

3 Sheets—Sheet 1.

EMERGENCY BRAKE FOR RAILWAY CARS.

No. 365,487.

Patented June 28, 1887.

Fig. 1.

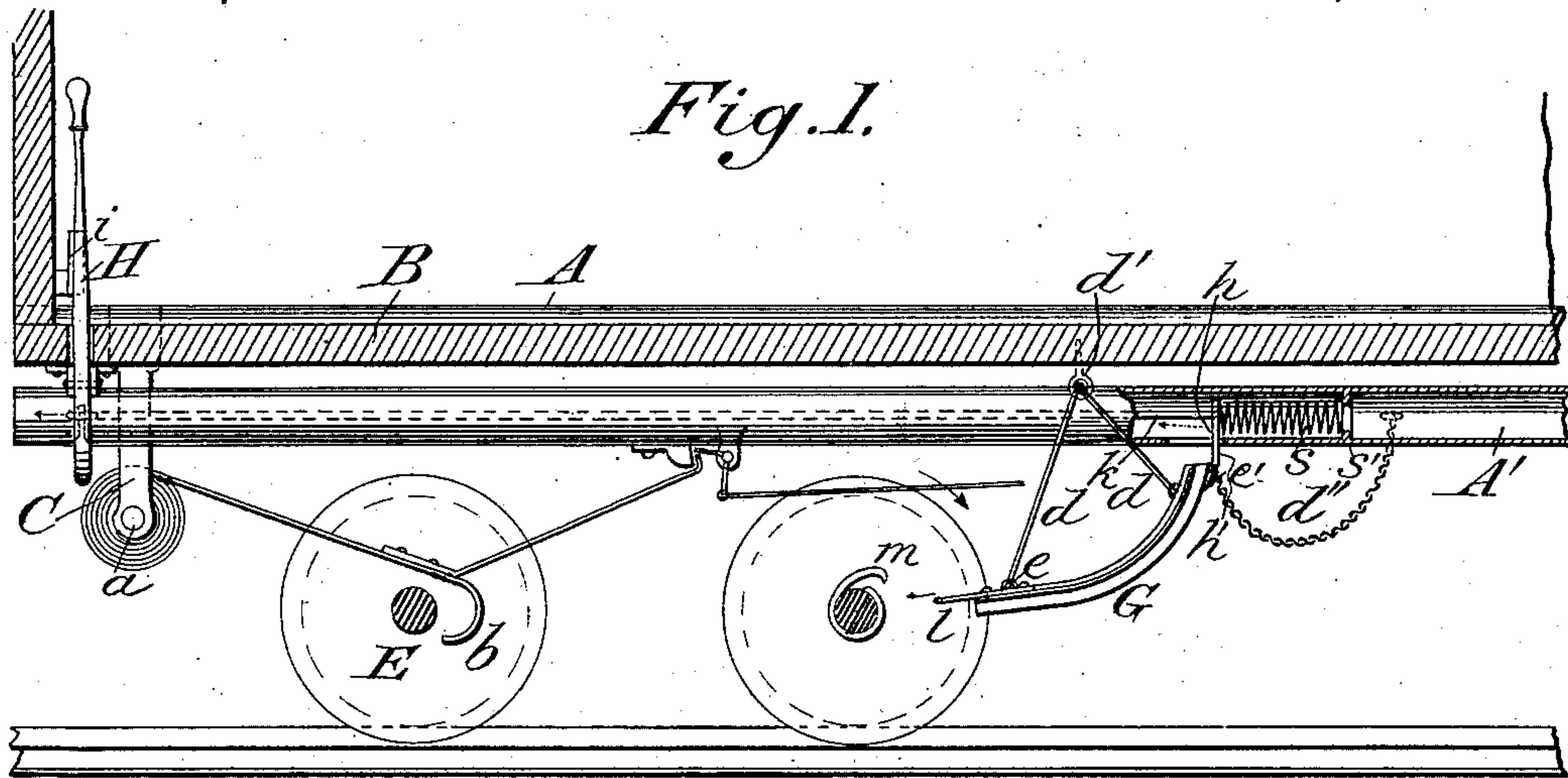


Fig. 3.

