

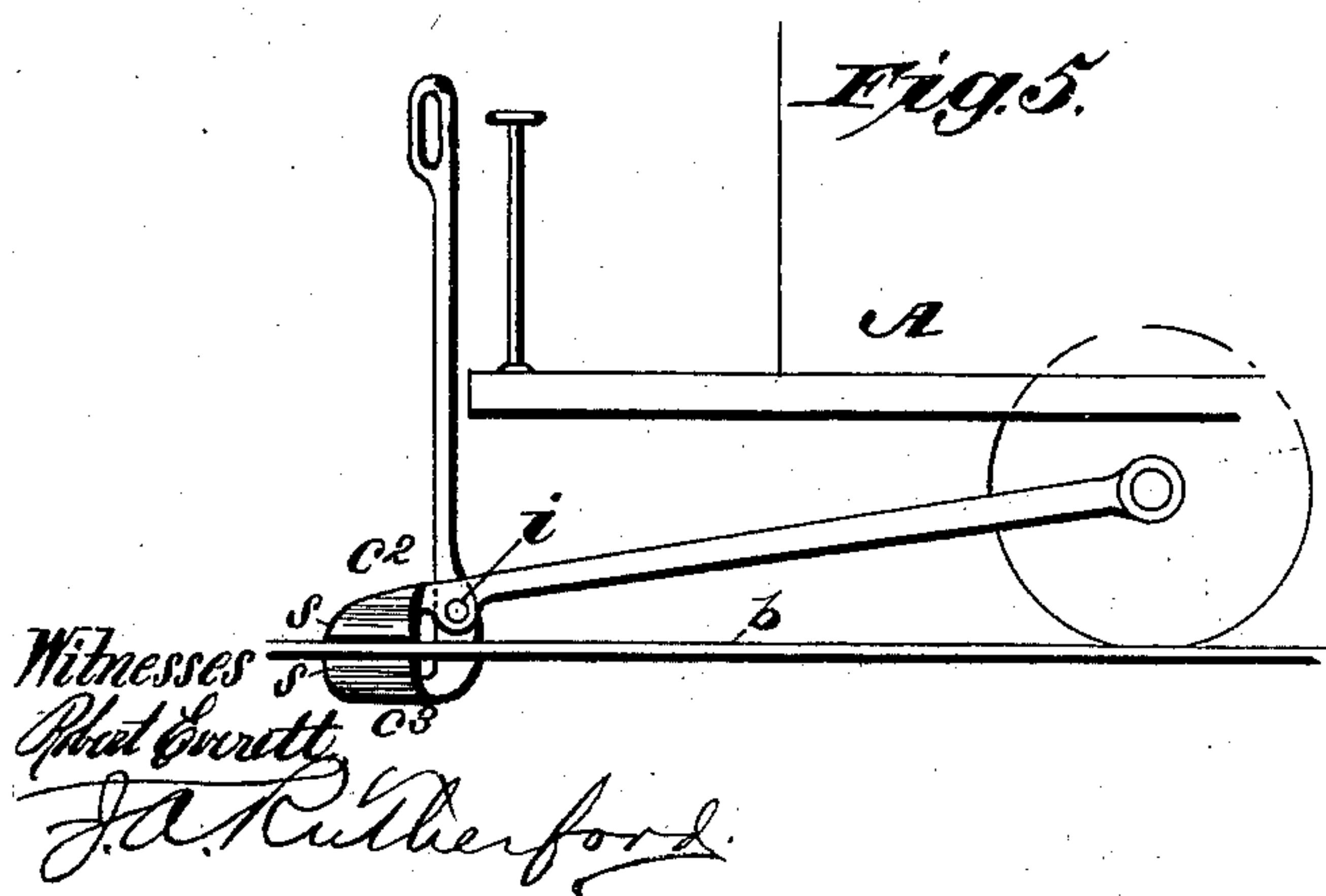
