(No Model.) 2 Sheets—Sheet 1.

R. W. & D. DAVIS.

Running Gear for Wagons.

No. 231,545. **Patented Aug. 24, 1880.**

Fig. 1.

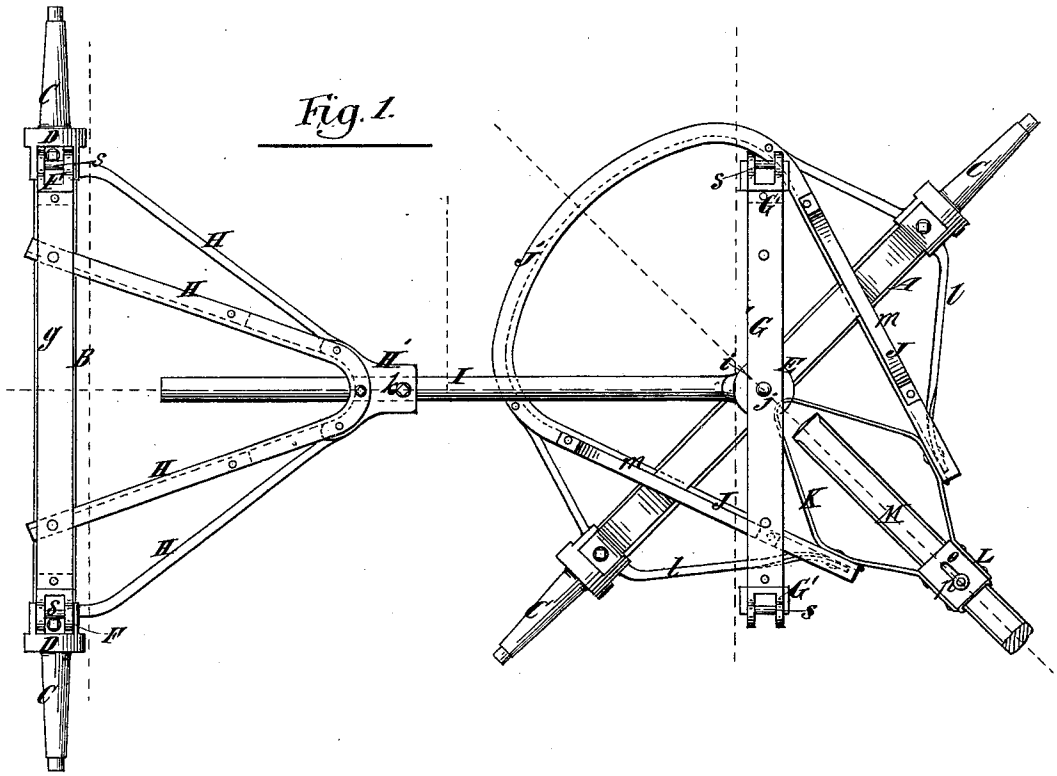
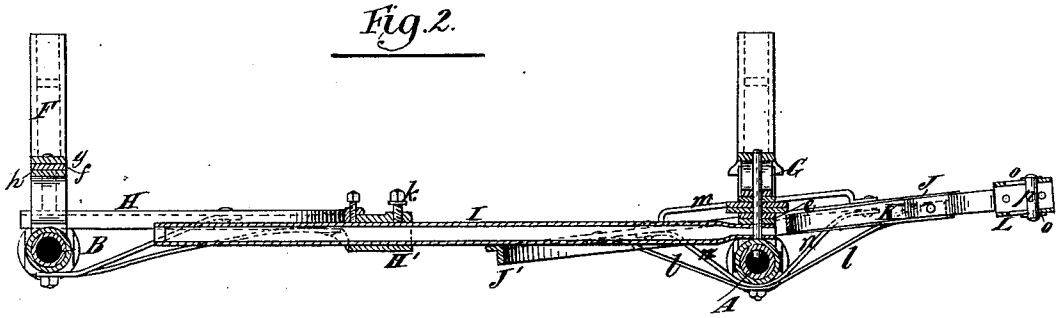


Fig. 2.



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by Fred F. Haynes

Inventor:-

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Daniel Davis
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 5.

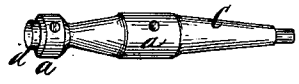


Fig. 3.

