J. FOX.

Running-Gear.

No. 9,183. Patented Aug. 10, 1852.

Fig. 3.

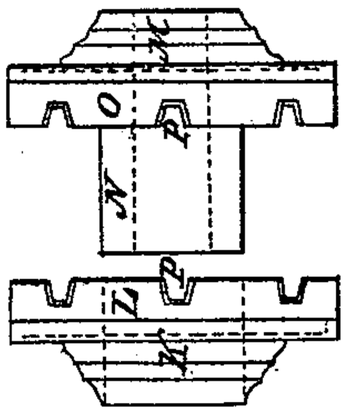
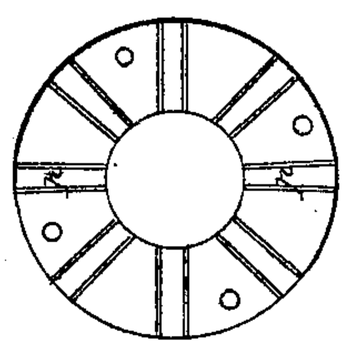


Fig. 4.



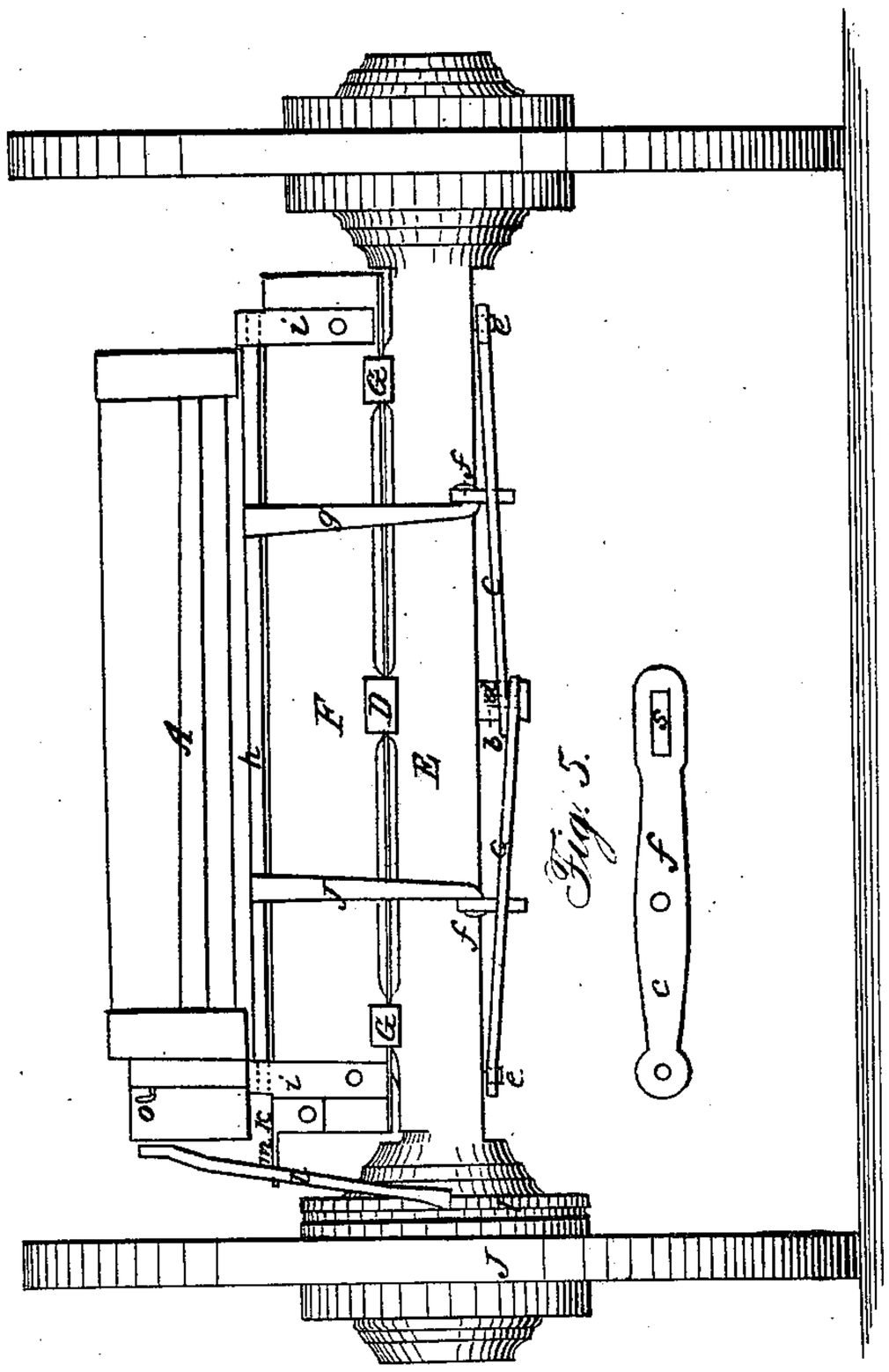
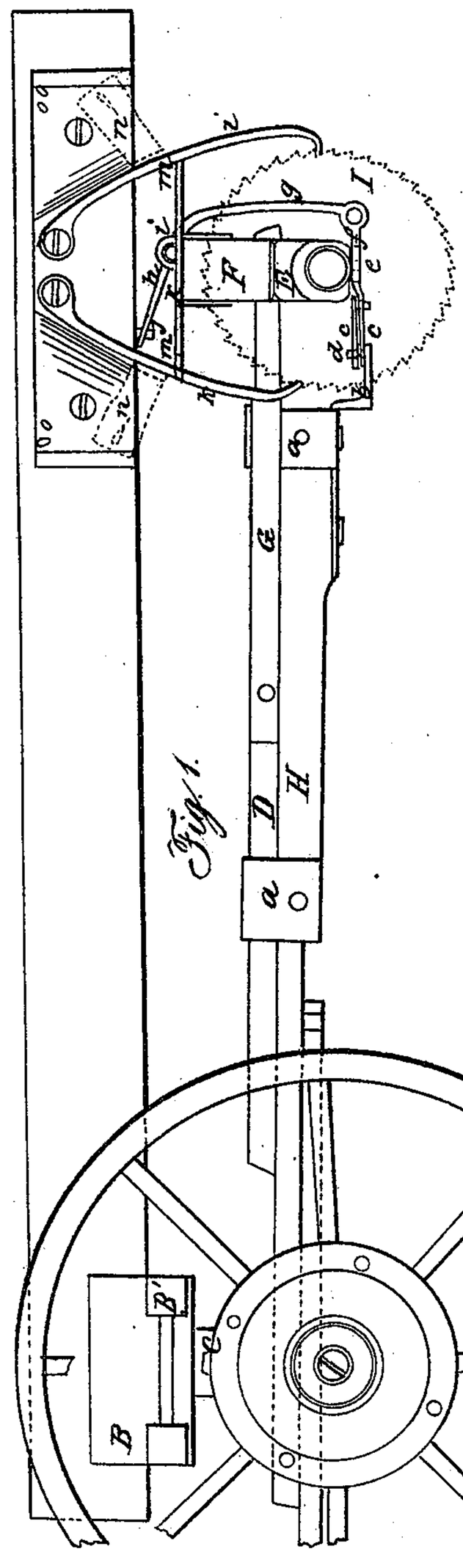


Fig. 5.

Fig. 1.



UNITED STATES PATENT OFFICE.

JONATHAN FOX, OF MANCHESTER, NEW JERSEY.

CARRIAGE.

Specification of Letters Patent No. 9,183, dated August 10, 1852.

To all whom it may concern:

Be it known that I, JONATHAN FOX, of Manchester, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Wagons and other Carriages; and I do hereby declare that the same is described and represented in the following specification and accompanying drawings.

Figure 1 is an elevation of the side of a wagon, the hind wheel omitted. Fig. 2 is an elevation of the back end. Fig. 3, a hub, and Fig. 4 one of the disks of wood forming part of the hub.

