(No Model.) 4 Sheets—Sheet 1.

C. DIETZ.

VEHICLE STARTER.

No. 572,970. Patented Dec. 15, 1896.

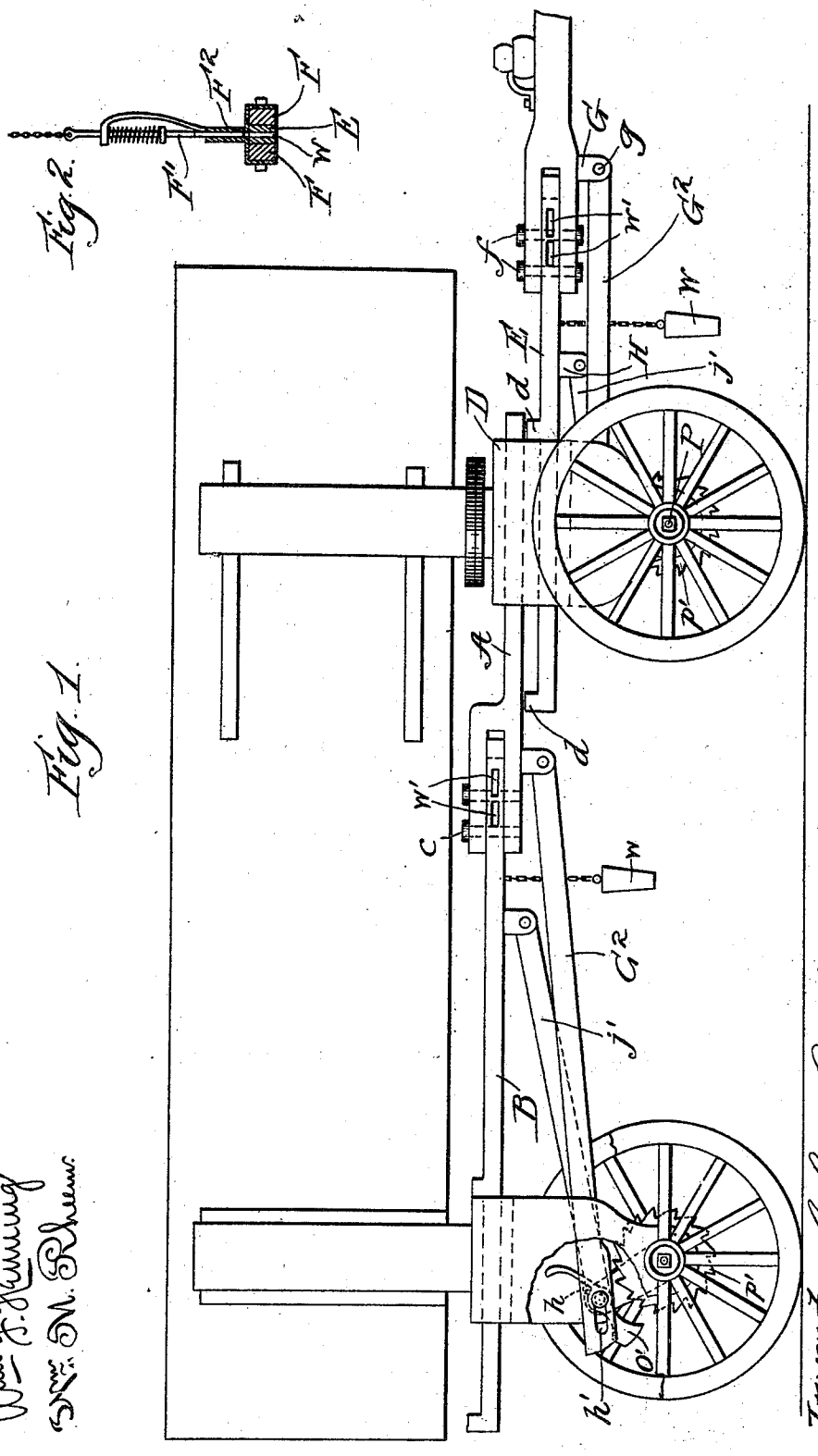


Fig. 2.

