

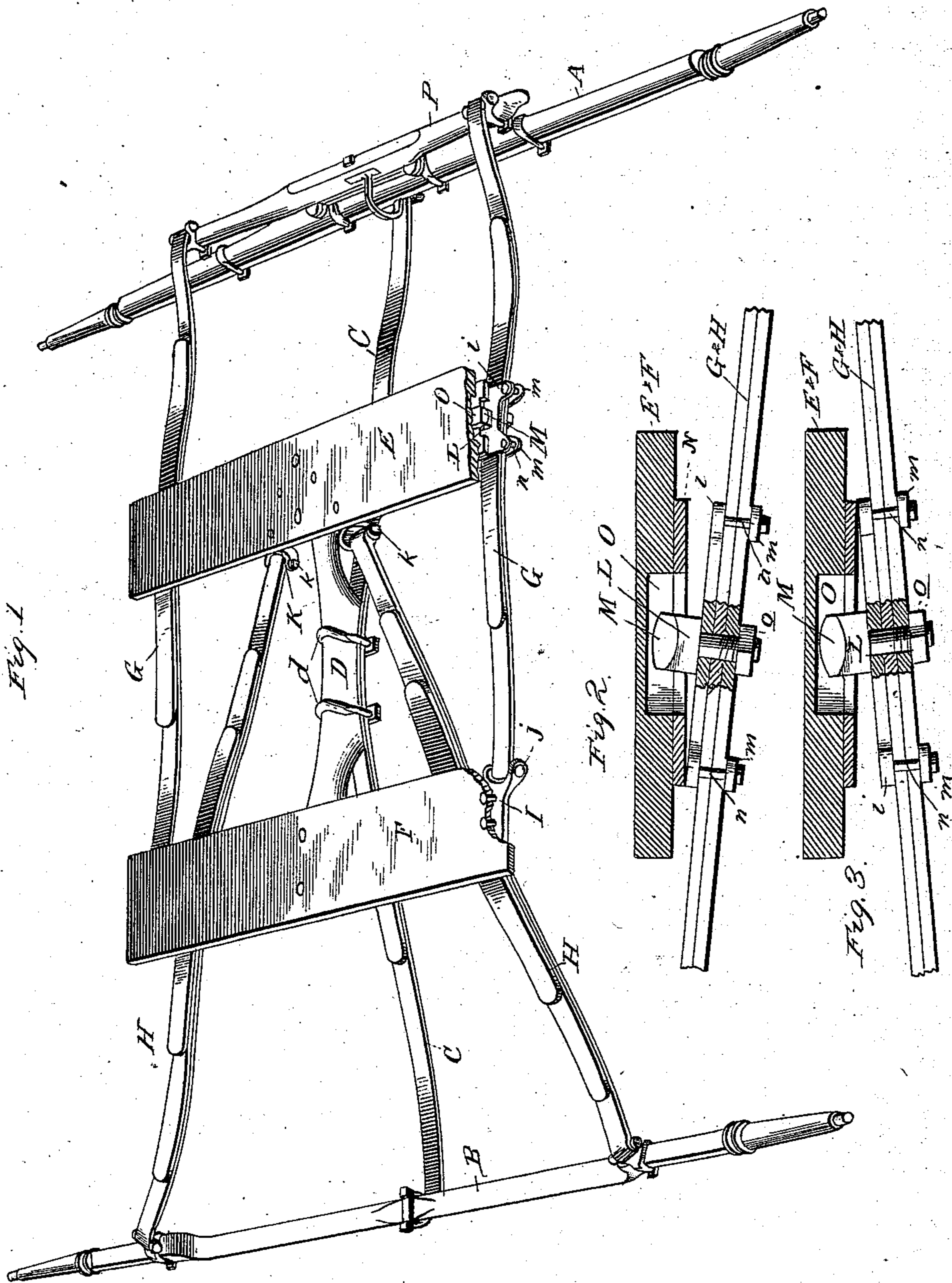
(No Model.)

J. STEELE.

SPRING GEAR FOR VEHICLES.

No. 379,999.

Patented Mar. 27, 1888.



WITNESSES:

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SPRING-GEAR FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 379,999, dated March 27, 1888.

Application filed May 5, 1887. Serial No. 237,290. (No model.)

To all whom it may concern:

Be it known that I, JAMES STEELE, of the city of Guelph, in the county of Wellington, in the Province of Ontario, Canada, manufacturer, have invented certain new and useful Improvements in Spring-Gear for Vehicles, of which the following is a specification.

The object of the invention is to produce a spring-gear which will be strong and durable and at the same time afford a very easy seat for the body of the vehicle. By the use of this gear the brace-bars and reach ordinarily adopted may be dispensed with and the vehicle may be turned very sharply without risk of upsetting.

Figure 1 is a perspective view of my gear, which is adapted to carry the body of the vehicle. Fig. 2 is a detail showing support spring, &c., when the vehicle is unloaded. Fig. 3 is a detail showing support spring, &c., when the vehicle is loaded.

In the drawings like letters of reference indicate similar parts in the different figures.

In Fig. 1, A and B are the front and rear axles. C is a spring extending between the front and rear axles and attached thereto in the ordinary manner, forming a spring-reach and carrying a saddle, D, connected therewith in the middle by the clips *d*, the supports E and F being bolted to the saddle, as shown. G are springs attached to the head-block P and carry the front support, E, the rear ends of which springs are connected by the bolts to the U-shaped castings I, which are bolted to the rear support, F, as indicated. H are springs attached to the rear axle in the usual manner and carrying the rear support, F, in a mode similar to that in which the front support, E, is carried by the springs G and by a similar device, as hereinafter fully explained. The front ends of these springs G are attached by the bolts *k* to the U-shaped castings K, which are bolted to the front support, E, as indicated in the drawings.