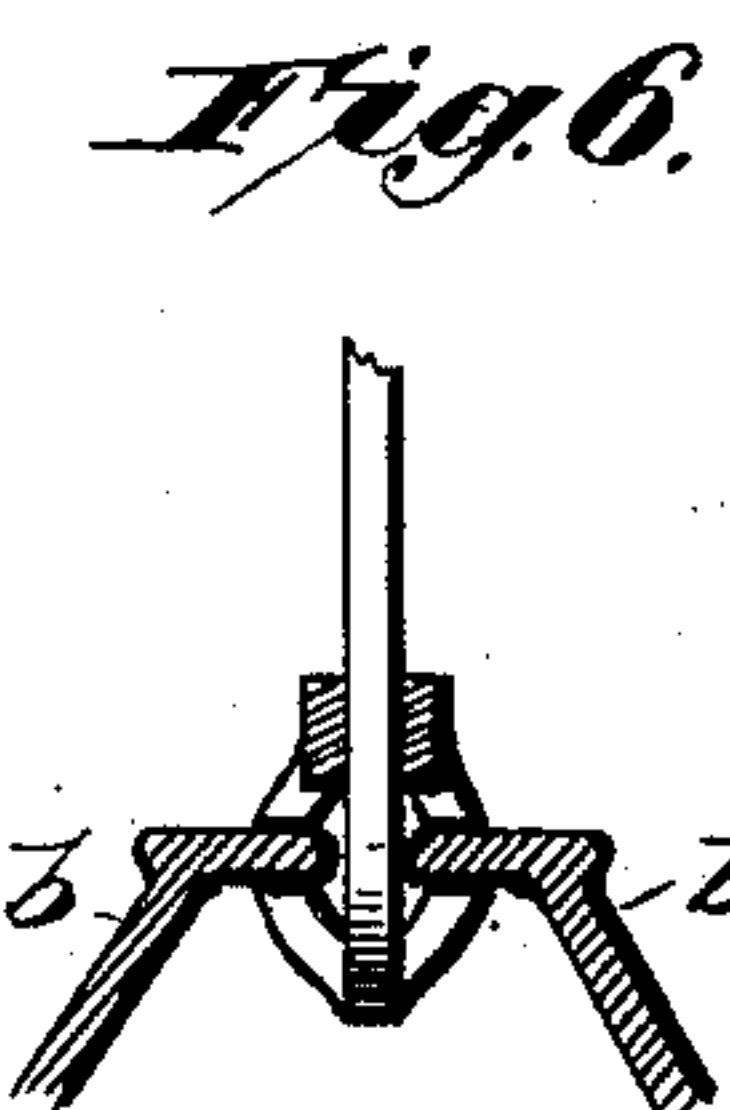
