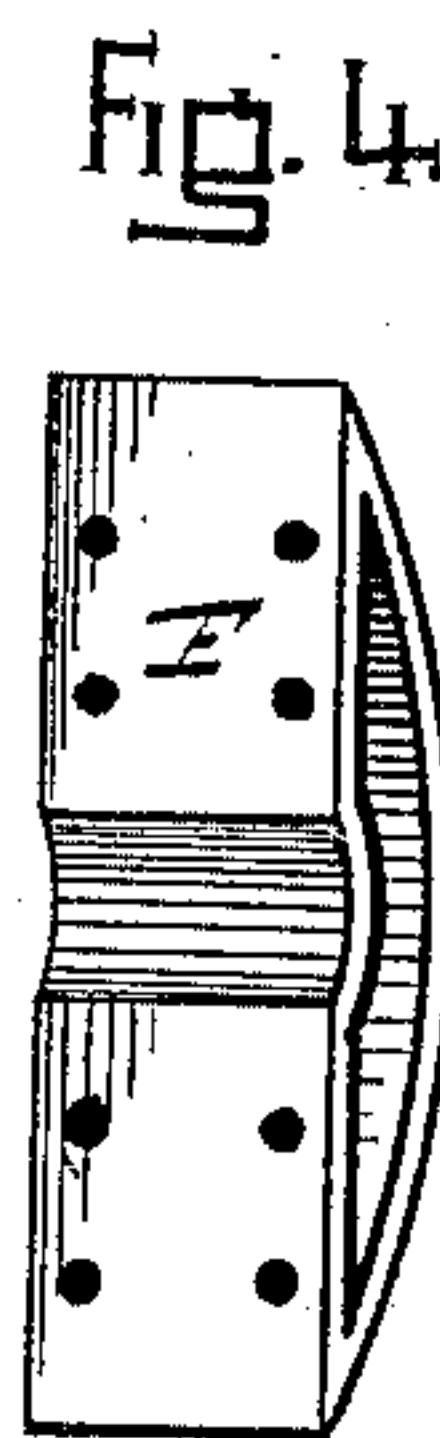
