

(No Model.)

2 Sheets—Sheet 1.

H. H. KENKEL.
CAR BRAKE.

No. 468,409.

Patented Feb. 9, 1892.

Fig. 1.

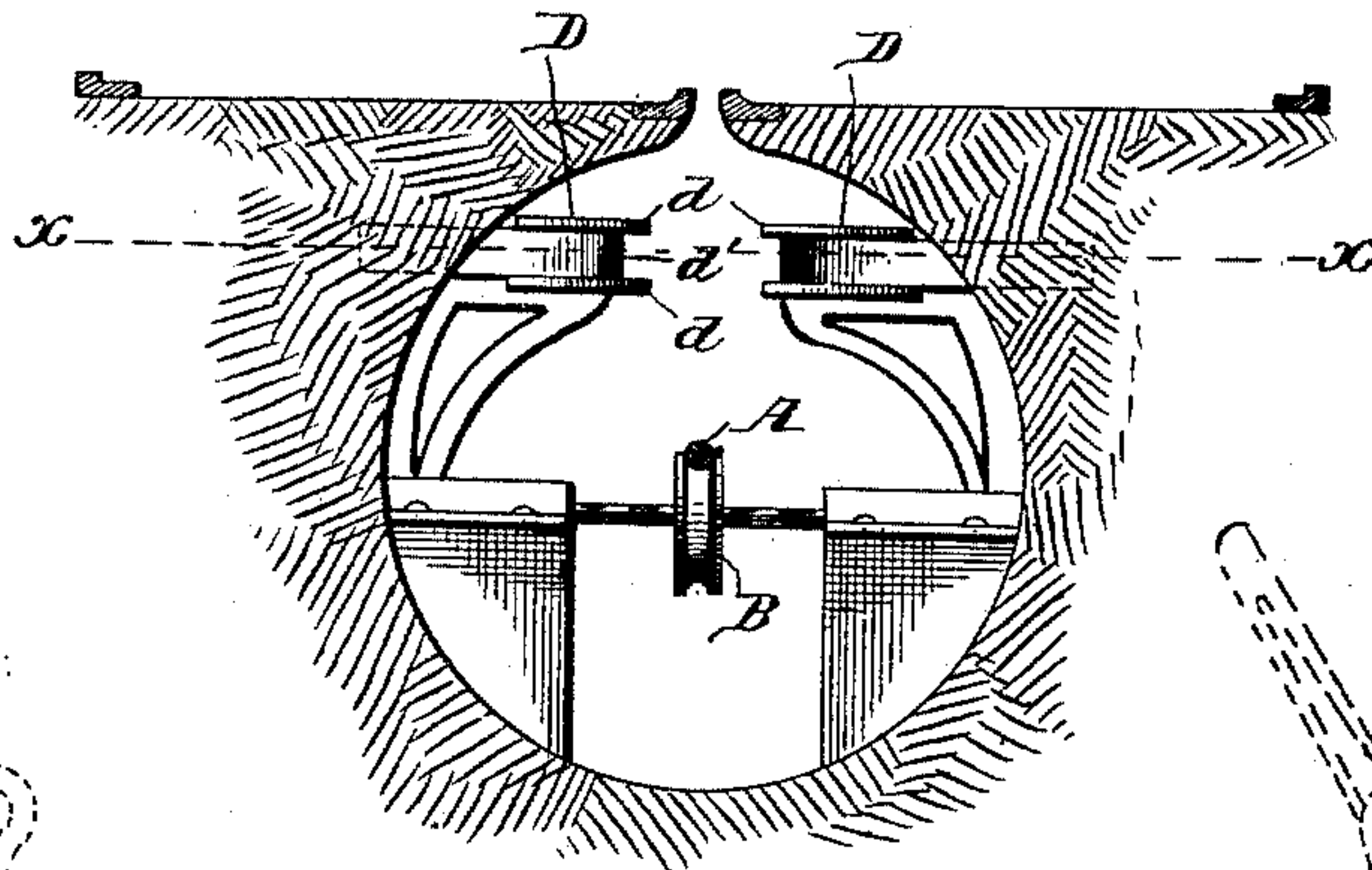


Fig. 2.