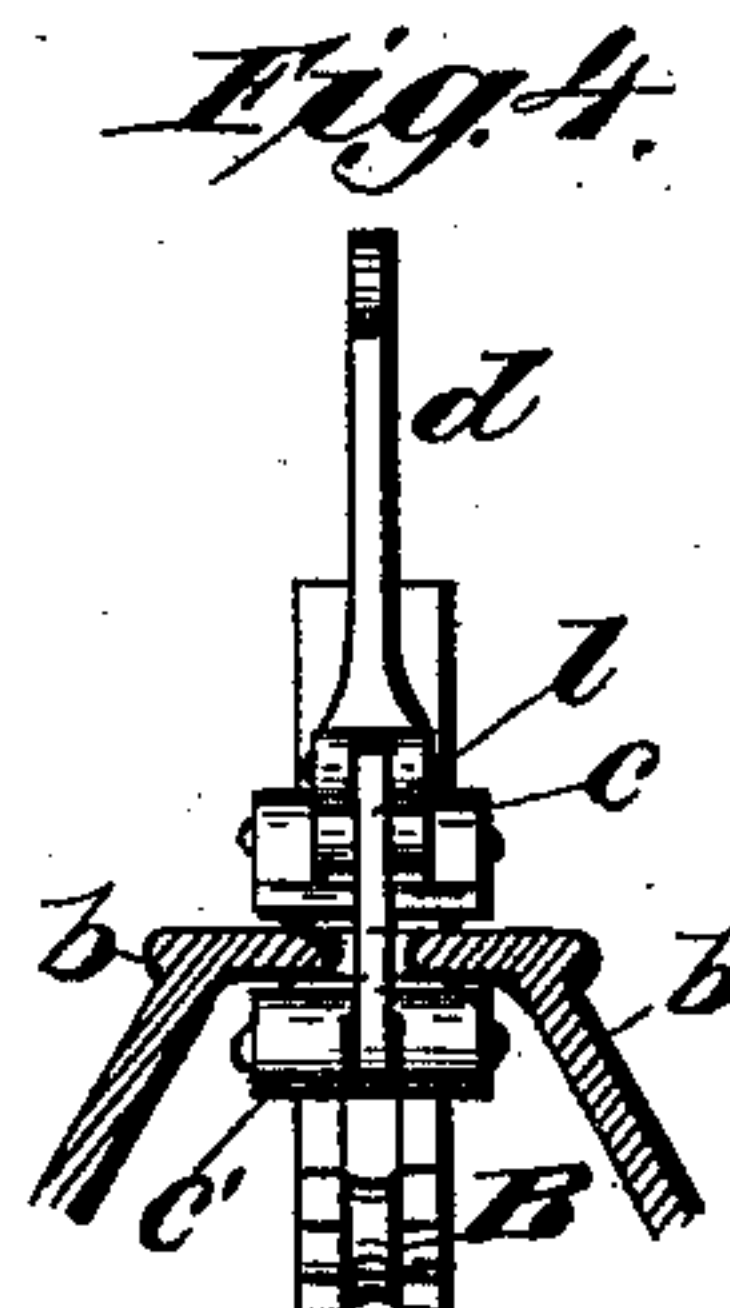
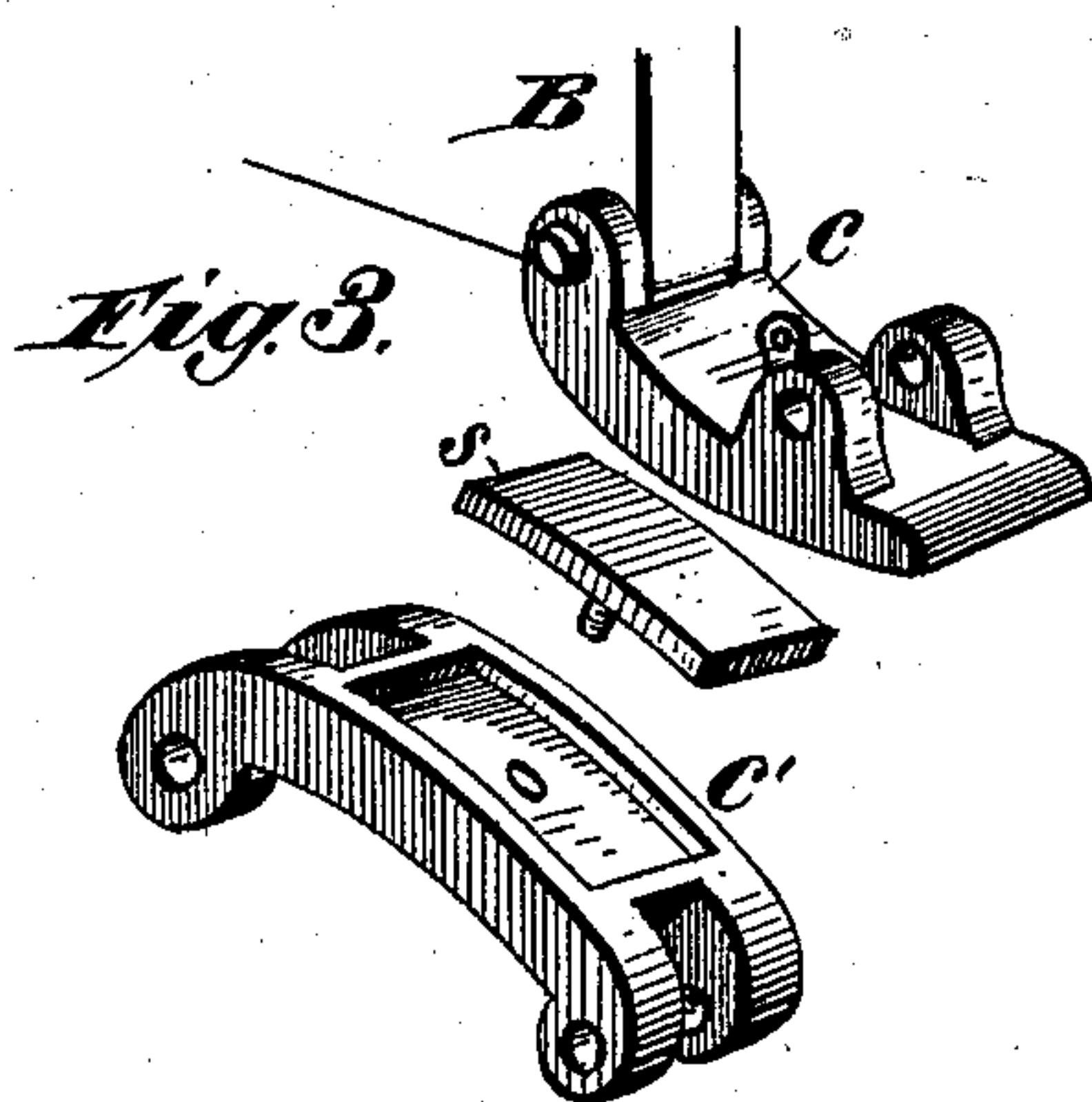