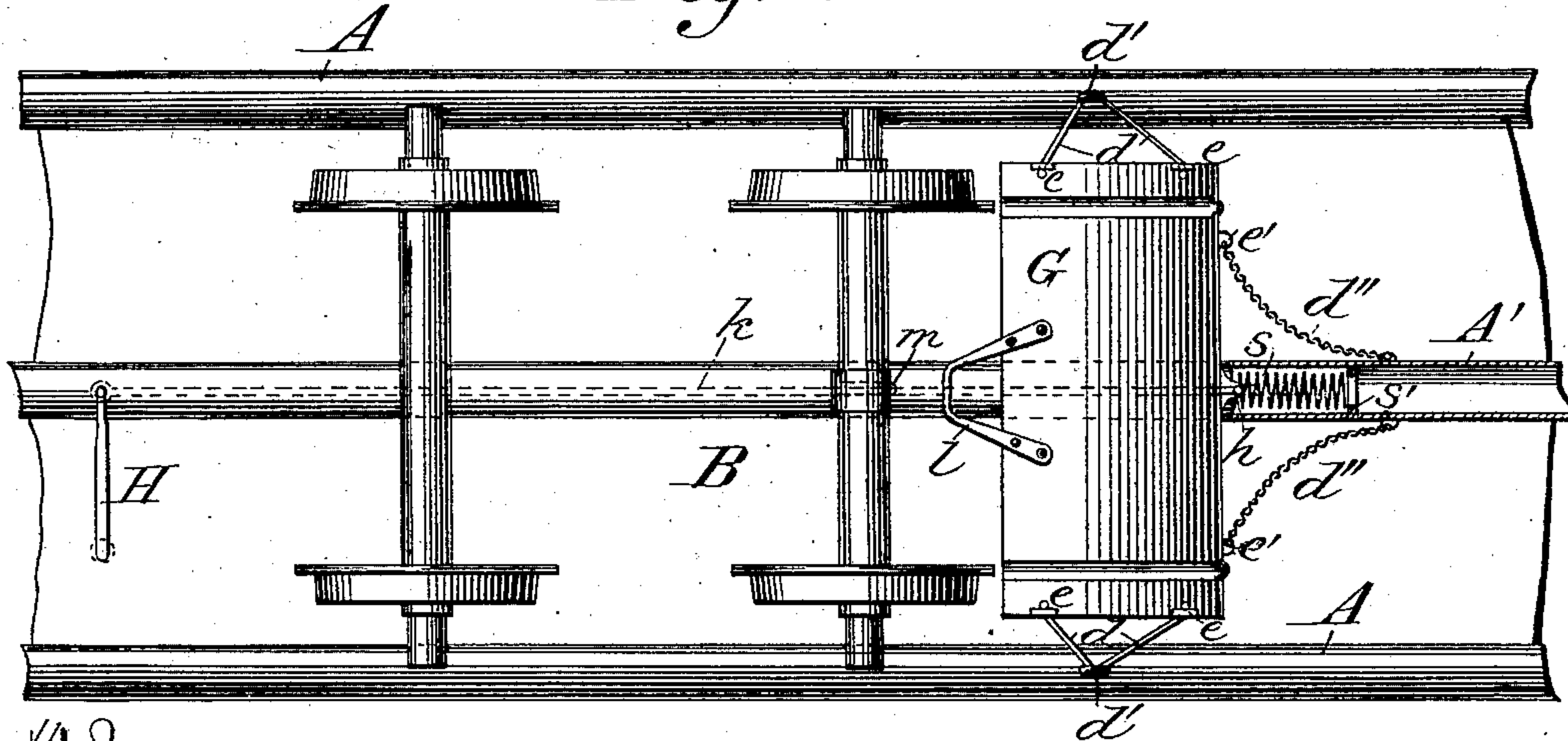
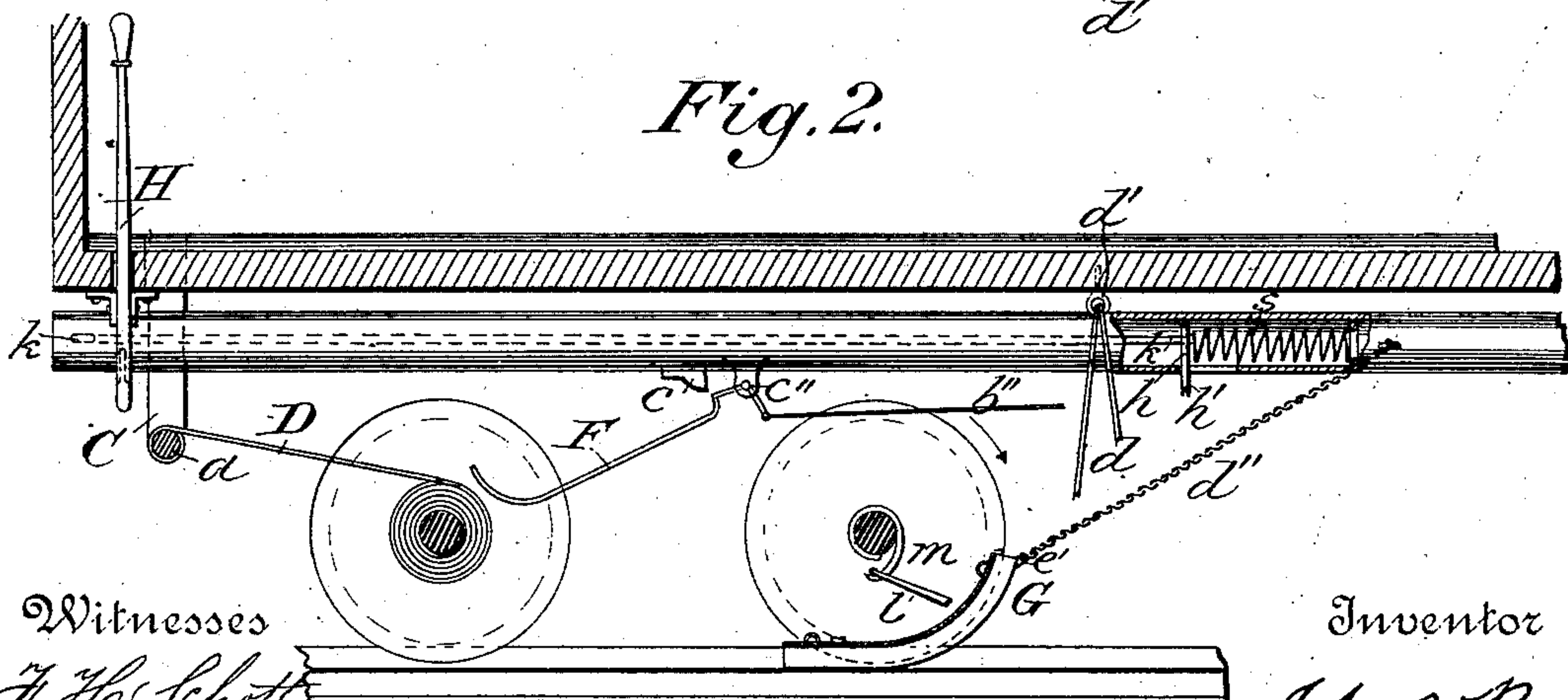


