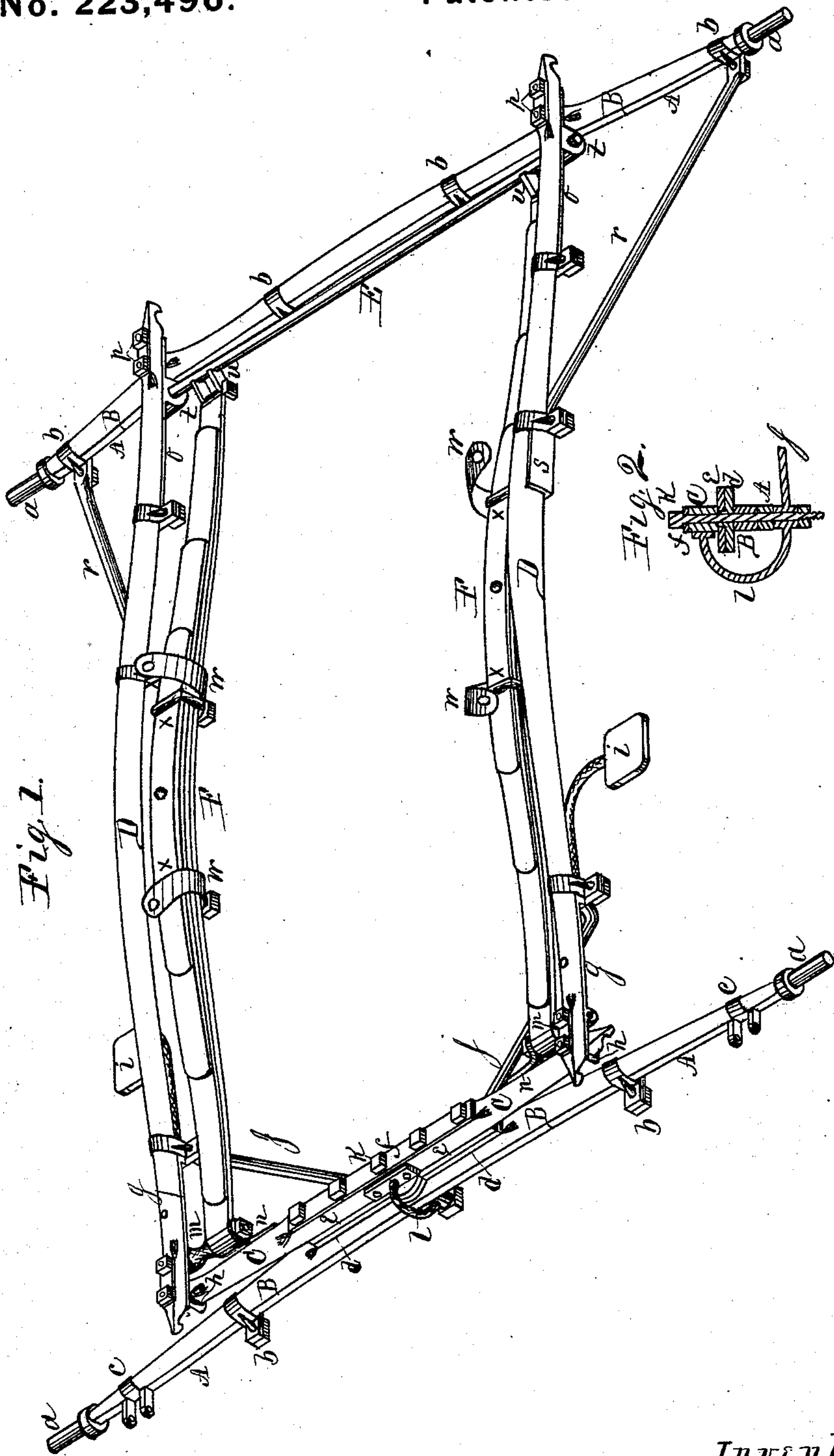


E. FORD & J. T. FELLOWS.
Side-Bar Vehicle.

No. 223,496.

