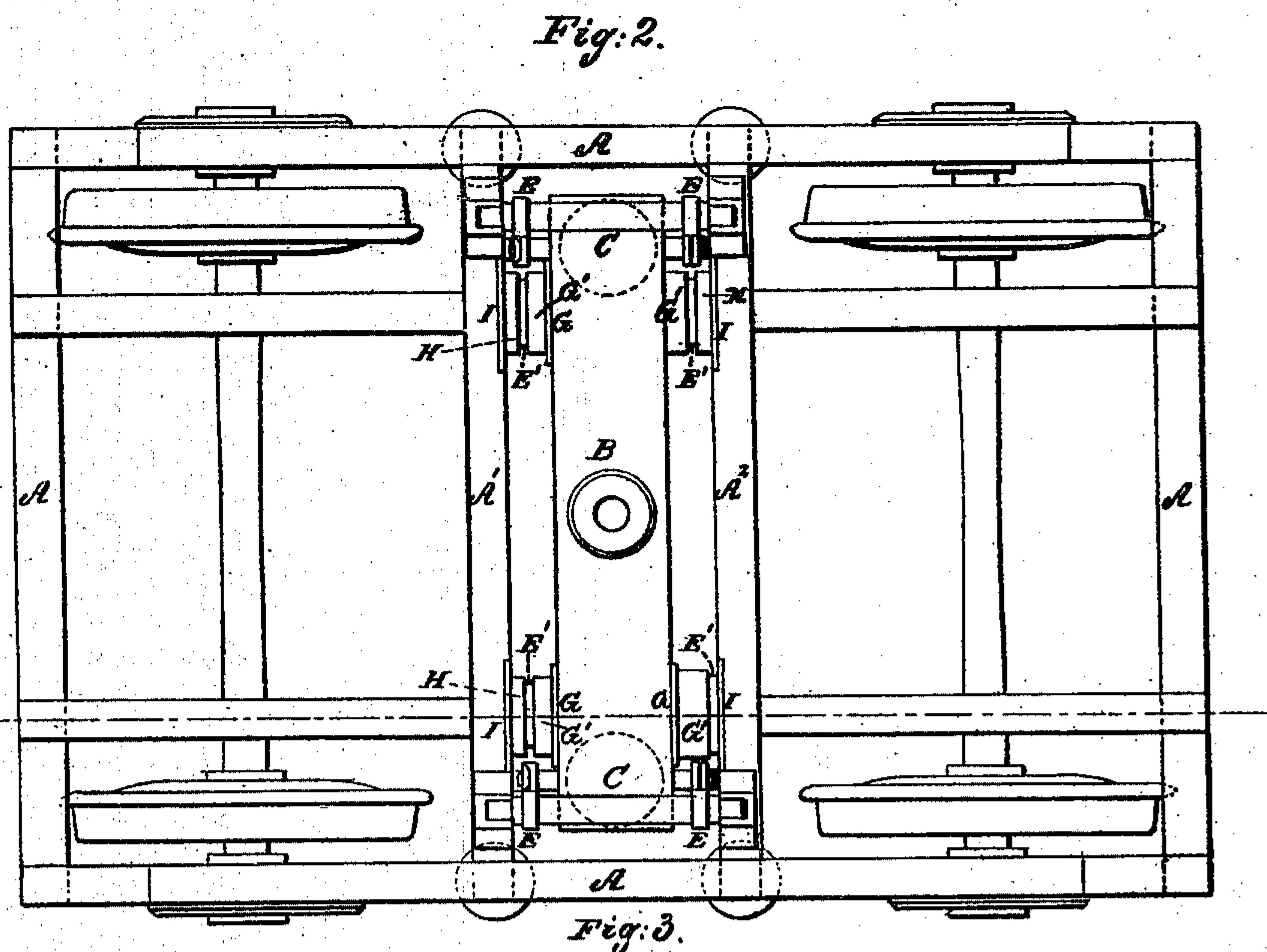
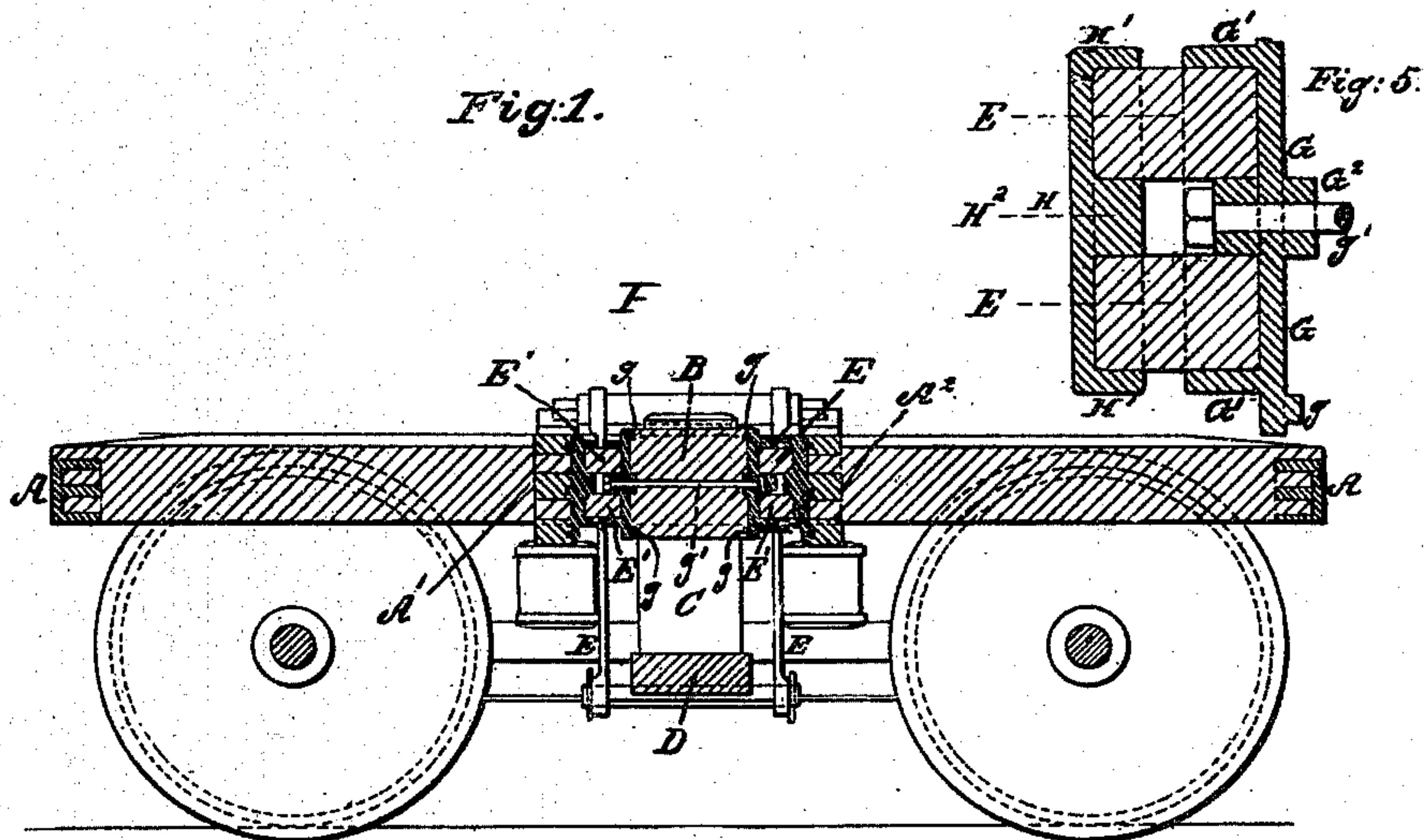