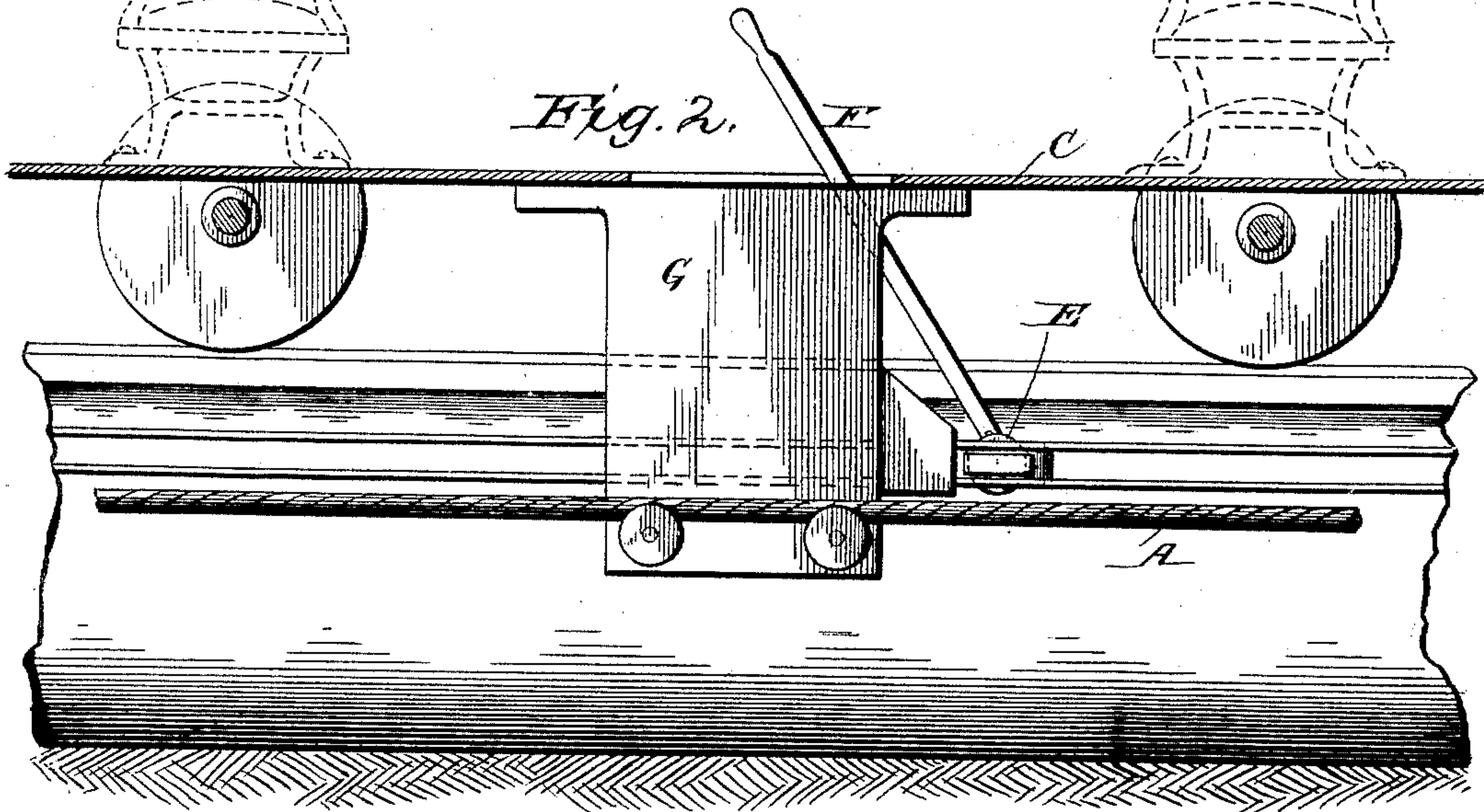
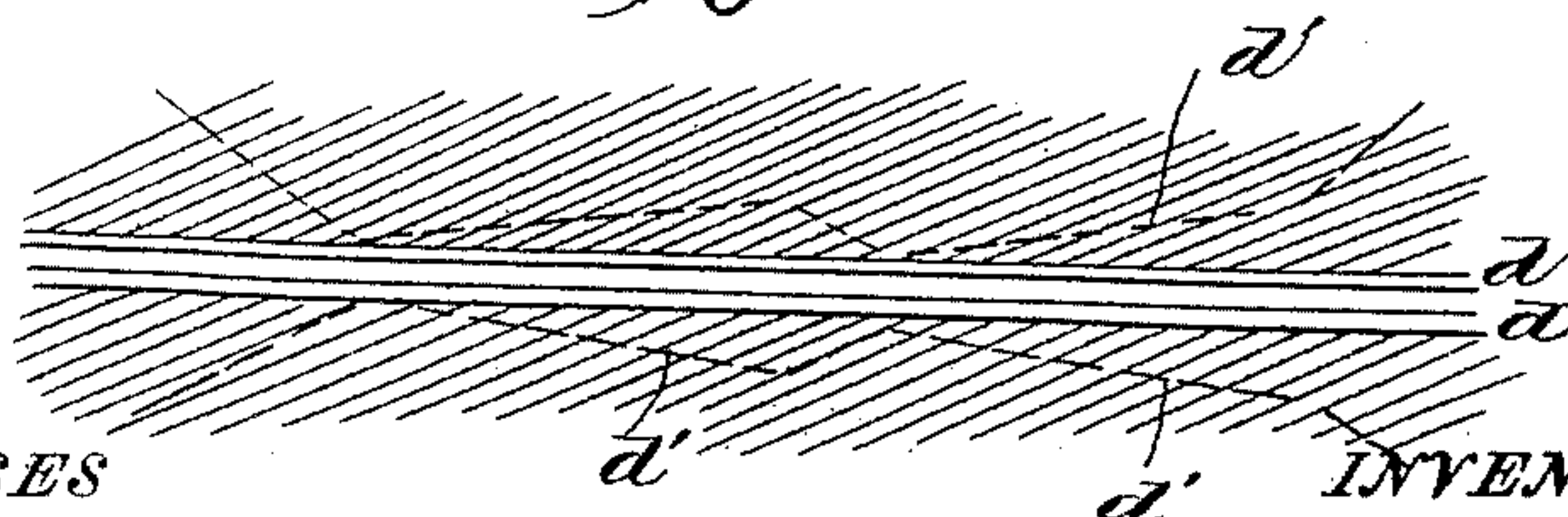