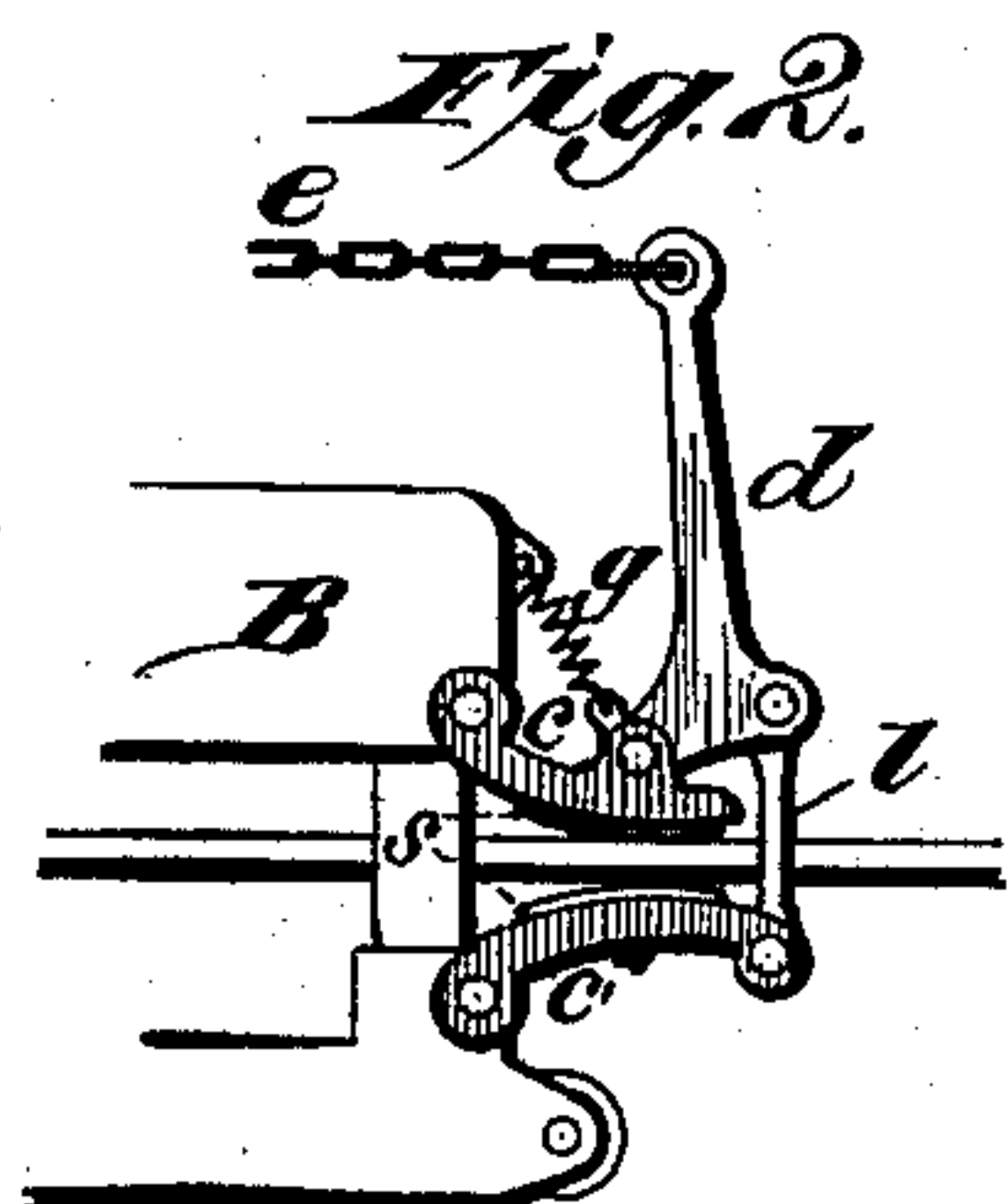