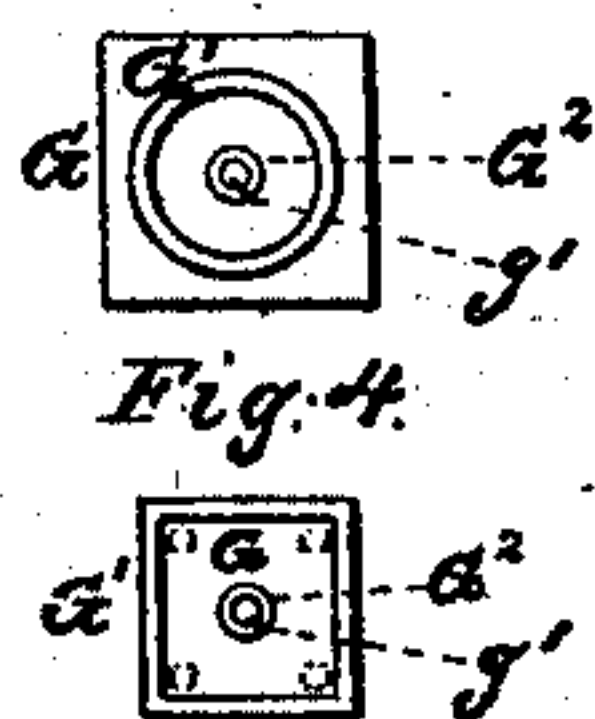
G. H. GRIGGS.  
Car Truck.