Fig. 3.



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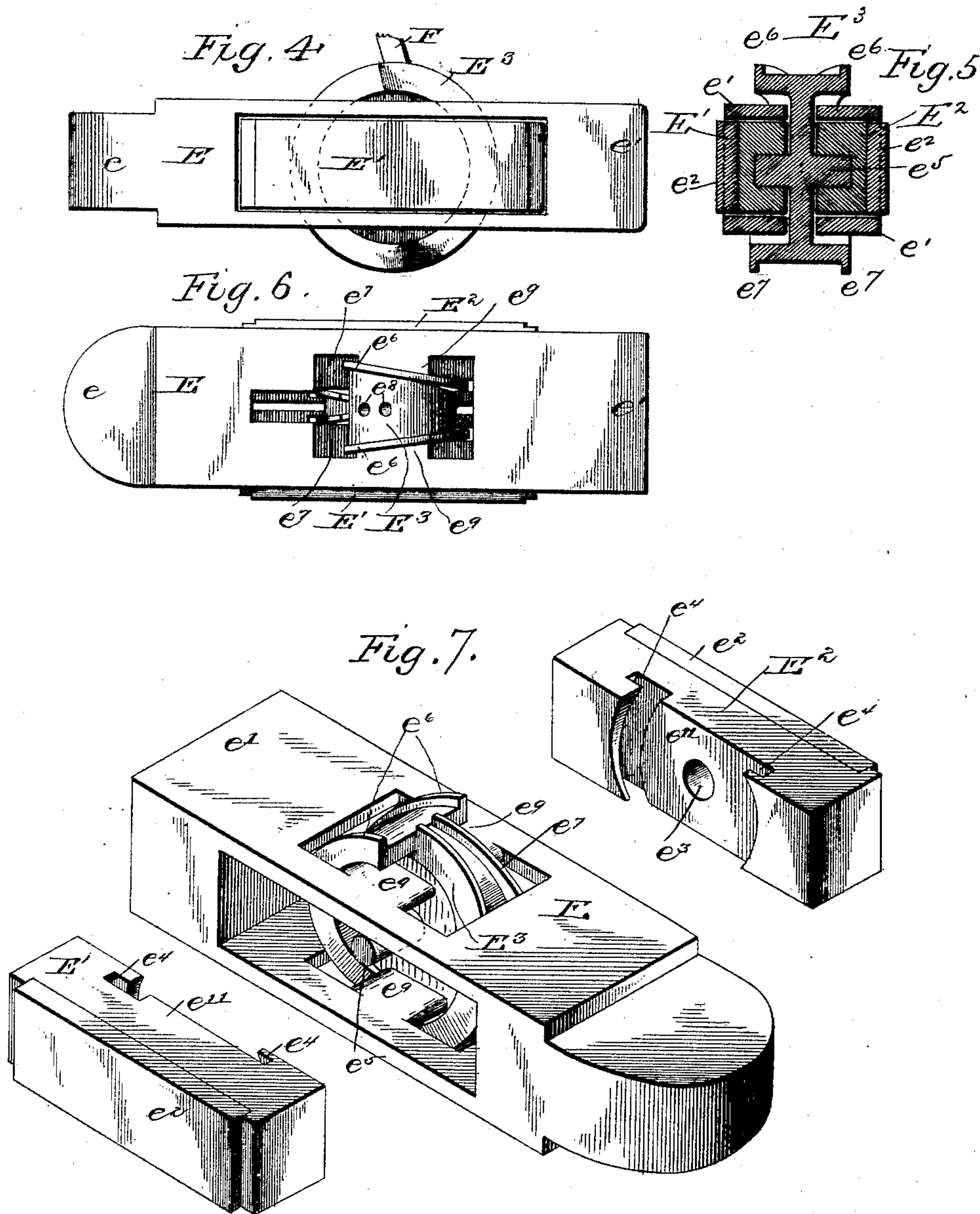
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UNITED STATES PATENT OFFICE.

