

(No Model.)

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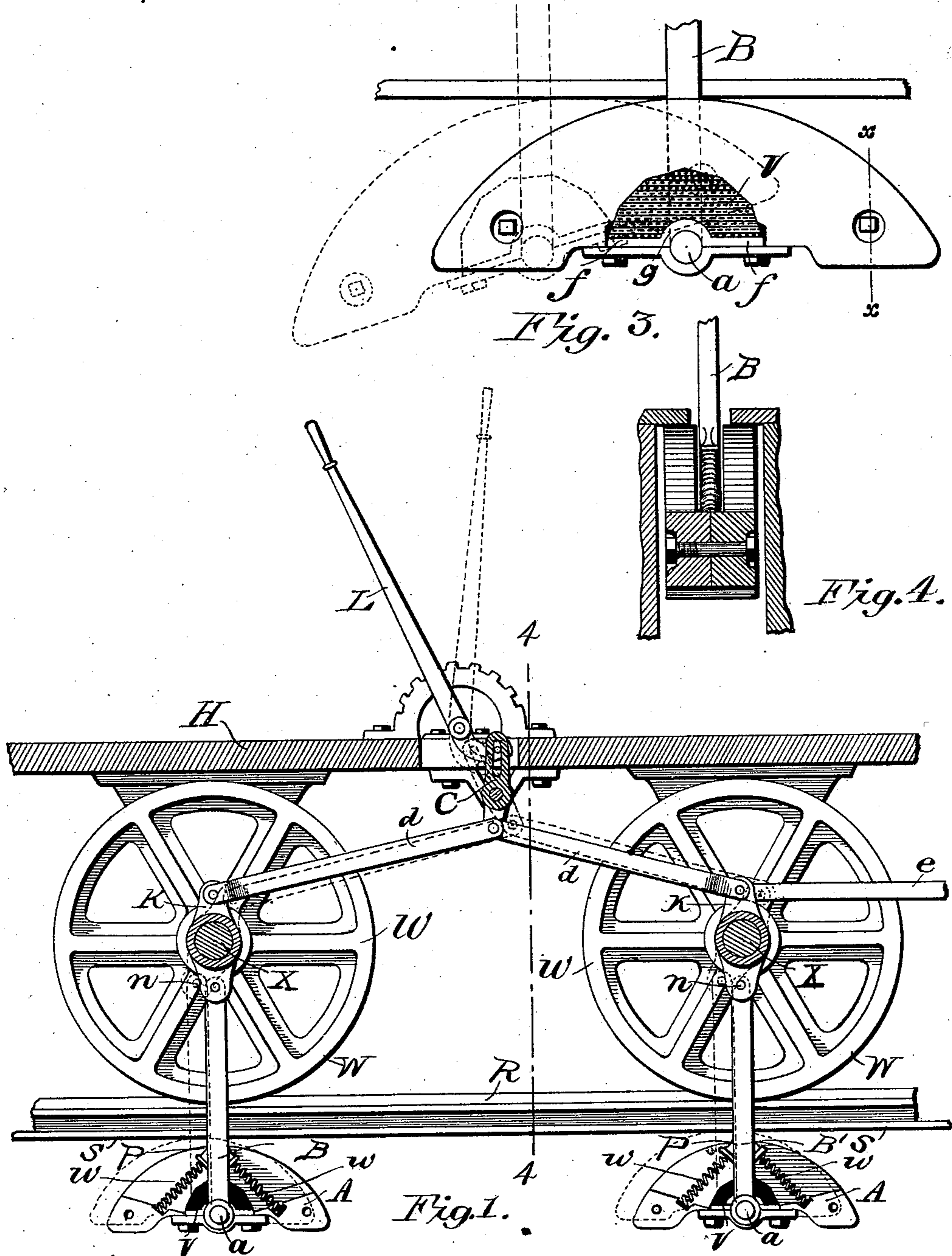
D. M. GERHARD, Dec'd.

E. D. GERHARD, Administratrix.

SELF ACTING SAFETY BRAKE.

No. 466,339.

Patented Jan. 5, 1892.



Witnesses.  
C. E. Van Boren,  
F. H. Lyon.

Inventor,  
David M. Gerhard.  
By Paul Munwin Att'ys.

