useful Improvements in Means for Preventing Overload on Self-Propelled Vehicles, of which the following is a specification, accompanied by drawings.

This invention relates to self-propelled vehicles and the objects of the invention are to devise means for preventing overloading of the vehicle, thus saving wear and tear on the vehicle, reducing tire expenses and cost of repairs, and avoiding accidents.

In accordance with this invention, means are provided for automatically preventing the operation of the vehicle when the body and springs are loaded beyond a predetermined limit. When the vehicle is so overloaded, it cannot be started, and the invention also includes devices which are automatically brought into operation by flexure of the springs to a predetermined degree, as in passing over rough roads, so that the source of power is at least momentarily thrown out of operative relation with the driving gearing, thus checking the vehicle.

The invention is illustrated in its preferred forms in the accompanying drawings, in which—

Figure 1 is a side elevation of a vehicle partly broken away, with the invention applied thereto, the front and rear wheels, the springs and the side frame on the side at which the observer is looking being removed; Fig. 2 is an enlarged detail view of the adjusting means shown in Fig. 1; Fig. 3 is a side elevation of a vehicle similar to Fig. 1, showing a modification of the invention; Fig. 4 is an enlarged detail view of the adjusting means shown in Fig. 3; Fig. 5 is a rear elevation of the vehicle shown in Fig. 1; Fig. 6 is an enlarged detail rear elevation of the adjusting means shown in Figs. 1 and 5; Figs. 7, 8 and 9 are side elevations similar to Fig. 1, of vehicles embodying modifications of the invention; Fig. 10 is a similar side elevation of a vehicle embodying another modification; Fig. 11 is a top plan view of Fig. 10; Fig. 12 is a similar side view of a modification; Fig. 13 is a top view of Fig. 12; Fig. 14 is a similar side view of a modification; Fig. 15 is a top plan

view of Fig. 14; and Figs. 16 and 17 are side views of modifications.

Referring to the drawings, and more particularly to Figs. 1, 2, 5 and 6, A represents the side frames of a self-propelled vehicle and B the body portion.

The ground wheels are indicated at C mounted on the front and rear axles or wheel connecting members D and E.

The invention is particularly applicable to motor trucks, it being understood that a motor truck is illustrated diagrammatically in the drawings, and for simplicity, only so much of the details of the operative parts of the engine and propelling or running gear are shown as will serve to illustrate the invention.

In carrying out the invention, any suitable means may be provided for automatically preventing the operation of the vehicle when the body is overloaded or when the springs are flexed beyond a predetermined limit, as in passing over rough roads. The overload preventing means should preferably be adjustable, so as to act at different predetermined loads, and should preferably be self-restoring, so that when the cause for preventing the operation of the vehicle is removed, the vehicle may be operated as usual.

The controlling means for preventing overload may be arranged in any desired location to operate in connection with any suitable part of the source of power or power unit, and may be connected to disengage the clutch, disconnect or short circuit the electric connections, shut off the supply of fuel, or throw the source of power out of operative relationship with the running gear in any other desired manner. The controlling means are preferably interposed between the body and a wheel connecting member or axle and are adapted to be operated by movement of the body relative to said member.

In Fig. 1 suitable operative connections are shown for disconnecting the clutch of the motor when the body of the vehicle is overloaded, and in this instance F represents the clutch members and G is the foot lever pivoted at H to the body frame A and having its bent end or foot 21 connected to one of the clutch members F in the usual manner. A simple and convenient device

adapted to be operated by the movement of the body of the vehicle relative to the axles, may consist of a toggle acting connection comprising the members J and K pivoted to each other at L and having their ends pivotally connected respectively to the rear axle E and to the body B of the vehicle. A shoe O provided with a lug P may be secured to the axle E as by means of the straps Q and the forked end R of the toggle member J is pivoted on the lug P. A plate S may be suitably secured underneath the body of the vehicle having the lug T to which the forked end U of the toggle member K is pivoted. A longitudinal connecting member, which may be in the form of a rod V is pivotally connected to the knuckle L of the toggle at one end and pivotally connected at the other end to the transverse extension W, which in this instance forms the foot lever G.

A loose adjustable connection in which provision is made for lost motion, is provided between the two portions of the rod V and in Fig. 2 this connection is indicated as a loop or member X of metal similar to a turn buckle, having a socket portion Y at one end threaded to receive the threaded end Z of one portion of the rod V. The other portion of the rod V is provided with a loop *a* loosely engaging the loop or member X, and with the parts in the position shown in Fig. 1, a certain amount of play or lost motion is provided in the adjustable connection. When the vehicle is loaded, tending to depress the body toward the axles and flex the springs, the toggle acting joint J—K will tend to close and draw one portion of the rod V longitudinally. The adjustable connection X is so adjusted that at a predetermined load on the vehicle, the pull on the rod V will be transmitted from the toggle point J—K to the foot lever G, thus disengaging the clutch members F and disengaging the motive power from the running gear. The vehicle therefore cannot be started until the load is lightened to a degree which will permit the clutch members F to engage.

