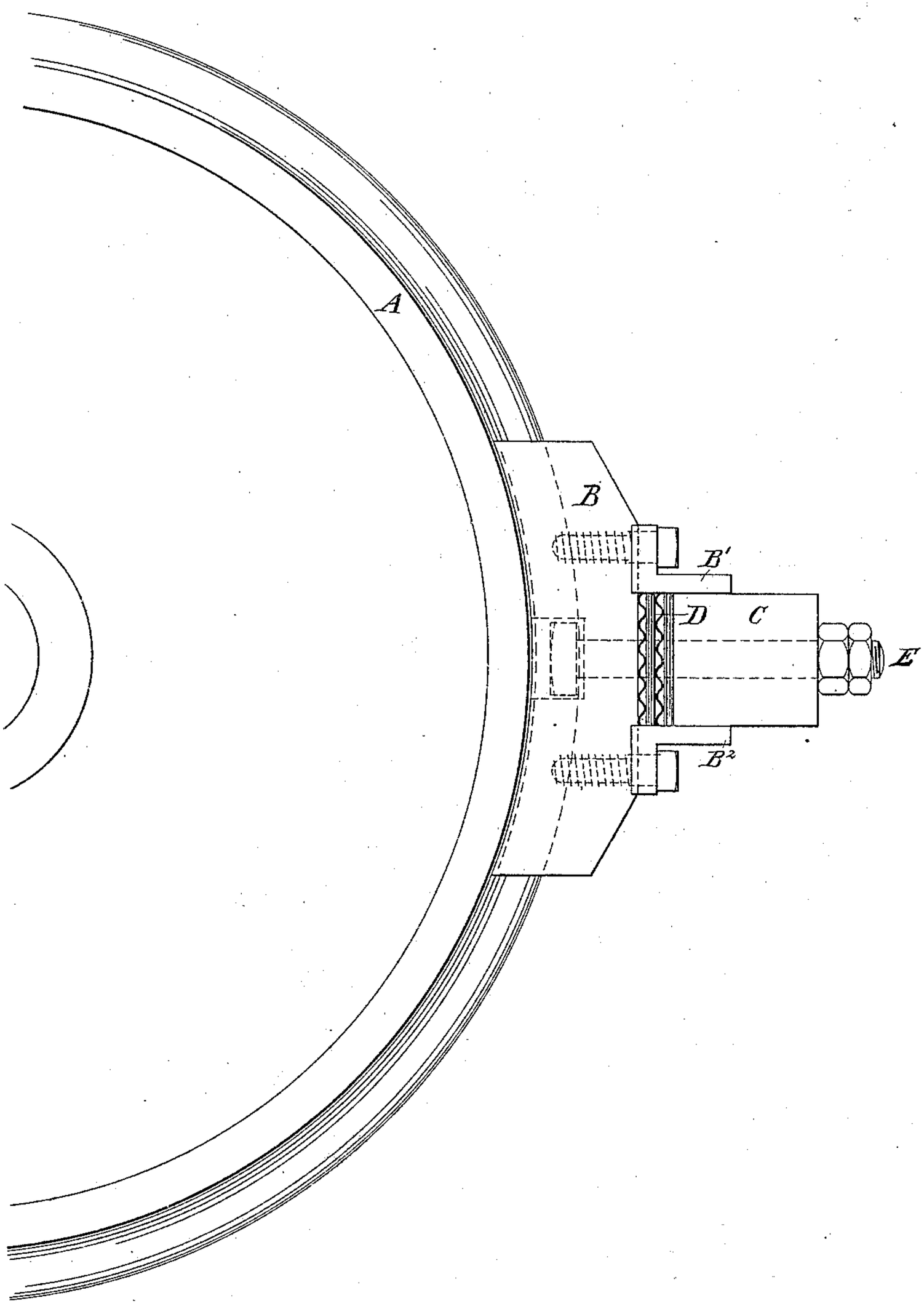
(No Model.)

P. R. FREY.

CAR BRAKE.

No. 277,476. Patented May 15, 1883.



Witnesses:

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by his attorney

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UNITED STATES PATENT OFFICE.

PHILIP R. FREY, OF WESTERN UNION, WISCONSIN.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 277,476, dated May 15, 1883.