Fig. 1.

Witnesses
Wm. A. Fleming
Wm. N. Rhum

Inventor: Chas. Dietz
by Raymond & Whittemore Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

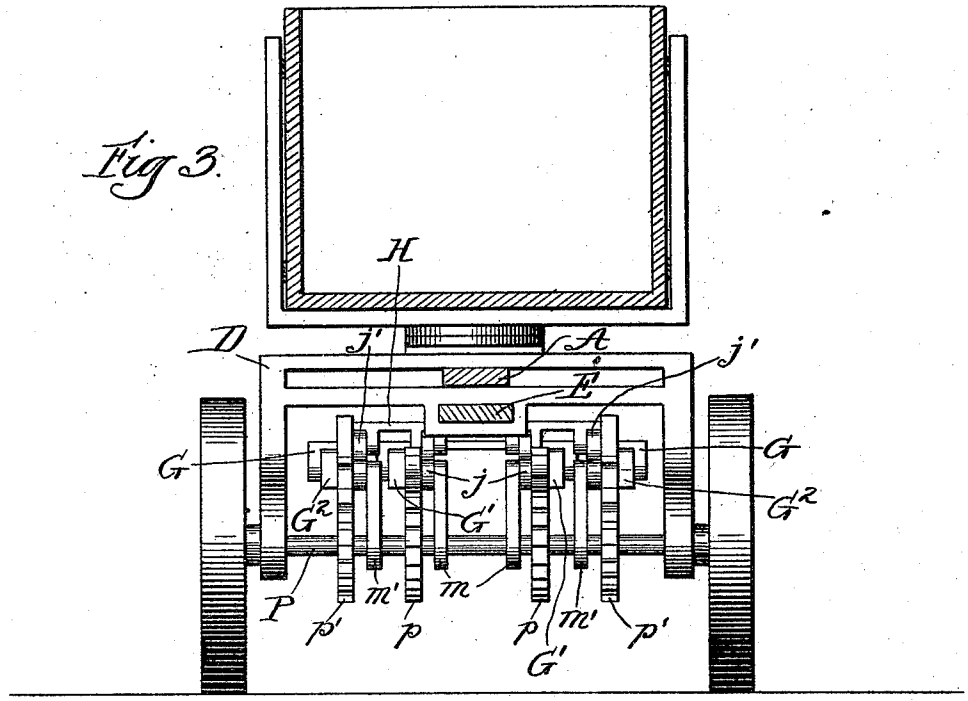
(No Model.) 4 Sheets—Sheet 2.

C. DIETZ.

VEHICLE STARTER.

No. 572,970. Patented Dec. 15, 1896.

Fig 3.