Marks or other indications *b*, *c*, *d* may be provided on or in connection with the adjustable connection X to indicate the relative amount of lost motion which must be taken up in the longitudinal member V by the depression of the body due to the load before the overload preventer will operate to disengage the clutch members, and these marks or indications *b*, *c*, *d* may indicate tons. The adjustment is effected by the position of the screw threaded socket Y on the screw threaded end Z of the rod V. The socket Y is preferably provided with an aperture *e* adapted to register with apertures *f* in the rod V and a pin *g* may be inserted through the registering apertures to

hold the parts in the desired position after adjustment for a given load.

In order to prevent tampering with the adjusting device after the apparatus is set for a given load, any suitable means may be provided, as for instance, wires *h* connected to the pin *g* and sealed with lead or other seal *j*. Any tampering with the adjusting device will be indicated by the breaking or removal of the seal. The pin *h* holding the member V to the foot lever G may also be provided with the wire seal *o* and if desired, the other pivotal connections of the longitudinal rod and toggle acting device may also be sealed in a like manner to prevent tampering.

The device so far described, operates, not only to prevent the operation of the vehicle on overload on the body, but also operates to at least momentarily disengage the clutch members F in case the vehicle is passing over rough places in a road, so that the vehicle cannot be driven at high speed over rough places, but the driver is automatically notified that he should slow down.

In Figs. 3 and 4 a device substantially like that shown in Fig. 1 is illustrated, in which the toggle acting members J and K are reversed and a compression member *p* connects the toggle to the foot lever G, instead of using a tension member V as shown in Fig. 1. The adjusting device, Fig. 4, comprises a socket member *q* having a socket *r* at one end in which one portion of the rod *p* engages. The other end of the socket member *q* is internally threaded at *s* to receive the threaded end *t* of the remaining portion of the rod *p*, thereby permitting adjustment and providing for lost motion between the parts. The effect of overload or the flexure of the springs beyond a predetermined amount transmits motion through the compression member *p* to the foot lever G, thus disengaging the clutch members F as in the construction illustrated in Fig. 1.

In Fig. 7, a modification of the device is shown, in which a pull is transmitted to the foot lever G and means in addition to the adjustable device X are provided for adjusting the point at which the toggle acting device is operated. In this modification a cylinder *u* is suitably strapped to the rear axle E and a tubular member *v* operates in said cylinder. The toggle member J is pivotally connected to the cylinder *u* and the toggle member K is pivotally connected to the movable member *v*. A short rod or pin *w* is suitably connected underneath the body B of the vehicle and enters the member *v*. A stop *x* is adjustably pinned to the rod *w* as by means of a pin or bolt *y* adapted to engage different apertures in the rod *w*. In the operation of the device shown in Fig. 7, the downward movement of the body carries the stop *x* into en-

gagement with the member *v*, thus forcing said member within the cylinder *u* and tending to close the toggle *J—K*. A pull is thus transmitted through the tension member or rod *V* to the foot lever *G* and the clutch members *F* are separated.

In Fig. 8 a modification of the device is shown, in which means are provided for disconnecting the electric connections for the magneto upon overload on the body. In this modification the electric wires 2 and 3 which represent a portion of the electric circuit of the motor truck are connected to the contact 4 and the pivoted switch member 5 respectively. A bell crank lever 6 is pivoted on the frame of the vehicle and a retracting spring is connected to the switch member 5. A cord, chain or other suitable connection 8 is connected to the knuckle of the toggle joint *J—K* and also connected by means of a cushioning spring 9 to the bell crank lever 6. Any suitable device 10 shown diagrammatically may be provided in the cord or chains 8 for adjusting the tension of said chain or for adjusting the point at which the pull will be transmitted from the toggle acting device to the bell crank lever 6. The cushioning spring 9 which prevents shock to the apparatus should preferably be stronger than the retracting spring 7. One end of the bell crank lever 6 is arranged adjacent the pivoted switch arm 5 and when the tension on the cord or chain 8 is sufficient to rock the bell crank lever 6, the pivoted switch arm 5 will be moved out of contact with the contact 4 and the circuit will be broken, thus preventing the transmission of power to the running gear.

