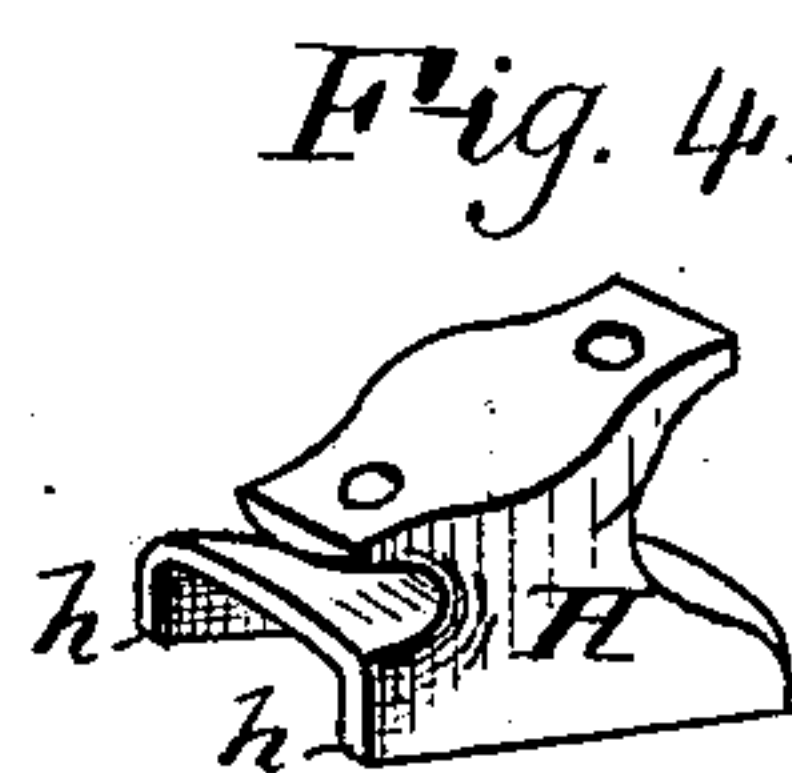