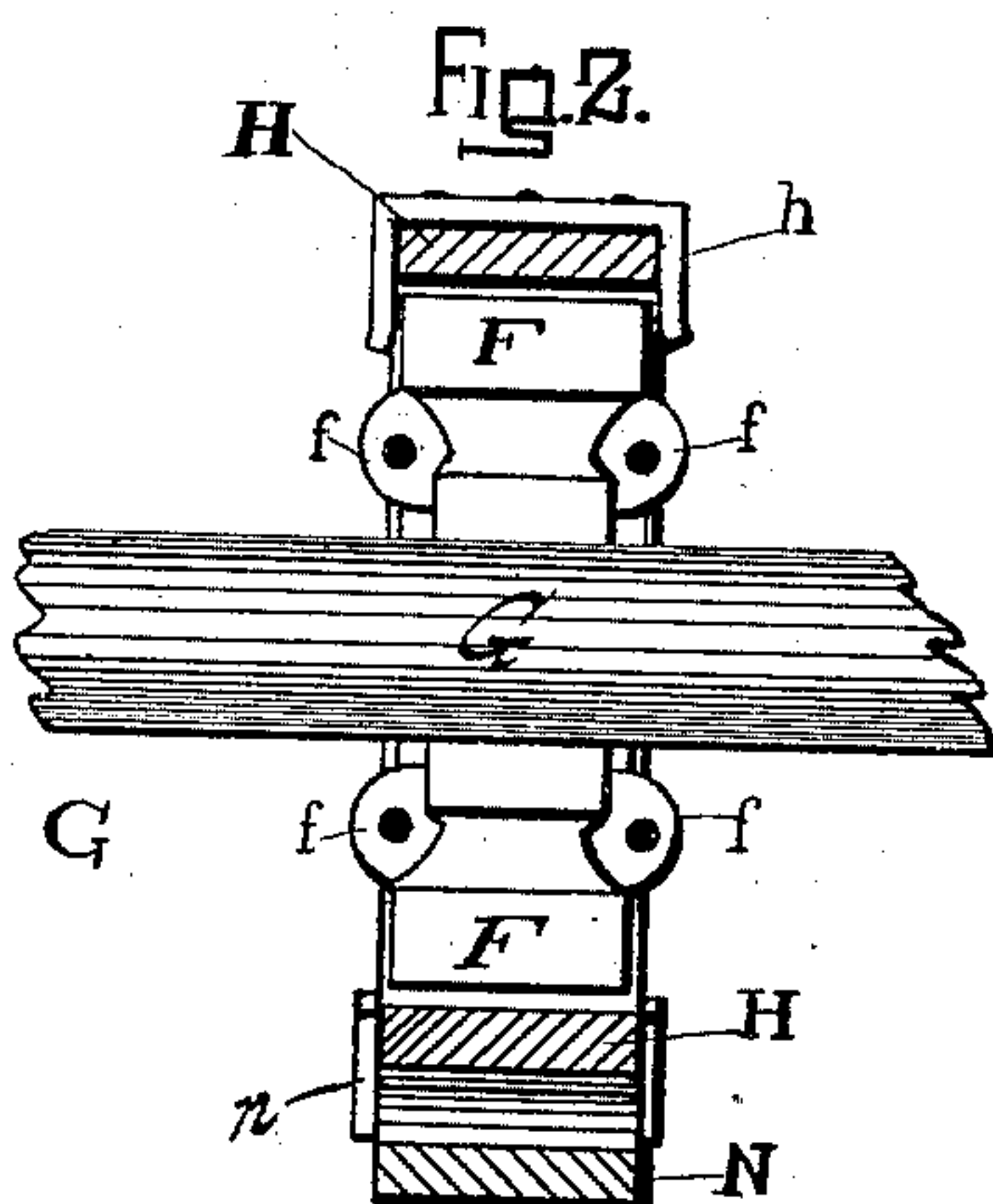
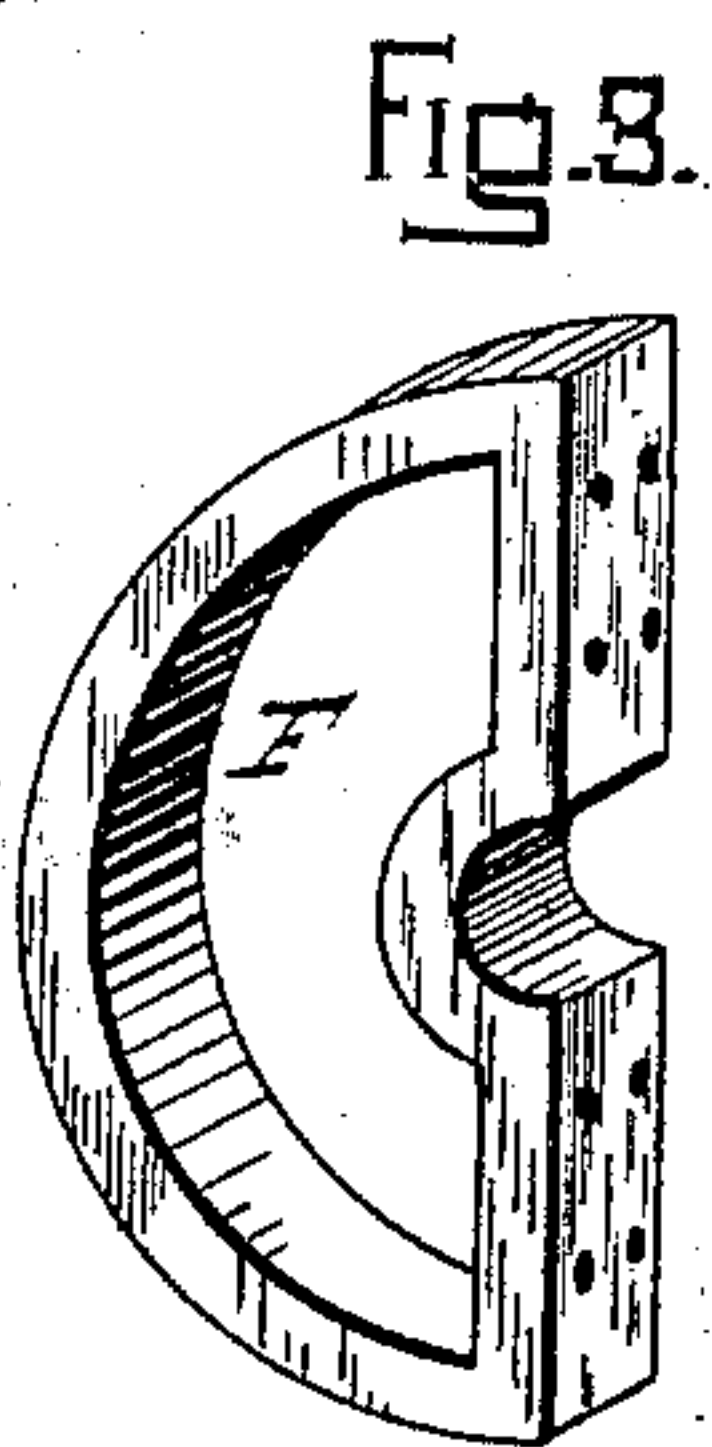
