

L. D. BROWN.  
WHEEL VEHICLE.

No. 41,476.

Patented Feb. 9, 1864.

Fig. 1.

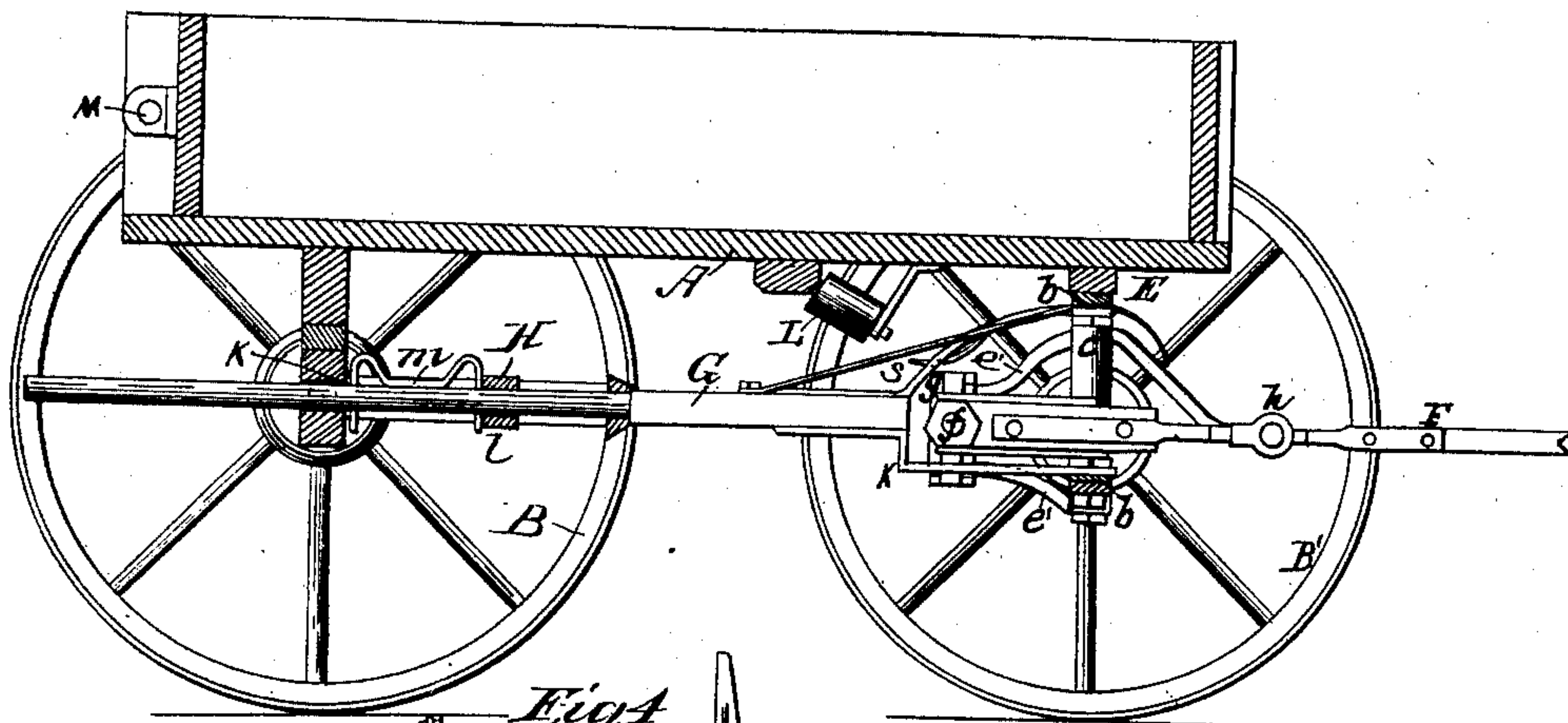


Fig. 4.