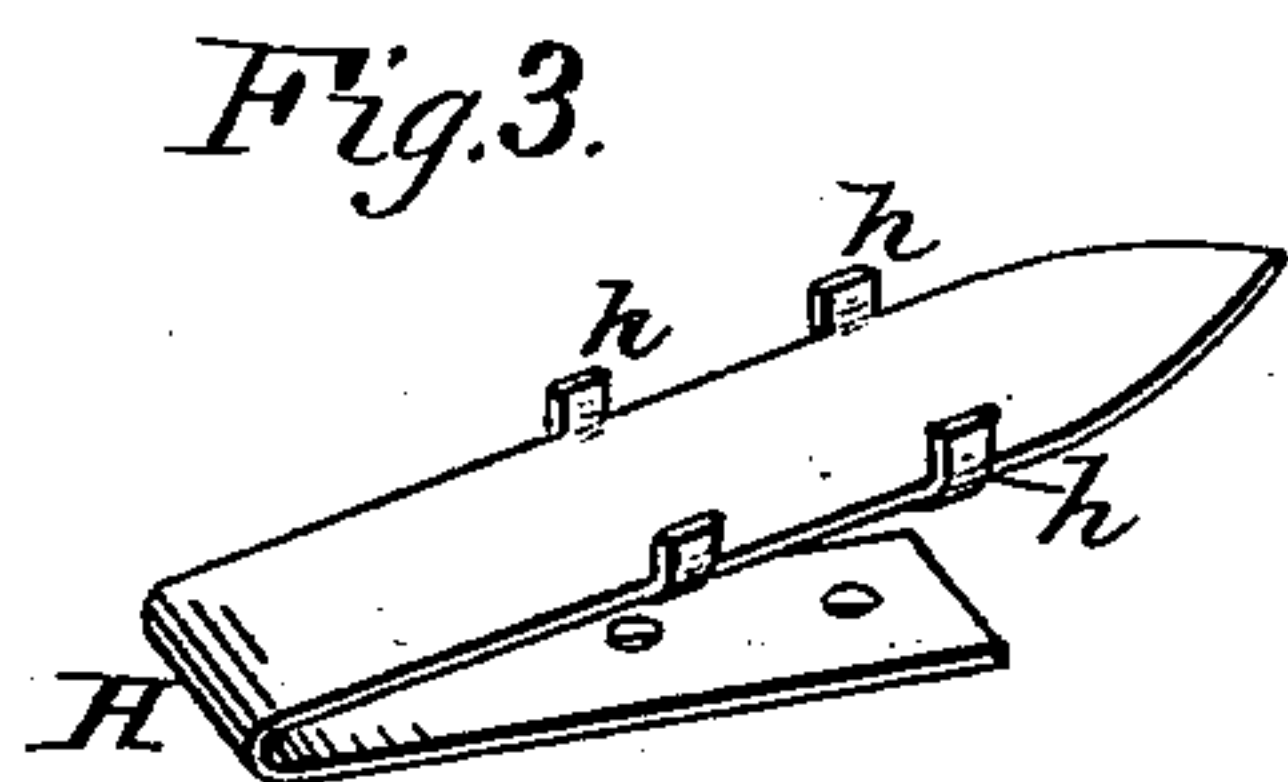
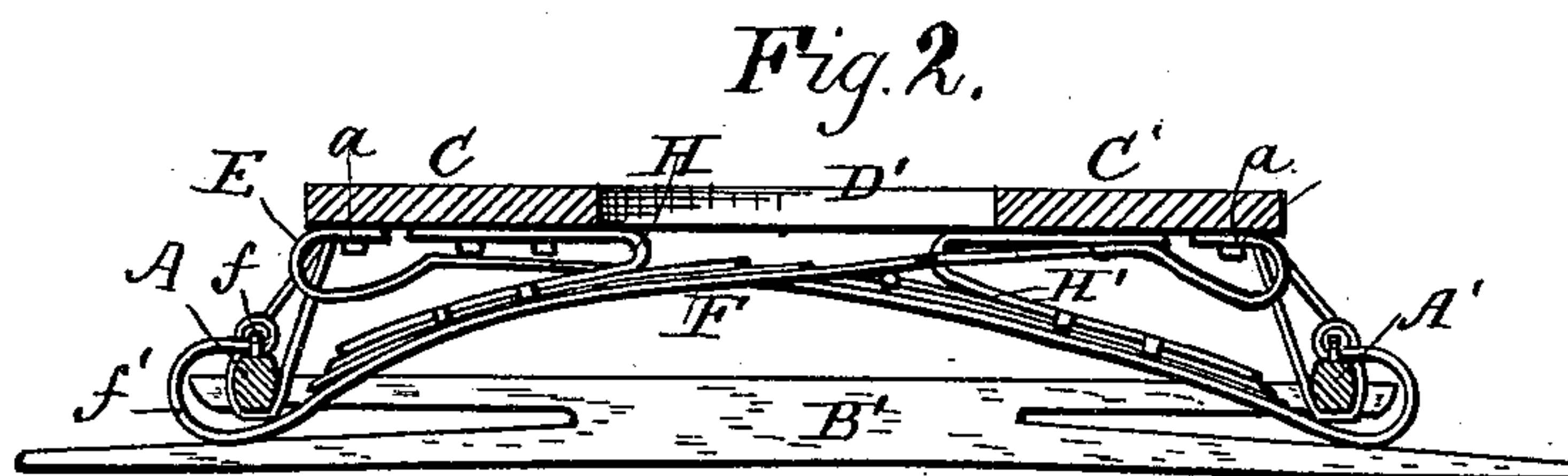
