

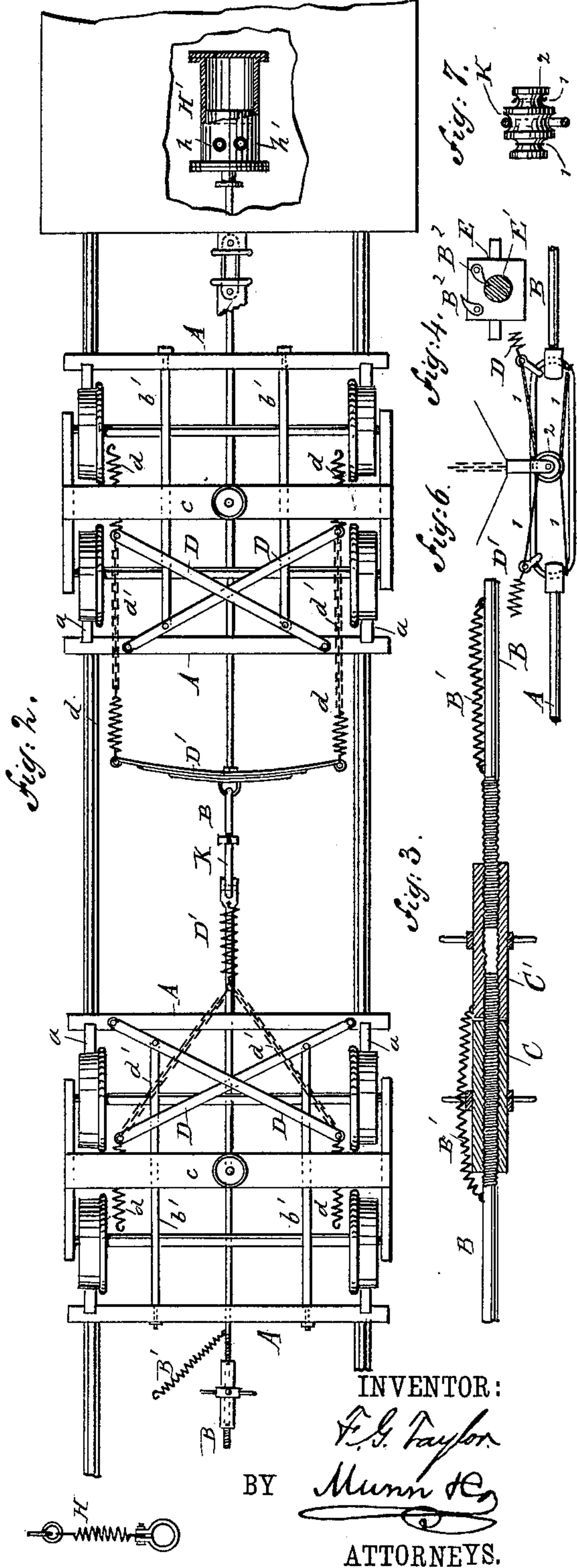
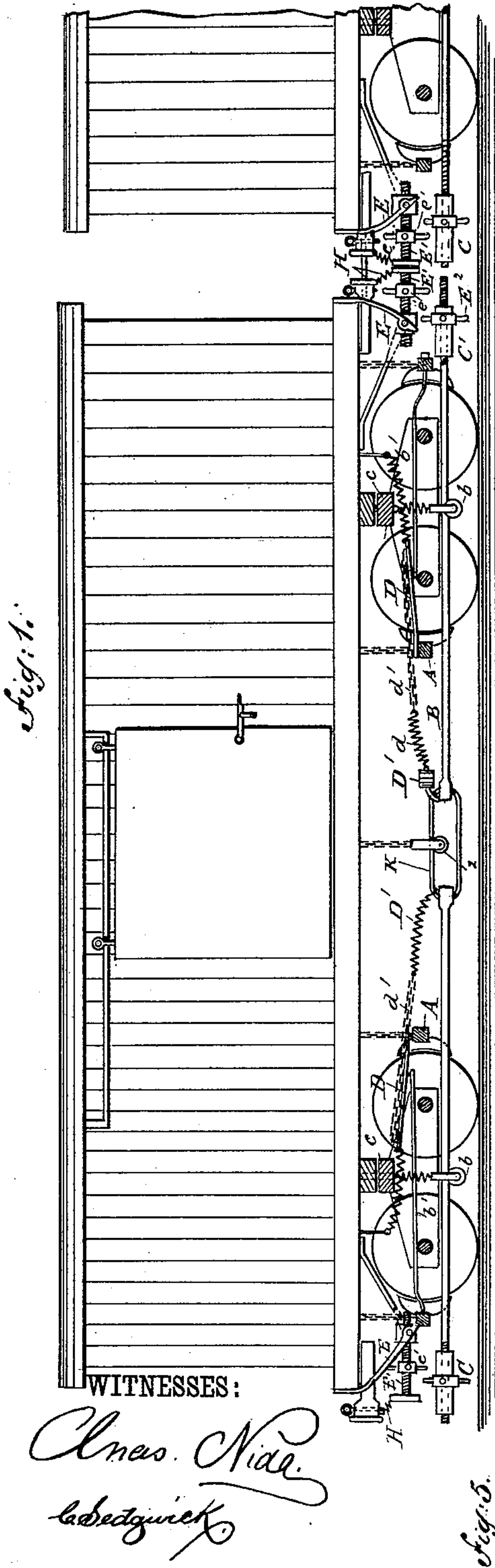
(No Model.)

