

(No Model.)

2 Sheets—Sheet 1.

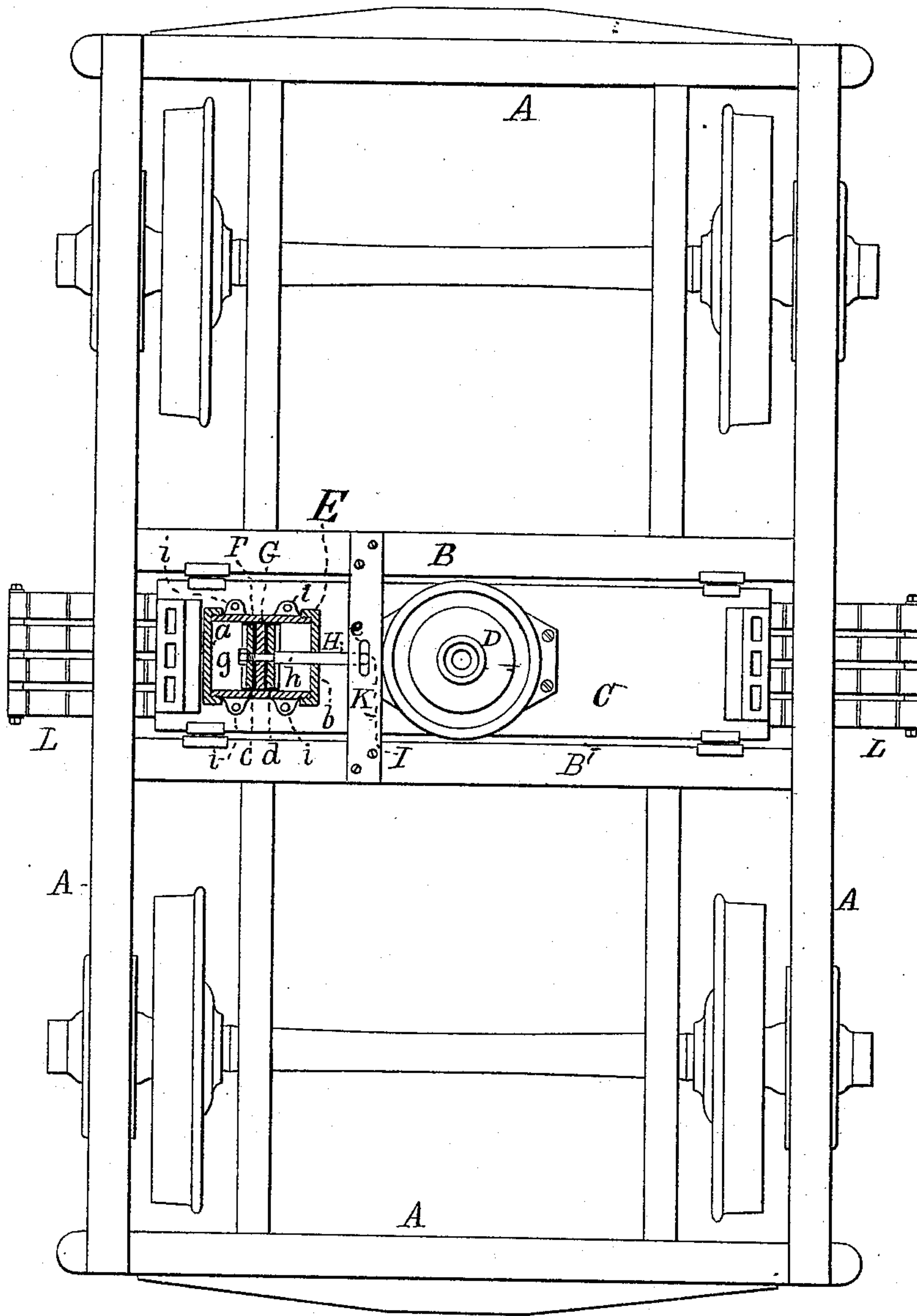
W. ROBINSON.

SWING BOLSTER CHECK FOR CAR TRUCKS.

No. 444,183.

Patented Jan. 6, 1891.