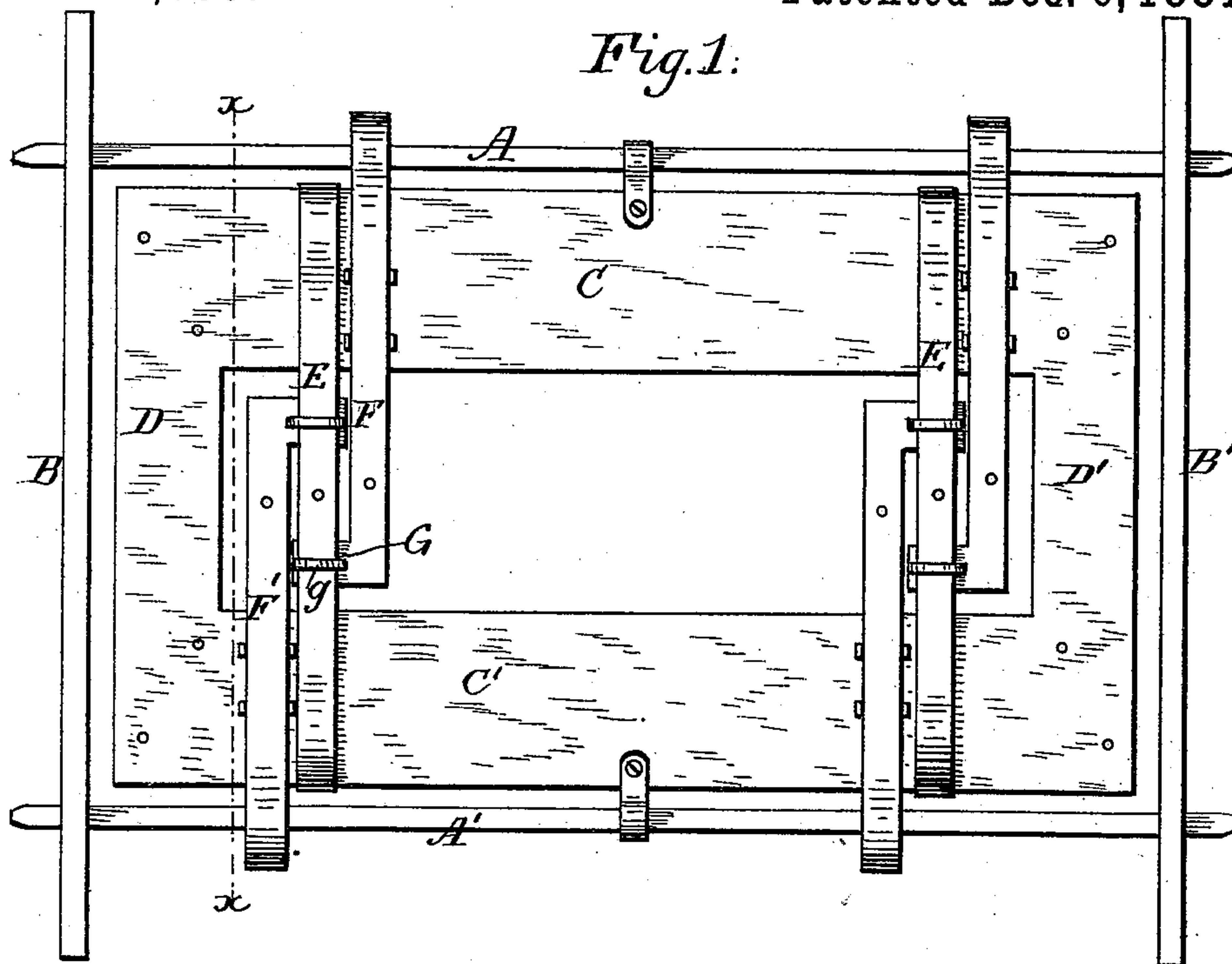