HERMAN H. KENKEL, OF ST. PAUL, MINNESOTA.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 468,409, dated February 9, 1892.

Application filed June 26, 1891. Serial No. 397,646. (No model.)

To all whom it may concern:

Be it known that I, HERMAN H. KENKEL, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Car-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to brakes for cars, more especially cable cars, and is particularly adapted for use on steep inclines or slippery tracks where ordinary brakes fail to stop the car. It may also be used in lieu of or supplementary to the said brakes.

The said invention consists of certain novel parts and combinations of parts hereinafter described and claimed.

Reference is had to the accompanying drawings, wherein the same parts are indicated by the same letters.

Figure 1 represents a cross-section of a cable road, showing my improved brake. Fig. 2 represents a longitudinal section through a portion of a car, showing the grip-plate and brake. Fig. 3 represents a plan view of the channel on a steep hillside for the laterally-extensible brake-block. Fig. 4 represents a side view, Fig. 5 a cross-section, Fig. 6 a plan view, and Fig. 7 a perspective view, of the laterally-extensible brake-block, showing its various parts.

A represents the cable, mounted, as usual, over the pulleys B.

C represents the bottom of a car.

D D represent the two brake-rails firmly secured in the brackets or masonry of the subway and inclined to each other, as shown in Fig. 3, the dotted lines d' , Fig. 3, representing the section of the said brake-rails along the line $x x$ in Fig. 1. $d d$ are flanges to prevent the brake-block from jumping out from between the said rails when the brakes are applied suddenly and the pressure is excessive. The vertical distance between the flanges is somewhat greater than the depth of the block E, and the horizontal distance between the auxiliary or brake rails, while variable, is never less than the diameter of the said block when the side blocks or wings are drawn in.

E represents a block of metal attached either to the grip-plate G or to any plate projecting into the subway from the bottom of the car. Preferably the said block should be attached to the grip-plate, as shown in Fig. 2. The block E is rounded at its forward end to move more freely between the brake-rails, while its rear end is preferably square for better attachment to the grip-plate. This block E has an open space in the center, in which the side blocks or wings E' and E^2 and the double-acting cam E^3 are secured. These side blocks are made of metal and have shoes e^2 , of hard wood or other suitable material, let into their outer sides. On the inner side of each the cylindrical hole e^3 and the cam-grooves e^4 are adapted to engage the axle e^5 and the flanges e^6 and e^7 .

e^8 are sockets for shipping the brake-lever F; but the said lever may be attached to the cam in any convenient way or may be integral therewith.

e^9 represents lugs or guides on the said block E, bearing against the plane face e^{10} of the cam E^3 and steadying the said cam in the said block.

e^{11} are plane faces on the interior of each of the wings or side blocks E^2 . The side blocks E' and E^2 are placed in the cavity of the block E so that the flanges e^6 engage the outer ends of the cam-grooves e^4 , when by turning the cam through an angle of one hundred and eighty degrees the side blocks are drawn close home in the block E. By turning the cam through a less angle the blocks are only partially drawn in.