Fig. 2.



Witnesses

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 John W Post

(No Model.)

3 Sheets—Sheet 2.

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Fig. 4.

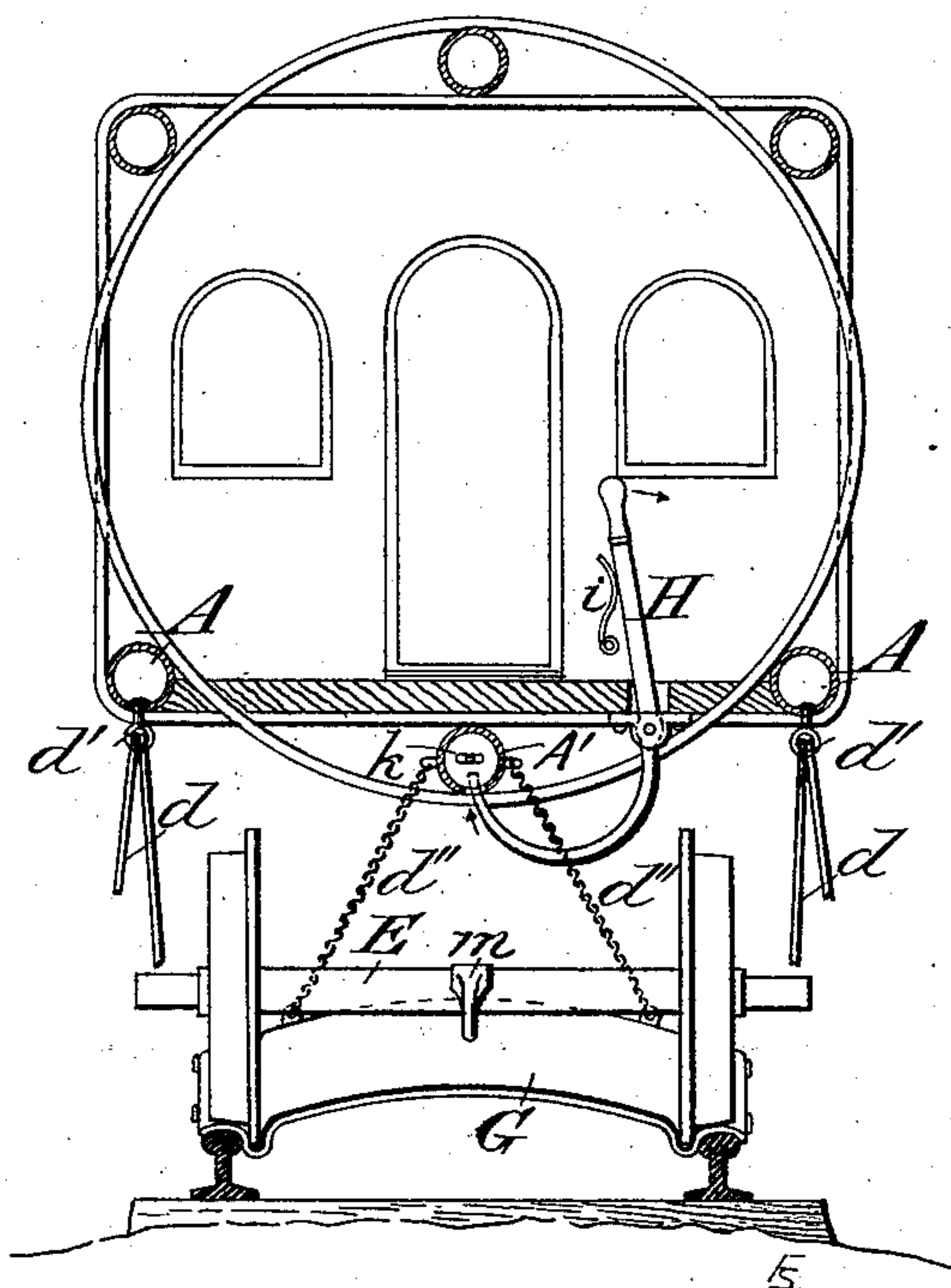
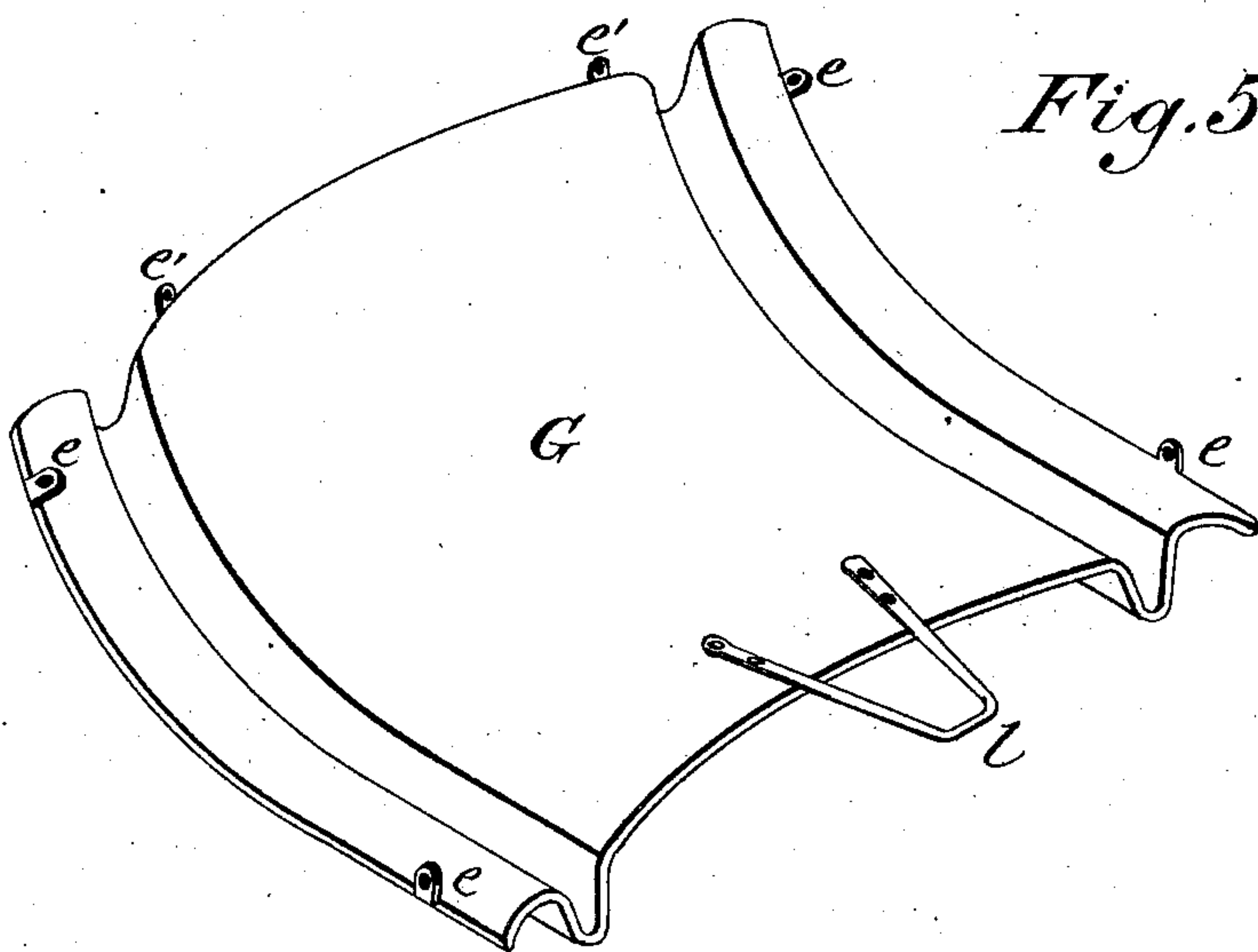


Fig. 5.



Witnesses

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3 Sheets—Sheet 3.