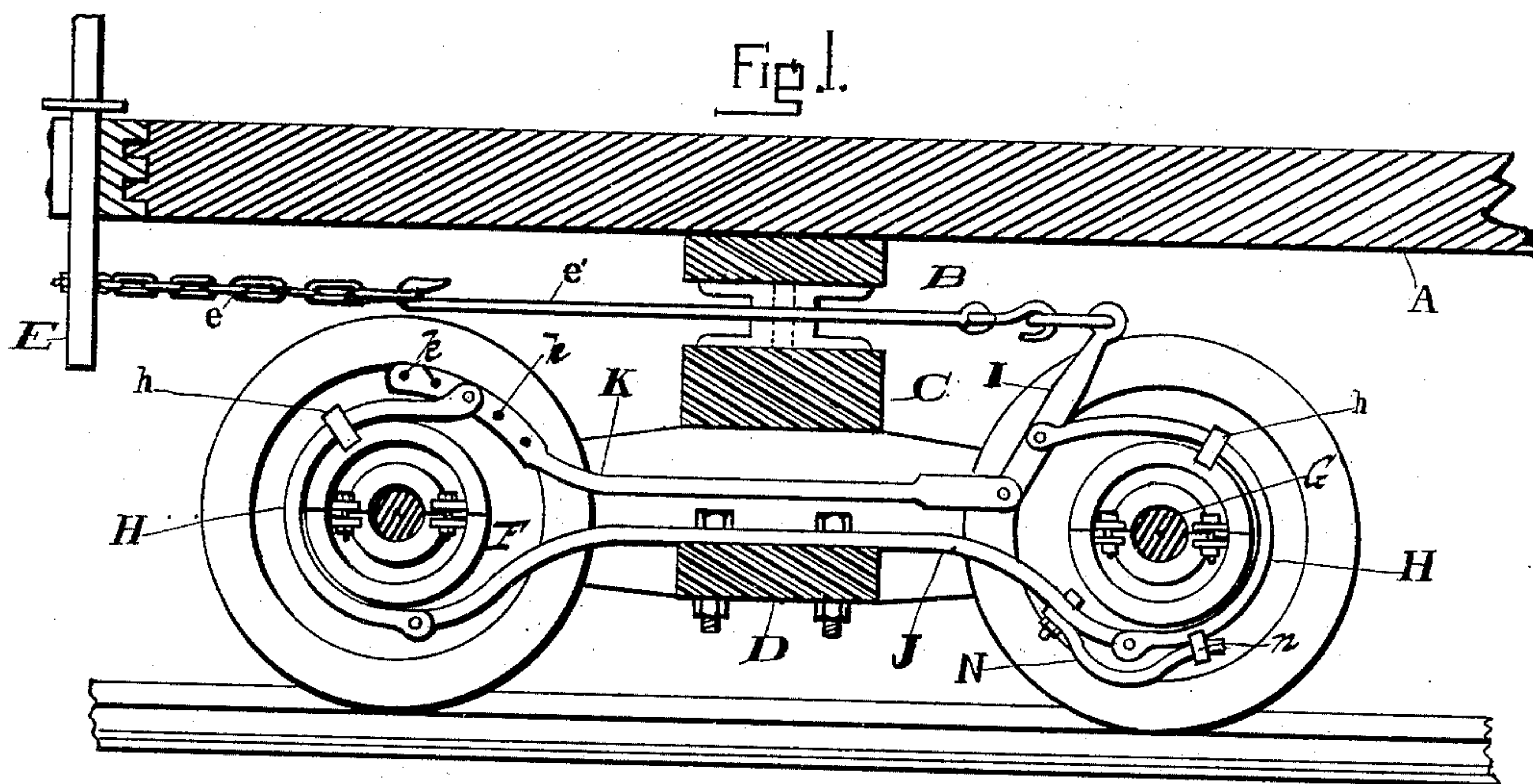