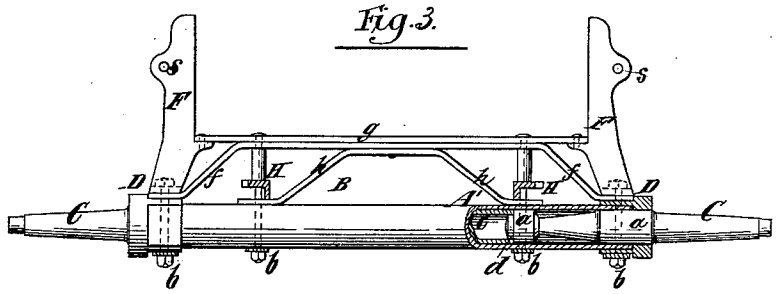
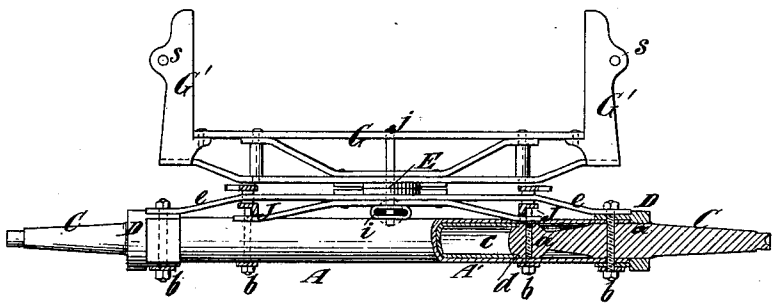


Fig. 4.



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UNITED STATES PATENT OFFICE.

ROBERT W. DAVIS AND DANIEL DAVIS, OF ELMIRA, NEW YORK, ASSIGNORS TO THE DAVIS IRON WAGON COMPANY.

RUNNING-GEAR FOR WAGONS.

SPECIFICATION forming part of Letters Patent No. 231,545, dated August 24, 1880.

Application filed May 22, 1880. (No model.)

To all whom it may concern:

Be it known that we, ROBERT W. DAVIS and DANIEL DAVIS, both of Elmira, in the county of Chemung and State of New York, have invented certain new and useful Improvements in Wagon-Gear, of which the following is a specification.

The object of our invention is to provide a wagon-gear made entirely of iron, of simple and durable construction, and in which novel provision is afforded for the adjustment of certain parts.

Certain of our improvements consist in a novel construction of the axles of a wagon-gear, of a tubular body portion, and arms or stubs inserted into and secured in the ends thereof in a novel manner, and forming the journals for the wheels.

Another improvement consists in the combination, in a wagon-gear, with the two axles, of braces projecting forward from the rear axle and converging toward and connected to a socket at their inner ends, a reach extending from the center bearing of the front axle inserted into said socket and capable of longitudinal adjustment therein, and means for securing it in position after adjustment.

Another improvement consists in the combination, with the hounds, of a novel means of securing the tongue or pole between them, so as to prevent its side movement or lashing when one of the front wheels strikes an obstacle.

In the accompanying drawings, Figure 1 represents a plan of a wagon-gear constructed according to our invention. Fig. 2 represents a longitudinal section through the same. Fig. 3 represents a side view, partly in section, of the rear axle and bolster. Fig. 4 represents a similar view of the front axle and its bolster, and Fig. 5 represents a detail perspective view of one of the axle arms or stubs detached from the tubular main portion.

Similar letters of reference designate corresponding parts in all the figures.

A and B designate, respectively, the front and rear axles of a wagon-gear, both of which are of similar construction. These axles are composed of a main or body portion, A′, of tubular form, and arms or stubs C, inserted into and secured in place in the ends of said tubular portion. The manner of securing them is shown clearly in Figs. 3 and 4, which comprise a partial section of the axles.

The stubs or arms C, which form the journals for the wheels, are constructed with two cylindrical or enlarged portions, *a*, fitting snugly within the tubular portion A′, and the part between the two portions *a* made smaller in diameter, so that the fitting of the stub or arm to the tubular portion may be easily done. Transversely through the tubular portion A′ and the cylindrical or enlarged portions *a* are inserted bolts *b*, which hold the stubs or arms securely in place.

Within the tubular portion A′ is preferably secured a second tube, *c*, into which the inner ends of the stubs or arms C fit; and, as clearly shown in Figs. 3 and 4, said stubs or arms are constructed each with a shoulder, *d*, abutting against the end of the tube *c*. This construction greatly strengthens the axles, and at the same time regulates the distance between the stubs or arms, and if said stubs or arms and tube are of exact uniform lengths, they insure the proper length of the axles.

