3 Sheets—Sheet 1.

E. D. WELLER.

RUNNING-GEAR FOR VEHICLES.

No. 185,992. Patented Jan. 2, 1877.

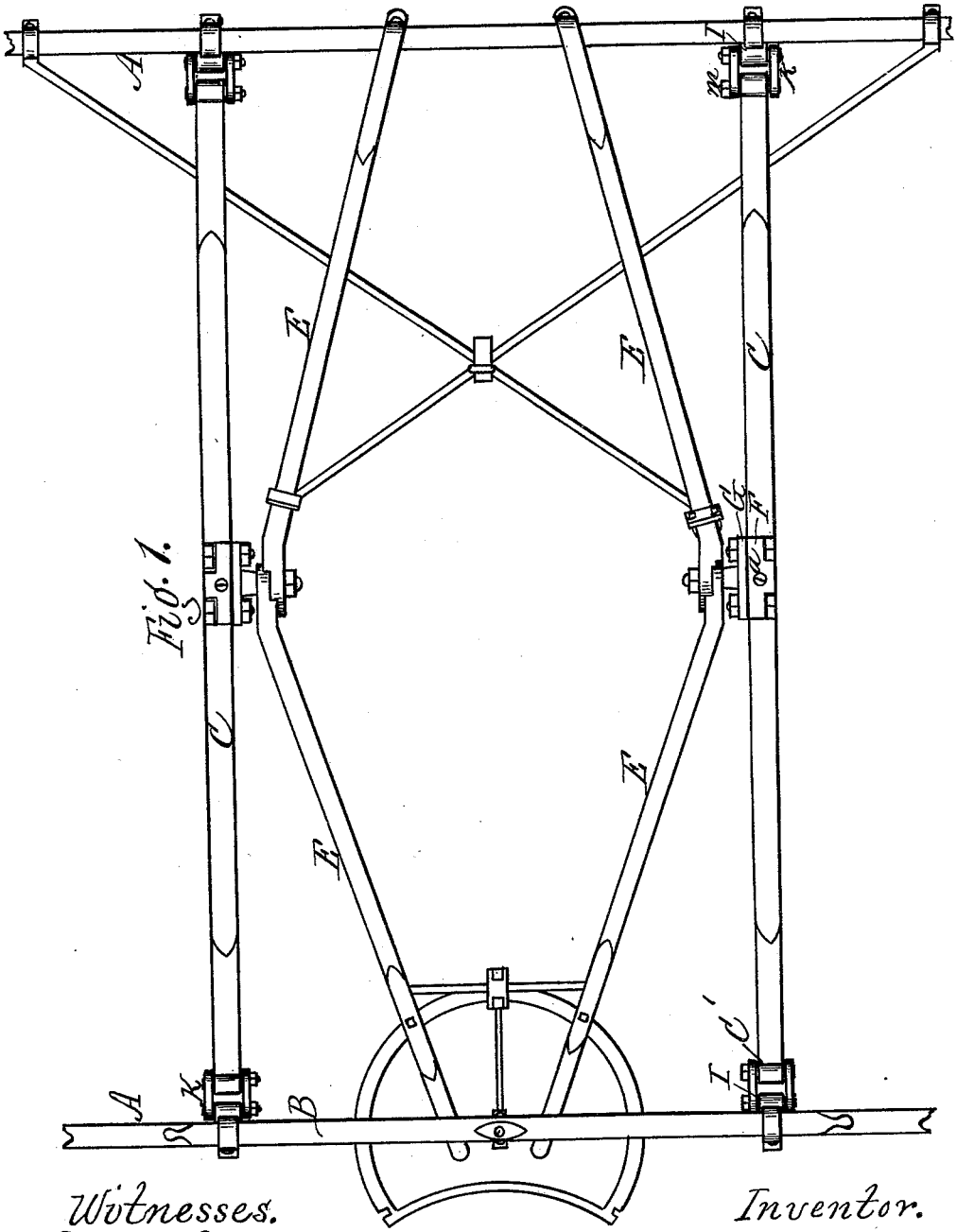

Fig. 1.

