

(No Model.)

H. WALTER.
ELECTRO MAGNETIC BRAKE.

No. 248,239.

Patented Oct. 11, 1881.

Fig. 1

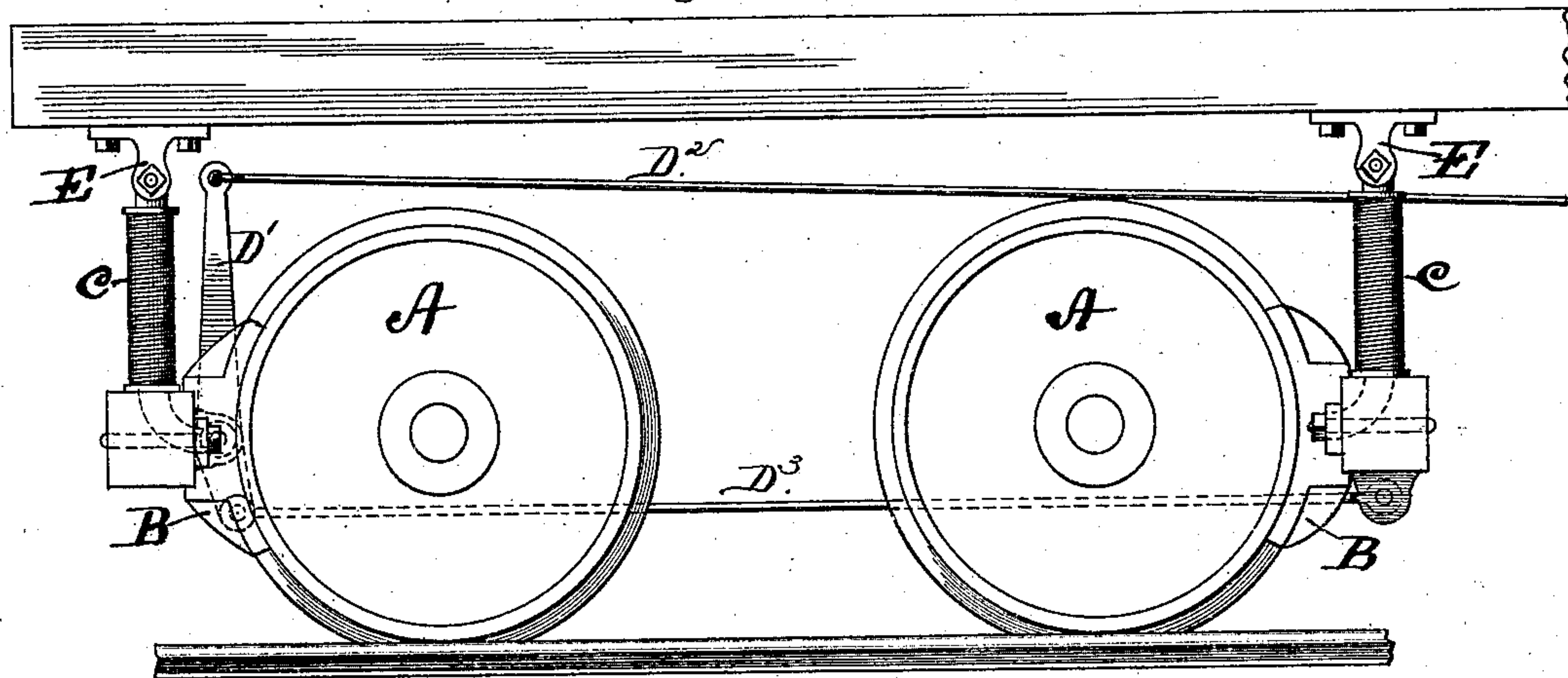