In Fig. 2, L is a bolt having an enlarged square head which rests on the plate *i*, and which passes through the spring G, of which a small portion only is shown, and is secured thereto by a nut, *o*. *m* are metal strips placed transversely to the springs and projecting beyond the sides thereof and pierced at each of

their ends for the bolt *n*, which secures them to the upper plate, *i*, at the projections on its four corners, thus clamping the plate *i* to the spring. The bolt L has lips M projecting from opposite sides of the enlarged head, the upper part of the bolt-head and the lower sides of the lips being slightly curved and adapted to allow for the rocking motion of the springs. The lips M rest on the plate N, which is slotted in the center, and which is screwed from underneath to the support. The lower part of the support adjoining the bolt-heads is recessed, as shown at O, to allow for the play of the bolt-head. In this figure the spring is represented as unloaded.

Fig. 3 represents the same device as shown in Fig. 2; but in this instance the spring is loaded, and illustrates, in connection with Fig. 2, the play of the bolt L when the vehicle is in a loaded and unloaded condition. There are four of these devices connected to the springs G and H and adapted to carry the front and rear supports, E and F. The front support, E, is thus upheld on its center by the saddle D, to which it is securely bolted, and this saddle rests on and is attached to the spring-reach C. Each end of this front support, E, is held in position on the springs G by the device shown in Figs. 2 and 3, hereinbefore fully described. The springs H, which run diagonally forward from the rear axle, are attached to the front support, E, near the center thereof, and on either side of the saddle by the bolts *k* and U-shaped castings K, which are bolted to said support E. The rear support, F, is also supported in its center by the saddle D, being bolted thereto in a manner similar to the front support, E, and also rests at each end thereof on the springs H, being attached thereto by means of the devices shown in Figs. 2 and 3, which is carried by the springs H. It is also held at its outermost ends by the springs G, which are attached by the bolts *j* to the U-shaped castings I, bolted to this rear support.

The body of the vehicle rests on and is attached to the front and rear supports, E and F, which form strong and durable bearings, and the peculiar method of constructing and attaching the springs renders the motion of the body of the vehicle very easy, besides rendering it pos-

sible to dispense with the reach and brace-bars of ordinary construction without unduly weakening the vehicle, and enabling the front wheels to move freely under the body when making a sharp turn without risk of upsetting. These supports and the saddle, which are connected with the springs, are made of wood.

What I claim as my invention is—

1. In combination with the axles A and B, the spring-reach C, suitably attached to said axles and carrying the saddle D, rigidly attached to said reach, together with the front and rear supports, E and F, bolted on said saddle, substantially as described, and for the purpose specified.

2. The springs G, in combination with the head-block P and the rear support, F, the said spring being pierced to receive the bolt L, which is secured thereto, the strips *m*, placed undersaid springs and bolted to the upper plate, *i*, by the bolts *n*, and the slotted plate N, fixed to the lower side of the front support, E, which is recessed at O to allow for the movement of the beveled head of the bolt L, which has curved lips M, resting on the slotted plate N, substantially as described.

3. The springs H, in combination with the axle B and front support, E, the said springs being pierced to receive the bolt L, which is secured thereto, the strips *m*, placed under said springs and bolted to the upper plate, *i*, by the bolts *n*, and the slotted plate N, fixed to the lower side of the rear support, F, which is recessed at O to allow for the movement of the beveled head of the bolt L, which has curved lips M, resting on the slotted plate N, substantially as described.

4. The axles A and B and spring-reach C, carrying the saddle D, rigidly attached thereto, the rear support, F, bolted to the saddle and suitably attached to the springs G, which are also connected with the head-block P, the said springs G being pierced to receive the bolts L,

secured thereto, the strips *m*, bolted to the upper plates, *i*, by the bolts *n*, and the slotted plates N, fixed to the lower side of the front support, E, which is recessed at O, and the bolts L, having lips M, which rest on the slotted plates N, in combination with the springs H, suitably attached to the rear axle, B, and front support, E, which is bolted to the saddle D, the rear support, F, being also carried by the springs H, substantially as specified.

5. The axles A and B and spring-reach C, carrying the saddle D, rigidly attached thereto, and the rear support, F, bolted to the saddle and suitably attached to the springs G, which are also connected with the head-block P, the said springs G carrying, as specified, the front support, E, which is bolted to the saddle, in combination with the springs H, which have bearings on the front support, E, and rear axle, B, and are pierced to receive the bolts L, secured thereto, the strips *m*, bolted to the upper plates, *i*, by the bolts *n*, and the slotted plates N, fixed to the lower side of the rear support, F, which is recessed at O, the bolts L having lips M, which rest on the slotted plates N, substantially as specified.

6. The combination of the axles A and B, the spring C, the saddle D, the front and rear supports, E and F, and the head-block P, affording bearings for the springs G, which are pivotally attached to the rear support, F, and so connected with the front support, E, as to permit of flexure, together with the springs H, pivotally attached to the rear axle, B, and the front support, E, and so connected with the rear support, F, as to permit of flexure, substantially as set forth.

Guelph, April 13, 1887.

JAMES STEELE.

In presence of—

JOHN MILIKEN,
C. KLOEPFER.