In Fig. 9 a modification of the device is shown, in which means are provided for shutting off the supply of fuel to the motor upon overload on the body. In this figure the fuel supply pipe 11 is indicated and provided with a suitable cock 12. A cord or chain or other suitable connection 13 connects the toggle *J—K* over a guide pulley 14^a with the cock 12. A cushioning spring 14 is preferably provided in the connection 13 and a retracting spring 15 is connected to the cock. A suitable adjusting device 16 is shown diagrammatically and connected in the connection 13. Obviously the cock 12 will be closed when the tension on the connection 13 is sufficient and the cock will be automatically opened when the tension is relieved.

In Figs. 10 and 11 a duplex apparatus is shown in all respects substantially similar to that shown in Fig. 1, except that two toggle acting devices *J—K* are provided one at each end of the axle and pivotally connected by tension rods *V'* with an equalizer bar 17 slidably supported in the brackets 18 underneath the car body. The

equalizer bar 17 is pivotally connected by the tension member *V* with the foot lever *G* and in this construction the pull on the members *V'* and *V* is equalized.

In Figs. 12 and 13 another form of equalizer is shown, in which a spring 19 is provided for holding the tension members *V* and *V'*.

In Figs. 14 and 15, another duplex modification of the apparatus is shown, in which flexible tension members 20 are provided connecting the toggles *J—K* with the equalizer bar 17. These flexible connections 20, which may be in the form of cords, chains or other suitable connections, pass over the guide pulleys 21. The bar 17 is connected by a connection 40 with the foot lever *G* and any suitable adjusting device 22, as for instance, a device like that shown in detail in Fig. 2, may be provided in the connection 40.

In Figs. 16 and 17, another modification of the invention is shown, in which the pull to the foot lever is transmitted from one or more of the shackles on the rear springs. In Fig. 16 the rear shackle 23 of one of the springs is elongated at 24 and suitably connected by means of the cord, chain or other device 25 with the foot lever *G*. The shackle 23 as shown is pivoted at 26 to the lug 27 on the side frame *A* and the upper leaf 28 of the spring 29 is pivoted at 30 to said shackle. The shackle 31 at the other end of the spring is pivoted on the lug or bracket 32 on the side frame *A* and the upper leaf 28 of the spring is pivoted at 33 to said shackle 31. As the weight on the vehicle is increased, the springs are flexed and the upper end of shackle 23, swings outwardly from the center, thus transmitting a pull through the cord or chain 25 to the foot lever *G* and disconnecting the clutch members *F*.

In Fig. 17 one end of the cord or chain 25 is connected at 34 to the shackle 35 and the cord first passes over a guide pulley 36 connected to the end of the shackle 37 and thence forwardly to the foot lever *G*, so that the pull on the cord or chain 25 is compounded when the spring is flexed. Obviously the connections shown in Figs. 16 and 17 may be applied to both the rear springs instead of to the springs at one side only of the vehicle.

I claim and desire to obtain by Letters Patent the following:

1. An automobile road vehicle having ground wheels and wheel connecting members, springs, a body mounted in connection with the springs, a power unit carried by the vehicle, means for propelling the vehicle from the power unit, and controlling means interposed between the body and a wheel connecting member adapted to be operated by movement of the body relative to said

member for automatically preventing the operation of the vehicle when overloaded.

2. An automobile road vehicle having ground wheels and wheel connecting members, springs, a body mounted in connection with the springs, a power unit carried by the vehicle, means for propelling the vehicle from the power unit, and controlling means interposed between the body and a wheel connecting member adapted to be operated by movement of the body relative to said member for automatically preventing the operation of the vehicle when the body is overloaded.

3. An automobile road vehicle having ground wheels and wheel connecting members, springs, a body mounted in connection with the springs, a power unit carried by the vehicle, means for propelling the vehicle from the power unit, and controlling means interposed between the body and a wheel connecting member adapted to be operated by movement of the body relative to said member for automatically preventing the operation of the vehicle when more than a predetermined weight is loaded on the body.

4. An automobile road vehicle having ground wheels and wheel connecting members, springs, a body mounted in connection with the springs, a power unit carried by the vehicle, means for propelling the vehicle from the power unit, and controlling means interposed between the body and a wheel connecting member adapted to be operated by movement of the body relative to said member for automatically preventing the operation of the vehicle when the springs are subjected to an overload.

5. An automobile road vehicle having ground wheels and wheel connecting members, springs, a body mounted in connection with the springs, a power unit carried by the vehicle, means for propelling the vehicle from the power unit, and controlling means interposed between the body and a wheel connecting member adapted to be operated by movement of the body relative to said member for automatically preventing the operation of the vehicle when the springs are flexed beyond a predetermined limit.