Fig. 2

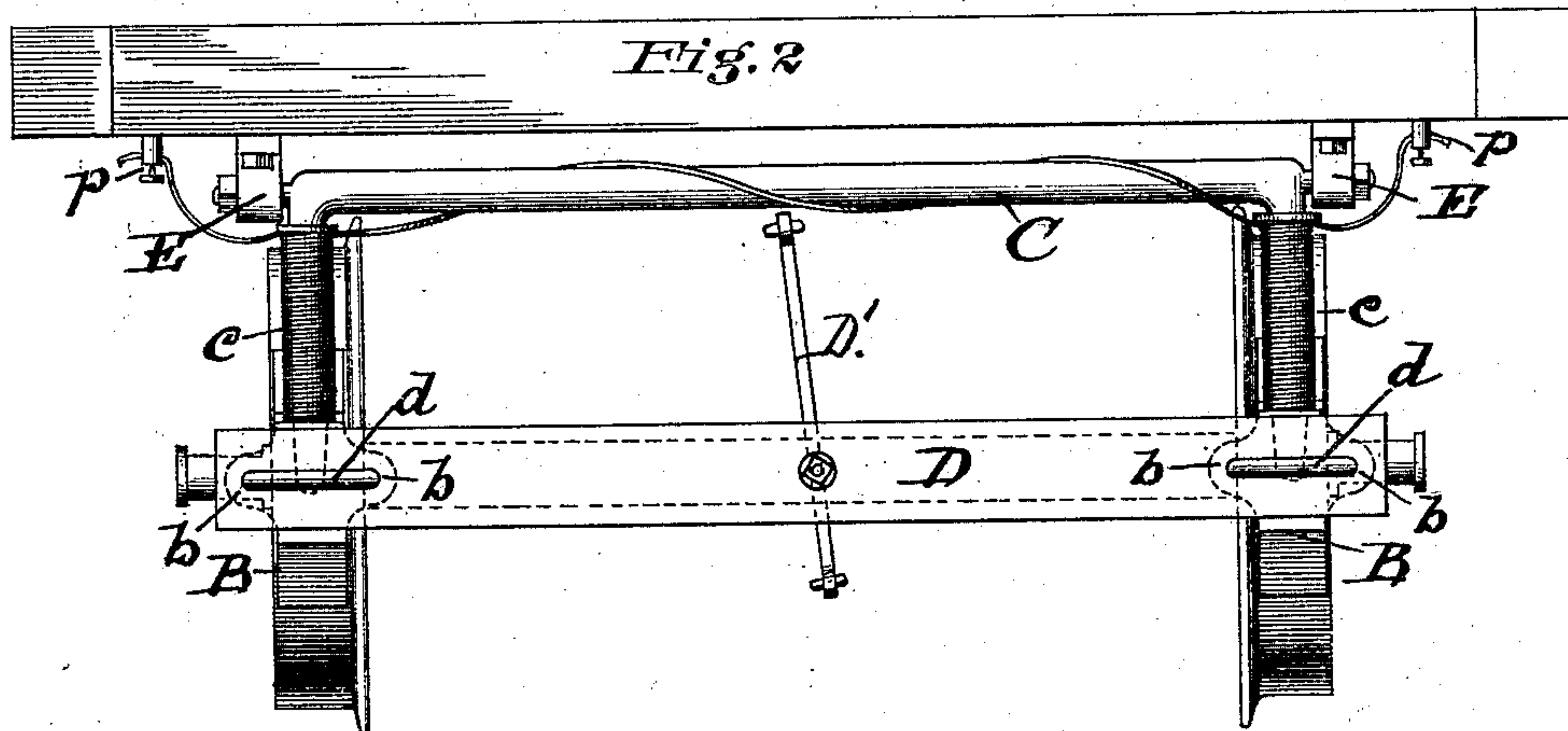


Fig. 3