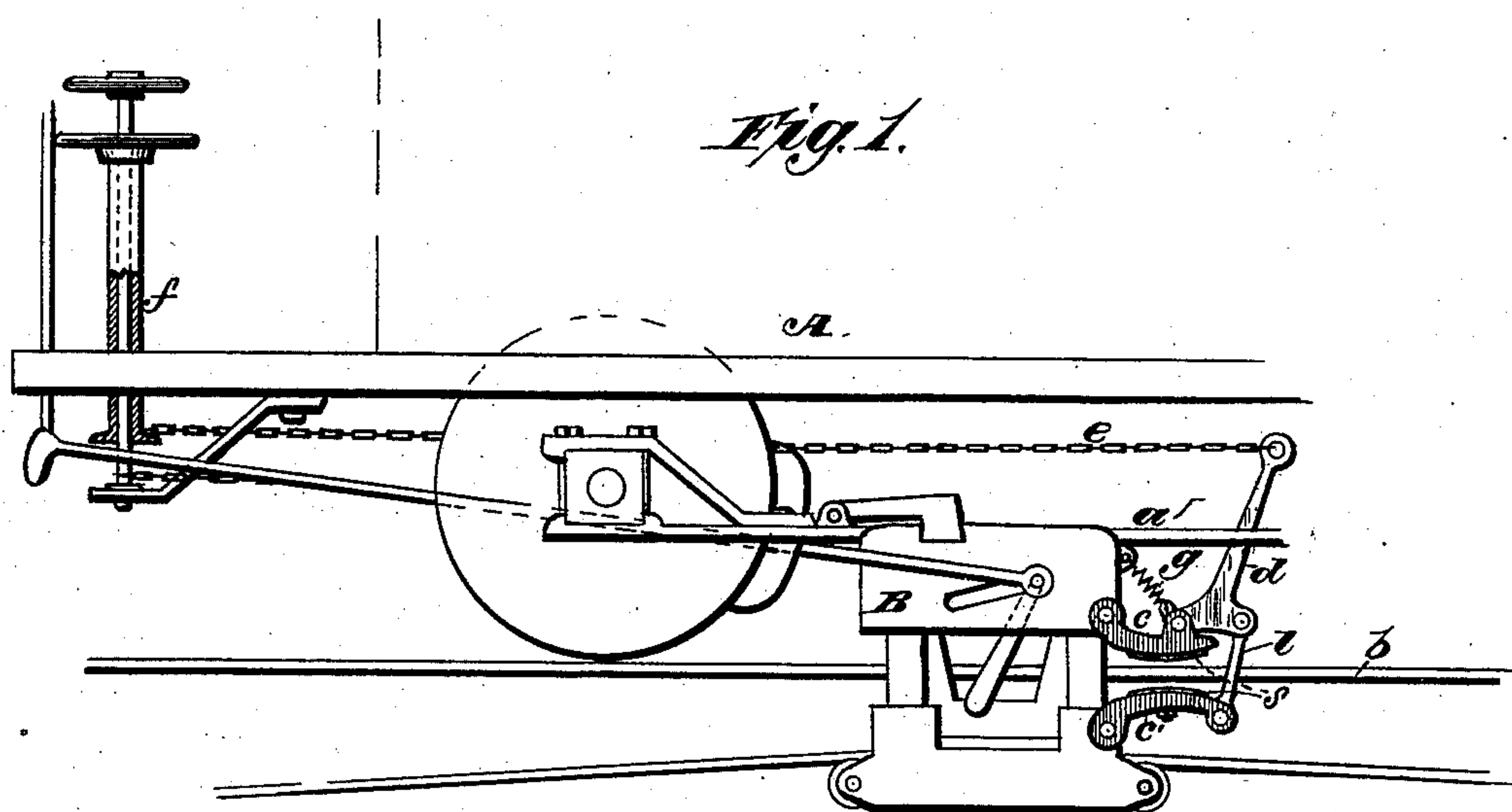
(No Model.)