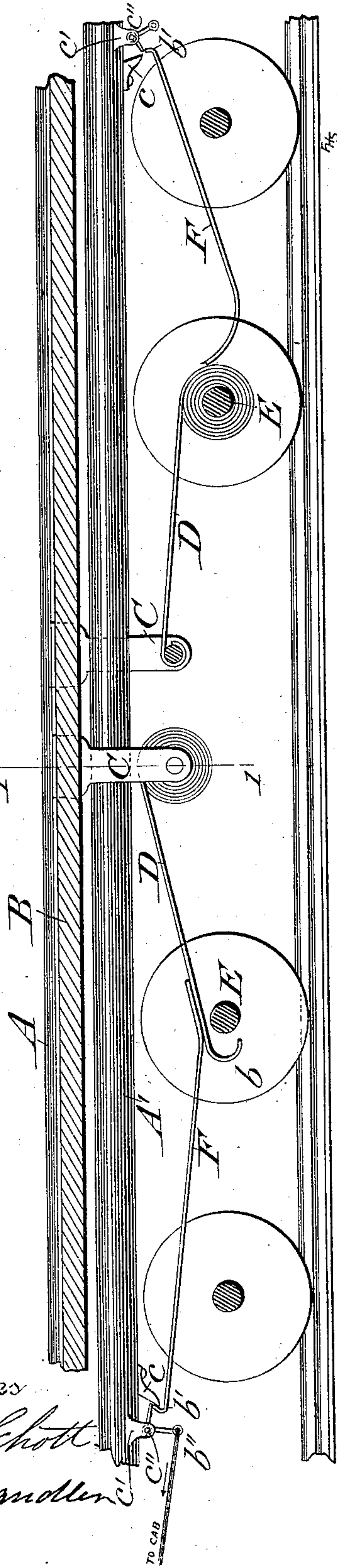
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Fig. 6.



Witnesses

H. H. Schott

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Fig. 8.