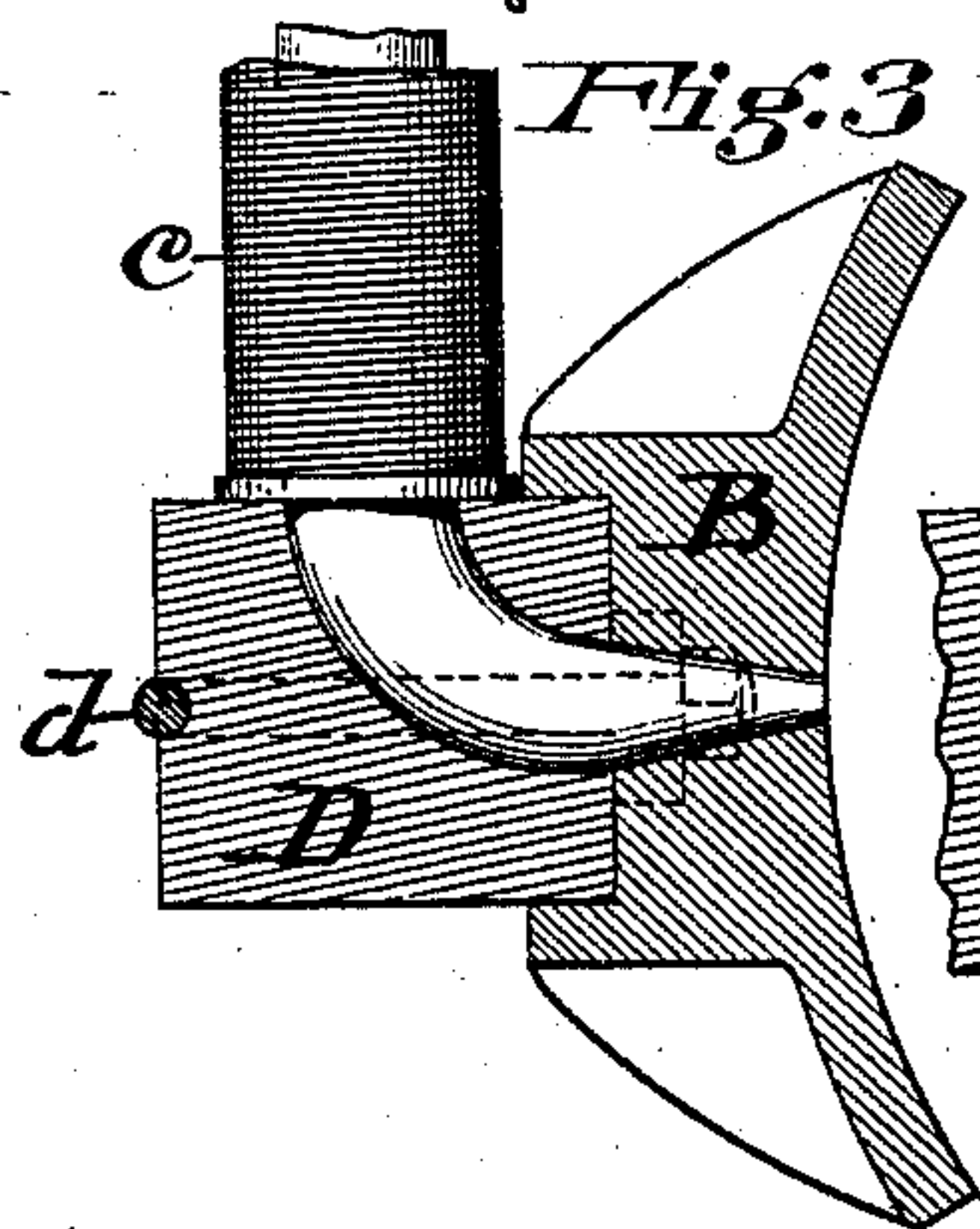
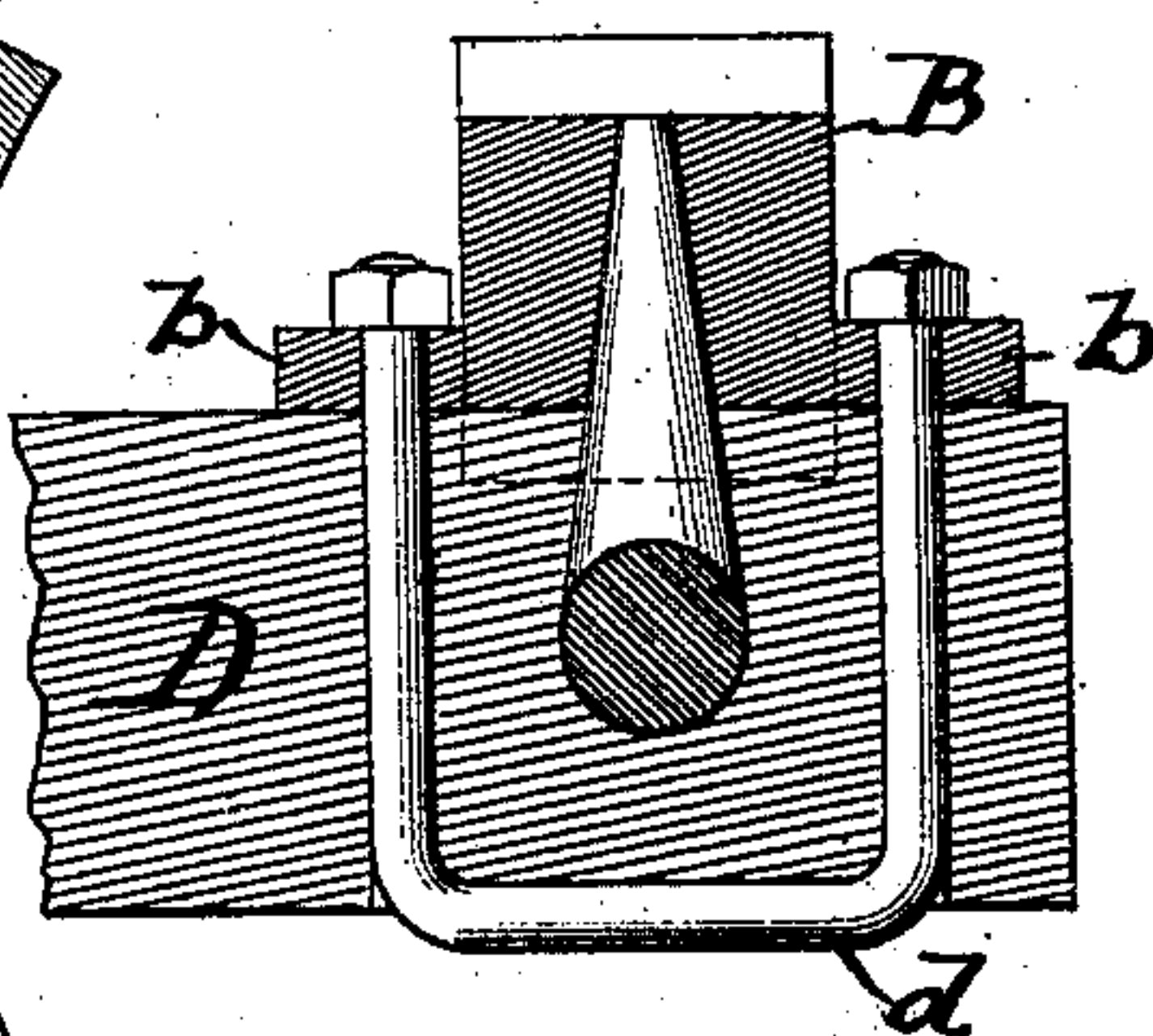


