

No. 669,248.

Patented Mar. 5, 1901.

D. TRUE.
SPRING GEAR FOR VEHICLES.

(Application filed June 13, 1900.)

(No Model.)

2 Sheets—Sheet 1.

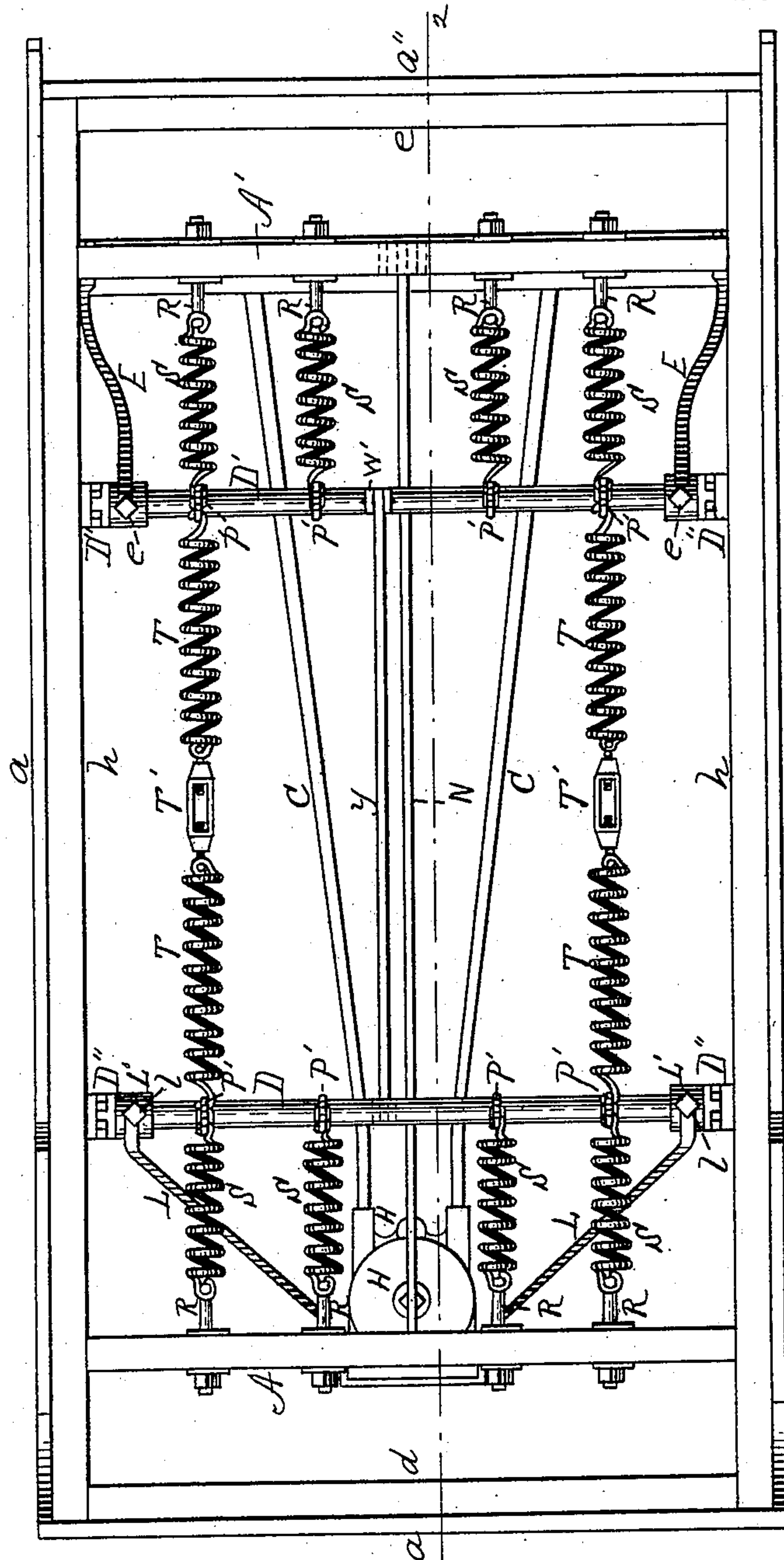


Fig. 1.