No. 104,580.

Patented June 21, 1870.



Witnesses.  
*[Signature]*  
R. Roulston



Inventor.  
George H. Briggs  
by his attorney  
*[Signature]*



# United States Patent Office.

GEORGE H. GRIGGS, OF WORCESTER, MASSACHUSETTS.

Letters Patent No. 104,580, dated June 21, 1870.

## IMPROVEMENT IN CAR-TRUCKS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, GEORGE H. GRIGGS, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Car-Trucks; and I do hereby declare that the following is a full and exact description thereof.

My invention relates to the swing-beam, and to means for modifying, or rather for moderating, its swinging motion.

I provide a very efficient and nearly constant friction, which, while it does not prevent the movement of the swing-beam, and, consequently, of the car, from side to side to the fullest extent which is allowed by the construction in other respects, or which is desired in any case, so modifies the swinging motion that it is almost immediately arrested, and the consequence is a smooth and comparatively steady motion, instead of a succession of free swings.

I will first describe what I consider the best means of carrying out my invention, and will afterward designate the points which I believe to be new therein.

The accompanying drawing forms a part of this specification.

Figure 1 is a longitudinal section on the line S S in fig. 2.

Figure 2 is a plan view.

These figures show the novel parts of an entire truck, with so much of the other parts as seem necessary to show their relation thereto.

Figures 3 and 4 are face views of two forms of some of the parts; and

Figure 5 is a vertical section through some of the parts on a larger scale.

Similar letters of reference indicate like parts in all the figures.

What is known as the swing-beam or swing-motion in car-trucks, originally patented by Davenport & Bridges in 1844, is too familiar to mechanics to require a detailed description. The drawing represents one of the most approved forms.

A is the main framing of the truck, the running-gear of which is not represented.

A<sup>1</sup> A<sup>2</sup> are the cross-sills, frequently known as logs, and I will so term them. They form a part of the rigid frame-work of the truck, and extend across immediately forward and behind the cross-timber B, which is the swing-beam, and upon which the weight of one end of the car-body is supported and carried in the ordinary manner.

C C are springs;

D, the sand-plank; and

E E the slings or vibrating links which hold up the sand-plank, and with it, through the aid of the springs C C, the swing-beam B, and the load carried thereon,

so that the swing-beam B and its connections are allowed to swing from side to side in the truck.

There may be springs, (not represented) to receive and check the side motion of the swing-beam B, by receiving its impact directly, if desired.

My invention allows of all ordinary modifications and improvements in regard to the details, which it is needless to enumerate.

It is common to apply the logs A<sup>1</sup> A<sup>2</sup> close to the swing-beam B, so that it is liable to rub against them as it swings from side to side; but if the parts are fitted with absolute parallelism, and the beam B is made to fill the space with absolute accuracy, so as to induce a reliable friction at first, the change of form of the parts due to springing and warping, the shrinkage of the wood, and the wear of the rubbing-surfaces would soon materially change the conditions.

Every change of the forward motion, and particularly every obstacle encountered on the track, is liable to induce a strong movement of the car forward or backward, relatively to the truck. To resist this, very efficient bearing-surfaces must be provided, to allow the swing-beam B to press forward and backward with great force, without inducing damage to this or any of the other parts.

It has been proposed to introduce springs to control the movement of the swing-beam forward and backward; I do this, and more.