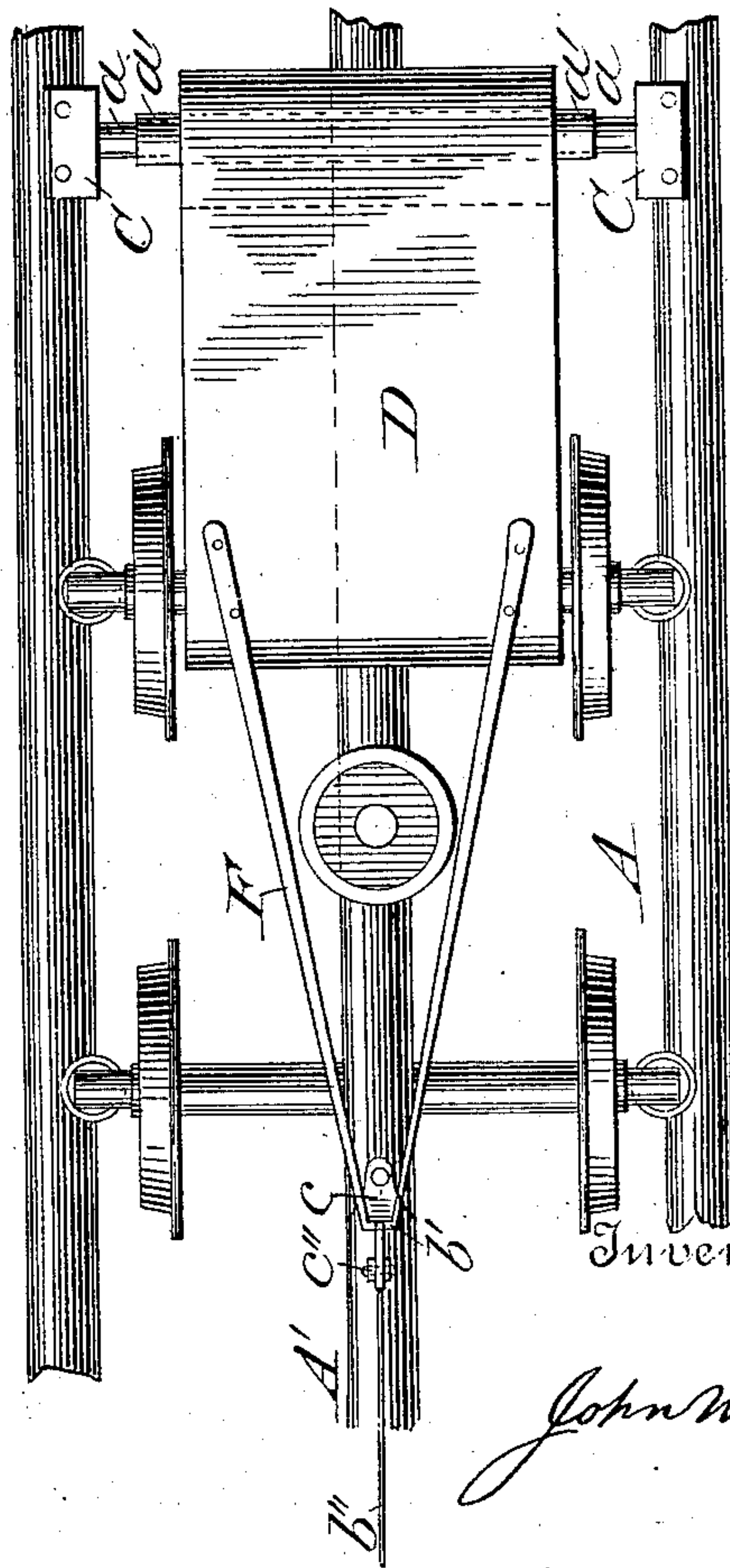
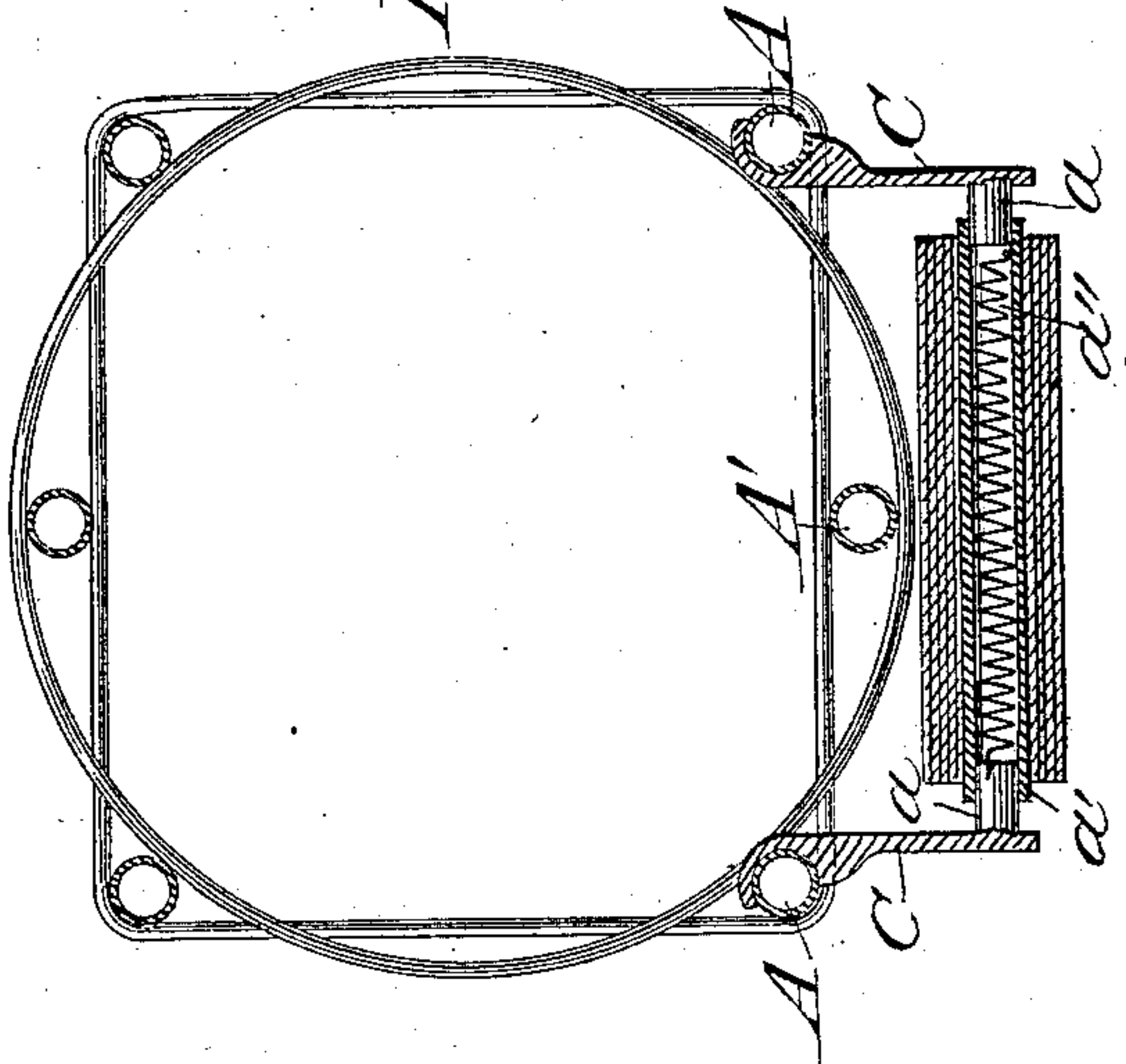


Fig. 7.

Inventor

John W. Post

UNITED STATES PATENT OFFICE.

JOHN W. POST, OF NEW YORK, N. Y.

EMERGENCY-BRAKE FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 365,487, dated June 28, 1887.