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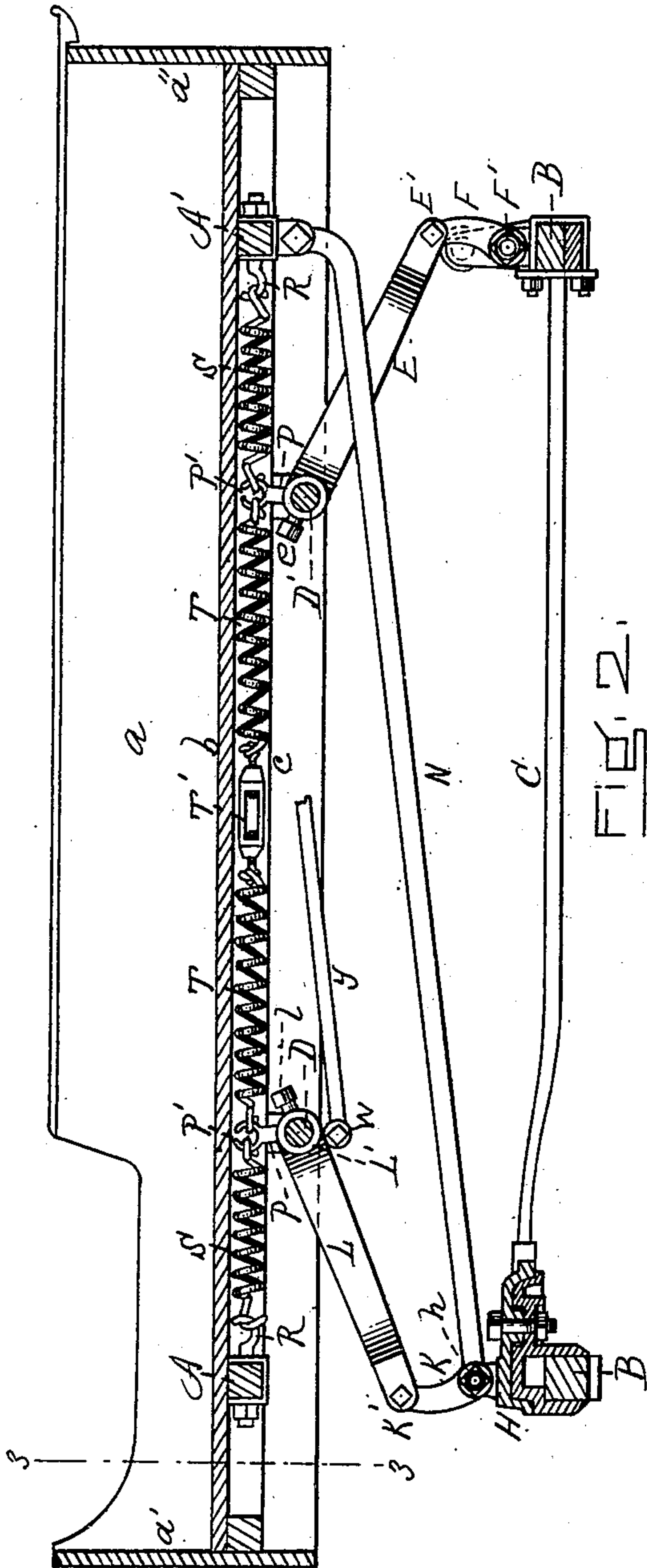


FIG. 2.