F. G. TAYLOR.

CAR BRAKE.

No. 386,940.

Patented July 31, 1888.





# UNITED STATES PATENT OFFICE.

FREDERICK G. TAYLOR, OF CRANSTON, RHODE ISLAND.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 386,940, dated July 31, 1888.

Application filed September 23, 1887. Serial No. 250,496. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK G. TAYLOR, of Cranston, in the county of Providence and State of Rhode Island, have invented a new and Improved Steam-Brake, of which the following is a full, clear, and exact description.

My invention relates to an improvement in steam-brakes, and has for its object to provide a brake automatic in its action which will not be affected by cold weather or snow or ice, and which may be effectively operated when the train is moving at a high rate of speed. If the train breaks apart in any place, this brake would immediately be set and cause the train to stop. It can adjust itself automatically to suit either direction in which the car is pulled.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a portion of a train having my brake applied. Fig. 2 is a plan view thereof, and Figs. 3, 4, and 5 are detail views. Fig. 6 is a modification whereby the brakes are applied to all the wheels at one time, and Fig. 7 is a detail view of the supporting-pulley.

In carrying out the invention the brake-beam A, carrying the brake-shoes *a*, is suspended a proper distance in front of the wheels by means of chain or rods attached or hinged to the bottom of the car.

A centrally-hinged rod, B, is extended beneath the car from end to end below the axles, supported by and adapted to reciprocate upon pulleys *b*, hung from the beams or any suitable place, preferably at the center, as shown in Fig. 1. The rods at the ends of the cars are threaded, and couplings C C' are respectively entered thereon, each coupling C being provided with a threaded longitudinal aperture adapted to screw to end of opposing car-rod B, as shown in Fig. 3. By this means the rods of the several cars of a train are quickly and securely united. From the opposite brake-beam A or other convenient support arms *b'* are extended, one near each end, in the direction of the other brake-beam A, and to the extremity of each arm *b'* a lever, D, is fulcrumed, one end of which levers is pivotally connected with the top of the brake-beam to be operated, the other end being projected di-

agonally over the axle, under the opposite arm, and beyond the same. Thus the two levers are made to cross each other centrally between the arms, as shown in Fig. 2.

Couplings C C' are provided with a spoked block, E, whereby the screw is manipulated. Coupling C is also provided with a spiral spring or chain, B', one end attached to rod B, the other end to hook or coupling C, to prevent coupling from unscrewing too far.

The free ends of the levers are each united to a spiral or coil spring, *d*, secured in any suitable manner to the bottom of the cars. A chain or rod, *d'*, is also connected to the free ends of the levers, the opposite end of the chain being secured to a spring, D', fastened to link K in center of rod, as in Fig. 1.

The spring D' may be a coil or spiral spring, as shown to the left in Fig. 2, or a flat or semi-elliptic spring, as illustrated to the right in the same figure. The spring D', controlling the set of levers upon one truck, is attached at one side of link K of the rod, and the other spring is fastened just the same, only on the other side of link K between the trucks, not outside.