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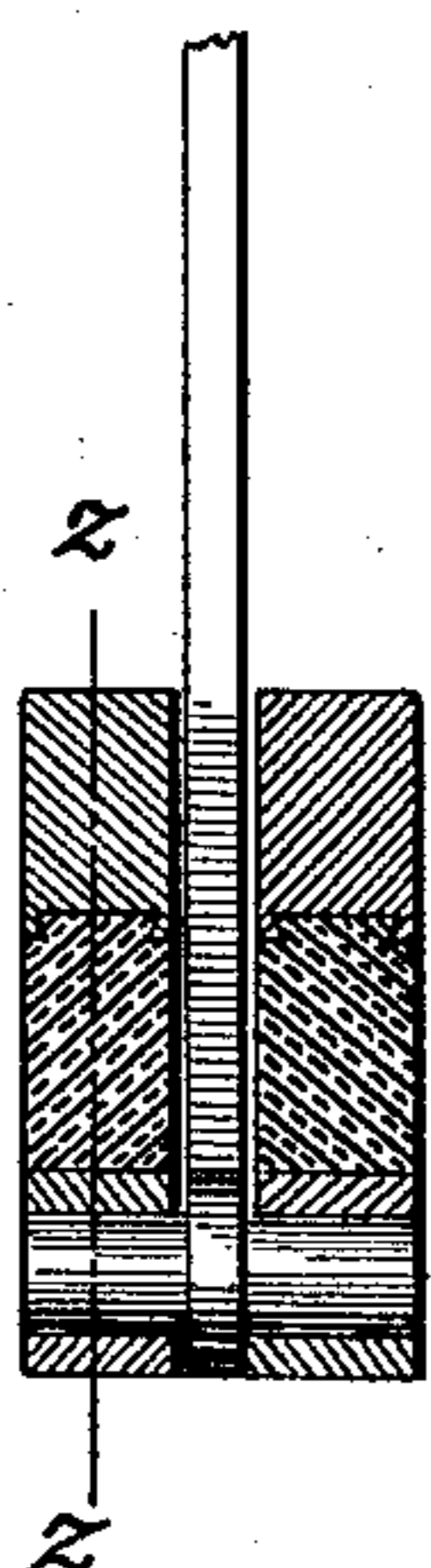
D. M. GERHARD, Dec'd. 2 Sheets—Sheet 2.