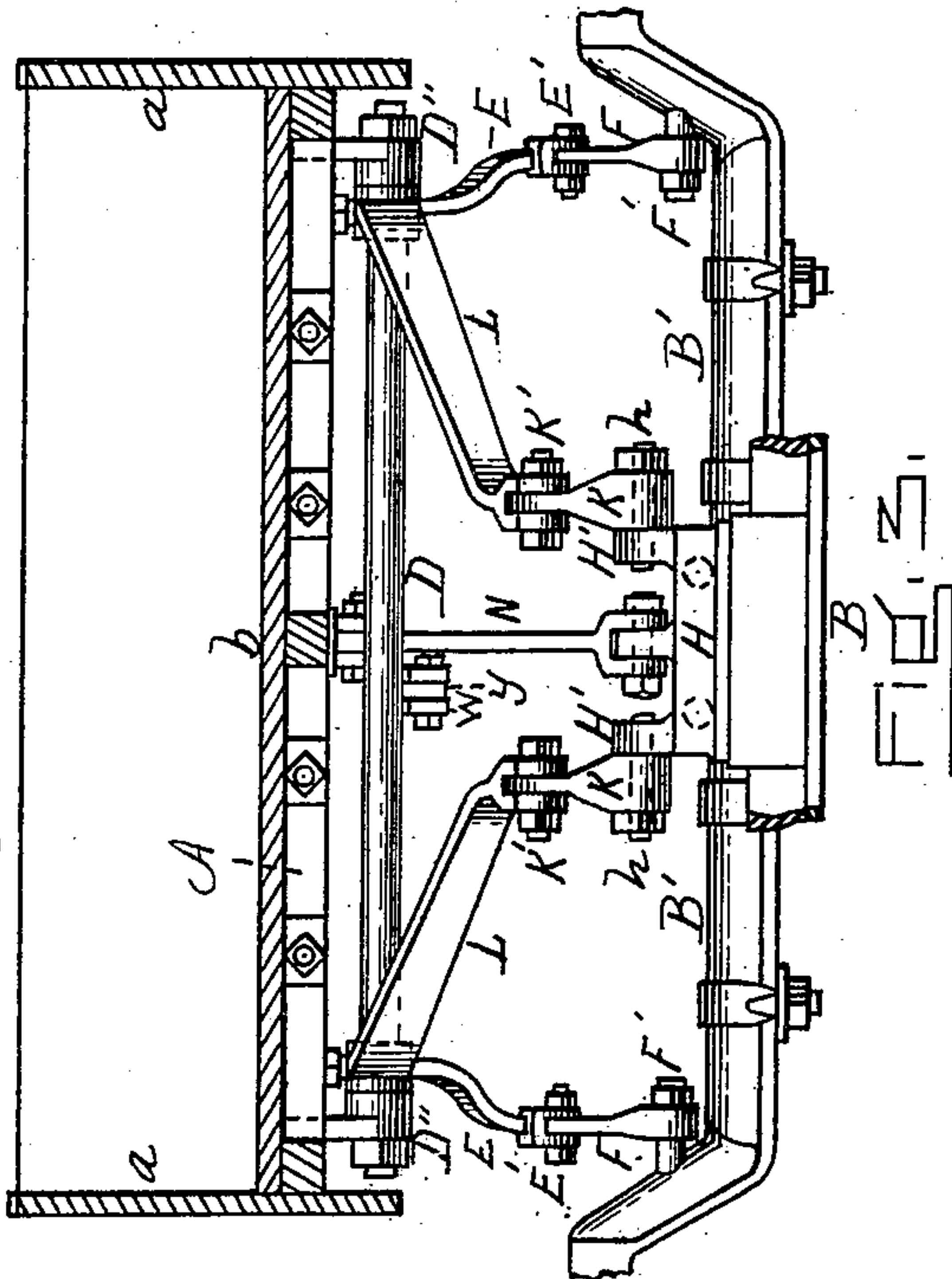


FIG. 3.