Patented Jan. 13, 1880.



Witnesses.

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UNITED STATES PATENT OFFICE.

EUGENE FORD AND JOHN T. FELLOWS, OF ROCKFORD, ILLINOIS.

SIDE-BAR VEHICLE.

SPECIFICATION forming part of Letters Patent No. 223,496, dated January 13, 1880.

Application filed April 29, 1879.

To all whom it may concern :

Be it known that we, EUGENE FORD and JOHN T. FELLOWS, of the city of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Improvement in Side-Bar Vehicles, of which the following is a specification.

This invention relates to that class generally known as "side-bar" vehicles, usually employed in pleasure and speeding carriages.

The object of this invention is to produce a gear for vehicles in which the elastic properties of the springs employed may be utilized throughout their entire length, and to embody therewith what is known in the art as the "equalizing feature," by means of which the vertical movements of the spring will to a considerable extent be in unison, and to prevent the endwise swinging or jutting movement of the body mounted on the springs common in this class of vehicle. These and other features, hereinafter to be described, in connection with the devices employed and their several combinations, form the subject-matter of this specification.

In the drawings, Figure 1 is an isometrical representation of a vehicle-gear embodying our invention. Fig. 2 is a central vertical transverse section through the king-bolt connection of the bolster with the forward axle-tree.

In the figures, A represents the iron portion of the axle-tree, having its outer ends, *a*, made in spindle form to receive the carrying-wheels to revolve thereon. B represents the wood portion of the axle-tree fitted to the upper face of the iron portion. These parts are bound and held to each other by suitable screw-clips represented at *b* and *c*. The clips *c*, however, are provided with ears projecting from the forward side of the axle-tree, and are adapted to receive the thill or pole irons. These parts, in every particular, are substantially the same as like parts employed in the manufacture of vehicles of this and other styles. The upper face center of the forward axle-tree is provided with a metallic joint-plate, *d*, firmly fixed thereto by sufficient screw-bolts. The center of the plate is provided with a hole to receive a king-bolt, and is surrounded with an uprising rim or boss, which enters a hole prepared for its reception in the center of

the upper portion, *e*, of the metallic joint-plates.

U is a bolster, substantially the same as bolsters now in common use, and to its under face is fixed the metallic joint-plate *e* by means of screw-bolts which pass through a suitable metallic plate, *f*, placed upon its upper face side, through the bolster, and into the joint-plate, which fix these parts firmly to each other. D represents side bars, which are of the usual form. The under faces of their forward ends are fitted with a metallic connecting-plate, *g*, the forward end of which enters between the forward ends of the side bars and the outer ends of the bolster, at which points these parts are firmly fixed to each other by means of screw-stirrup bolts *h*, which embrace the outer ends of the bolster, and their screw ends pass upward through the connecting-plates and through the side bars and receive screw-nuts, by which the parts are clamped and firmly held to each other. The rear ends of the connecting-plates *g* are extended, curving down and outward, and are fitted with a step, *i*. These step portions of the plates are fixed to the side bars by a screw-clip having its screw ends passed through the T-formed rear end of the braces *j*.

The forward ends of the braces *j* meet on the under center of the forward axle-tree, at which point they are formed to receive the king-bolt *k*, which is passed centrally through the bolster and axle-tree to connect the parts.

l is a forward central arm of the braces *j*, which extends in front of the axle-tree, curving upward, having its end portion fitted in T form to meet the front face of the bolster, to which it is secured by suitable screw-bolts. *m* are spring-supporting arms, which project from the inner edge of the connecting-plates *g* immediately in rear of the bolster. These arms are fitted to receive the forward end of a side spring, and their inner ends are supported in the rearward-projecting portion of the curved brackets *n*, which are fixed to the rear face of the bolster.