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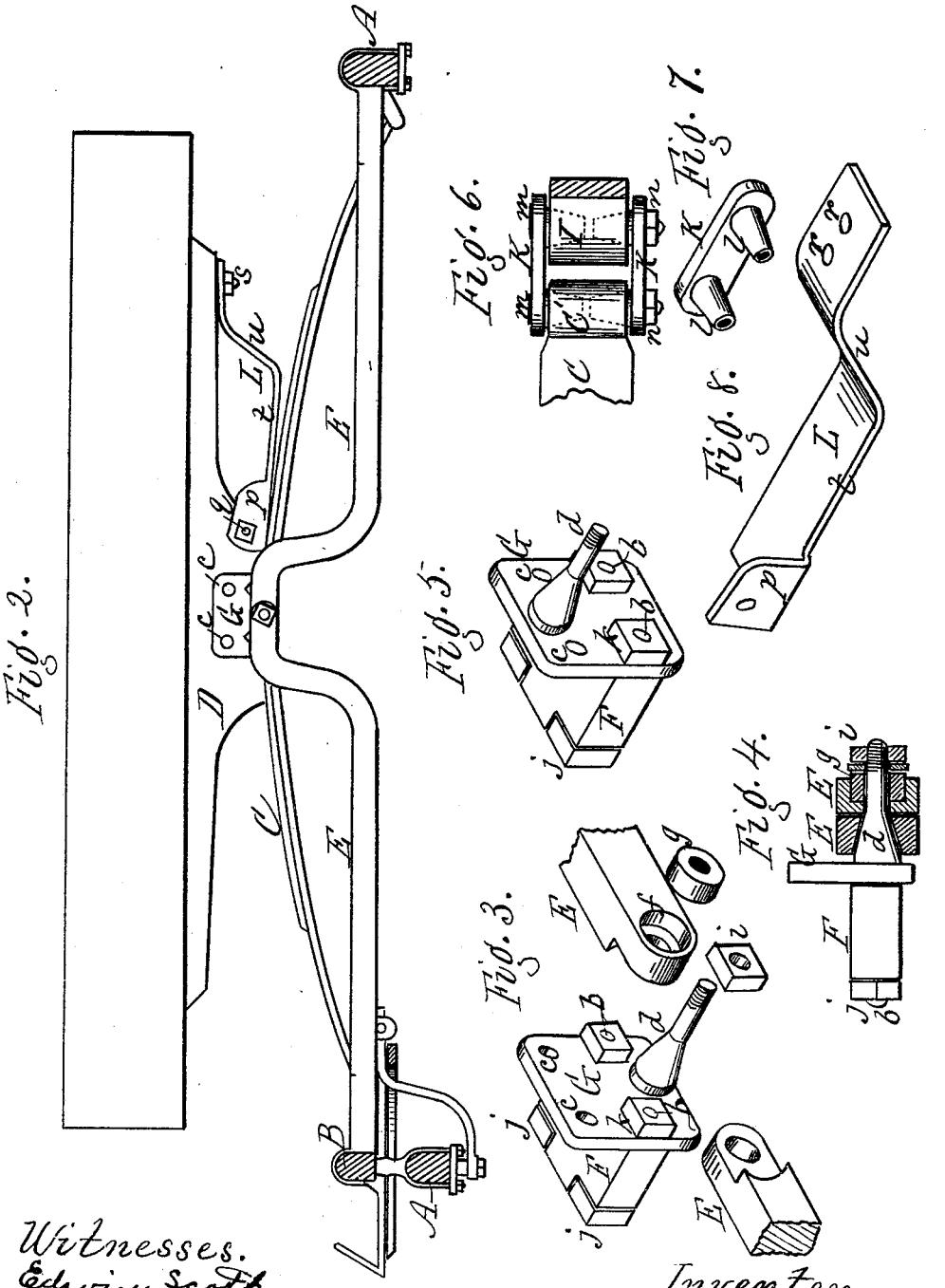

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Fig. 10.