The operation of my device is as follows: The block E being rigidly attached to the bottom of the car, preferably to the grip-plate, as shown in Fig. 2, and the cam E^3 , having the lever F connected thereto and the side blocks E' and E^2 in place, when it is desired to stop the car the said lever is thrown back, as shown, pressing the two side blocks E' and E^2 outward. These blocks soon enter one of the contracting passages d' between the brake-rails D, and the car is speedily brought to a standstill. While this device is especially applicable to steep grades as an auxiliary brake to those now in use, it is equally applicable to level tracks and may be used, if it be desired, in lieu of all other brakes on

the car. The number of these contractions in the passage between the said rails would depend upon the use for which the brakes are to be put. Where they are only to be
 5 used as auxiliary or safety brakes, one or two such contractions on each hillside or moderate slope would be sufficient; but where they are to be used as working brakes the number would have to be much larger. It will be
 10 evident that the wedging effect will be more gradual, and the consequent strain on the car, the brake-block, and the brake-rails will be less, the more gradual be the contraction of the passages between the brake-rails D.
 15 The angle of inclination of the two binding-surfaces of the brake-rails would vary with circumstances, being ordinarily more acute when heavy weights or great velocities are to be checked.

20 It will be evident that it is immaterial, as far as the braking action of the cam E^3 and blocks E' and E^2 is concerned, whether the car is going backward or forward. It is also evident that two or more of said brakes on each
 25 car may be used, if it be so desired. It will also be evident that with slight modifications my system of brakes may be adapted to other than cable cars.

Having thus described my invention, what
 30 I claim, and desire to secure by Letters Patent of the United States, is—

1. A system of brakes for cars, consisting of two rails inclined to each other and rigidly secured in the road-bed and two laterally-
 35 movable blocks attached to the car and adapted to wedge in between said inclined rails, substantially as described.

2. A method of braking cars, which consists in causing a block of variable diameter at-
 40 tached to the car to pass along a contracting passage between two rigid rails or side walls attached to or forming part of the road-bed.

3. In a system of brakes for cable cars, the combination, with a pair of brake-rails in-
 45 clined to each other and parallel to the plane of the traffic-rails, of a block attached to the car and moving between the said brake-rails, extensory wings or brake-shoes held in the sides of the said block, and means for mov-
 50 ing the said wings between and causing them to wedge between the inclined brake-rails, substantially as described.

4. In a system of brakes for cable cars, the combination, with a pair of brake-rails rig-
 55 idly secured in the brackets and masonry of the subway, said brake-rails being inclined to each other and parallel to the plane of the traffic-rails, of a block attached to the car and having extensory wings or brake-shoes in
 60 each side thereof, with means for forcing said

wings or brake-shoes outward and causing them to wedge between the said brake-rails, substantially as described.

5. In a system of brakes for cable cars, the combination, with a pair of brake-rails rig- 65 idly secured in the brackets and masonry of the subway, said brake-rails being inclined to each other and parallel to the plane of the traffic-rails, of a block attached to the car and having extensory wings or brake-shoes 70 in each side thereof, with a cam in said block and grooves in said wings, and a lever connected to said cam, whereby both wings are forced outward and caused to wedge between the said brake-rails, substantially as de- 75 scribed.

6. In a brake for railway-cars, the combination, with two inclined walls or brake-rails attached to or forming part of the road-bed, of a block traveling between the said inclined 80 walls or brake-rails and attached to the cars, a cam journaled in said block, two wings or brake-shoes fitting extensibly in the sides of said block and having grooves engaging flanges on the said cam, and a lever attached 85 to said cam, whereby the cam may be partially revolved and the wings or brake-shoes forced out and wedged between the said contracting walls or rails, substantially as de- 90 scribed.

7. In a brake for railway-cars, the combination, with a pair of inclined brake walls or rails, of the block E, attached to the car and moving between the said brake-rails, the side blocks or wings E' and E^2 , extensibly mount- 95 ed on the said block and having friction-pieces e^2 set therein, the cam E^3 , journaled in the said blocks and having flanges engaging in grooves in the said wings, with a hand-lever for turning said cam in either direction and 100 so forcing said wings outward or drawing them in, substantially as described.

8. In a brake for railway-cars, the combination, with a pair of inclined brake walls or rails, of the block E, attached to the car and 105 moving between the said brake-rails, the side blocks or wings E' and E^2 , mounted in the said block, with helicoidal grooves therein, and the cam E^3 , having opposite pairs of similarly-inclined flanges e^6 and e^7 , adapted to en- 110 gage in the said helicoidal grooves, with means for turning said cam in either direction and moving said side blocks outward or inward, as and for the purposes described.

In testimony whereof I affix my signature in 115 presence of two witnesses.

HERMAN H. KENKEL.

Witnesses:

RICHARD A. WALSH,
 H. I. KINGSBURY.