L. M. HOSEA.

FRICTION BRAKE FOR CABLE RAILWAY CARS.

No. 379,015.

Patented Mar. 6, 1888.



Inventor:
Lewis M. Hosea.
By James L. Norrie,
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UNITED STATES PATENT OFFICE.

LEWIS M. HOSEA, OF CINCINNATI, OHIO, ASSIGNOR TO THE LANE & BODLEY COMPANY, OF SAME PLACE.

FRICTION-BRAKE FOR CABLE-RAILWAY CARS.

SPECIFICATION forming part of Letters Patent No. 379,015, dated March 6, 1888.

Application filed December 7, 1887. Serial No. 257,234. (No model.)

To all whom it may concern:

Be it known that I, LEWIS M. HOSEA, a citizen of the United States, residing at Cincinnati, Ohio, have invented new and useful Improvements in Friction-Brakes for Cable-Railway Cars, of which the following is a specification.

My invention relates to cable railways, its object being to provide a safety-brake for cable cars upon steep gradients.

To this end it consists in an adjustable friction clamp or brake adapted to engage by frictional contact against the upper and lower sides of the slot-rails, attached to the car either directly (as to the axles) or indirectly (as to the "grip" device connecting the car with the propelling-cable) and operating to retard or arrest the momentum of the car by frictional pressure against said slot-rails.

Mechanism embodying my invention is exhibited in the accompanying drawings, in which—

Figure 1 is a partial side elevation of a cable car and grip, with my invention attached to the latter, open and inert; Fig. 2, a detail view of the friction-brake, showing its position closed upon the slot-rails; Fig. 3, detail perspective views of the clamping-jaws and a shoe detached; Fig. 4, a cross-sectional view of the tunnel-slot rails, showing the position of the clamping-jaws; Fig. 5, a general side elevation of a modified form of the friction-clamps attached to the car-axle; and Fig. 6, a cross-section of same, showing its position in the slot.