The rear ends of the side bars are provided on their under side with a connecting-plate, *o*, which enters between it and the axle-tree. These parts are firmly fixed to each other by means of a screw-stirrup, *p*, which embraces

the axle-tree, having its screw ends pass upward through the connecting-plate and side bar and receive screw-nuts, by which the parts are clamped and firmly held to each other.

5 The forward ends of these connecting-plates *o* are fixed to the side bars by a screw-clip in the usual manner of securing such work in the manufacture of carriages.

r represents braces, the rear ends of which
10 are fixed to the outer portion of the rear axle-tree by the screw-clips which fix the wood and iron portions thereof to each other. The forward ends of the braces *r* are made in angle-plate form, as at *s*, to embrace the lower outer
15 angle of the side bars, to serve as rub-irons to protect the wood from the grinding action of the wheels in turning, and are also formed with a cross-bar, which receives the depending screw ends of a screw-clip, by which they are
20 fixed in place on the bars. These braces, in connection with the forward braces, *j*, serve to hold the gear in a rectangular form and to counteract any action tending to change it therefrom.

25 The connecting-plates *o* are formed with bearings *t*, depending from their under sides immediately forward of the axle-tree. These bearings are bored to receive the journal ends of the equalizing-bar *E* in such a manner as to
30 oscillate therein freely. This equalizing-bar *E* is fitted with ears *u*, which project therefrom immediately inside of the side bars. These projecting ears are adapted to receive the rear ends of a side spring, and are bored near their
35 free ends to receive a pivot-bolt.

F are side springs, constructed of leaves from plate-bar material in the usual manner, having their forward ends formed with eyes to receive the spring-supporting arms *m*, and
40 their rear ends formed with eyes to enter between the ears *u* and receive a suitable pivot-bolt, which is passed through the ears and springs. *w* are seat or body supports, preferably made from spring material in the curved
45 form represented in the drawings, and are fixed to the springs at proper intervals by means of screw-clamping stirrups *x*, fitted to embrace the springs, having their screw-arms passing through that portion of the supports on the
50 under side of the springs, and fitted with screw-nuts, by means of which the supports are held in position on the springs. These supports are designed to receive the body or seat on their upper out-curving ends, and fixed

in position thereon by means of suitable screw- 55 bolts.

From the foregoing description it will be seen that in the use of the bolster-plates the draft-force will be exerted on the plate-connections, which will relieve the king-bolt from 60 draft-strain, and, in the unyielding forward connection of the springs with the forward connecting-plates of the side bars and with the bolster, prevent the usual unsatisfactory endwise swinging or jutting movement of 65 the seat or body mounted on the springs; and in the employment of the equalizing-bar connection of their rear ends with the connecting-plates of the side bars we retain all the benefits arising from this feature with- 70 out exerting any force therefrom on the connection of the side bars with the rear axle-tree; and by means of the seat or body supports fixed to the springs to relieve their centers we utilize the elasticity of the springs 75 throughout their entire length. By placing the springs inside of the side bars we relieve them from coming in contact with the wheels in turning.

These and other advantages herein described, 80 in connection with the construction and the devices employed, enable us to produce a superior side-bar vehicle at a small cost.

We claim as our invention—

1. The combination, with the rear axle and 85 side bars secured thereto, of connecting-plates provided with depending bearings, said plates secured to the under side of the side bars and upper surfaces of the rear axle, and an equalizing-bar, the ends of which are supported in 90 the depending bearings of said connecting-plates, substantially as set forth.

2. The combination, with the side spring and side bar of a side-bar vehicle, of a connecting-plate secured to the under side of the 95 side bar, and provided at one end with a bearing for the end of the spring and at its opposite end with a step, substantially as set forth.

3. As a new article of manufacture, a plate provided with a spring-supporting arm on one 100 end and a vehicle-step on its opposite end, substantially as set forth.

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Witnesses:

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