The hubs of carriage wheels have long been made of cast iron, being cast in one piece, with holes for the spokes; but the ends of the spokes being inserted in the cast iron or metallic hub in contact with and surrounded by metal the expansion and contraction of the metal caused by changes of temperature and the swelling and shrinking of the wood from its being alternately wet and dry soon make the spokes work loose, and the iron chafes and wears away the wood, so that the wheel soon fails entirely. To remedy these defects, I make a hub by casting a tube for the axle with a circular disk or flange around it and casting a disk similar to the one just mentioned to fit on the tube, so as to correspond to the flange, and then making two disks of wood to fit on the tube, one being fitted to each of the iron disks and both having scores cut in them corresponding each to each for the spokes and the ends of the spokes being made to fit the scores, but a little wider than the depth of two corresponding scores, so that when the wooden disks are put upon the tube between the iron disks and the spokes are put in and the disks are drawn together by bolts passing through them they will bind the spokes and hold them, the wooden disks supporting the spokes, so that nothing but the ends of them come in contact with the iron; hence the iron cannot chafe them or wear them away on the sides, and being in contact with wood the whole will swell and shrink together and the spokes will not work loose or wear out so quickly as when the sides of the spokes come in contact with the iron. Besides, if there is any indication of the spokes getting loose the bolts may be turned to draw the disks together and tighten them, and as the scores in the wooden disks are cut rather wider at the face than at the bottom and each edge of the spoke is wedge shaped to fit it, when the disks are drawn up by the bolts they hold the spokes very firmly by pressing against sides and edges.

The second improvement consists in a combination of levers attached to the hind axle and connected to a sliding perch, so that if the front axle is drawn forward and there is sufficient resistance to check the hind axle the sliding perch operates the levers and raises the hind end of the bed or body of the wagon and of the load. At the same time a hook shaped pawl fastened to the body catches into a ratchet wheel upon the hub of the hind wheel and turns it forward and as the body descends another pawl catches into the ratchet and turns the wheel still farther. As the pawls act upon the wheel at some distance from the center the team turns the wheel more easily and draws it over obstructions with less exertion. It is also easier to start a load at rest with the above mentioned fixtures than without them.

To enable others skilled in the art to make and use my improvements I will proceed to describe their construction and operation referring to the above mentioned drawings, in which the same letters indicate like parts in all of the figures.

A is the bed or body of the wagon, its forepart being kept in place by the cleats B upon the frame B′ on which it rests and slides freely lengthwise, this frame being supported by the bolster C upon the fore axle.

D is a perch secured in the hind axle E and bolster F and stiffened by the hounds G G made and fastened to it in the usual manner. H is another perch fastened to the fore axle and sliding freely beneath the perch D, the two being held together by the iron straps *a*, *a* bolted to the lower one. An iron strap *b* projects backward from the end of the lower or sliding perch H and is connected to the two levers *c*, *c* by the pin *d*, which passes through the slots *s* (see Fig. 5) cut in their ends. These levers vibrate on the pivots *e*, *e* near the ends of the axle and are connected by the hooks *f*, *f* to the bent arms *g*, *g* projecting from and forming part of the lever *h* placed between the bed A and the bolster F. The lever *h* turns on pivots, represented by dotted lines, at its ends projecting into the eyes *i*, *i* fastened to the bolster F, and is connected to the bed A which rests upon it by the pins *j*, *j* projecting into it from the bed.