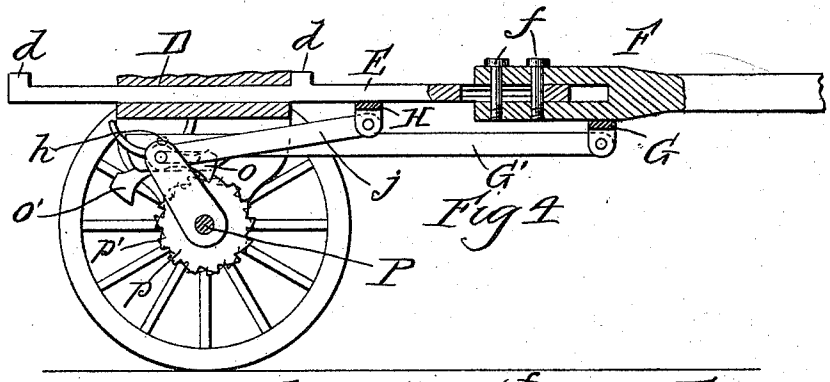


Fig 4

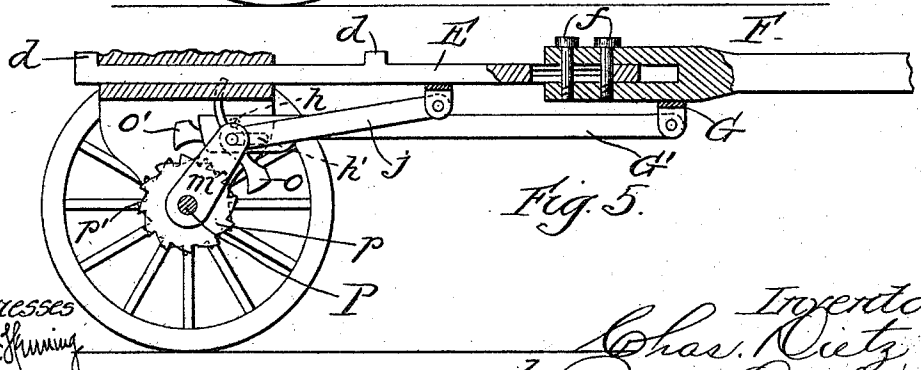


Fig. 5.

Witnesses
Wm. F. Fleming
Wm. M. Rheem.

Inventor
Chas. Dietz
by Raymond & Quackenbush Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 4 Sheets—Sheet 3.

C. DIETZ.

VEHICLE STARTER.

No. 572,970. Patented Dec. 15, 1896.

Fig. 6.

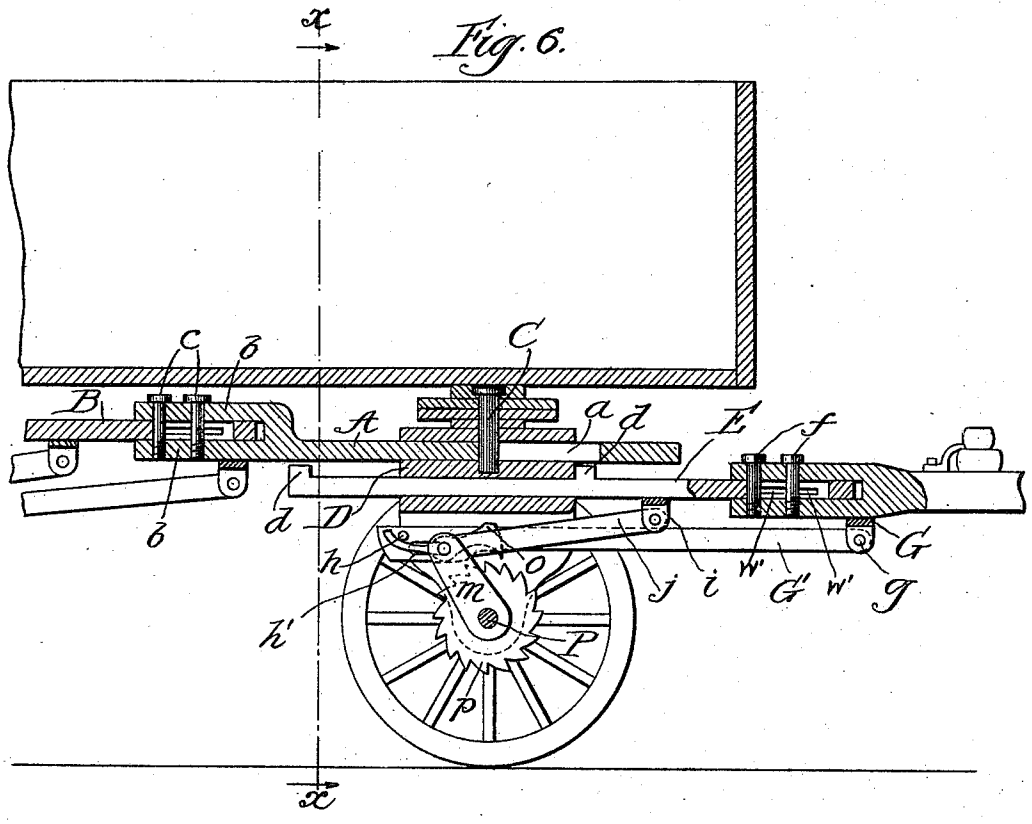
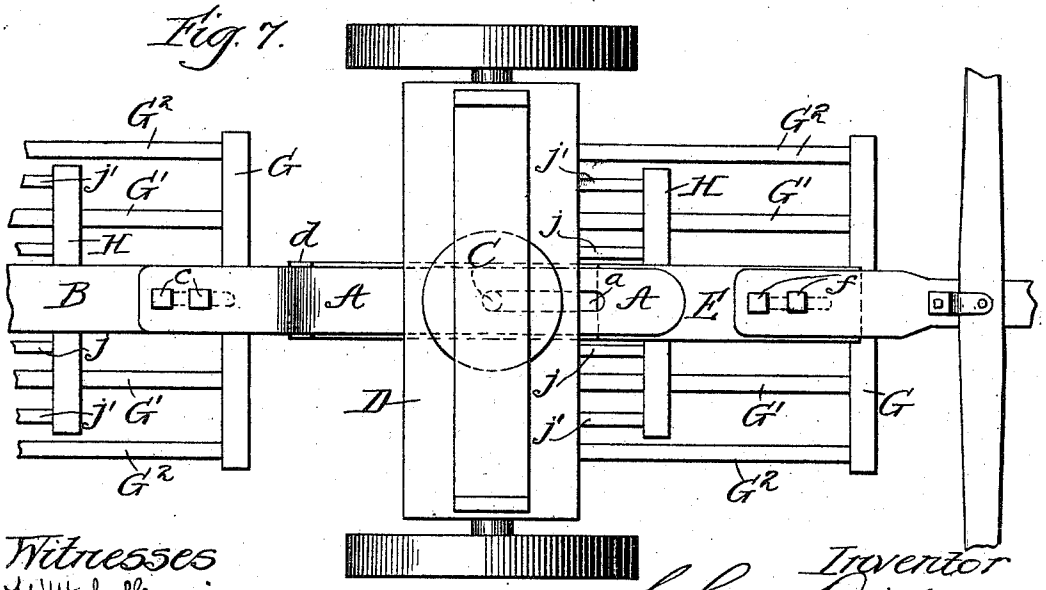