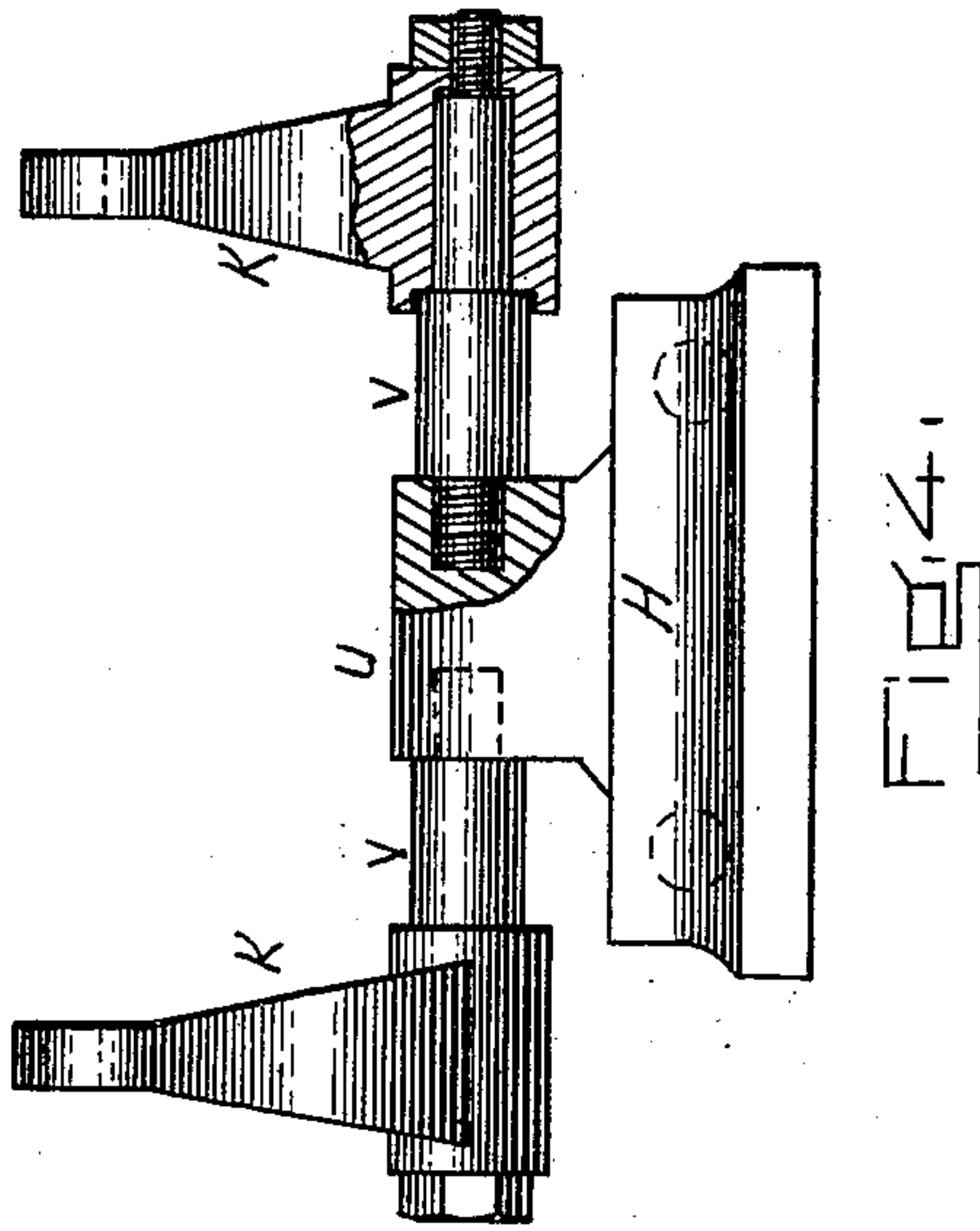


FIG. 4.

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UNITED STATES PATENT OFFICE.

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SPRING-GEAR FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 669,248, dated March 5, 1901.

Application filed June 13, 1900. Serial No. 20,141. (No model.)

To all whom it may concern:

Be it known that I, DAVID TRUE, a citizen of the United States, residing in Amesbury, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Spring-Gear for Vehicles, of which the following is a specification.

This invention relates to that class of spring-gear for vehicles, more especially for carriages and wagons, in which the movement of the carriage-body with relation to the running-gear is purely a vertical one, the body being caused by the springs to be moved vertically, remaining always at horizontal planes, and all portions of the body moving up and down at the same time; and the invention relates particularly to improvements in the style of spring-gear illustrated and described in my application for Letters Patent of the United States filed January 27, 1900, Serial No. 3,002, and allowed March 29, 1900, to which reference is made, such improvements having for their principal objects to adapt the contrivance to a carriage provided with a fifth-wheel, to provide an efficient and practical arrangement embodying the employment of springs which are to a certain extent compensating or neutralizing in their action, and to enhance the efficiency of the contrivance.

The nature of the invention is fully described below and illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the spring-gear embodying my improvements, with the sides, front, and end of the carriage-body applied. Fig. 2 is a longitudinal vertical section taken on line 2, Fig. 1, the floor of the body being shown in position. Fig. 3 is a vertical section taken on line 3, Fig. 2. Fig. 4 is an enlarged detail, part in elevation and part in section, showing a modification.

Similar letters of reference indicate corresponding parts.

a represents the sides, *a'* the front or dashboard, and *a''* the back or end-gate, of the carriage-body, and *b* is the floor, all constructed as usual.

d represents the front bar, *e* the rear bar, and *h* the side bars, constituting the frame.

A and *A'* represent, respectively, cross-bars extending across the frame beneath the

