

# COMBINED CAR BRAKE & WHEEL TRIG.

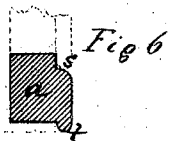
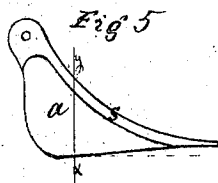
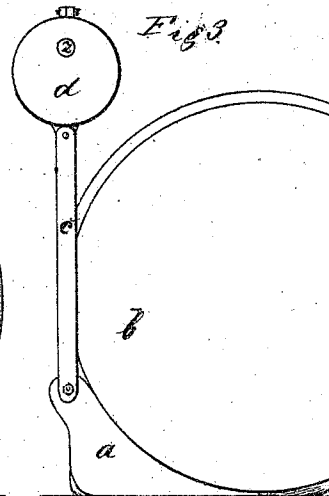
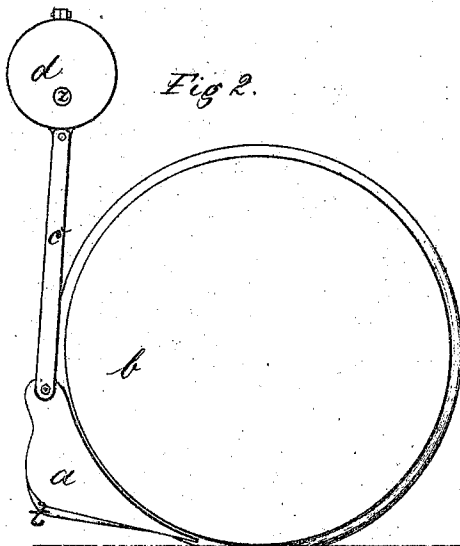
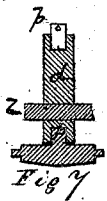
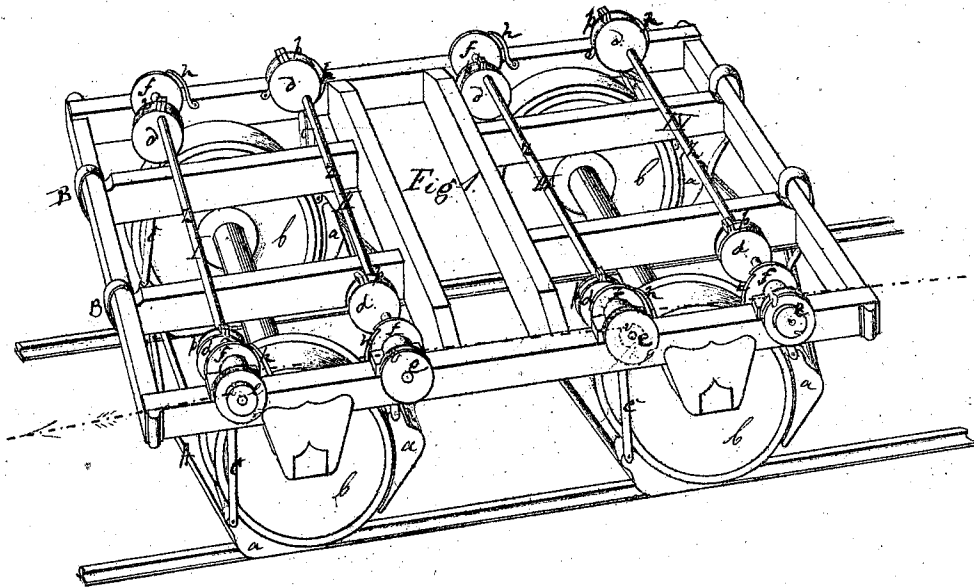
invented by

W.F.H. SMITH.

No. 121,013.

Patented Nov. 14, 1871.

MILWAUKEE. Wis.



Inventor  
William F. H. Smith

Witnesses  
J. T. Mullen  
Richard Kirkholz.



# UNITED STATES PATENT OFFICE.

WILLIAM F. H. SMITH, OF MILWAUKEE, WISCONSIN.

## IMPROVEMENT IN RAILWAY CAR-BRAKES.

Specification forming part of Letters Patent No. 121,013, dated November 14, 1871.