E. D. GERHARD, Administratrix.

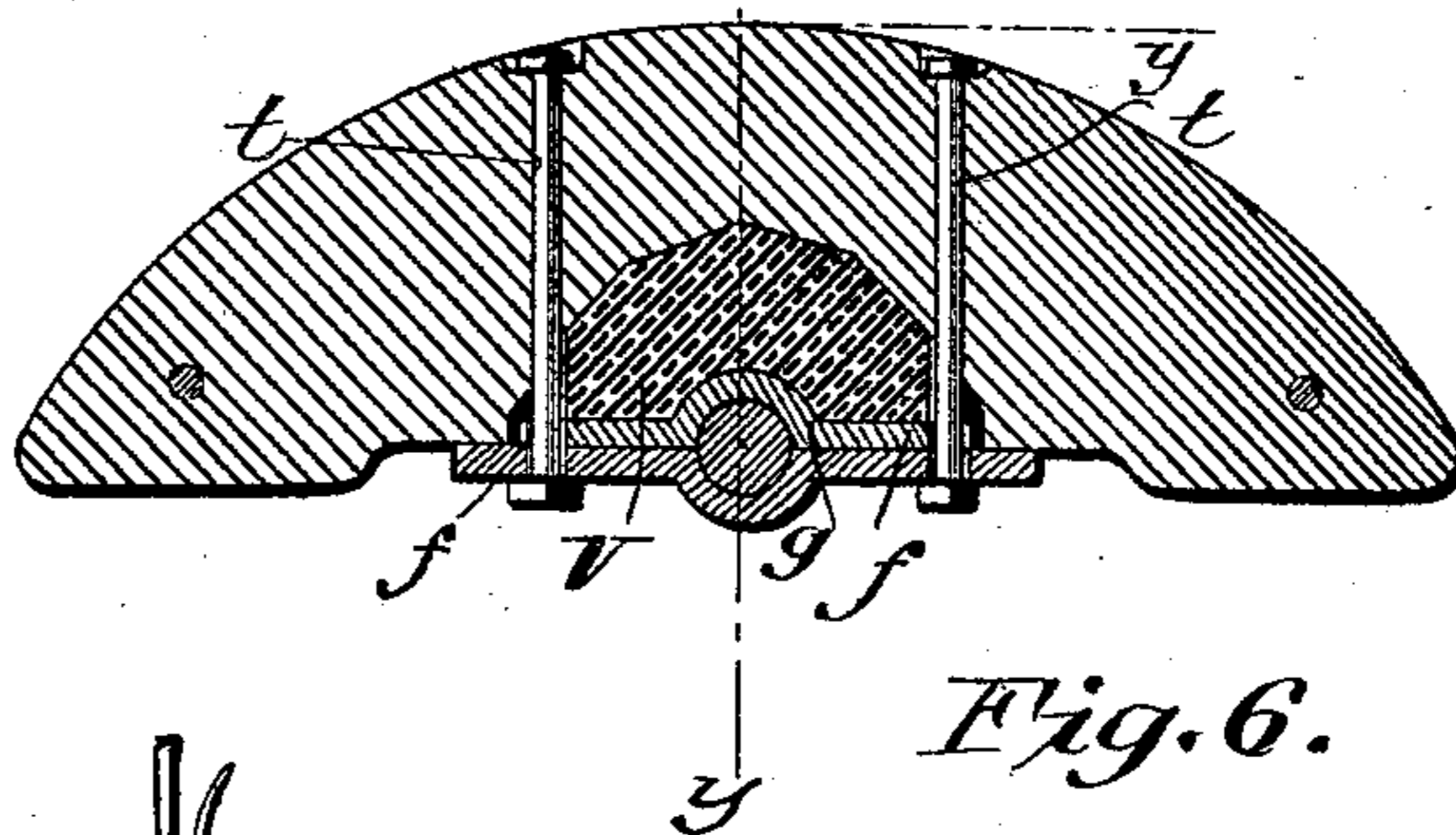
## SELF ACTING SAFETY BRAKE.

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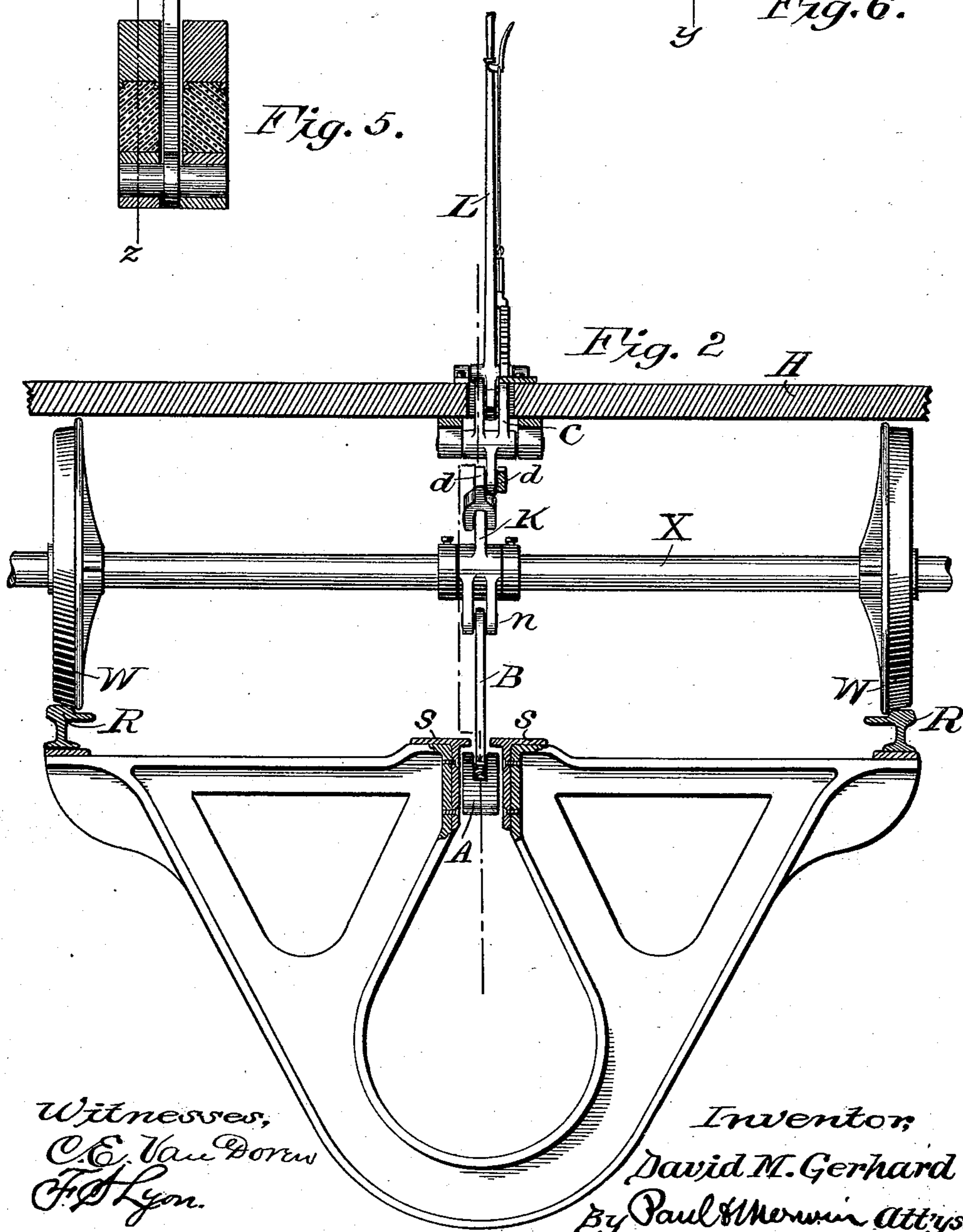
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*Fig. 5.*