At each end of the car brackets E are secured beneath the sill to project downward and, preferably, below the draw-head, and a screw, E', is entered in a suitable aperture in the bracket and is held thereby. This screw is provided upon the outer end with a head or fender, *e*, and a spoked block, *e'*, between the fender and the bracket, whereby the screw is manipulated. H is a spiral spring fastened to and extending from draw-head to screw E' to guard against vibration of fender when the train is in motion, as shown in Fig. 5. The aperture in the bracket is provided with a catch or brace used to hold screw E' from unscrewing when it is in operation and when it is not, as shown in Fig. 4. The spring H will have a chain inside to help hold fenders *e* from going down too far by the pressure that will come on them when the train is backing.

Before the rods B are coupled the fenders of the opposing ends of the cars are brought in contact, whereby the cars are kept at a given distance apart and all strain thereby removed from the rods, allowing them to reciprocate freely at any time. The rods B of the several cars are reciprocated from the piston of a cyl-



inder, H', secured beneath the cab or tender or boiler, to which piston the rod of the forward car is coupled, as in Fig. 2.

The cylinder is provided with the apertures 5 h h', serving, respectively, as an inlet and exhaust, the pipes leading to the inlet and from the exhaust being provided with suitable valves under the control of the engineer.

In operation, when it is desired to put on 10 the brakes, the exhaust being closed, live steam is allowed to enter the cylinder in quantities according to the suddenness of the stoppage desired, which, driving the piston in, also draws the rods forward. The levers D 15 are also drawn forward by the action of the chain or rod d', causing the brake-beam to be carried inward and the shoes to clamp the wheels.

In taking off the brakes the exhaust is opened 20 and the rods and brake-shoes are drawn back to their normal position by the contraction of the springs D' d.

Pulley 2 is attached to link K, which link is fastened to rod B about the center, and is 25 used to protect the rods B in case the coupling of cars breaks apart and prevent rod B from going only so far and prevent brake from damage.

In Fig. 6 a construction is illustrated 30 whereby the brake-shoes are put in operation on all of the eight wheels simultaneously, no matter in which direction the brake-rod is pulled. A wire rope or chain, 1, is fastened to one end of the link K, extending thence 35 around the supporting-pulley 2 to an attachment with the respective springs D'.

I do not confine myself to the construction of the fender shown, as other approved and suitable forms may be employed without de- 40 parting from the spirit of the invention.

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

1. The combination, with a car, a brake- 45 beam carrying shoes suspended from said car, and levers attached at one end to the brake-beam, adapted to cross each other, and having a spring-connection between the opposite end and the car-body, of a rod extending beneath

the car from end to end provided with coup- 50 lings at each extremity, a spring attached to the rod between each truck and connected with said levers, a cylinder provided with a steam inlet and exhaust, a piston working in said cylinder and connected with said rod, and 55 adjustable fenders attached beneath the car projecting out beyond the draw-bars thereof, all arranged to operate substantially as shown and described.

2. The combination, with a car, of a bracket 60 attached beneath the sill, and an aperture in said bracket to hold a screw provided with a fender and adjusting-block, the said fender being adapted to project beyond the draw-heads, substantially as shown and described, whereby 65 opposing cars are retained at a given distance apart when coupled, as set forth.

3. The combination, with a car and a brake- 70 beam carrying shoes suspended from said car, and spring-actuated cross-levers attached at one end to the brake-beam, of a rod extending beneath the car from end to end provided with couplings at its extremities, springs at- 75 tached to said rod beneath the center of the car, chain attached to said spring and to the respective sets of levers, a cylinder provided with a steam inlet and exhaust, and a piston working in said cylinder connected with said brake-rod, substantially as shown and de- 80 scribed.

4. The combination, with a car and a brake- 80 beam carrying shoes suspended from said car, and spring-actuated cross-levers having one end attached to the brake-beam, of rods ex- 85 tending longitudinally beneath the car provided with couplings at their outer extremities, a link uniting the inner ends of the rod, a chain and pulley secured to the car-body engaging said link, a spring attached to said rods near the link and to the several cross-le- 90 vers, a cylinder provided with a steam inlet and exhaust, and a piston working in said cylinder connected with the longitudinal brake-rods, substantially as shown and described.

FREDERICK G. TAYLOR.

Witnesses:

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