### *To all whom it may concern:*

Be it known that I, WILLIAM F. H. SMITH, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Car-Brakes; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The nature of my invention consists in the construction and arrangement of a car-brake, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing which forms a part of this specification, and in which—

Figure 1 is a perspective view of a car-truck with my brake attached. Fig. 2 is an enlarged side view of one car-wheel with my brake applied in the ordinary way as a friction-brake. Fig. 3 is a similar view, showing my brake as applied whenever a sudden stoppage is desired. Fig. 4 is a front view of Fig. 3. Fig. 5 is a side view of the brake-block. Fig. 6 is a section through line *x y*, Fig. 5. Fig. 7 is a cross-section of the eccentric, ring, and cross-head, which operate the brake-block. Fig. 8 is a bottom view of one end of the truck, and Fig. 9 is an end view of Fig. 8.

*b b* represent the wheels, arranged in the usual manner on a car-truck. On the truck, in suitable journal-boxes, are arranged four shafts, *z z*, (marked in rotation I, II, III, and IV,) in such a manner that one shaft will be above and on each side of each set of wheels, as shown in Fig. 1. On each of these shafts are attached eccentrics *d d*, each surrounded by a ring, *p*, from which shackles *c c* connect with brake-blocks *a a*. These brake-blocks are, on their inner sides, provided with a groove or depression, *s*, and on the under side with a flange, *t*, as shown in Fig. 6.

The brake-blocks *a a* are to be operated in the usual manner and by the ordinary means as friction-brakes, except when for any cause it is desired to suddenly stop the train. In this case the engine will, by means that will be hereinafter described, turn all the shafts *z*, which are in

front of their respective wheels, far enough to cause the eccentrics *d d* to lower the brake-blocks onto the rails in front of the wheels. The brake-block then acts as a trig, raising the wheel from the rails, instantly stopping its rolling, and forming a shoe to the wheel. The flange of the wheel then rests in the groove *s* on the inside of the block, and the flange *t* on the under side of the block drops on the inside of the rails, forming a safeguard to keep the train on the track.

The means for lowering the brake-blocks are as follows: The shafts *z z* are provided with double-grooved wheels *E E*, each wheel consisting of one larger and one smaller disk, with circumferential groove. These wheels are arranged as shown in Fig. 1, and are provided with hooks on opposite sides for the attachment of chains connecting alternate shafts. All of the shafts in front of the wheels are thus connected with a continuous chain, which is carried forward so as to be readily operated by the engineer. The shafts now in rear of the wheels are not connected, but will be when the cars move in the opposite direction. The shafts *z z* are further provided at each end with a ratchet-wheel, *f*, and pawl *h*, so as to hold the shafts in proper position when not turned to lower the brake-blocks.

The brake-blocks *a a* on each side of the wheels are connected by two bars, *A A*, the ends of which are attached together to the brake-blocks, and their centers separated by a short cross-bar, making them far stronger; in fact, one acts as a brace to the other, and they keep the brake-blocks steady in their proper places. From the truck-frame depend springs *B B*, which act upon the bars *A A* to throw the brake-blocks away from the wheels. To the inner bar *A*, on one side of each pair of wheels, is pivoted a lever *C*, the lower end of which is connected by a chain, *D*, with the inner bar *A* on the other side of the wheels. The upper end of the lever *C* is, by a chain or other suitable means, connected with the usual device for applying car-brakes from the platform of the car.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the shaft *z*, eccentrics *d*, rings *p*, shackles *c*, brake-blocks *a* having

grooves *s* and flanges *t*, the connecting-bars *A*, springs *B*, lever *C*, and chain *D*, all constructed and arranged so that the brake-blocks may be used as ordinary friction-brakes, or may be lowered in front of the wheels to raise them up from the rails, substantially as herein set forth.

2. In combination with a shaft, *z*, from which

the brake-blocks are suspended, the ratchet-wheels *f f* and pawls *h h*, substantially as and for the purposes herein set forth.

Milwaukee, April 12, 1871.

Witnesses: WILLIAM F. H. SMITH.

JOSEPH F. McMULLEN,

RICHARD BIRKHOLZ. (122)