k and *l* are two pawls taking into the teeth of the ratchet I on the hub of the wheel J. This ratchet is represented in dotted lines in Fig. 1, where the wheel is omitted. Now when the wagon is at rest or is drawn on a level surface and meets with no considerable obstruction the weight of the load and the bed A will press the lever *h* down upon the bolster F, carrying the axle E forward to the perch H; but when on account of some obstruction or other cause the draft upon the hind truck is considerably or suddenly increased, the sliding perch H, by which the hind truck is drawn, will be moved forward from the hind axle, and drawing with it the two arms of the levers *c*, *c* and the hooks *f*, *f* it will act upon the arms *g*, *g*, so as to turn the lever *h* and raise the bed of the wagon with that part of the load resting upon the hind axle. At the same time the hook shaped pawl *l* catching in the ratchet I tends to turn the wheel forward and it is raised upon or passes over the obstruction. The draft then slackens and the bed with the weight of the load presses down the lever *h* and thus draws the axle E forward to the sliding perch H again. The pawl *k* at the same time acting upon the ratchet wheel, and thus urging it forward, aids in bringing the axle up to the sliding perch.

There is a plate K fastened to the top of the bolster F, having two notches *m*, *m* to guide the pawls *k* and *l*, and it may be so adjusted that when the bed presses the lever *h* entirely down upon the bolster the pawls will rest in the notches *m*, *m* clear of the ratchet. A strap *n* is also attached to each pawl, which being placed upon the hooks *o*, *o* will hold them or either of them entirely clear of the ratchet so that it may be turned backward or for any other purpose.

In Fig. 3 K′ is a cast metal disk to which the wooden disk L is fitted, there being a narrow projection on the metal disk that fits into a rabbet on the wooden one (represented by dotted lines), and M is the opposite disk with the tube or pipe N cast solid with it to project into the disk K′. A wooden disk O is fitted to it corresponding to the disk L and there are angular scores *p*, *p*, as represented in the drawing cut in each opposite to one another (see Fig. 4) for the spokes. One edge of each spoke (being made angular to fit) is placed in each of the scores *p*, *p* in the disk O with their ends pressing firmly against the tube N, and the other disk is then to be applied, so that the tube N may pass through it and the opposite edges of the spokes may be received into the scores in the disk L. These disks are then firmly secured together by bolts passing through them, and the width of the spokes being a little more than equal to the depth of both scores and the scores and spokes being made angular when the disks are drawn together by the bolts they press the spokes upon their inclined sides as well as edges and hold them very firmly. The pawls *k* and *l* prevent the wheel from turning the other way and the wagon from running back if the team stops when ascending a hill.

I contemplate using a roller or rollers on the rocker of the fore axle to facilitate the sliding of the body—also fastening the body to this rocker or bolster and using rollers in the ends of the short arms *h* of the lever to act against the bed or body, which may be kept from moving sidewise by appropriate or convenient fixtures.

I contemplate the application of my improvements to all kinds of carriages and a bent lever like *h*, *g* may be adjusted to railroad cars or canal boats, so as to raise a part of the load or freight and yield when the team or other moving power starts and partially relieve it from the sudden shock which it produced when the fastening or connection is firm and unyielding, and further the ends of the spokes that are inserted in the hub may be made straight with parallel sides and the scores in the hubs being made of a uniform width to fit them if that mode is preferred.

What I claim as my invention and desire to secure by Letters Patent, is—

1. Making the hubs of wheels of two disks of wood with angular scores cut in them to which the spokes are fitted; so that as the disks are drawn together they bind the sides as well as the edges of the spokes said disks of wood being fitted to and confined between two plates of metal substantially as described.

2. The sliding perch H in combination with the levers *c*, *c* and *g*, *h* ratchet wheel I and pawls *l* and *k* or such analogous devices equivalent to these as will raise the hind end of the body of the carriage and load when the hind axle stops while the fore one moves forward, the weight of the hind end of the body and load aiding as it descends in propelling the hind axle forward, the body being made to slide upon the rocker of the forward axle as described or otherwise.

3. The sliding perch H in combination with the levers *c c* and *g h* or such analogous devices equivalent thereto as will raise the load or a part of it when the team or moving power starts so as to partially relieve the team and carriage from the sudden jerk and shock to which it is subject when the connection is firm and unyielding.

In testimony whereof, I have hereunto signed my name before two subscribing witnesses.

JONATHAN FOX.

Witnesses:

S. TUTTLE,

PERIGRINE SANDFORD.