floor near the front and rear ends of the vehicle and approximately over the front and rear axles *B B'*. Supported in suitable boxes *D''*, sustained by the side bars *h*, are rods *D* and *D'*, the rod *D* being somewhat at the rear of the front axle and the rod *D'* being at about the same distance in front of the rear axle. The rear rod *D'* has rigidly secured to it near its opposite ends arms *E*, pivotally connected at their lower ends at *E'* with shackles *F*, the lower ends of which are hinged at *F'* to the upper side of the rear axle. These connections *E F* are not new in this invention, being described in another application executed by me at even date herewith, the only difference being that the shackles *F* curve rearwardly in the present application instead of forwardly. *C C* are reach-rods connecting the rear axle *B'* with the fifth-wheel *H*, supported on the front axle *B*. This fifth-wheel has ears *H'* formed on its upper side at opposite side edges, to which are pivotally connected at *h* the lower ends of the forwardly-curved shackles *K*, pivotally connected at their upper ends at *K'* with the outwardly-spreading arms *L*, rigid or integral with collars *L'*, held fast on the rotative rod *D* by suitable set-screws *l*. A similar set-screw *e* secures the collar adjustably at the upper ends of the arms *E* to the rod *D'*. A stay-rod *N* is pivotally connected at its opposite ends to the fifth-wheel *H* and the under sides of the cross-bar *A'*. The operation of the arms *L* and shackles *K*, connecting the rotative bar *D* with the fifth-wheel, is substantially the same as that of the arms *E* and shackles *F*, which connect the rear rotative rod *D'* with the rear axle *B'*.

By connecting the shackles *K* with the fifth-wheel at the extreme opposite side edges of the latter instead of in the middle thereof I avoid the danger of the movement of the shackles being interfered with and clogged by dirt, dust, or stones effecting lodgment on the surface of the fifth-wheel.

Rigidly and preferably radially secured to the rods *D* and *D'* are the shanks *P* of the double hooks *P'*. Each shank is formed at its outer end into two hooks arranged longitudinally with the carriage-body and facing each other, as clearly shown in Fig. 2. The cross-bars *A A'* are provided with the hori-

zontally-arranged hooks R, extending inward toward the rotative rods D D', and the sets of hooks R are connected with the outer portions of the sets of double hooks P by springs S of any suitable number. The inner portions of a suitable number of the hooks P' on the rotative rods D D' are connected by springs T, each spring being preferably made in two parts, which are connected by a turn-buckle T', whereby the tension of the springs may be adjusted. The number of springs T, connecting the inner hooks P', may be regulated as desired; but it will usually be less than the number of the springs S. As in the allowed application above referred to, a bar Y is pivotally secured at its opposite ends to ears W and W', extending, respectively, downward and upward from the rods D and D', whereby reverse rotation is communicated from one to the other.

The operation of the springs S as weight is applied to the frame is as described in the specification of the allowed application above referred to, the weight depressing the bars L and E, and thus rotating the rods D and D' inwardly or reversely. The interposition of the springs T between the rotative rods D and D' in opposition to the springs S is for the purpose of neutralizing to a certain extent, but of course not to a full extent, the power and action of the springs S. In other words, the springs T act as compensating springs and are compressed by the rotation of the rods D D' as the springs S are expanded. This compensation or neutralization is in proportion to the number and power of the springs T as compared with the number and power of the springs S.

In Fig. 4 the fifth-wheel instead of being provided with a pair of ears at its opposite edges for connection with the shackles K is formed with a central block or support U, having screwed into its opposite sides wings V, which constitute pivotal connections for the shackles K.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a spring-gear for vehicles, a frame above the axles for supporting the carriage-body; a pair of rotative rods or shafts sup-

ported by and having their bearings in said frame; mechanism connecting said rods or shafts whereby the rotation of one imparts rotation to the other; load-supporting springs intermediate with and connecting said rods or shafts and the frame; neutralizing or compensating springs connecting said rods or shafts with each other; the stationary portion of the running-gear; and arms rigid on said rotative rods or shafts and connected with the stationary portion of the running-gear, substantially as described.

2. In a spring-gear for vehicles, a frame for supporting the carriage-body; the rotative rods or shafts D, D' supported by and having their bearings in the frame; the double hooks comprising the single shanks P and double-hook portions P' rigid on said rods D, D'; the load-supporting springs S connected at one end with one portion of a double hook and at the other end with the frame; the neutralizing or compensating springs T each connected at each end with one portion of a double hook on one of said rods D, D'; mechanism connecting said rods or shafts whereby rotation of one imparts rotation to the other; the stationary portion of the running-gear; and arms rigid on said rotative rods or shafts and connected with the stationary portion of the running-gear, substantially as set forth.

3. In a spring-gear for vehicles, the frame for supporting the carriage-body; a pair of rotative rods or shafts supported by and having their bearings in said frame; mechanism connecting said rods or shafts whereby one imparts rotation to the other; springs intermediate with and connecting said rods with the frame; a fifth-wheel; shackles K pivotally connected at their lower ends with said fifth-wheel at points at the extreme opposite side edges thereof; and arms pivotally connected at their lower ends to the upper ends of the shackles and rigidly connected at their upper ends with one of the rotative rods, substantially as described.

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Witnesses:

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