No. 613,141. Patented Oct. 25, 1898.

C. G. & A. C. HABHEGGER.

VEHICLE RUNNING GEAR.

(Application filed Jan. 18, 1898.)

(No Model.)

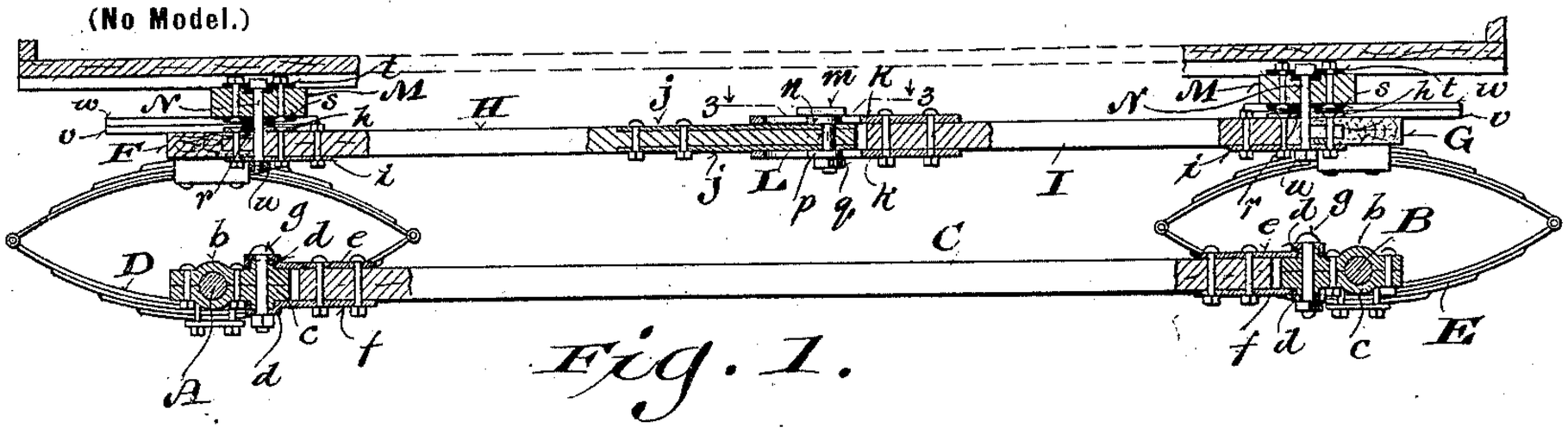


Fig. 1.

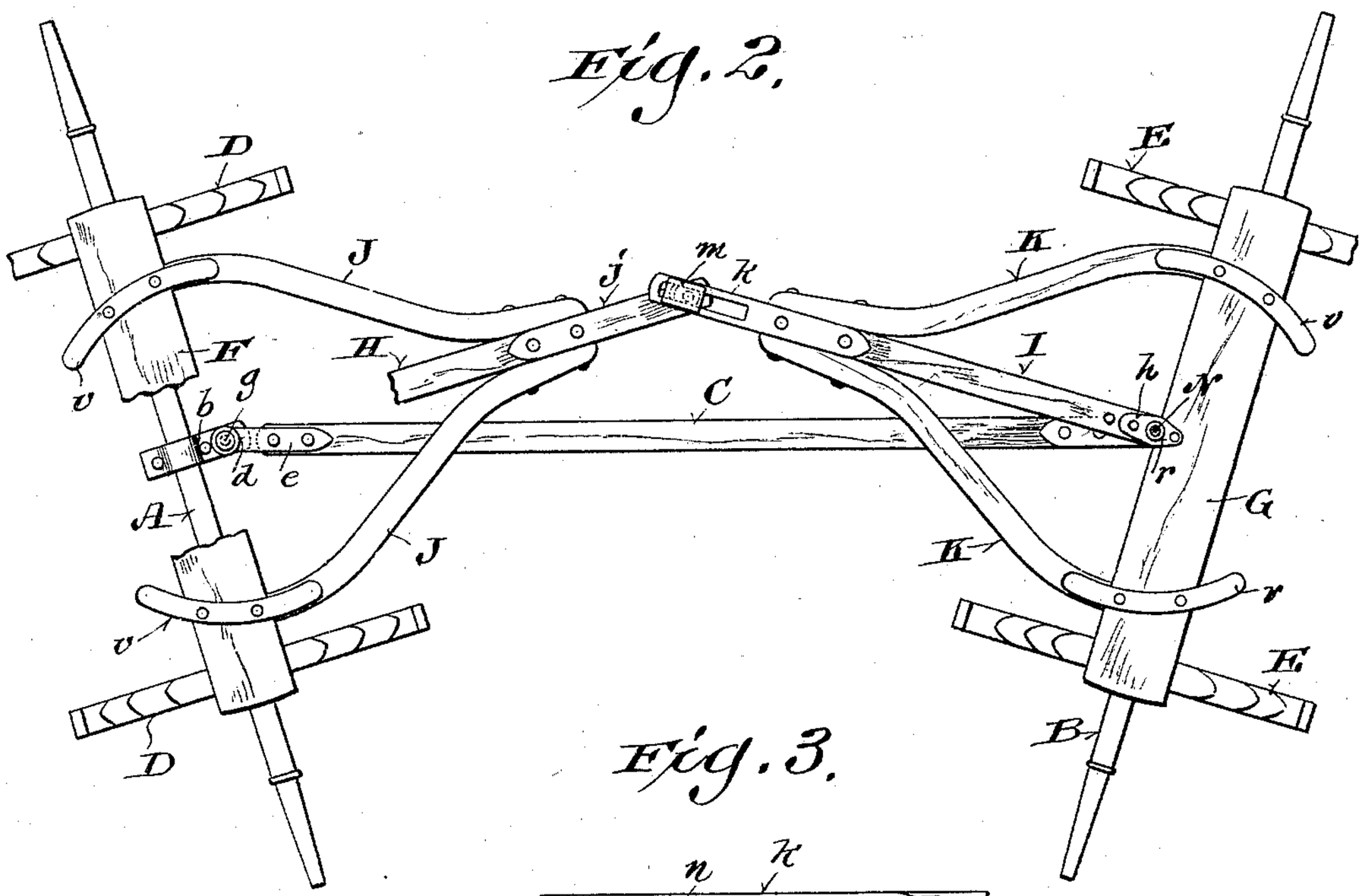
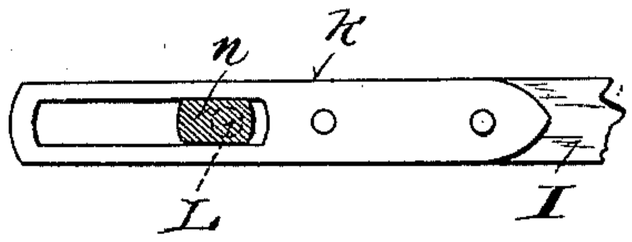