*Fig. 1.*



*Witnesses:*

*Geo. L. Mansfield*  
*John Burley*

*Inventor:*

*William Robinson*

W. ROBINSON.

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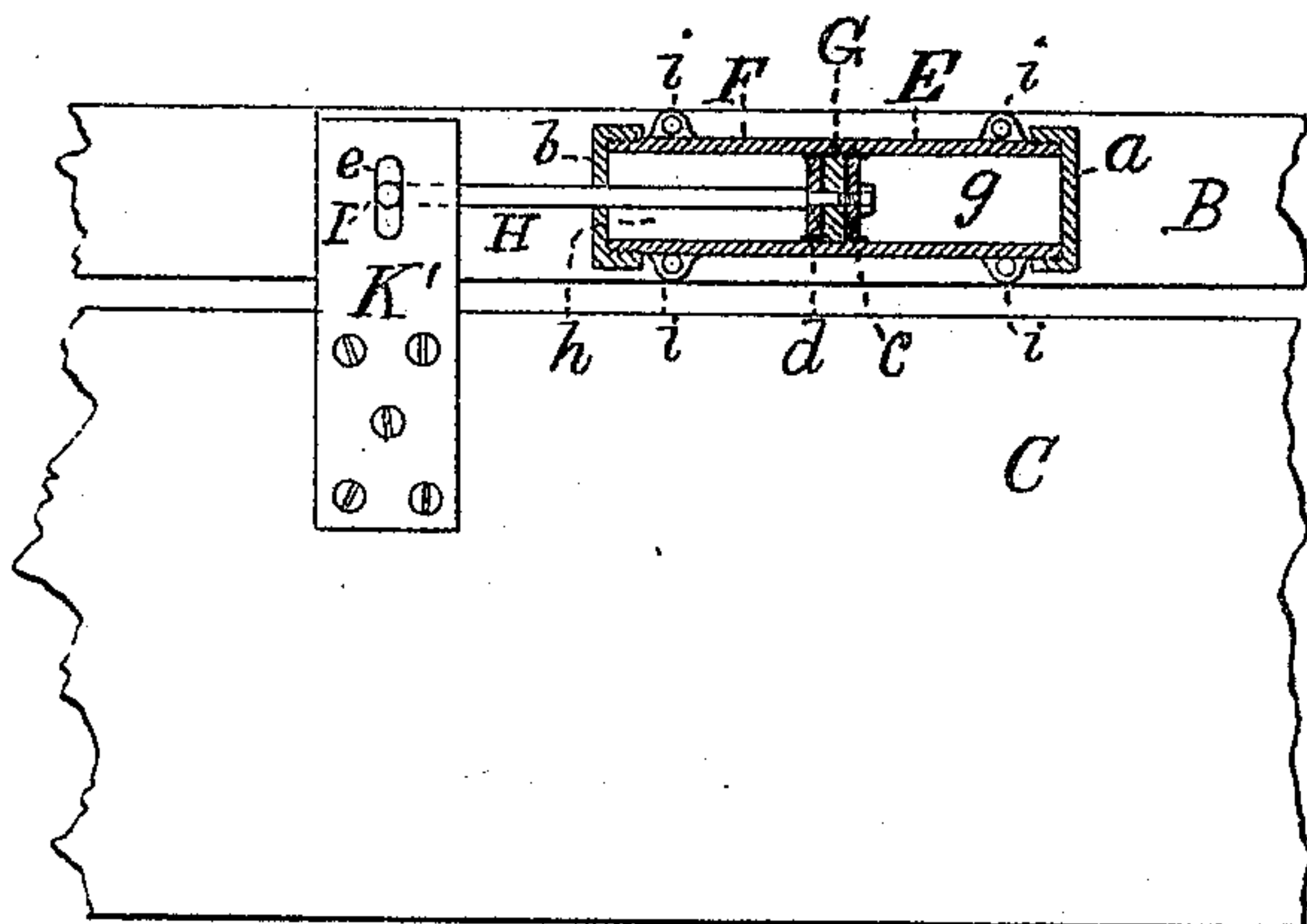


Fig. 2.

