2 Sheets—Sheet 1.

G. W. BUSS.

Running-Gear.

No. 36,766.

Patented Oct. 28. 1862.

Fig. 1.

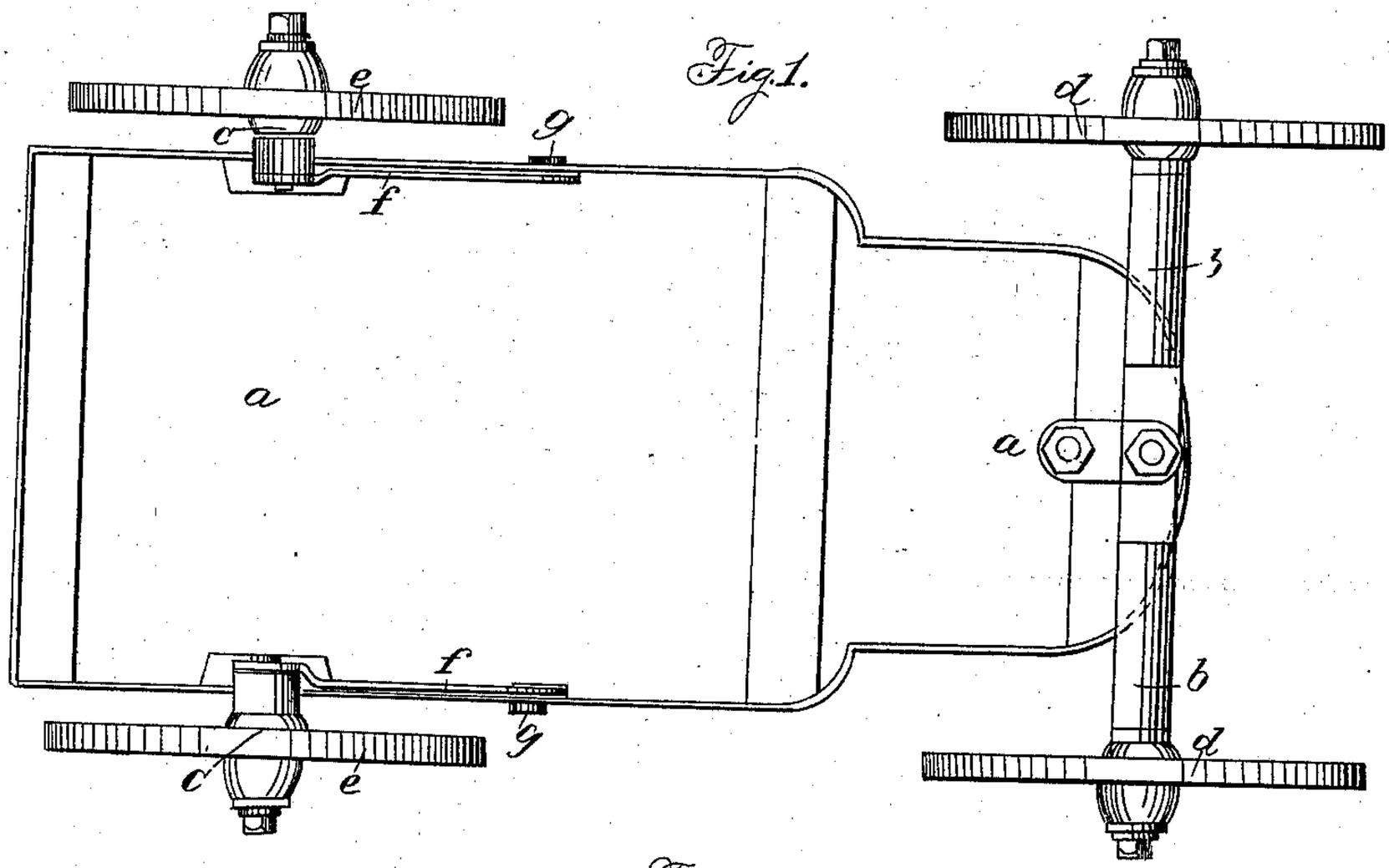
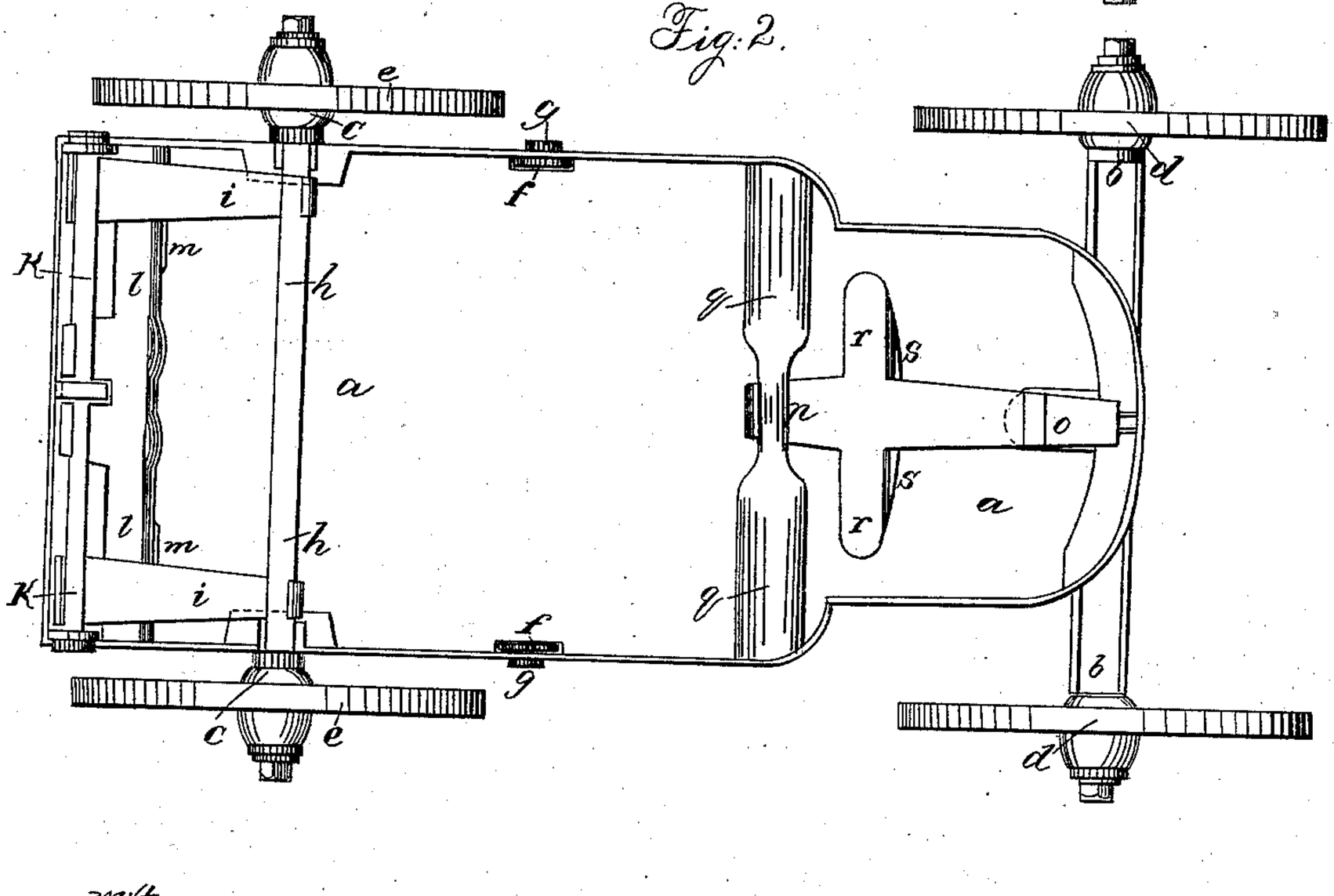