Fig. 2.

Fig. 3.



Witnesses:
Geo. W. Young.
W. E. Oliphant

Inventors
Charles G. Habhegger
Albert C. Habhegger
By H. G. Underwood
Attorney

UNITED STATES PATENT OFFICE.

CHARLES G. HABHEGGER AND ALBERT C. HABHEGGER, OF MILWAUKEE, WISCONSIN.

VEHICLE RUNNING-GEAR.

SPECIFICATION forming part of Letters Patent No. 613,141, dated October 25, 1898.

Application filed January 18, 1898. Serial No. 667,047. (No model.)

To all whom it may concern:

Be it known that we, CHARLES G. HABHEGGER and ALBERT C. HABHEGGER, citizens of the United States, and residents of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Vehicle Running-Gear; and we do hereby declare that the following is a full, clear, and exact description thereof.

Our invention has for its object to provide for more than ordinary short turns on the part of spring-vehicles that singularly comprise four traction-wheels in connection with two pivotal axles, and, furthermore, to steady and ease draft, obviate strain on springs, and to prevent bind of said axles on a connecting-reach.

Therefore said invention consists in certain peculiarities of construction and combination of parts constituting a running-gear, hereinafter set forth with reference to the accompanying drawings and subsequently claimed.

Figure 1 of the drawings is for the most part a representation of a longitudinal sectional view of our improved running-gear in connection with a vehicle-body, the traction-wheels being removed; Fig. 2, a plan view of the running-gear; and Fig. 3, a detail plan view, partly in horizontal section, as indicated by line 3 3 in the first figure.

Referring by letter to the drawings, A represents the rear axle, B the front axle, and C a reach having its ends in pivotal connection with said axles midway the length of the latter. The pivotal connection of the reach and each axle is offset from the latter in a direction toward the center of the running-gear longitudinally of the same, and as a matter of detail we employ upper and lower plates *b c*, that, being recessed to fit each axle, are bolted together on the same, that portion of each plate extending inward from the adjacent axle being provided with an annular stud *d*, the studs pertaining to the plates in each pair being alined. Fitting the aforesaid plate-studs are recesses in upper and lower plates *e f*, bolted to each end of reach C, provision being had for clearance-space intermediate of these reach ends and the ends of plates *b c*, to which they are opposed to avoid binding of the joints. The pivotal engagement of reach-plates *e f* with axle-plates *b c* is insured and maintained by means of bolts *g*, extending through each set of said plates, and it is to be observed that these plates take the wear and strain that would otherwise come upon said bolts. By having the aforesaid reach in pivotal connection with both axles we overcome strain that would otherwise come upon the rear springs D and front springs E, made fast in pairs to said axles by any suitable means, while at the same time we steady and ease draft of the vehicle.