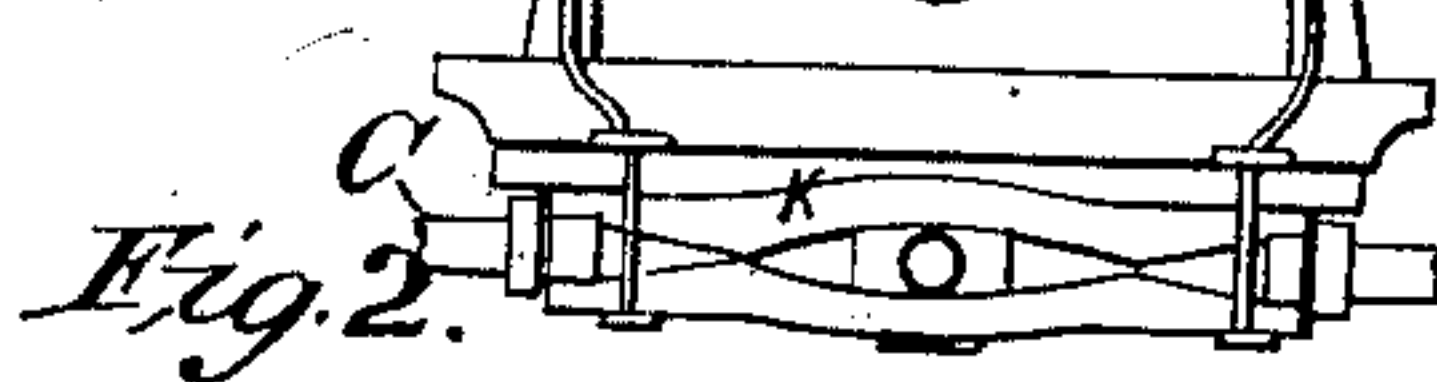
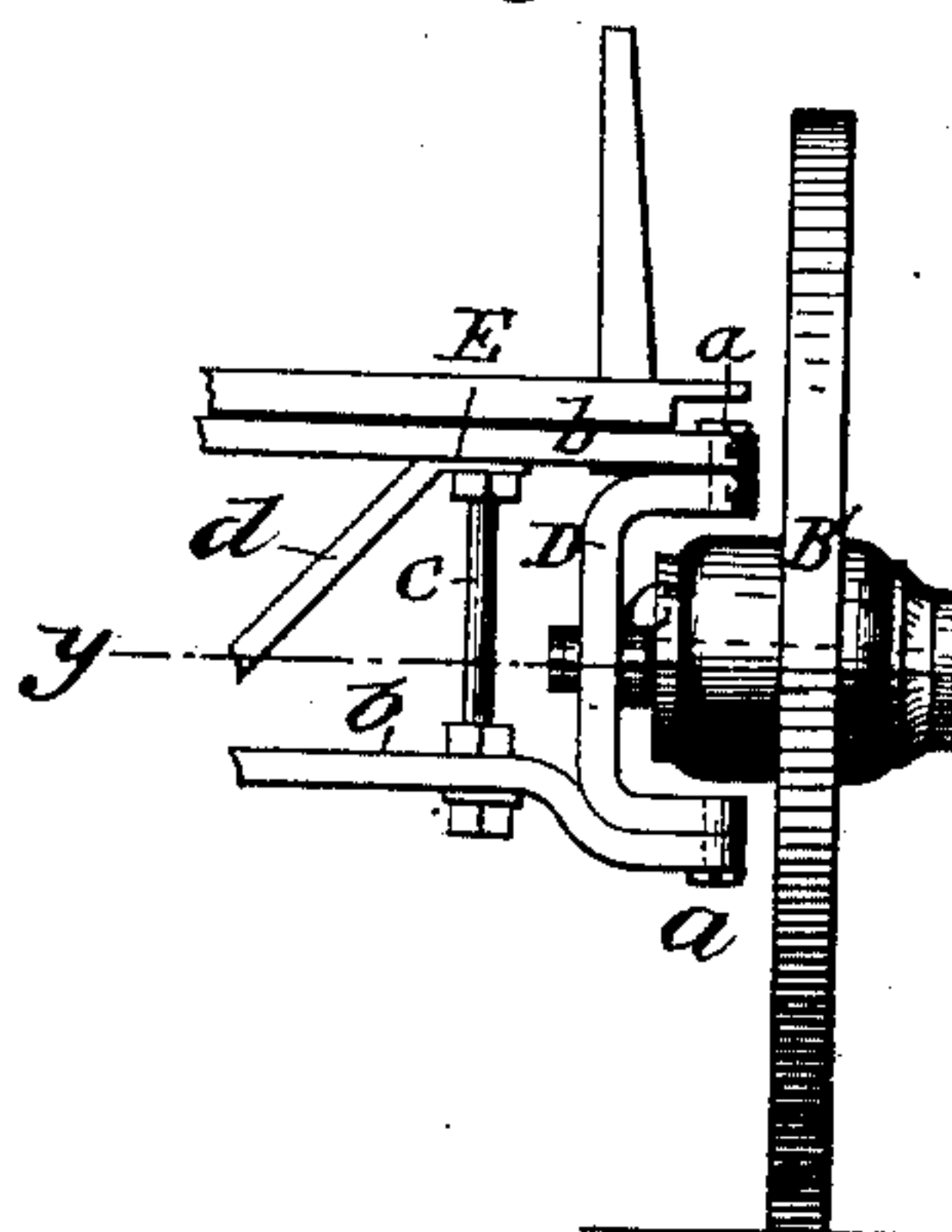