Fig. 2.



Witnesses.

Joseph Garett

Albert W. Brown

Inventor

G. W. Buss

2 Sheets—Sheet 2.

G. W. BUSS.

Running-Gear.

No. 36,766. Patented Oct. 28, 1862.

Fig: 3.

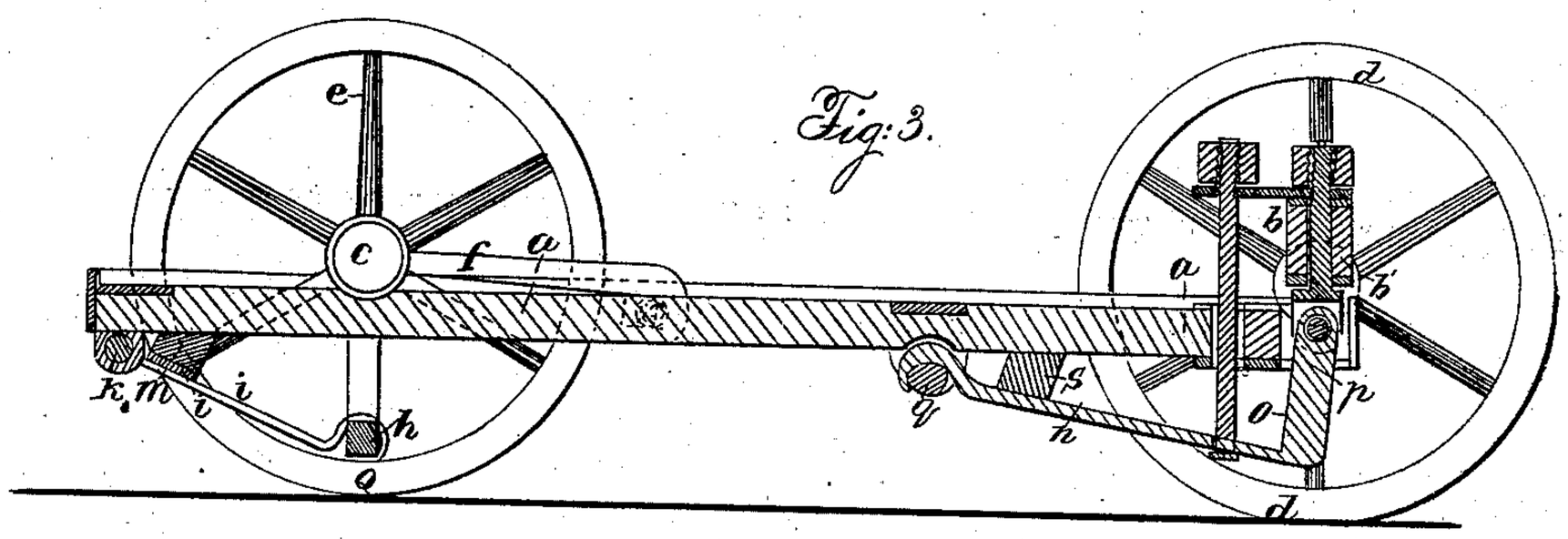
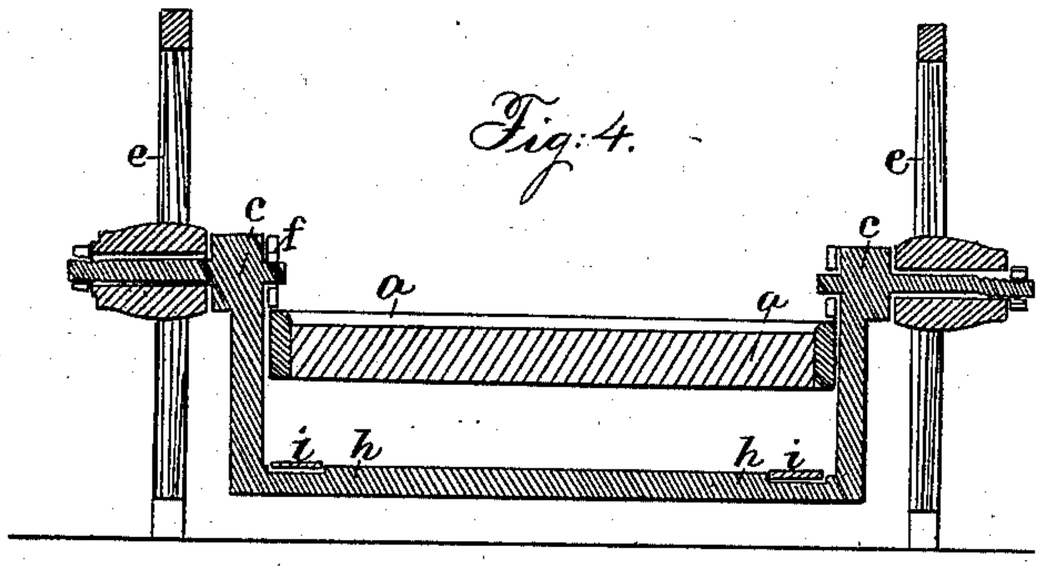


Fig: 4.



Witnesses

Joseph Powell

Albert W Brown

Inventor.

G W. Buss.

UNITED STATES PATENT OFFICE.

G. W. BUSS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN WAGONS.

Specification forming part of Letters Patent No. **36,766**, dated October 28, 1862.

To all whom it may concern:

Be it known that I, G. W. BUSS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Wagons; and I do hereby declare that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, whereby my invention may be distinguished from all others of a similar class, together with such parts as I claim and desire to have secured to me by Letters Patent.