*Fig. 6.*



Witnesses,  
C. E. Van Doren  
J. D. Lyon.

*Inventor,*  
*David M. Gerhard*  
*By Paul & Merwin Attys.*

# UNITED STATES PATENT OFFICE.

DAVID MATHIAS GERHARD, OF MINNEAPOLIS, MINNESOTA; ELIZABETH D. GERHARD ADMINISTRATRIX OF SAID DAVID MATHIAS GERHARD, DECEASED.

## SELF-ACTING SAFETY-BRAKE.

SPECIFICATION forming part of Letters Patent No. 466,339, dated January 5, 1892.

Application filed April 13, 1891. Serial No. 388,817. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID MATHIAS GERHARD, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Self-Acting Safety-Brakes, of which the following is a specification.

My invention relates to improvements in stopping cable cars or other cars running over a track in which a slotted rail and an underground conduit are employed.

The object of the invention is to provide a brake which may be stopped suddenly, but which, owing to its peculiar construction and application, will not cause a sudden jolt, but will stop the car easily and comfortably as compared with all other brakes of this class.

My invention consists in general in cam-like devices suspended within the conduit and just beneath the slotted rail, in combination with suitable means for holding the same normally out of engagement therewith, and means for throwing them at will into such engagement to stop the car, in a special construction of said cam devices embodying elastic rubber blocks, and in details of construction and combinations, all as hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a longitudinal vertical section through the car and the slot in the track. Fig. 2 is a transverse section on the line 4 4 of Fig. 1. Fig. 3 is an enlarged view of one of the brakes proper. Fig. 4 is a view thereof on the line  $x x$  of Fig. 3. Fig. 5 is a detail cross-section on the line of the suspending arm on  $y y$  of Fig. 6. Fig. 6 is a longitudinal vertical section on the line  $z z$  of Fig. 5.

In the drawings, H represents the bottom of car; W W, the wheels; X X, the axles; R, the track-rail; s s, the slot-rail.

The castings A A are suspended by means of bars B B and axes  $a a$  from the cranks K K, which are movable about the car-axles X X and are brought in contact with the slot-rail s s by means of the lever L, which acts on the crank K through the rods  $d d$ ; and crank C on the lever L being operated the different