Fig. 7.



Witnesses
Wm. L. Fleming
Wm. M. Rheem.

Inventor
Chas. Dietz
by Raymond & Quackenbush Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 4 Sheets—Sheet 4.

C. DIETZ.

VEHICLE STARTER.

No. 572,970. Patented Dec. 15, 1896.

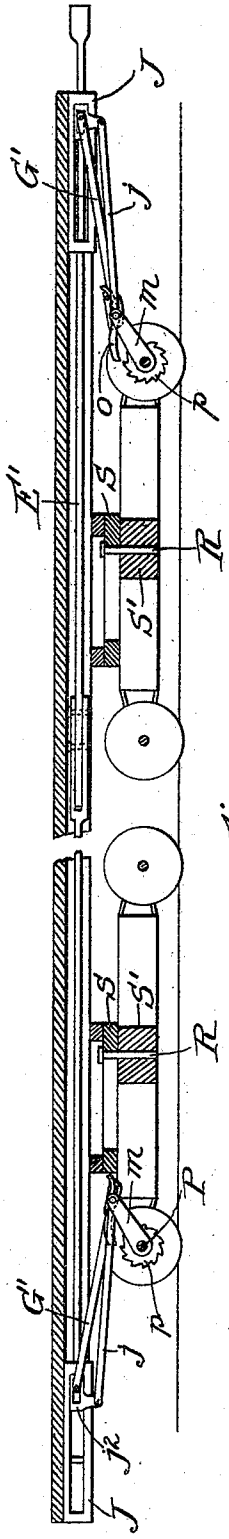


Fig. 8.