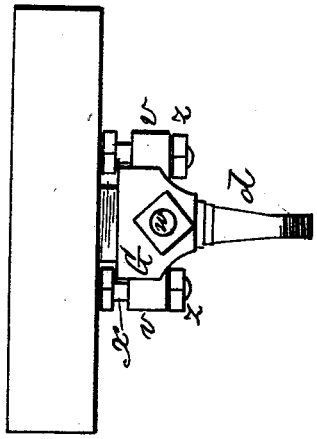
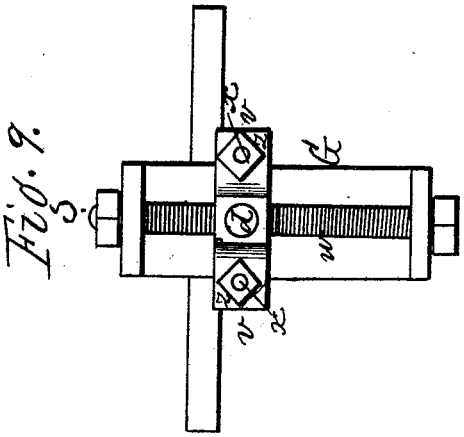


Fig. 9.



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UNITED STATES PATENT OFFICE.

EUGENE D. WELLER, OF LIMA, NEW YORK.

IMPROVEMENT IN RUNNING-GEAR FOR VEHICLES.

Specification forming part of Letters Patent No. **185,992**, dated January 2, 1877; application filed June 6, 1876.

To all whom it may concern:

Be it known that I, EUGENE D. WELLER, of Lima, in the county of Livingston and State of New York, have invented certain new and useful Improvement in Running-Gear for Vehicles; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan with the wagon-body and side bars removed from place. Fig. 2 is a longitudinal vertical section. Figs. 3, 4, 5, 6, 7, and 8 are detail views. Figs. 9 and 10 are modifications.

In general construction this invention is similar to that patented by me August 19, 1873, and is an improvement upon the same.

The invention consists in the construction and arrangement of the parts hereinafter described and specifically claimed.

In the drawings, A A represent the axles. B is the bolster. C C are the side springs, and D D are the side bars, resting on top of the springs and supporting the wagon-body. E E are half-perches, made fast at the rear and front, respectively to the axle and bolster, and jointed centrally or intermediately to bearings made fast to the side springs. Four of these half-perches are used, (two on each side,) corresponding in position with the ordinary stiff reaches of a double-reach carriage.

F F, Figs. 1, 3, and 5, are blocks attached centrally on top of the side springs by single bolts *a*. G G are the bearing-plates for the attachment of the half-perches. These plates are formed separate and independent from the blocks F F, but are attached to the latter by two bolts, *b b*, passing bodily through the the blocks, having heads *j j* on one side, and nuts *k k* on the other. The outer edges of the blocks are countersunk or notched in to seat the heads flush with the block, as shown in Figs. 3 and 5. The plates G are provided with one or more sets of holes, *c c*, and also with the bearing-journal *d*, to receive the ends of the half-reaches. When the plate G has one set of holes, they are located out of line with the bearing, so that the bearing may be made to project above or below the spring by simply inverting the plate, the same holes answering for the attachment to the block F, as before described. The successive sets of holes, more than one set, are all upon the same side of the bearing, and at any desired distance apart. The desired adjustment in height of the perches is thus obtained by simply inverting the plate G. The object of this adjustment is to enable the perches to maintain a substantially horizontal position under different weights of load.

The bearing *d* is extended sufficiently to take the ends of both half-perches. It is made conical as far as the thickness of the first perch E, fitting upon it, and then is made straight the remainder of the distance, to receive the second perch and the nut. The ends of the perches are halved or notched in the form of a rule-joint, as shown in Fig. 3. The outside edge of the outer reach has a socket, *f*, formed in it, in which rests a rubber, metal, or other spring, *g*, the whole secured by a nut, *i*. The pressure of the spring will constantly bear the ends of the perches upon the bearing, thereby preventing rattling.

I I are solid shackle-heads, clipped, bolted, or otherwise attached to the axle at the rear and the bolster in front. These serve as the attachment for the side springs. The heads of the shackles are first bored with a straight hole, to admit the passage of the bolt. They are then countersunk or reamed out on each side in conical form, to receive the cones of the half-links, as will presently be described. The eyes C′ C′ of the springs are similarly prepared, by first boring the straight hole, and then countersinking on each side. To enable this to be done, said eyes are formed by bending the ends of the steel around iron center-pieces, and welding the whole together. This leaves a soft center, which can be bored, which could not be done if the whole eye were solid steel. It also secures greater strength, with less danger of separation than where the steel is simply bent around.