The figures of the accompanying plate of drawings represent my improvements.

Figure 1 is a plan or top view. Fig. 2 is a view of the under side. Fig. 3 is a central longitudinal vertical section, and Fig. 4 a cross-section through the rear axle-tree.

The present invention relates to certain new and useful improvements in the arrangement of mechanical devices for supporting loads in carriages. In the ordinary methods of sustaining vehicles, especially those adapted to the carrying of heavy loads by springs, the extreme length of motion or play to which the springs are necessarily subjected soon injures and destroys their elastic force. In perfecting my improvements my object has been then to so arrange the devices for bearing the weight of the load as to impart the smallest possible length of motion to the spring compatible with the easy movement of the carriage, and consequent safe transportation of the weight to be carried. Moreover, this desideratum is effected in such a manner that the elastic force of the sustaining devices can be readily adapted exactly to the degree of compressibility required, so that one and the same vehicle can be adapted to the carrying of greatly varying loads. I effect these results by combining a spring of any proper material with an arrangement of levers or arms in such a manner that the spring is acted upon near to the fulcra thereof, as I will now proceed to explain in detail.

In the accompanying drawings my improvements are represented as applied to a wagon for carrying heavy loads, although they may be also used for light vehicles.

a a in the drawings represent the platform or body of the wagon. *b b* is the front axle, and *c c* the hind axle, consisting of a right-angular bar, as shown. *d d* are the front wheels, and *e e* the rear ones. The upper ends of the rear axle, *c c*, are hung upon two radial arms, *f f*, each turning upon a center at *g g*. The lower horizontal bar, *h h*, of the rear axle is hung upon two levers, *i i*, which are of the same length as the radial arms *f f*, and turn upon a fixed rod or shaft, *k k*, as a center. By thus hanging the axle *c c* by means of the levers *i i* and radial arms *f f*, it will be seen that it (the axle) will receive a vertical play, and consequently be free from the lateral shifting and straining to which they would otherwise be subjected, and which would soon weaken the parts, as well as cause severe jolts to be given to the load.

To impart the necessary elasticity to the wagon, I combine with the devices above described a cross-bar, *l l*, between which and the bottom of the platform *a a* one or more springs, *m m*, of rubber or of any other suitable material, are inserted, and of any degree of stiffness. These springs, it will be observed, are so arranged with regard to the levers *i i* and cross-bar *l l* as to be acted upon very near to the rod or shaft *k*, upon which the levers *i i* turn as a center, and that consequently the springs *m m* will be subjected to but a very short play or length of motion, while the platform or body of the wagon, being sustained at the long ends of the levers, is susceptible of all the length of motion desired, so that the load can be carried or transported with the least possible jolting, and at the same time the springs be exposed to but very little wear. It will be seen that the cross-bar *l l* serves to distribute the weight of the load equally upon the springs, and that in lieu of the two levers *i i*, but one need be used in connection with the cross-bar *l l*, connected to the center thereof.

By the peculiar arrangement of devices, as described, my improvements are peculiarly adapted to the carrying of varying weights of load, as the springs employed are held in position by being pinched between the levers *i i* and the bottom of the platform *a a*, and consequently it is only necessary to insert springs of different degrees of stiffness to make the whole sustaining devices adjustable to the purposes required. The front axle-tree, *b b*, of the wagon is attached to a right-angular

lever, *n o*, upon the upright elbow *p* of which it swivels. One end of the horizontal part of the lever *n o* turns upon a fixed bar, *g g*, as a center, near which bar and between it and the bottom of the platform *a a* is inserted a rubber or other spring, *s*. A cross-bar, *r r*, placed at right angles to the lever *n o*, serves to distribute the weight evenly upon the spring.

As the operation of the lever *n o*, cross-bar *r r*, and spring *s* upon the front axle are precisely similar to the devices upon the rear axle, it need not be herein more particularly described.

Having thus described my improvements, I shall state my claims as follows:

What I claim as my invention, and desire to have secured to me by Letters Patent, is—

1. Supporting the wagon by means of the lever or levers and spring or springs arranged with regard to each other and to the axle, substantially as described, so that the spring or springs shall be acted upon at such a point of the lever as receives comparatively the shortest play or motion, as set forth.

2. In combination with the lever or levers, the cross-bar *l l* or *r r*, as described, and for the purpose specified.

3. In combination with the lever or levers *i i* and axle *c c*, the radial arms *f f*, the whole operating together, as set forth.

G. W. BUSS.

Witnesses:

JOSEPH GAVETT,

ALBERT W. BROWN.