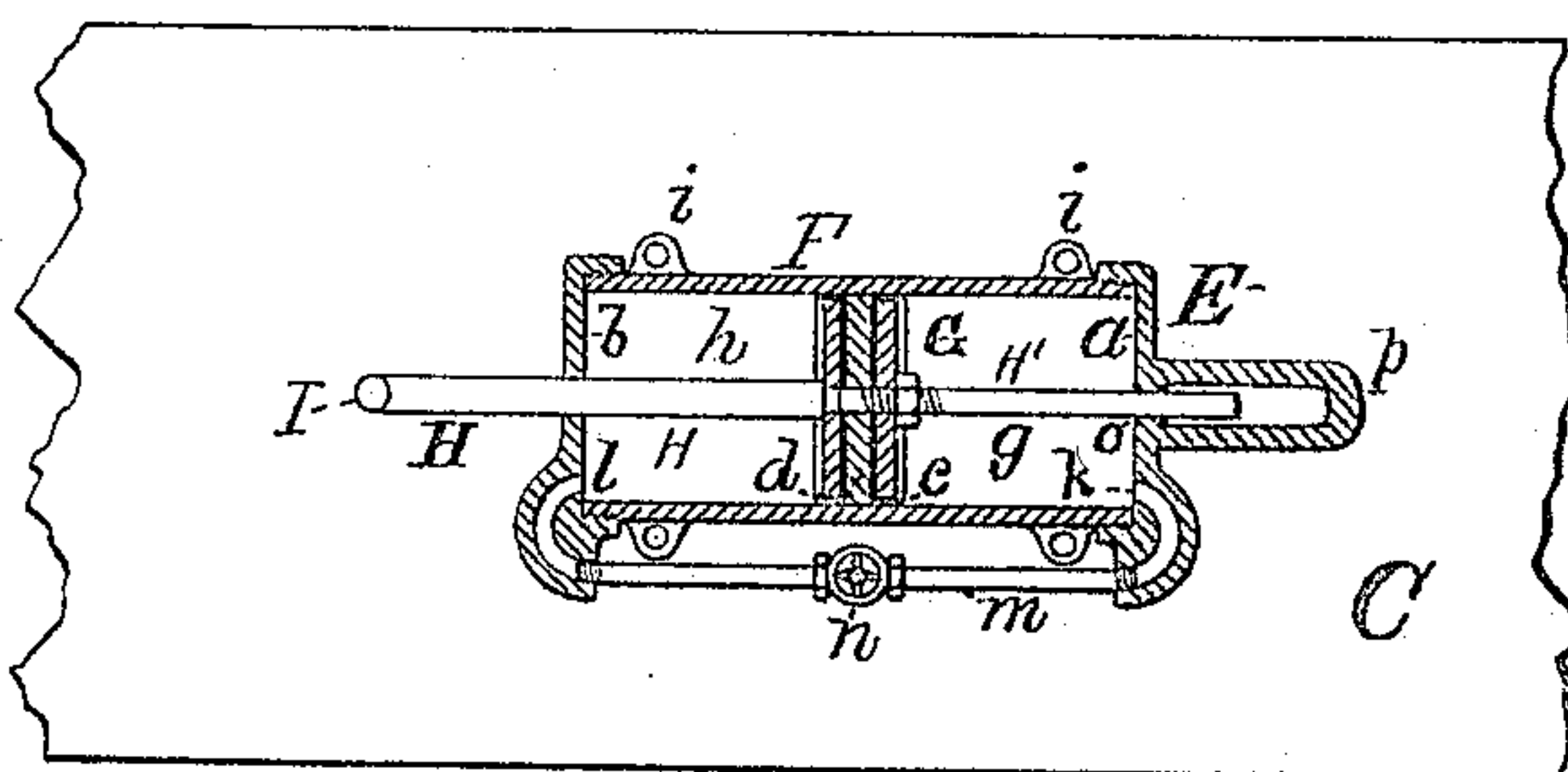


Fig. 3.