K K are the half-links, of which one is used on each side. Each of these half-links has two hollow cones, *l l*, which enter the countersunk conical holes in the shackle and spring-eye, just described. When in place they reach nearly to the center. They are secured by bolts *m*, headed on one end and provided

with nuts *n n* on the other, by which the half-links are tightened closely up to place, making a close joint and preventing any looseness or rattling. The half-links are formed separate, so as to be case-hardened, by which great hardness and long wear are secured. The cones of the links take all, or nearly all, the strain, since they form the bearings in the eye and shackle. The bolts, therefore, receive but little strain and serve simply to hold the parts together.

The double-jointed shackles are necessary to allow the perches to be adjusted higher or lower, since the ends of the perches rest upon the same center. In adjusting higher or lower the perches must be drawn in or let out. The shackles compensate for such movement.

L L are adjustable plates or stiffeners to the springs used on each side at the rear or front. They consist each of a strip of metal extending from the side bar or body bearing forward and back a suitable distance over the spring. At the inner end the plate rests closely between the side bar and spring at their junction, so as to have a bearing there. It also has a lug, *p*, which is attached to the inside of the side bar by a bolt, *q*. This bolt makes the attachment a fixture to the side-bar at its inner end. At the outer end the plate has two or more holes, *r r*, through which passes a bolt, *s*, securing this end to the bottom of the side bar.

From the inner end the plate extends outward over the spring the desired length to produce the contact-bearing, as shown at *t*, and from this point it turns up to meet the side bar, as shown at *u*. When pressure is applied upon the carriage, the plate gradually closes down upon the spring from the inner to the outer end of the length *t*, thereby stiffening the spring to that extent. By shifting the bolt *s* to one or another of the holes *r r* the plate will be more or less straightened, and consequently it will be more or less remote from the spring. By this adjustment the spring can be stiffened at any point of depression desired.

In Figs. 9 and 10 are shown devices equivalent to the reversible bearing-plates G for adjusting the half-perches higher or lower. In this case the plate G is made of considerable length, and the bearing *d* is attached to a bar, *v*, which is adjusted up and down by a screw shaft, *w*, which passes through the bar. The bar is secured fast at any adjustment by headed bolts *x x* with nuts *z z*, as shown.

I do not claim, broadly, a shackle-coupling with separate cones entering the countersunk sides of the spring-eye.

What I claim herein as new is—

1. The blocks F and plates G, formed separately and connected by bolts *b b*, passing bodily through the blocks, and having heads countersunk into the blocks flush with the outer surface, as shown and described, and for the purpose specified.

2. The plate G, constructed with the extended bearing *d*, to receive the ends of the half-perches, and with two or more sets of holes, *c c*, as described, whereby the plate may be inverted for changing the adjustment of the bearing, as and for the purpose specified.

3. The combination, with the bearing *d*, provided with the conical or tapering portion *e*, and straight portion *j*, of the two half-perches, E E, resting thereon and connected by a rule-joint, as shown and described, and for the purpose specified.

4. The combination, with the countersunk shackle I and spring-eye C′, of the half-links K K, constructed with the hollow case-hardened bearing-cones *l l*, at opposite ends, entering the countersinks of the shackle and spring-eye, and secured by the bolts *m m* and nuts *n n*, the whole forming a double-jointed shackle-coupling, as shown and described, and for the purpose specified.

5. The combination, with the side bar D and spring C, of the adjusting-plate L, fitted at one end between the side bar and spring, and attached at the other end to the under side of the side bar, as shown and described, and for the purpose specified.

6. The adjusting-plate L, constructed with the lug *p* at one end, for bolting the same to the inside of the side bar, and with two or more holes, *r r*, at the other end, for bolting to the bottom of the spring-bar, as shown and described, and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

E. D. WELLER.

Witnesses:
R. F. OSGOOD,
EDWIN SCOTT.