Fig. 4



Attest

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ELECTRO-MAGNETIC BRAKE.

SPECIFICATION forming part of Letters Patent No. 248,239, dated October 11, 1881.

Application filed May 26, 1881. (No model.)

To all whom it may concern:

Be it known that I, HUGO WALTER, a citizen of the United States, residing at Cincinnati, Hamilton county, Ohio, have invented new and useful Improvements in Electro-Magnetic Brakes, of which the following is a specification.

My invention relates to electro-magnetic brakes, and is in the nature of an improvement upon that for which Letters Patent No. 237,071 were granted to myself and associates January 25, 1881. Said patent described an electro-magnetic brake in which the brake-bar was utilized as the core of an electro-magnet, of which the brake-shoes were the poles, the bar being wound wholly or partially between the brake-shoes with the polarizing helix.

In my present invention, instead of extending the bar directly across, as shown in said patent, and hanging it upon links, as a complete substitute for the ordinary brake-bar, I use a bar constructed as shown, turned down at the ends, to connect with the brake-shoes, and pivoted in loops by means of extensions of the horizontal portion, and use only the vertical portions of the bar in position for the helices.

The advantages of this construction are important. Since the same practical results are attained by wiring the extremities of a continuous bar-magnet, leaving the central portion free, as by extending the helix entirely across, I am by this construction enabled to wind only the vertical portions of the bar, which are in better position to avoid injuries in use. The brake-shoes are thus hung upon rigid arms, which prevent their vertical movement in use. The weight of the suspended iron brake-bar at the end of the link, and the consequent swinging movement, is avoided, and the action of the brakes under magnetic attraction is rendered more efficient in consequence; and by this arrangement I am also enabled to employ the ordinary wooden brake-bar and the ordinary mechanism for hand-braking, for use in emergencies, thereby avoiding the danger which might arise from any failure of the electro-magnetic force to act through accidental injury.

My invention is embodied in mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents the wheels of a car-truck, in side elevation, with my improvement attached. Fig. 2 is an end elevation of the same; and Figs. 3 and 4 are detail sectional views, showing the mode of connecting the brake-shoes to the magnet-bar.

Similar letters of reference indicate similar parts in both specification and drawings.

In the drawings accompanying and illustrating this description, A A are the car-wheels; B B, the brake-shoes; C, the magnet-bar, and D, the ordinary brake-bar, the latter extending directly across and connecting the shoes B B.

To the brake-bar D, at or near the center thereof, is attached an upwardly-projecting lever, D', to the upper end of which is attached one end of a rod or chain, D², which is to connect at the other end with the usual hand-operated winding-shaft of a railway-car. The front and rear brakes, B B, are connected through the medium of a rod, D³, one end of which is attached to one of the brake-bars and the other end to the lever D'. The object of this arrangement is to permit the brakes to be applied by the brakeman in the ordinary manner, should the electro-magnetic force fail to properly perform its work, in case of accidental injury.

The magnet-bar C is a straight bar of iron arranged horizontally, immediately beneath the car, in bearing loops or brackets E, and turned downward vertically at each end, as shown in Fig. 2, to connect with the brake-shoes B, the mode of connection being shown in Figs. 3 and 4.

The bar is, preferably, suspended in loops E upon pivots projecting beyond the horizontal portion of the bar, and is arranged in the usual manner to hold the brake-shoes close to, but not in contact with, the wheels.

The brake-shoes B are secured at the ends of the ordinary wooden brake-beam D, to which is attached the ordinary lever mechanism for hand-braking, which may be used independently.

Upon the vertical portion of the brake-bar is wound the insulated wire forming two helices, c c, which are wound with a continuous insulated wire, carried across from one to the other, the terminals being connected at bind-

ing-posts *p p* with the battery or generator upon the engine or elsewhere.

The extreme ends of the bar *C* are turned horizontally toward the wheels, and are carried through the brake bar and shoes, as shown, so as to present the ends in contact with the wheels in the midst of the contact-surfaces of the brake-shoes, from which they are properly insulated.

10 The brake-shoe proper is provided with lateral ears *b b*, (shown by dotted lines in Fig. 2,) through which pass the ends of a U-bolt, *d*, by which the parts are secured firmly together.

15 Having described my invention, I claim and desire to secure by Letters Patent—

20 1. In an electro-magnetic brake, the bar *C*, having the end extensions, forming journals, which are pivoted in loops or brackets, and having its end portions turned downward to a vertical position, said vertical portions being provided with helices and connected with and sustaining the brake-shoes, substantially as described.

2. In an electro-magnetic brake, the combination of the core *C*, the helices *c c*, the brake-shoes *B B*, the brake-bar *D*, a lever, *D'*, and devices for connecting said lever with the ordinary hand-operated brake-shaft of a railway-car, substantially as described, for the purpose set forth. 25 30

3. The combination of the horizontal bar *C*, having vertical end portions, as described, with the brake-shoes, having ears *b*, the brake-bar *D*, and the yoke *d*, extending through the brake-bar and the ears of the brake-shoes, substantially as set forth. 35

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

HUGO WALTER.

Witnesses:

L. M. HOSEA,

C. P. DOOLITTLE.