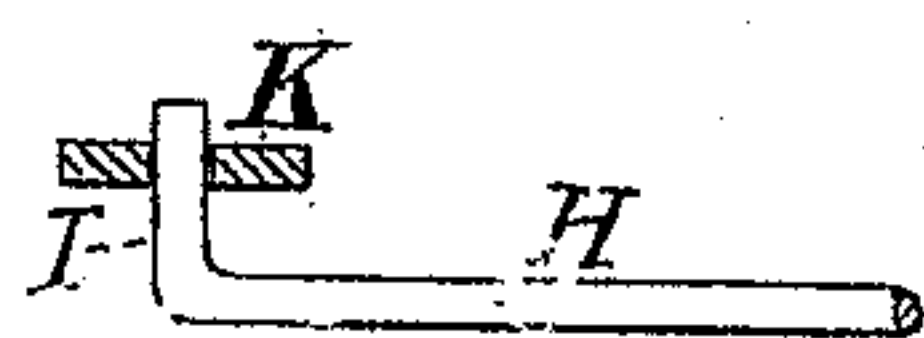


Fig. 4.

Witnesses:

John Burling  
Edw. C. Whiting

Inventor:

William Robinson.



# UNITED STATES PATENT OFFICE.

WILLIAM ROBINSON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE ROBINSON RADIAL CAR TRUCK COMPANY, OF PORTLAND, MAINE.

## SWING-BOLSTER CHECK FOR CAR-TRUCKS.

SPECIFICATION forming part of Letters Patent No. 444,183, dated January 6, 1891.

Application filed April 7, 1886. Serial No. 198,053. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM ROBINSON, a citizen of the United States, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Swing-Bolster Air Check or Cushion for Car-Trucks, (for which I have not obtained a patent in any country,) of which the following is a specification.

Car-trucks for passenger service are generally built with swing-bolsters, on which the car-body swivels. These swing-bolsters, placed in the center of the trucks, are supported by hangers which permit them to swing with the superincumbent car-body freely from side to side of the truck. This free-swing motion is always disagreeable in passing over rough places, and when a car enters upon a sharp curve at a high rate of speed the centrifugal force often causes the swing-bolster to strike with great force against the side of the truck, thus exposing the car to derailment and entailing rough riding and alarm on the passengers.

The object of my invention is to obviate these disadvantages and to produce an easy and agreeable swing motion in the swing-bolster by gradually retarding the same by furnishing a yielding cushion of air or other fluid on which the force of the swing motion may gradually expend itself.

Referring to the accompanying drawings, which form a part of this specification, Figure 1 is a plan view of a car-truck provided with a swing-bolster, showing the air-check in horizontal section as applied to said swing-bolster. Fig. 2 is a plan view showing a modification of the method of applying said air-check. Fig. 3 is a horizontal section of the invention on an enlarged scale and showing it more in detail than in the other figures; and Fig. 4 is an elevation of a portion of the invention.

Similar letters indicate corresponding parts in all the figures.

A is a car-truck provided with the transoms B B', between which the swing-bolster C is suspended on hangers and swings in the usual manner. The car-body swivels on the center D of the said swing-bolster C.

E is an air-check, consisting, essentially, of

the cylinder F, having its ends inclosed by the cylinder heads or caps *a b* and provided with the piston G, attached to the piston-rod H, which passes out of the cylinder through the cylinder-head *b*. The piston G is provided, preferably, with the cup-shaped packings *c d*, opening in opposite directions, whereby said piston fits the cylinder closely in whichever direction said piston may travel with reference to said cylinder. The outer end I (see Figs. 1, 3, and 4) of the piston-rod H is turned upwardly and passes adjustably through the hole or slot *e* of the plate K, which is securely bolted to the transoms B B' of the truck. The check E is secured by the lugs *i* to the swing-bolster C. Thus when the swing-bolster swings in one direction, the cylinder F being carried with it, while the piston-rod and piston are held stationary, the air is compressed, say, in the chamber *g* of the cylinder at one side of the piston and rarefied in the chamber *h* at the other side of said piston G—that is, the motion of the swing-bolster C is gradually retarded and cushioned by the compression and rarefaction of the air in the cylinder—whereby great ease of motion and riding is secured. When the bolster C swings in the opposite direction, the air is compressed in the chamber *h* and rarefied in the chamber *g*, whereby the motion of the bolster is retarded and cushioned, as already described. Thus in whichever direction the bolster swings the violence of its motion is gradually checked and practically dissipated on a cushion of compressed air.