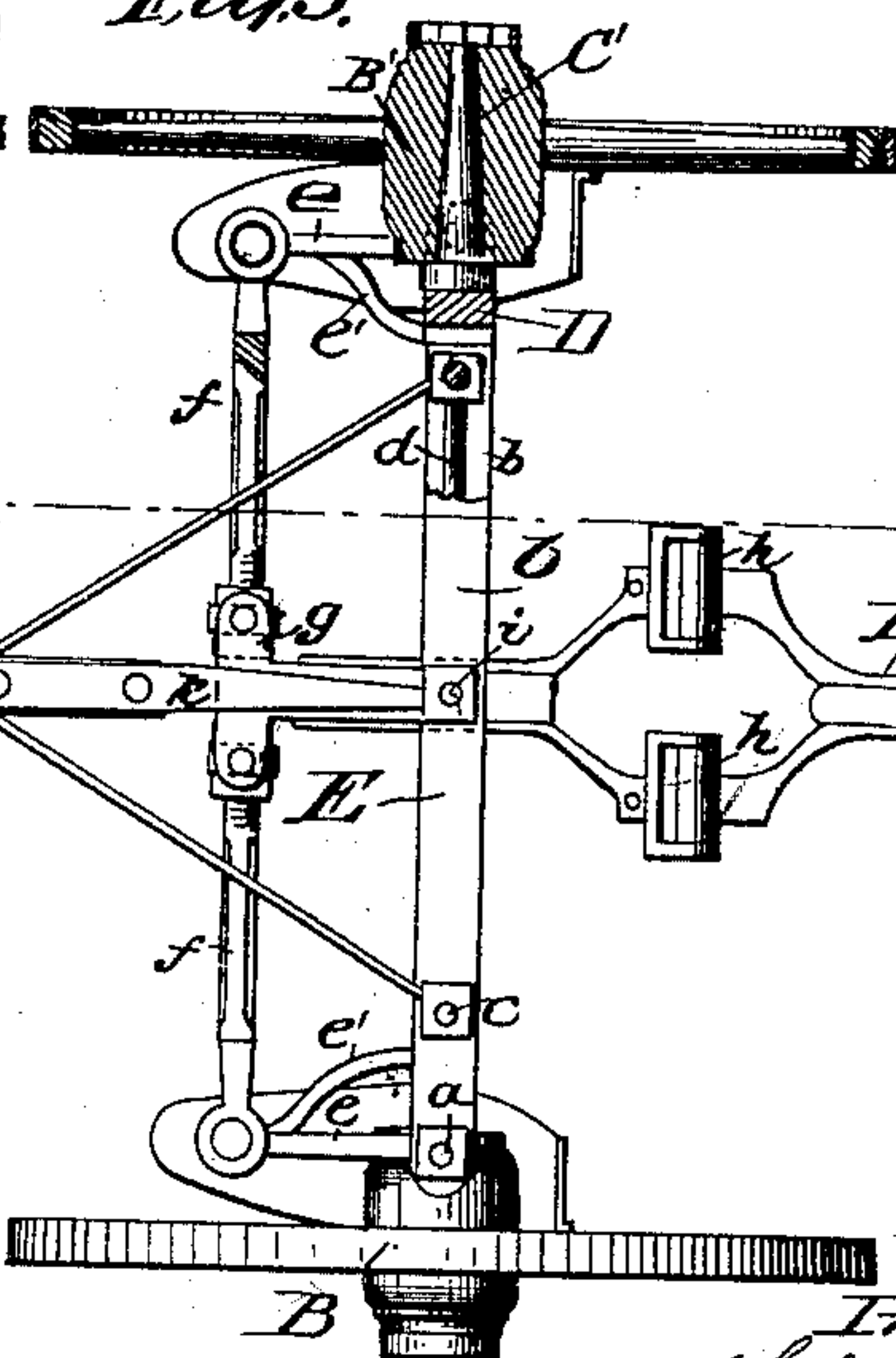