Referring, now, to the drawings, A designates a cable car, B the grip by which it is attached to the cable, and *b b* the slot-rails. In the case shown the grip is secured to a frame, *a*, carried upon the axles of the car; but this is not material.

In the preferred construction and arrangement of my invention (shown in Fig. 1) I attach two friction blocks or jaws, *c c'*, to the rear end of the grip B—one below and the other above the slot-rails. These are constructed, as shown in Fig. 3, preferably, of cast or wrought steel, and may be recessed on their contact-faces to receive shoes *s* of cast-iron, as in the case of ordinary brake-shoes, which may be renewed from time to time. The

blocks are provided with ears or lugs, as shown, to engage the grip structure pivotally and to receive a toggle-lever, *d*, (which engages the upper block,) and a link, *l*, pivoted to the rear arm of the toggle-lever *d* and to the lower jaw, *c'*, at the rear, as shown, whereby the latter is held suspended.

The toggle-lever may be operated by a chain, *e*, extending forward to a sleeve, *f*, surrounding the ordinary brake-wheel shaft, and provided with a similar hand-wheel and operated in the same manner as the ordinary brake, or actuated in any other convenient manner. The upper friction-block, *c*, is upheld upon the grip by a spring, *g*, while the weight of the lower member, *c'*, retains it and the toggle-lever *d* in the position shown in Fig. 1 ready for action.

A pull upon the chain *e* draws forward the toggle-lever *d*, depressing the jaw *c* against the upper side of the slot-rails and elevating the lower jaw, *c'*, by means of the link *l* against the lower side of the slot-rails, thereby constituting a friction clamp or brake for the grip and for the car.

In the modification shown in Figs. 5 and 6 the clamping-blocks *c² c³* are constructed and arranged somewhat after the manner of the blacksmith's tongs, pivoted together at *i* above the slot-rail, and carrying shoes *s*, which bear against the upper and lower sides of the slot-rails. In this case one of the blocks, *c²*, is bifurcated and extended rearward into an arm or link which may be connected to the car-axle, while the other, *c³*, is extended upward in rear of the car to form an operating-handle in reach of the attendant or for the engagement of suitable operating devices. Its operation is the familiar one of a pair of tongs, clamping the slot-rails in the same manner as before indicated.

The invention is designed to be used as an emergency brake upon steep inclines, where from any cause the grip fails to hold the cable and the ordinary car-brakes are insufficient to govern the car; but where the slot-rails are sufficiently heavy to stand the wear the brake may be used as a substitute for the wheel-brakes for the ordinary purposes of braking as well.

I claim as my invention and desire to secure by Letters Patent of the United States—

1. In a cable railway, in combination with

the railway-car, an adjustable friction-clamp adapted to engage by frictional sliding contact against the upper and lower surfaces of the slot-rail and carried upon the car for actuating
5 the same as a brake to the momentum of the car, substantially as set forth.

2. In combination with a cable-railway car, (and attached to the same directly or to the grip by which the same is connected to the propel-
10 ling-cable,) a friction-clamp consisting, essentially, of two friction-blocks and a toggle lever or levers connecting the same through the tunnel-slot and operating to clamp said blocks against the upper and lower surfaces of the
15 slot-rails as a friction-brake to the momentum of said car, substantially as set forth.

3. In a cable railway, in combination with the railway-car, a friction-brake consisting, essentially, of two friction-blocks pivotally con-
20 nected to the car or some attachment thereof

in the vertical plane of the tunnel-slot and respectively above and below the slot-rail surface, a connecting-link passing through the slot and toggle-lever, connecting the link and the upper block, whereby the blocks may be
25 adjusted vertically into frictional relations with the slot-rail surfaces to control the movements of the car, substantially as described.

4. The combination, with the slot-rails and car of a cable railway, of the friction-blocks
30 *c c'*, toggle-lever *d*, and link, substantially as set forth.

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

LEWIS M. HOSEA.

Witnesses:

E. R. DONOHUE,
CHAS. W. SHORT.