Referring to Fig. 3, the chambers *g* and *h* of the cylinder F are provided with ports *k l*, connected by the tube or passage-way *m*, which is provided with a stop-cock or valve *n* of any suitable construction. When the stop-cock *n* is closed, the chambers *g* and *h* are each practically air-tight. They are independent of each other, and the operation of the check is that already described. The stop-cock *n*, however, may be opened to a greater or less degree, thus permitting the air to pass back and forth between the chambers *g* and *h* with more or less freedom and under greater or less pressure, as desired. This affords a simple method of regulating the pressure between the chambers *g* and *h*, and consequently the motion of



the swing-bolster C. Furthermore, it permits a check mechanism of given dimensions to be used in connection with cars of varying weight, since the check mechanism is easily regulated to adapt it to the weight of the car to which it may be attached. Again, by providing the check with a regulator, it is not necessary to be so particular as to dimensions in its construction. Furthermore, as the chambers *g* and *h* are connected with each other, but not with the outer air, dust is excluded.

The piston-rod II is extended through and beyond the piston G, (see Fig. 3,) and has a bearing at *o* in the cylinder-head *a*—that is, the piston-rod has a bearing in both cylinder-heads, whereby undue strain of the parts is prevented. The end II' of the piston-rod II is preferably covered by the cap *p* to prevent the entrance of dust into the cylinder.

In Fig. 2 the check E is attached to the truck-transom B, and the strap or plate K', which engages the piston-rod H, is attached to the swing-bolster C. This is merely an interchange of parts, which may be made advantageously when there is not sufficient room to place the check on the swing-bolster. The swing-bolster C has also vertical motion on the springs L. To provide for this, the bent end I of the piston-rod II is adapted to move vertically in the hole or slot *e* of the plate K or K', whereby undue strain is prevented.

I do not limit myself to the specific construction of the check herein described, consisting, essentially, of a cylinder and piston; but in some cases I may use a diaphragm or bellows construction of the check, and, instead of compressing the air within the check, mechanism may produce a partial vacuum therein and may actuate the check by means of the direct pressure of the external atmosphere.

In all cases any other fluid which may be found to answer the purpose as well or better may be substituted for air in my swing-bolster check without interfering with the spirit of my invention.

Having thus described my invention, I do not herein broadly claim a check as such, consisting, essentially, of a cylinder and piston, as described, in connection with Figs. 1 and 2, since I have described a similar device in my application for a patent for a car-spring check filed of even date herewith.

What I do claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the swing-bolster and truck-frame of a car-truck, of an air-chamber connected to said swing-bolster and truck-frame and operating to gradually retard or limit the movement of said swing-bolster by means of fluid-pressure, substantially as described.

2. The combination, with the swing-bolster and truck-frame of a car-truck, of the check mechanism E, consisting, essentially, of the cylinder F, with its piston G, said cylinder and piston being connected, respectively, to said swing-bolster and truck-frame, the whole adapted to gradually retard the movement of said swing-bolster by means of fluid-pressure or rarefaction in said cylinder, substantially as described.

3. In a car-truck, the combination, substantially as described, with the swing-bolster and truck-frame, of a check mechanism consisting, essentially, of a cylinder and piston connected, respectively, to said swing-bolster and truck-frame, said piston being provided with a piston-rod having a bearing in the cylinder on each side of said piston, the whole operating to retard and limit the movement of said swing-bolster through the agency of fluid-pressure.

4. The combination, substantially as described, with the swing-bolster C and truck-frame A, of check mechanism consisting, essentially, of a cylinder and a piston working therein, said piston being provided with cup-shaped packings opening in opposite directions, as described, the whole operating to retard the movement of said swing-bolster through the agency of fluid-pressure.

5. In combination, substantially as described, the piston-rod H and the plate K, connected in movable relation to each other, whereby the vertical motion of the swing-bolster C is permitted without strain between said rod and plate.

6. The combination of the cylinder F, the piston G, and the piston-rod II with the fixed and horizontally-movable portions of a car-truck for the purpose of retarding and steadying the relative movements thereof through the agency of fluid-pressure, substantially as described.

WILLIAM ROBINSON.

Witnesses:

FRANCIS L. DYER,  
GEO. T. ANGELL.