Fig. 3.



Witnesses  
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# UNITED STATES PATENT OFFICE.

LORENZO D. BROWN, OF LAFAYETTE, INDIANA.

## IMPROVEMENT IN WHEEL-VEHICLES.

Specification forming part of Letters Patent No. 41,476, dated February 9, 1864.

*To all whom it may concern:*

Be it known that I, LORENZO D. BROWN, of Lafayette, in the county of Tippecanoe and State of Indiana, have invented a new and useful Improvement in Wheel-Vehicles; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a longitudinal vertical section of my invention, the line *x x*, Fig. 3, indicating the plane of section. Fig. 2 is a partial front elevation of the same. Fig. 3 is an inverted plan of the same, one wheel being bisected in the plane indicated by the line *y y*, Fig. 2. Fig. 4 is a detached front elevation of the bolster of the hind wheels.

Similar letters of reference in the three views indicate corresponding parts.

This invention consists in the employment or use of swivel bars or stirrups to which the axles of the front wheels are rigidly attached, in combination with the ends of the front bolster and with the draft-pole in such a manner that the troublesome jerking or throwing of the pole is obviated, and the wagon in turning preserves its original base like a four-legged stool, whereas the ordinary wagon when turning approaches to a three-legged stool, and in that position is liable to be upset; also in the arrangement of a spliced bolster behind with a suitable aperture in the middle in such a manner that the reach passes through the middle of the bolster in line with the axles, and that a piece of wood is on the under side as well as on the top of each axle, rendering the same stronger, lighter, and more elastic than a solid axle and bolster of the ordinary construction.

To enable those skilled in the art to make and use my invention, I will proceed to describe it.

A represents a wagon, which runs on four wheels, B B', two in front and two behind. The axles C' of the front wheels, B', are rigidly attached to the centers of stirrups or U-shaped swivel-bars D, the ends of which are connected by joints *a* to the end of the bolster E. This bolster consists of two bars, *b*, which are at certain distances apart screwed to each other by vertical rods *c* and braces *d*, as clearly shown in Fig. 2 of the drawings.

The ends of the bars B project over the ends of the stirrups, allowing the latter to turn freely in either direction.

Each of the stirrups connects by an arm, *e*, and braces *e'* with a rod, *f*, which is pivoted at one end to said arm and braces, and at the other to a forked bracket, *g*, secured to the rear end of the draft-pole F. This draft-pole is made of two parts, which are united by strong substantial joints *h*, allowing the front part to swing up and down in a vertical plane, and its rear part is connected to the bolster E by a vertical bolt, *i*, which takes the place of the king-bolt in ordinary wagons, and by these means the draft-pole is allowed to oscillate in a horizontal plane freely in either direction. The motion imparted to the draft-pole in said horizontal plane is communicated by the connecting-rods *j* to the stirrups D and front wheels, B', and the wagon is compelled to turn in the desired direction.

It will be observed that the turning points of the wheels B' are as close as possible to the planes drawn through the rims at the middle of their width, so as to make the circle described by the wheels in turning as small as possible. By this arrangement the jerking and throwing of the pole on uneven roads is almost entirely avoided, and the pole, not being exposed to lateral strains, can be made much lighter in proportion than with wagons of the ordinary construction. My wagon runs easier than an ordinary wagon. The front wheels can be made as high as the hind wheels when the other parts are correctly proportioned, and my wagon is not liable to be upset in turning, because the base is always preserved. If desired, the axles of the hind wheels may be hinged in the same manner as the front wheels and connected by levers, whereby the turning of the wagon will be still further facilitated. In common wagons, however, it will not be necessary to do so, and the hinging of the axles of the front wheels is sufficient for most practical purposes. The bolster E connects, by means of curved rods *j* and braces *k*, with the reach G, which extends through a hole in the points of the hounds H and through a cross-piece, *l*, in said hounds and through the bolster K, which connects the axles C of the hind wheels B. The distance between the hind wheels and the fore wheels of the wagon is determined by a



double coupling-pin, *m*, which is inserted into holes in the reach either between the cross-piece *l* and bolster *K* or between the cross-piece *l* and the point of the hounds *H*. The rear end of the reach, which passes through the hounds and bolster *K*, is round, so that it can freely turn round in either direction, and the coupling-pin does not interfere with this turning motion, and consequently all twisting of the reach on uneven roads is prevented. By inserting the coupling-pin between the point of the hounds and the cross-piece *l* the wagon couples longer with a reach of the same length than a wagon of the ordinary construction.

The axles *C* of the hind wheels are fastened between the ends of the top and bottom pieces of the bolster *K*, which is provided with a hole in the center to admit the reach. By these means the reach is brought in the proper position toward the axles of the hind wheels, and at the same time the axle and bolster is made stronger, lighter, and more elastic than if made of solid iron running all the way across.

The cramps *L* of my wagon are constructed with anti-friction rollers placed in an oblique position, so that the peripheries of the tires and sides of the felloes will when the front

wheels are cramped bear against said rollers, and a binding of the wheels or injury to the body of the wagon will be avoided.

The end-gate rods *M* are made short, one being used at each corner of the bed, instead of one long rod reaching all the way across the end-gate, so that the same can be drawn out in a plane where there is little room between sheds, &c., and the end-gate can be operated with less trouble than in wagons of the ordinary construction.

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

1. The stirrups *D*, hinged to the bolster *E*, in combination with the axles *C'* of the front wheels, *B'*, and with the draft-pole *F*, all constructed and operating in the manner and for the purpose substantially as shown and described.

2. The spliced bolster *K*, to operate in combination with the axles *C* and with the reach *G*, substantially in the manner and for the purpose set forth.

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Witnesses:

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