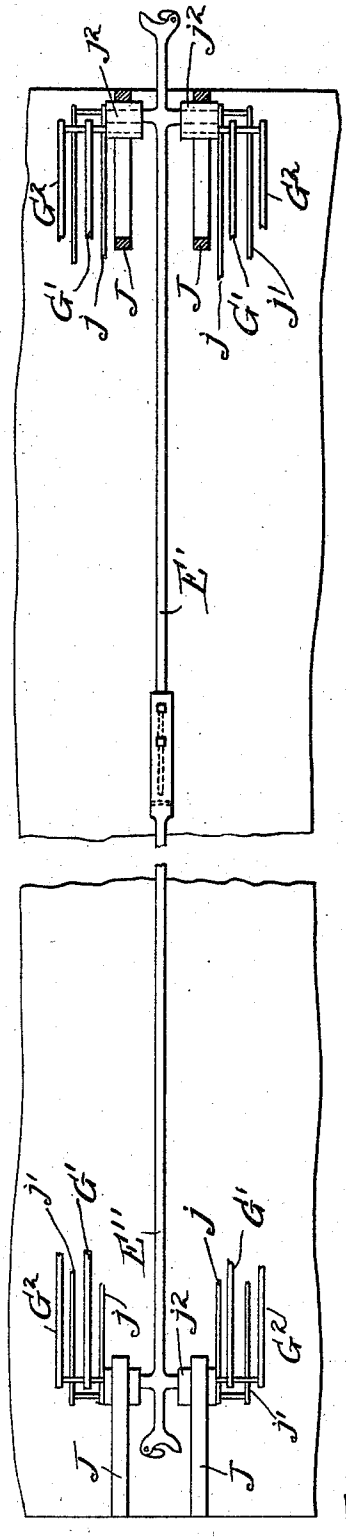


Fig. 9.

Witnesses
Wm. F. Fleming
Wm. M. Rhame.

Inventor:
Chas. Dietz
by Pegram & Quinnebaug Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES DIETZ, OF CHICAGO, ILLINOIS.

VEHICLE-STARTER.

SPECIFICATION forming part of Letters Patent No. 572,970, dated December 15, 1896.

Application filed May 4, 1895. Serial No. 548,087. (No model.)

To all whom it may concern:

Be it known that I, CHARLES DIETZ, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Vehicle-Starters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to wheeled vehicles; and it consists in mechanism for starting the same, which will be fully described hereinafter.

In the drawings, Figure 1 is a side view of a wagon embodying my invention. Fig. 2 is a detail. Fig. 3 is a vertical cross-section on the line *x x* of Fig. 6. Fig. 4 is a central vertical section of the front gear of a wagon at half-start embodying my invention; Fig. 5, a like view when the wagon is at full-start, and Fig. 6 is a vertical central section of the front portion of the wagon when at rest. Fig. 7 is a plan view of the same with body removed; Fig. 8, a longitudinal central section of a railroad-car embodying my invention, and Fig. 9 a plan view of the draft mechanism, looking up.

The front and rear gear of the wagon, referring particularly to Figs. 1 and 6, are connected by a sectional reach A B. The front of section A is slotted at *a* to receive the kingbolt C, while the rear of section A is reinforced and slotted to form furcations *b b*, which receive between them the slotted front end of the rear reach-section B, which is loosely held therein by bolts *c c*.

The bolster D is slotted transversely to receive the front reach-section A and also a sliding draw-bar E, which latter is slotted at its front end to receive bolts *f f*, that connect it with the rear end of the tongue, in which it fits loosely. This draw-bar is provided with stops *d d*, which limit its play in the bolster.

G is a bar which is secured to the under side of the tongue, and to this bar are pivoted the front ends of levers G′ G′ G^2 G^2, while their rear ends extend back over the axle.

The draw-bar E likewise carries a bar H on its under side, and to this are hinged levers *j j j′ j′*, which also project back over the axle. The levers G′ G′ G^2 G^2 are slotted at their rear ends, and each lever G′ has a pin *h* over the rear end of its slot *h′*, while each lever G^2 carries a like pin over the front end of its slot. The levers *j j* are pivoted at their rear ends each to a crank *m*, that works loosely on the axle P, and its pivotal bolt also carries a loose pawl *o* for engagement with the ratchet-wheel *p*, that is fixed on the axle P, while the levers *j′ j′* have a like connection each with an arm *m′*, pawl *o′*, and ratchet-wheel *p′*. The pawls *o* and *o′* act in opposite directions, and each has an upwardly-curved extension for engagement with one of the pins *h*.