parts take positions as shown by the dotted lines, the casting A A being brought into contact with the slot-rail s s and the lever L made fast. The motion of the car in the direction of the arrow will cause the casting A A to revolve in the opposite direction, and having an eccentric rim or periphery  $p$ , with constantly-increasing radius on either side of the starting-point P, it follows that the casting A will operate after the manner of a wedge and stop the motion of the car, and, further, that, being symmetrical and self-acting, the casting A works equally well and without separate adjustment, whether the car is moving forward or backward. It may also be made to operate for a second car by means of the same lever L and a rod  $e$ , extending through and connecting with similar mechanism on the car following or preceding. The brake may be easily detached at any time by removing the pin  $n n$ . It may be made in two separate parts bolted together, as shown at  $z z$ , Fig. 3. The eye of the rod B may be shrunk on the axis  $a''$  or otherwise immovably attached. The upper half of the journal-box for the axis  $a''$  is shorter than the lower box and detached therefrom, and each half of the box is formed upon the semi-cylindrical part  $g$  on the projecting flanges  $f f$  thereof. The rubber blocks V V are placed directly above the upper halves of the bearing or journal box, and these parts are guided by the vertical rods  $t t$ , which serve to clamp the lower halves of the bearing-box upon the bottom of the cam device. It will be seen that when the periphery of the cam engages the under side of the slotted bar and tension is brought upon the upright supporting-rod B or B' the immediate tension will be greatly relieved by the yielding rubber blocks. These blocks are secured in place in the manner indicated in Fig. 5.

It is obvious that the cam-blocks must normally stand perpendicular to the other supporting-rods; otherwise the cams would be in constant danger of catching on the rail above them. For this purpose I provide the small spiral springs  $w w$ , of equal strength and arranged between the supporting-rods and the ends of the cam. The supporting-rods may be at all times held perpendicular upon the track

by any suitable and convenient means to prevent a pendulum swinging of the same, which would obviously be disastrous to the free movement of the car.

5 Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a self-acting safety-brake, the combination, with a slotted conduit and a car adapted to run on the track arranged in connection with the same, of a brake-block arranged within the conduit and having an eccentric periphery, and means for normally supporting said block therein and out of engagement with the conduit-rail and for temporarily throwing said block into engagement therewith, substantially as described.

2. The combination, in a self-acting safety-brake, of a car with a conduit, a slotted rail or rails forming the top thereof, brake-blocks arranged within said conduit, supporting-arms pivotally connected therewith and extending through the slot of said conduit, said blocks being yieldingly connected with the lower end of said arms and having eccentric peripheries, and connected levers arranged on said car for raising and lowering said arms to carry said blocks into or out of engagement with said rail or rails, as and for the purpose specified.

3. The combination, with the slotted conduit, of a track and a car to move thereon, cam-blocks arranged in said conduit, supporting-arms depending from said car and into the slot of the conduit, axles *a* on the lower ends thereof, journal-boxes therefor, one of said boxes in each instance being secured upon the brake or cam-block and the other box arranged loosely upon the same and movable with respect to it, yielding rubber blocks *V*, arranged above the upper bearing-boxes, and means for drawing said cam-rod into en-

gagement with the walls of the conduit, as and for the purpose specified.

4. The combination, with the slotted conduit and a car, of depending arms arranged on said car and entering said conduit, cam-blocks pivotally arranged on the lower ends of said arms, said blocks composed of two main parts *A*, the lower bearing-boxes fastened upon said cam-block, the loose upper bearing-boxes, the yielding rubber blocks arranged above the same in recesses in said cam-blocks, guides for said upper bearing-boxes, and springs for normally holding each cam-block in the proper relation to its depending and supporting arm and the rail, and means for raising said block into engagement with the slotted rail or rails of the conduit, as and for the purpose specified.

5. The combination, with the arm *B*, of the axle *a*, secured in the lower end thereof, the cam parts *A*, the opening arranged between the same to admit said arm, bolts for securing said parts together, the fixed lower journal-block, the movable upper boxes, and the yielding rubber blocks arranged within the recesses of the cam-block and above said movable boxes, as and for the purpose specified.

6. The combination, with the slotted conduit, of the track and a car to move thereon, the cam-blocks arranged within said conduit, depending arms pivotally connected therewith, sleeves having lugs *K* and *n* for pivoting said arms on the axles of said car, links *d*, the slotted lever *c*, the trunnion upon the car, and an adjustable operating-lever *L*, whereby said blocks may be moved into or out of engagement with the slotted rail or rails of the conduit, as and for the purpose specified.

DAVID MATHIAS GERHARD.

Witnesses:

MYRA M. GASKIN,  
STANLEY R. KITCHEE.