6. An automobile road vehicle having ground wheels and wheel connecting members, springs, a body mounted in connection with the springs, a power unit carried by the vehicle, means for propelling the vehicle from the power unit, and controlling means interposed between the body and a wheel connecting member adapted to be operated by movement of the body relative to said member for automatically preventing the operation of the vehicle when the body approaches the wheel connecting members to a predetermined distance.

7. An automobile road vehicle having ground wheels and axles, springs, a body

mounted in connection with the springs, a power unit carried by the vehicle, means for propelling the vehicle from the power unit, means for automatically preventing the operation of the vehicle when overloaded, and means for adjusting the overload preventing means to act at different predetermined loads.

8. An automobile road vehicle having ground wheels and axles, springs, a body mounted in connection with the springs, a power unit carried by the vehicle, means for propelling the vehicle from the power unit, and adjustable means for automatically preventing the operation of the vehicle when overloaded.

9. An automobile road vehicle having ground wheels and wheel connecting members, springs, a body mounted in connection with the springs, a power unit carried by the vehicle, means for propelling the vehicle from the power unit, and controlling means interposed between the body and a wheel connecting member and connected to be automatically operated by movement of the body relative to the wheel connecting members, for preventing the operation of the vehicle when the body is overloaded.

10. An automobile road vehicle having ground wheels and axles, springs, a body mounted in connection with the springs, a power unit carried by the vehicle, means for propelling the vehicle from the power unit, and adjustable means connected to be automatically operated by movement of the body relative to the axles, for preventing the operation of the vehicle when the body is overloaded.

11. An automobile road vehicle having ground wheels and axles, springs, a body mounted in connection with the springs, a power unit carried by the vehicle, means for propelling the vehicle from the power unit, means connected to be automatically operated by movement of the body relative to the axles, for preventing the operation of the vehicle when the body is overloaded, and means for setting the overload preventing means to act at predetermined loads on the body.

12. An automobile road vehicle having ground wheels and wheel connecting members, springs, a body mounted in connection with the springs, a power unit carried by the vehicle, means for propelling the vehicle from the power unit and self-restoring controlling means interposed between the body and a wheel connecting member adapted to be operated by movement of the body relative to said member for automatically preventing the operation of the vehicle when more than a predetermined weight is placed on the springs.

13. An automobile road vehicle having ground wheels and wheel connecting mem-

bers, springs, a body mounted in connection with the springs, a power unit carried by the vehicle, means for propelling the vehicle from the power unit, and adjustable self-restoring controlling means interposed between the body and a wheel connecting member adapted to be operated by movement of the body relative to said member for automatically preventing the operation of the vehicle when more than a predetermined weight is placed on the springs.

14. An automobile road vehicle having ground wheels and axles, springs, a body mounted in connection with the springs, a power unit carried by the vehicle, means for propelling the vehicle from the power unit, means arranged at each end of the rear axle connected to be automatically operated by movement of the body relative to the axles, for preventing the operation of the vehicle when overloaded, and means for equalizing the strain on said overload preventing means.

15. An automobile road vehicle having ground wheels and wheel connecting members, springs, a body mounted in connection with the springs, a power unit carried by the vehicle, means for propelling the vehicle from the power unit, and controlling means interposed between the body and a wheel connecting member adapted to be operated by movement of the body relative to said member, for automatically throwing the source of power out of operative relation with the running gear at a predetermined load on the springs.

16. An automobile road vehicle having ground wheels and axles, springs, a body mounted in connection with the springs, a power unit carried by the vehicle, means for propelling the vehicle from the power unit, means for automatically preventing the operation of the vehicle when overloaded,

means for adjusting said overload preventing means, to act at a certain predetermined limit, and means for preventing tampering with the adjustment when set.

17. An automobile road vehicle having ground wheels and axles, springs, a body mounted in connection with the springs, a power unit carried by the vehicle, means for propelling the vehicle from the power unit, a controlling device interposed between the body and one axle, said controlling device having movable members, the relation of which is changed by movement of the body to and from the axle, and connections operated by said controlling device for preventing the operation of the vehicle when the body is loaded beyond a predetermined limit, whereby the body approaches the axles to an extent which will cause the controlling device to operate the said connections controlled by said device.

18. In a motor driven road vehicle, the combination with the vehicle frame and axle, of controlling means interposed between said frame and axle adapted to automatically prevent starting the vehicle, the operation of said means depending upon the distance between the frame and axle.

19. In a motor driven road vehicle, the combination with the vehicle frame and axle, of an electrical circuit controlling the operation of the motor, and means secured to the frame and axle, respectively, adapted to make and break said circuit, the operation of said means depending upon the distance between said frame and axle.

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

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Witnesses:

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