Application filed November 24, 1886. Serial No. 219,801. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. POST, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Emergency-Brakes for Railway-Cars; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in that class of devices employed in stopping a car or train of cars suddenly when it becomes necessary to do so in order to avoid a collision, running over embankments, or for other purposes. These devices are generally known by the name of "emergency-brakes," and are constructed in various ways. Most of them, however, depend for efficiency upon means devised to bring a retarding influence upon the wheels of the car-truck as well as the rail over which the car is running. It is with this class that the present invention is connected. The devices employed in this invention for bringing a train or single car to a full stop as quickly as it can be done with safety consist, essentially, in a metallic brake-band which in its normal condition is retained upon a spring-roller placed transversely beneath the car, its free end being hook-shaped and held in close proximity to one of the car-axles by a connecting-strap, one end of which is attached to the band and the other hooked onto a projection beneath the car, from which it may be disengaged by suitable devices coming within the reach of the engineer in the cab or of a person upon the car. When this strap is disengaged from its hold, it allows the spring brake band to drop, the end of which engages the axle and is wound upon it, the breaking of the holding-strap preventing it from interfering with this action of the band. The force of the spring as it winds upon the axle exerts a powerful retarding action upon its rotation, causing the car or train to be quickly brought to a stand; but should the momentum be so great as to fully unwind the band-spring from its roll and wholly prevent the rotation of the

axle, thus causing the wheels to slide upon the track, (which action would soon destroy their usefulness,) it would render it necessary to provide some means of preventing such injury to the wheels. This I accomplish by attaching to the frame-work of the car a plate-shoe so arranged that it may be dropped upon the track in front of the advancing wheels which ride upon it, and are thus prevented from coming in contact with the track, the whole wear being upon the shoe as it is forced forward upon the track. As this shoe, when in position beneath the wheels, is under a considerable pressure from the weight of the car and truck, its friction upon the rails is great, and it therefore forms a powerful brake to prevent further forward movement of the car or train.

In the accompanying drawings, in which the same letters of reference indicate like parts in the several figures, Figure 1 is a side elevation of part of a car embodying my invention, the brakes being off. Fig. 2 is a similar view with the brakes on. The brakes in these figures are shown as applied to different wheels of the truck, in order to show their construction clearly. Fig. 3 is a plan view of a part of a car-bottom, illustrating the arrangement of the devices by which the shoe is operated. Fig. 4 is a transverse section through a car, showing the shoes in position upon the rails beneath the wheel. Fig. 5 is a perspective view of one of the shoes, showing its form and construction. Fig. 6 is a longitudinal section of a car with the braking device applied to both trucks. On one they are shown as out of action, and in the other as being in action. Fig. 7 is a bottom plan of a portion of a car and one truck, showing the arrangement of the band-spring with relation to the car body and axles. Fig. 8 is a transverse section of a car band-spring and the spring-roller upon which it is coiled.

In the several figures, A represents the longitudinal tubes or sills of a car, and B the car-floor. Firmly secured to this floor, or to the sills, are the hangers C, which carry at their lower ends the inwardly-projecting pintles or journals *a a*. These journals serve as bearings for the tubular shaft *a'*, within which may be placed the spirally-coiled spring *a''*, one end of said spring being connected to one of the pintles and the other to the tubular shaft,

so that when the shaft is rotated in one direction by any exterior force it will wind up the spring, the action of which will be to rotate the shaft in the opposite direction when released. Securely attached to this tubular shaft is one end of the broad metallic band or spring D, the opposite end of said band being bent to a half-circle or hook, *b*, a little less in diameter than the axles E E, so that when this hooked end of the band comes in contact with one of the axles it will pinch the same, and as the axle rotates be wound thereon.

A strap, F, is attached to the end of the band D, near the hook *b*. This strap is preferably of metal, but of light construction, and the end opposite that which is secured to the band is formed into a hook, *b'*, that, when the apparatus is in its normal position, engages a projection, *c*, upon the draw-bar A', or other suitable part of the car. Carried in brackets *c'* upon the under side of said draw-bar is a rock-shaft, *c''*, one arm of which extends horizontally, and when the brake is not in operation rests upon the hook *b'*. The other arm of this rock-shaft extends downwardly, and is connected to a rod or line, *b''*, extending to the cab of the engine or other place or places from which it may be desired to operate the brake.

The operation of these devices will be understood from an inspection of Fig. 6 of the drawings, which upon the left-hand truck shows the brake off, the parts being all in a state of rest. Should an emergency occur requiring the application of this brake, a pull upon the rod *b''* will swing the rock-shaft upon its journals, causing its horizontal arm to force the hook *b'* downward until it is released from the projection *c*. The band D now drops upon the axle, and its semicircular hook end *b* is drawn by the spring *a''* into close connection with the revolving axle, upon which it begins to wind, breaking the strap F, and continuing to wind upon said axle (unless the revolution of the latter sooner ceases) until it is all unwound from the shaft *a'*. The axle will then be strongly gripped by the band, and its further rotation will cause excessive friction upon said band, or it will be brought to a standstill relatively to the car, the parts being then in position shown by the right-hand truck in Fig. 6; but as it is not desirable to have the car-wheels slide upon the track when the momentum is such as to carry the car forward without rotation of its wheels, I have provided means, which I will now describe, for preventing such sliding of the wheels, and at the same time assist in retarding the forward movement of the car or train. These means consist in a shoe, G, formed, preferably, of a large plate of wrought iron or steel bent into the form shown in Fig. 5, so that it shall have grooves to receive the wheel-flanges, and suspended beneath the car by rods *d d*, attached to the eyes *e e* (upon each edge of the shoe) at their lower ends, and to the eyebolts *d' d'*, secured