The object of my device being the overcoming of the dead-weight of a vehicle in starting or stopping or in any other emergency, its operation is as follows: When the wagon is at rest, as in Fig. 6, a draft on the tongue (owing to the loose connection between the tongue and draw-bar E) will carry the levers forward, so that their pins *h* will release the pawls and permit them to engage the ratchets of wheel *p*, and thereupon through levers *j* they will be drawn forward, exercising their power on the peripheries of the wheels and creating a leverage for overcoming the initial inertia of the vehicle, thus starting the forward section of the running-gear of the vehicle, which section has a sliding connection with the body of the vehicle and carries with it that proportion of the load necessarily distributed thereon. Impetus having now been given to said forward section, and as there is the same connection between the reach-section A and the rear axle as between the tongue and front axle, by a continuous draft on the tongue the rear gear will be carried forward in the same way.

It will be readily perceived that the vehicle will be started, as an entirety, in two sections, and, of course, with a greatly-diminished expenditure of power.

When desirable, the mechanism above described may be thrown entirely out of gear by placing a wedge *w* in either of the slots *w′*.

The pawls *o* and *o′* act in opposite directions, the pawls *o* being drawn forward by the levers *j* when there is a draft on the tongue, while the pawls *o′* are forced backward by levers *j j′* when there is a backward pressure on the tongue.

When my invention is applied to railroad-cars, the levers *j j j′ j′* and pawls *o o′* act in the

same way upon corresponding ratchet-wheels $p\,p'$ and arms $m\,m'$. In this case levers G' are hinged to a draw-bar E', which is sectional and extends through the length of the car, and the levers j are pivoted to a block j^2, that has a loose connection with the draw-bar and slides in a keeper J on the under side of the car-floor. Each truck has a sliding connection with the car by means of a bolt R, that projects through a slot in the frame S into the truck-frame S'.

When it is desired to operate the wedges without going in front of the wheels, I may use the device shown in Fig. 2, in which the wedge is the termination of a spring-rod F', which plays in a keeper F^2, that is secured to the tongue or reach, as shown.

The wagon-body of course has a sliding connection with the front gear, while it is rigidly connected with the rear gear.

I do not propose to confine myself to the construction shown, as it may be greatly varied without departing from the spirit of my invention.

When the vehicle is stopped, the inertia of said vehicle (as the horses slacken their pace) will be sufficient to return the parts to their initial position preparatory to starting again.

It will also be understood that the rear gear is only brought into play upon extra heavy loads, and then acts just as the front gear is about completing its operation.

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

1. The combination with a vehicle and its trucks, of the sliding reach connections provided with stops, the ratchet-wheels upon the axles and the operating pawls and levers operated by the sliding reach connections to move the ratchet-wheels, substantially as shown and described.

2. The combination with the vehicle and trucks, of the sliding reach connections united as described and provided with front and rear stops, the tongue, the levers connected with the reach connections and carrying pins, the pawls oppositely arranged and the ratchet-wheels, all arranged substantially as shown and described.

3. The combination in a vehicle of a sectional reach and sliding draw-bar having loose connection with the tongue, of oppositely-faced ratchet-wheels on the axle, and levers and pawls connected with the tongue and draw-bar for transferring the initial strain to the periphery of the ratchet-wheels in starting or backing, substantially as described.

4. The combination with the running-gear of a vehicle, of a slotted draw-bar, bolts for securing said draw-bar, and a removable wedge adapted for insertion into the slots of the draw-bar, to lock the latter against longitudinal movement, substantially as shown and described.

5. The combination of sectional reach, A, B, draw-bar, E, having stops d, d, and starting-gear, substantially as described.

CHARLES DIETZ.

Witnesses:
JOHN C. KULLING,
S. S. STOUT.