(No Model.)

J. LYTLE.
CAR BRAKE.

No. 277,587.

Patented May 15, 1883.



ATTEST

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" "
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UNITED STATES PATENT OFFICE.

JOSEPH LYTLE, OF CINCINNATI, OHIO.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 277,587, dated May 15, 1883.

Application filed April 19, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH LYTLE, of the city of Cincinnati, county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Railway-Car Brakes, of which the following is a specification.

The object of my invention is a means to quickly check the motion of railway-cars, and to accomplish this result by friction applied to a drum or pulley, which is secured upon the axle, thus avoiding the wear upon the wheels which is caused by the brake-shoes now in common use. These objects are accomplished by the means illustrated in the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of a portion of a car and truck provided with my improvements. Fig. 2 is a vertical section, omitting the car-wheel, and having the friction-drum turned around to bring the dividing-line coincident with the section-line. Figs. 3 and 4 are perspective views of the opposite halves of the form of friction drum or pulley I intend to use when desirable to make them of wrought instead of cast metal.

Before proceeding to a general description of my improved brake it should be understood that it is applicable to any of the cars now in common use without changing their construction. I have shown it applied to the common freight-car, of which car A represents one of the bottom framing-timbers; B, the body-bolster; C, the truck-bolster, and D the bottom bolster.

The brake-staff E, its chain *e*, and connecting-rod *e'* are identical in construction and applied in the same way as those now in common use.

F is a cast-metal drum made in sections or halves, with projecting lugs *f* upon each side. These are perforated to receive bolts, by which the halves are clamped firmly together upon the axle G. As an additional security against slipping, the drum may be keyed to the axle-shaft. One or more of these drums I secure upon each axle between the wheels.

H is a wrought or malleable metal strap or shoe plate, bent to nearly conform to the circumference of and extending but partly around the pulley F. It has a hinge-joint at the under side, by which it is connected to a wrought-

iron bar, J, which is bolted to the bottom bolster, D, the ends of the rod extending upon each side of the bolster to connect with the shoe on each axle-pulley.

I is an ordinary car-brake lever. The upper end is united to the connecting-rod *e'* in the usual way. The rear shoe II is turned into an eye at the upper end and slotted to straddle the lever I, to which it is hinged by a pin passing through the eye and lever. The lower end of the lever I is jointed to a connecting-rod, K. The opposite end of this rod K is jointed to the friction strap or shoe, which passes around the pulley on the opposite axle. One end of the connecting-rod K is provided with a number of holes, *k*, into either of which the key-pin may be placed to take up slack should such be necessary.