Application filed October 25, 1882. (No model.)

To all whom it may concern:

Be it known that I, PHILIP R. FREY, of Western Union, Racine county, in the State of Wisconsin, have invented certain new and useful Improvements relating to the Construction of Car-Brakes, of which the following is a specification.

I introduce an elastic action between the brake-shoe and the brake-beam, while supporting the shoe stiffly against the movement induced by the friction of the wheel in either direction. The extent of the elastic motion may be slight, but it is important that it be sufficient to kill the vibrations induced by the frictional action of the surface of the wheel. My spring or springs as introduced also aid to maintain a greater uniformity of force, holding the shoe upon the wheel under the varying conditions which obtain in practice.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawing forms a part of this specification, and is a vertical section through the brake-block and the adjacent parts, including the spring.

Referring to the drawing and the letters of reference marked thereon, A is a portion of the wheel.

B is the brake-shoe.

B′ and B² are knees or brackets firmly bolted on the rear face of the brake-shoe at a proper distance apart.

C is the brake-beam.

D is a spring composed of several plates of steel or hard iron, which are formed with corrugations and applied together, the corrugations in each extending transversely to those of the adjacent plates on each side. The corrugations need not be deep. I esteem this form of spring peculiarly well adapted to my special purpose, as a large area is available and only a small amount of elastic action required. I will designate the whole set of plates as a single spring.

E represents one of the bolts which hold the parts together and allow the yielding of the spring D.

The mechanism for applying and letting off the brake may be of any ordinary or suitable description. (Not represented.) The brake in all conditions is worked in the ordinary manner. I propose in some instances to protect the joint around the edge of the spring D against the entrance of water and dust. When the brake is out of use the spring exerts its ordinary tension against the bolts E, and the brake is in all practical respects in its usual position. When the beam C is forcibly operated toward the wheel it transmits the pressure through the spring D to the shoe B and induces friction on the wheel. The motion of the wheel in one direction or the other tends to move the shoe up or down. This is resisted by the knee B′ or B², according to the direction in which the car is moving. The plane faces of the knees B′ B², resting against the top or bottom of the beam C, allow the small amount of motion which is due to the action of my spring. Instead of transmitting to the brake-shoe the force received from the beam in the same rigid manner in which the beam receives it, the interposition of the spring D makes the pressure of the shoe against the wheel uniform under all conditions of irregularity of the wheel. Irregularity in the periphery of the wheel due to defective workmanship, wear, or other cause, is accommodated by the yielding of the spring D. Any harshness, suddenness, or irregularity in the force transmitted from the beam is softened by the same spring.

Modifications may be made in the proportions. The thickness of the spring may be varied within wide limits. I esteem it important that it have a large area. The corrugated plates possess advantages in this situation which are peculiar to themselves. They furnish a stiff spring, which will retain its elasticity. They are adapted to lie snugly between the parts B′ B², and are held securely in place by the bolt E without other fastening. Instead of making the knees B′ B² in separate castings bolted on as shown, I can make them in a single casting extending along the rear of the shoe B; or I can form them as offsets in the wood or other material of the shoe B. It is only important that they have a broad bearing and are adapted to resist the vertical movement of the shoe and allow its horizontal movement induced by the elasticity of the spring.

It has been before proposed to mount an iron shoe between the brake-beam and the wheel,

with a spring interposed, the shoe being attached to the brake-beam by webs or hooked projections at the top and bottom. Such involves a necessity for a casting on the brake-beam corresponding to each shoe, which my invention completely avoids. My bolt E, extending through the brake-beam, the spring, and the shoe, allows sufficient play for the spring, and confines the whole together without necessity for other fastening.

I claim as my invention—

1. The shoe B, of wood, the knees B′ B², of metal, and spring D, beam C, and confining-bolt E, combined and arranged for joint operation as herein specified.

2. In a car-brake, the combination of the shoe B, brake-beam C, uniting means E, and interposed spring D, composed of a series of corrugated metal plates laid one upon another, substantially as set forth.

In testimony whereof I have hereunto set my hand, at Western Union, this 17th day of October, 1882, in the presence of two subscribing witnesses.

PHILIP R. FREY.

Witnesses:
W. H. BONES,
JOHN J. DONAHUE.