Upon the ends of the tubular portions A′ of the axles are collars D, which also fit partly upon the stubs or arms C. These collars prevent the splitting of the tubes A′, and also form shoulders against which the hubs of the wheels bear, and afford provision for the attachment of the ends of the plate *e* of the front axle, which forms a support for the front center-bearing, E, and the plate *f* of the back or rear axle, which constitutes a part of the back bolster.

The back bolster, as shown clearly in Fig. 3, is composed of an upper plate, *g*, having its end portions secured to the stakes F, the plate *f*, secured at the ends to the collars D, and the under plate, *h*, having its end portions deflected and secured to the axle by the bolts *b*, which hold the stubs or arms C in the rear axle. The stakes F, to which the ends of the plate *g* are secured, are bolted at the base upon the collars D above the ends of the plate *f*, and a very strong bolster is thereby secured.

Both the stakes F and G′ are constructed of malleable iron hollow upon their outer sides,

as seen in Fig. 1, and the stakes G′ are constructed with flanges which rest upon the plates of the bolster G and afford provision for securing the said plates to the stakes. Both the stakes F and G′ are furnished, near their upper ends, with cross-pins *s*, which are employed in place of the ordinary rings, and which provide for holding a false stake in place, if it is desired to lengthen the stakes F and G′.

The front bolster, G, and the support for it upon the axle A are constructed of a skeleton frame-work of iron plates, which are not comprised in this invention.

From the rear axle, B, there projects a system of braces, H, all of which converge and are attached to a central socket, H′, and I designates a reach extending from the front center-bearing, E, and inserted into said socket. The reach I is here represented as tubular, and has its front end flattened at *i*, so as to be conveniently attached to the center-pin or king-bolt *j*.

The socket H′ is furnished with a set-screw, *k*, and after the reach I is adjusted to bring the axles a proper distance apart, the set-screw may be tightened up to hold the reach securely in place.

This construction affords provision for adjusting the axles to suit different lengths of wagon-boxes.

The hounds J are formed by a single piece of angle-iron bent so as to form a brace and connection, J′, between the hounds at the back, thereby securing great strength. The hounds are secured to the axle A by braces *l m n*. (Shown clearly in Figs. 1 and 2.)

K designates a skeleton-frame pivoted between the hounds, and provided with a socket, L, at its outer end, in which the tongue or pole M is inserted. As shown clearly in Figs. 1 and 2, the socket L is constructed with a slot, *o*, in its top and bottom, and the pole is secured therein by a pin, *p*, fitting tightly in the hole, but adapted to slide back and forward in the slots *o*.

It will be seen that the frame K is constructed opposite to the socket L with a peak or angular formation, as shown clearly in Fig. 1, and that the back end of the pole fits therein. This construction in a great measure obviates the side movement or lashing of the pole produced by the front wheels striking any obstacle as the pole is drawn slightly out of said peak when going ahead, and is capable of side movement; but in backing the pole is thrust into said peak and properly centered thereby.

It is obvious that the construction of the axles with the tubular portion and the detachable stubs or arms permits of either of the stubs or arms being easily removed and replaced in case of breakage.

By our invention we provide a wagon-gear which is very strong and durable, and in which proper provision is made for the adjustment of the parts thereof.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination, in an axle, of a body portion composed of inner and outer tubes, the outer tube projecting beyond the inner one at each end, and stubs or arms fitting and secured in the projecting ends of the outer tube, and having their ends also inserted slightly into the inner tube, substantially as specified.

2. The combination, in an axle, of the inner and outer tubes, *c* A′, stubs or arms C, collars D, fitting partly upon the tube A′ and partly upon the arms or stubs C, and bolts *b*, inserted through said collar, tube, and stub or arm, substantially as specified.

3. The combination of the axle B, the collars D, the stakes F, resting upon said collars, the plate *f*, deflected at the ends and inserted between the collars and stakes, and the plate *g*, secured to the plate *f*, and secured at the ends to the stakes F, all substantially as specified.

4. The combination, with the rear and front axles, of a series of braces projecting forward from the rear axle, a central socket toward which said braces converge and to which their ends are attached, a reach connected with the center bearing of the front axle, inserted and adapted to be longitudinally adjusted in said socket, and a fastening for securing the reach when so adjusted longitudinally, substantially as specified.

5. The combination of the hounds J J, the frame K, comprising the socket L and having a peak or angular formation opposite said socket, and the pole M, inserted and secured in said socket, but having a slight longitudinal movement therein, and having its end inserted in the peak or angle of said frame, substantially as and for the purpose specified.

ROBT. W. DAVIS.
DANIEL DAVIS.

Witnesses:
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FREDK. HAYNES.