N is a spring, one end of which is secured to the bar J. The other end is bent under a loop, *n*, secured upon the friction-strap. The purpose of this spring is to throw the shoe or friction-plate back from the pulley when the brake is "off" to relieve the shoe and pulley from friction.

To the outside of the friction-straps H are secured guides *h*, which extend down upon each side of the pulleys F to keep the friction-plate upon the pulley.

In Figs. 3 and 4 I have shown a form of pulley which I make of wrought-iron. These I make out of a flat bar. The central bore for the axle is bent in the center of the bar, the rim of each piece is formed by bending the ends of the bar around to the proper shape and welding them together, the halves are secured upon the axle by bolts passing through holes in the web, and the pulley may also be keyed in the usual way.

Now, it will be seen that when the chain *e* is wound around the brake-staff the friction straps or shoes H will tightly hug the pulleys F, and, causing great friction, quickly stop the rotation of the axle and wheels. I am by this means enabled to secure as much friction-surface as necessary, for the pulleys F may be increased in number or made as wide as desired; but with the same friction-surface now employed with the common brake-shoes I obtain much more friction because the wrought-iron strap and wrought or cast iron rim of the fric-

tion-pulley are much better friction surfaces than the chilled rim of the car-wheel, and the contact-surfaces will remain perfect, as there is no wear except between them, while the rim of the wheel is worn uneven by the rail. By my brake the strain and wear upon the car and truck, caused by the tendency of the brake-shoes to "climb" or "ride" around with the wheel, is avoided.

I have shown friction pulleys and straps upon each axle of the truck, united by connecting-rods and the actuating-lever; but if it is desired to use the pulley only upon one axle the rod K may be bent and secured to the truck-timbers. In case it is desirable to use two or more pulleys, F, upon the same axle the upper ends of the brake-straps will be secured to a brake-beam, either of wood or iron, to which the lever I will be connected.

The pulleys F, instead of being made in halves, may of course be made in one piece and placed upon the axle before the wheels are secured in place; but the form shown is preferable, as they can be placed or changed at will without displacing other parts.

I am aware that it is old to mount a friction-pulley on a car-wheel axle, and so pivot a pair of brake-shoes below said pulley that by operating the car-brake lever the shoes will be actuated, (by means of a lever secured to the free ends of both shoes,) to grasp the pulley and retard the motion of the wheel-axle upon which said pulley is mounted; but in this case the brake-shoes have been made of cast metal.

I am also aware that it is old to use, in connection with a friction-pulley mounted on the wheel-axle, two oppositely-arranged brake-shoes swung from the truck-frame and operated simultaneously to hug the pulley through

the agency of the car-brake lever; and, finally, I am aware that a flexible brake-strap is, *per se*, not new.

I claim as my invention—

1. The combination, substantially as before set forth, of the car-axle having a fixed pulley, the fixed rod J, the friction-strap pivoted at one end to said rod, the lever I, pivoted to the opposite end of the friction-strap, and the rod K, secured at one end to the lever I, and having at its other end a longitudinal series of holes, *k*, by which it may be adjustably secured, as described.

2. The combination, substantially as before set forth, of a car-axle having a fixed pulley, the fixed rod J, the flexible friction-strap pivoted at one end to said rod, the lever I, pivoted to the opposite end of the friction-strap, the rod K, and the spring N, secured at one end to the rod J, and having its other end connected with the friction-strap.

3. The combination, substantially as before set forth, of the car-axle, the pulleys fixed thereon, the rod J, the friction-straps pivoted thereto, the lever I, fulcrumed on one of the friction-straps, and the connecting-rod K, secured at one end to the other friction-strap and at its other end to the lever I.

4. The combination, substantially as hereinbefore set forth, of the car-axle G, friction-pulley F, secured upon said axle, the friction strap or shoe H, its sustaining-rod J, and mechanism, such as shown, for tightening the strap upon its pulley, with the guide *h* to prevent the lateral slipping of the strap.

JOSEPH LYTLE.

Witnesses:

GEO. J. MURRAY,
JOHN CRANE.