(No Model.)

J. F. SHAW.
CARRIAGE SPRING.

No. 250,399.

Patented Dec. 6, 1881.



Witnesses:
W. B. Masson
J. S. Barker

Inventor:
James F. Shaw
by Doubleday & Bliss

UNITED STATES PATENT OFFICE.

JAMES F. SHAW, OF JACKSON, MICHIGAN.

CARRIAGE-SPRING.

SPECIFICATION forming part of Letters Patent No. 250,399, dated December 6, 1881.

Application filed August 5, 1881. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. SHAW, a citizen of the United States of America, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Carriages; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

The object of the invention is to provide a carriage-body with springs which shall effectually prevent the sudden jerking or jarring usually experienced by ordinary carriages when moving over rough ground or striking obstructions; and it consists in combining, with the side-bar frame and the carriage-body (or with a supplemental frame to be used with the body) a peculiar arrangement of springs and fulcrums or bearings for said springs, to be hereinafter fully set forth.

Figure 1 is a bottom-plan view of a frame and springs arranged thereon in accordance with my invention. Fig. 2 is a cross-section on line *xx*, Fig. 1. Fig. 3 is a bottom view of one form of fulcrum for the side-bar spring. Fig. 4 is a top view of a modified form of the fulcrum.

In the drawings, *A A'* represent the side bars of the gear-frame, and *B B'* represent the cross-bars.

C C' are the side portions of a carriage-body frame, and *D D'* the end pieces of the same, although the springs can be attached directly to the bottom or bed of the carriage, without the necessity of this supplemental frame, it being however desirable under most circumstances.

E represents a long spring, which is arranged to extend across the carriage-body frame *C C'* *D D'*, near one end thereof. This spring *E* is turned or bent at the ends, and the short inwardly-turned parts *a a* are securely fastened to the body-frame. This spring is preferably made, as shown, of flat metal of sufficient width to insure strength and durability.

F is a flat spring, having its outer end secured to the side bar, *A*, by means of a clip at *f*.

It is curved downwardly and inwardly, as shown at *f'*, and extends to a point somewhat beyond the center of the body-frame. At its inner end it is provided with a lateral extension-piece, *G*, which extends across the main equalizing-spring *E*, and to which it is firmly secured by means of a clip at *g*, or other suitable fastening. Between the body-frame and the spring *F* there is secured the fulcrum *H*, against which the spring *F* bears when the side bar or gear-frame is forced upward. If this fulcrum be made in the form of a spring, as shown in Figs. 2 and 3, the pressure, whether from above or below, is much more effectively prevented from resulting in any jar or shock. Instead of this spring a fulcrum formed of a solid block, as shown in Fig. 4, may be employed. In either case a seat or recess is formed by means of ribs or flanges *h*, between which the spring can be firmly supported.

F' is a spring similar to spring *F*, and secured to the other side bar, *A'*, at its outer end. The inner end is situated under the carriage-frame at a point beyond the center corresponding in position to the inner end of the spring *F*. It is provided with a fulcrum, *H'*, similar in construction and operation to the one described at *H*. These fulcrums are so arranged as to allow the springs *F* and *F'* sufficient leverage to resist any shock and carry the load evenly and safely over a point where a jolt may occur. The springs *F F'* need not be permanently fastened in place in the fulcrums, as the weight of the carriage-body will, under all ordinary circumstances, hold the body and the fulcrums down against the springs. Any pressure from the axle upward to the side-bar springs *F F'* is at once stayed, as the parts of the springs outside of the fulcrums operate as levers and cause the inner ends of the springs *F F'* to draw downward upon the main equalizing-spring *E* at the points of attachment, and thus leave the load at rest. Should the pressure be from above, all the springs would operate correspondingly and hold the body even on both sides alike.

What I claim is—

1. The combination, with the side-bar frame *A A' B B'* and the carriage-body frame *C C' D D'*, of the main equalizing-spring *E*, secured at both ends to the body-frame, the springs *F F'*, secured respectively at their outer ends

to the side bars, and at their inner ends connected to the main equalizing-spring E, and the spring-fulcrums H H', substantially as set forth.

5 2. The combination, with the side-bar frame and the carriage-body frame, of the main equalizing-spring A, secured to the body-frame, the side-bar springs F F', connected at their inner ends to the equalizing-spring E by the lateral
10 extension-pieces G G, and secured at their outer ends to the side-bars, as set forth.

3. The combination, with the side-bar frame and the carriage-body frame, of the main equal-

izing-spring E, secured to the carriage-body frame, the side-bar springs F F', secured to 15 the side bars, respectively, at their outer ends, and to the spring E at their inner ends, and the fulcrums H H', having seats to retain the springs F F', but being loosely connected therewith, substantially as set forth. 20

In testimony whereof I affix my signature in presence of two witnesses.

JAMES F. SHAW.

Witnesses:

FRED J. PRATT,
ABRAHAM LIMCOX.