Made fast to the springs D E are the rear and front bolsters F G of the running-gear, and in bolt connection with each bolster midway of its length are inwardly-extending upper and lower plates *h i*, that are also in bolt connection with upper oscillative reach-sections H I, the inner ends of these reach-sections being joined to hounds J K, that extend from said bolsters.

The rear reach-section H has plates *j*, made fast to the upper and lower sides of its forward end, and plates *k*, made fast to corresponding sides of the rear end of front reach-section I, have longitudinally-slotted portions thereof extended beyond the latter reach-section to lap plates *j* aforesaid. A bolt L has an elongated head *m* overlapping the upper one of the plates *k*, and the slot of this plate is engaged by an elongated flange or washer *n* on the bolt under its head. The bolt extends through corresponding apertures in the plates *j*, rear reach-section H, and an elongated washer *p*, the latter engaging the slot of lower plate *k*, pertaining to front reach-section, a nut *q* being run on said bolt against the washer to maintain the union of said reach-sections.

The elongated parts *n q* in connection with bolt L not only serve as long equal bearings, but they also take the wear and strain that would otherwise come upon this bolt incidental to play of the plates *k*, attached to front reach-section. These plates *k* operate to cause the rear gear to follow the front gear at all times when the whole is in motion, and thus the rear wheels of the vehicle are caused to follow the tracks of the front wheels at all times. It also follows that said plates in their peculiar arrangement insure a good substan-

tial binding of the coupling and prevent vertical play of same at any time, the wear that would otherwise come on reach-section H being taken by the plates *j*, fast thereon.

The plates *h*, connecting the bolsters and oscillative reach-sections, are provided with studs *r*, engaging corresponding recesses in plates *s* on the under side of bars M, depending from the vehicle-body, these latter plates and countersunk plates *t* on the upper sides of said bars being bolted to the latter.

King-bolts N extend through the plates *t*, bars M, plates *s h*, reach-sections H I, and plates *i* to engage nuts *u*, the heads of the king-bolts being in the countersinks of said plates *t* upon the upper sides of said bars. Owing to the stud and recess engagement of plates *h* and *s* there is practically no strain or wear upon the king-bolts.

The pivotal connections of the body-bars and bolsters are each in line with a similar connection of the lower reach C and an axle, this alinement being for the purpose of permitting the shortest possible turn of the vehicle without interference of its body and wheels, as well as to avoid a clench or bind of the axles with the reach.

The bolsters F G are provided with segmental wear-plates *v* in frictional contact with similar plates *w* on the bars M of the vehicle-body, each set of said plates having a king-bolt N as their axis.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a vehicle running-gear, the combination of rear and front axles, a reach having its ends in inwardly-offset pivotal connection with the axles, springs on said axles, bolsters on the springs, reach-sections that extend inward from the bolsters and have oscillative joint connection with each other, and body-bars each of which has pivot connection with a bolster in line with a reach and axle pivot-joint.

2. In a vehicle running-gear, the combination of rear and front axles, a reach in pivotal connection at its ends with the axles, springs on said axles, bolsters on the springs, a reach-section extending inward from each bolster, plates fast on the upper and lower sides of one reach-section, longitudinally-slotted plates fast to the other reach-section and lapping the former plates, a bolt having its bearing in the former reach-section and plates thereon, an elongated flange or washer on the bolt engaged with one of the slotted plates, an elongated washer on said bolt engaged with the other slotted plate, and body-bars each having pivot connection with a bolster in line with a reach and axle pivot-joint.

3. In a vehicle running-gear the combination of rear and front axles, upper and lower plates recessed to fit upon each axle and bolted together, annular studs on the plates, reach-connected plates having recesses engaging the studs and a bolt extending through each set of plates to maintain pivotal connection of the same; springs on the axle, bolsters on the springs, reach-sections that extend inward from the bolsters and have oscillative joint connection with each other, and body-bars each having pivot connection with a bolster in line with a reach and axle pivot-joint.

4. In a vehicle running-gear, the combination of rear and front axles, a reach in pivotal connection at its ends with the axles, bolsters on the springs, reach-sections extending inward from the bolsters and having oscillative joint connection with each other, upper and lower plates fast to each bolster and corresponding reach-section, annular studs on the upper plates, body-bars having recessed lower plates in fit upon the studs, and king-bolts arranged to maintain the pivotal union of the body-bars and bolsters, these pivotal unions being alined with the reach and axle pivot-joints.

In testimony that we claim the foregoing we have hereunto set our hands, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

CHARLES G. HABHEGGER.
ALBERT C. HABHEGGER.

Witnesses:
N. E. OLIPHANT,
B. C. ROLOFF.