to the bottom of the car (or other suitable support) at their upper ends. Additional eyes *e' e'* upon one edge of the shoe have attached to them chains *d'' d''*, the opposite ends of which chains are secured to the draw-bar A'. This draw-bar is preferably a tubular one, and has within it a coil-spring, *s*, one end of which rests upon the abutment *s'*, secured within the tube. The opposite or free end of this spring bears against a piston, *h*, loosely fitting within the tube, said piston being provided with a downwardly-projecting stem, *h'*, having a hook at its lower end, which passes down through a slot in the draw-bar and engages with the shoe, and when the latter is in a state of rest holds it up and away from the wheels. A rod, *k*, is attached to the piston *h*, and passes through the tube to near one end of the car, at which point it is formed into an eye to receive the upturned end of the hand-lever H, pivoted to the car, and its upturned end retained in engagement with the eye of the rod *k* by means of the spring *i*, secured to the car, and being against one side of the hand-lever. When the shoe G is to be placed in position under the car, the piston *h* is forced back, compressing the spring *s* and allowing the hook on the stem *h'* to engage with the shoes. The piston is retained in this position, compressing the spring, the upturned end of hand-lever H entering the eye at the end of rod *k*. The shoe will then be suspended beneath the car, as shown in Fig. 1, and remains in this position until an exigency occurs requiring its use, when the hand-lever H is forced over, withdrawing it from its engagement with the rod *k*, thus allowing the piston to be forced forward by the spring. This movement of the piston carries with it the shoe, swinging it toward the axle until the loop *l* upon one end of said shoe is caught by a hook, *m*, attached to the axle. The revolution of said axle tears the shoe away from its connection with the car, except that formed by the chains, breaking the suspension-rods and loop and throwing the shoe under the wheels, as shown in Fig. 2, in which position it is retained by the chains and acts as an efficient rail-brake, as well as preserving the wheels from injury by having flat spots formed upon their peripheries, through a cessation of their rotation, (before the train comes to a standstill,) by the abrasion of the rails.

Having thus described my invention, I claim as new and desire to secure by Letters Patent the following:

1. In an emergency-brake for railway-cars, the combination of a brake acting directly upon the car-axle with a rail-brake applied beneath the wheels, substantially as shown and described.

2. In an emergency-brake for railway-cars, the metallic band attached at one end to a spring-roller and the other formed into a hook to clasp the car-axle, substantially as specified.

3. In an emergency-brake for railway-cars, the metallic band attached at one end to a

spring-roller and provided at the other with a hook to clasp the axle, in combination with its supporting devices, consisting of the breaking strap and projection with which it is detachably connected, as set forth.

4. In an emergency-brake for railway-cars, the combination of a metallic brake-band acting upon a car-axle, a breaking strap for supporting said brake-band, the rock-shaft, its arms, and the head *b''*, for detaching said breaking strap and allowing the brake-band to engage the axle, substantially as specified.

5. In an emergency car-brake, the combination of the hangers *C*, attached to the car, and provided with pintles *a*, hollow shaft *a'*, spring *a''*, brake-band *D*, and its operating devices, arranged and operating substantially as shown and described.

6. In an emergency car-brake, the brake-shoe *G*, formed of a metallic plate extending across the track, and capable of being applied to both wheels of the same axle simultaneously, as and for the purpose set forth.

7. In an emergency car-brake, the brake-shoe *G*, in combination with the breakable suspension-rods, by which it is suspended beneath the car, as set forth.

8. In an emergency car-brake, the brake-shoe *G*, provided with loop *l*, in combination with the hook *m*, attached to a car-axle and

arranged to engage said loop and throw the shoe beneath the wheels, as set forth.

9. In an emergency car-brake, the brake-shoe *G*, suspended beneath the car, in combination with the supporting and detaching devices, consisting of the spring-pressed piston, its rod *k*, and the hand-lever *H*, arranged to disengage said piston from its connection with the shoe, as specified.

10. In an emergency car-brake, the combination of the shoe and its breakable suspension devices with the chains *d'*, attached to the draw-bar, and retaining said shoe in its proper relation to the wheels when the brake is applied, substantially as set forth.

11. In an emergency car-brake, the brake-shoe, its breakable suspension devices, and the detaching apparatus, in combination with the axle, its hook, and the loop upon the shoe all arranged as shown and described to release the brake-shoe, place it upon the track beneath the wheels and retain it in that position, as set forth.

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

JOHN W. POST.

Witnesses:

M. T. E. CHANDLER,
M. A. BALLINGER.