The springs previously employed or proposed in such positions and relations, allowed the swing-beam to move freely from side to side. The springs did not induce resistance to such motion. I have provided springs so arranged that they will yield slightly forward and backward to soften any shocks in that direction, but this is only one of their functions. Another, which I esteem vastly more important, is the resistance and rapid extinguishment of the swinging motion of the beam.

I provide rubbing-pieces or broad shoes on my springs, which bear fairly and uniformly against corresponding rubbing-plates on the adjacent surfaces, and the friction induced by the tension of my springs is developed between the shoes and rubbing-plates to induce a uniform and reliable resistance, which rapidly kills the swinging motion.

In case an irregularity in the track, or any other cause, has induced a sudden movement of the truck to one side, or in case, for any reason, the car has been suddenly and violently moved to one side on the truck and then liberated, the ordinary arrangements allow prolonged series of swings. The swing-beam, with the load attached, swings back to its normal position, and, with the momentum thus acquired, moves much beyond it, then swings back again nearly to its first extreme position, and a succession of such swings oc-



cur before the position of rest is again attained. A car provided with my improvement, on the contrary, moves back to or near its ordinary position, and then rests.

Some of the advantages of my invention may be realized by elliptic or other forms of springs. I will describe simply what I consider the best material and the best form.

E' is a cylindrical spring of vulcanized rubber, made hollow in the center, as usual. It is partially inclosed within a rim, G<sup>1</sup>, formed on a plate, G, which is firmly bolted to the swing-beam, and is provided with slight projections or dowels, g, which fit into shallow holes in the swing-beam.

This plate G is, by preference, let into the side of the swing-beam, so that its outer surface is flush therewith, but this is not absolutely essential.

A flat plate, I, is correspondingly fitted on or in the adjacent surface of the truck-log, and a stout shoe-plate, H, of cast-iron or other suitable material, is fitted on the end of the spring E', so as to apply and rub against the rubbing-plate I.

The shoe is provided with a rim, H<sup>1</sup>, which incloses a portion of the rubber.

Both the castings G and H may, and should, by preference, have a central boss, G<sup>2</sup> and H<sup>2</sup>, which fits in the central hole in the spring.

The bolting of the piece G may be largely effected by a single bolt, g', which applies through this boss G<sup>2</sup>, and, by extending through the swing-beam, may secure a corresponding plate, G, and spring, E', on the two faces of the swing-beam B.

It will be readily understood that, if preferred, the spring may be secured to the truck-log, and made to rub against the rubbing-plate I carried on the swing-beam.

There may also be more than two of the springs forward of and behind the swing-beam, or one alone placed in line of the center of the car might serve tolerably well in some instances. So, also, the spring

and its shoe may serve with some success, rubbing against bare wood, without any rubbing-plate I; and, with the proper construction of steel spring, the friction might be borne for a considerable time by the spring itself without the shoe H.

So, also, a portion of the advantages of my invention may be realized by employing my spring on one face of the swing-beam B; as, for example, on the front face, pressing the swing-beam B back to make a friction directly against the rear truck-log A<sup>2</sup>, or in rear pressing the swing-beam forward to make friction directly against the forward truck-log A<sup>1</sup>, but I prefer the exact number and construction represented.

By making my springs of rubber, mounted and connected as shown, I obtain, in addition to the other advantages, a good degree of resistance to the transmission of sound, and the passengers hear less of the noise of the wheels than when there is a contact of hard inelastic substances to conduct the sound.

I claim—

1. In railroad car-trucks, the within-described arrangement of springs E' E' on one or both sides of the swing-beam B, whereby a constant and strong friction is maintained, to retard, without preventing the swinging motion of the beam, relatively to the truck, and thereby rapidly arrest the lateral swinging of the car, as herein specified.

2. The within-described construction of the springs E', holding-plate G G<sup>1</sup>, and shoe H H<sup>1</sup>, as and for the purposes herein set forth.

3. The single bolt g', arranged as represented relatively to the central bosses G<sup>2</sup>, of two holding-plates and two springs on the forward and rear faces of the swing-beam B, as and for the purposes set forth.

In testimony whereof I have hereunto set my name in presence of two subscribing witnesses.

GEO. H. GRIGGS.

Witnesses:

WM. C. DEY,  
H. E. PRICE.