

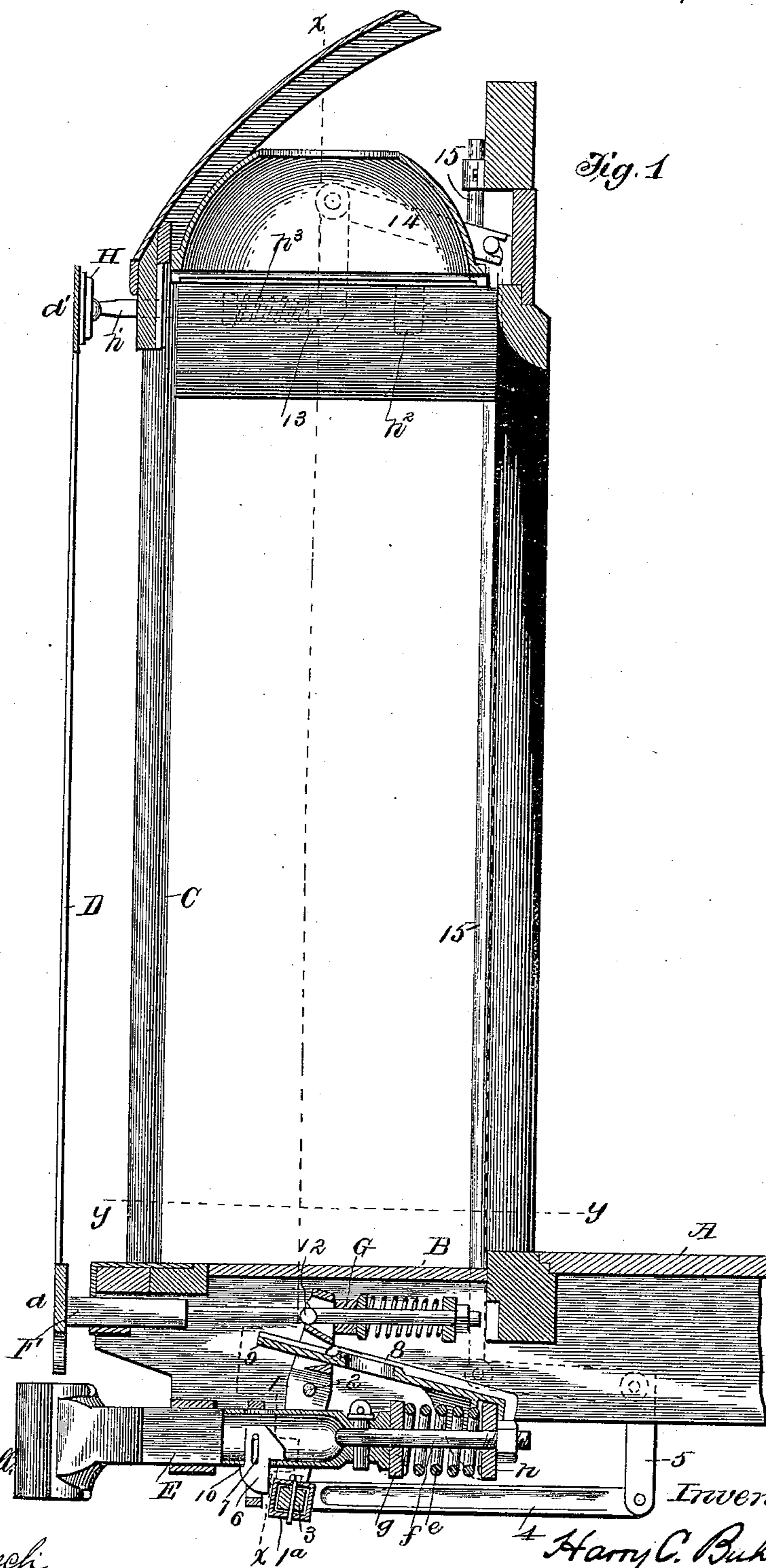
(No Model.)

3 Sheets—Sheet 1.

H. C. BUHOUP.
RAILROAD CAR.

No. 466,975.

Patented Jan. 12, 1892.



witnesses
F. R. Cornwall,

M. W. Church

Inventor

*4 Harry C. Bukowsky
by F. W. Ritter Jr
att'y*

(No Model.)

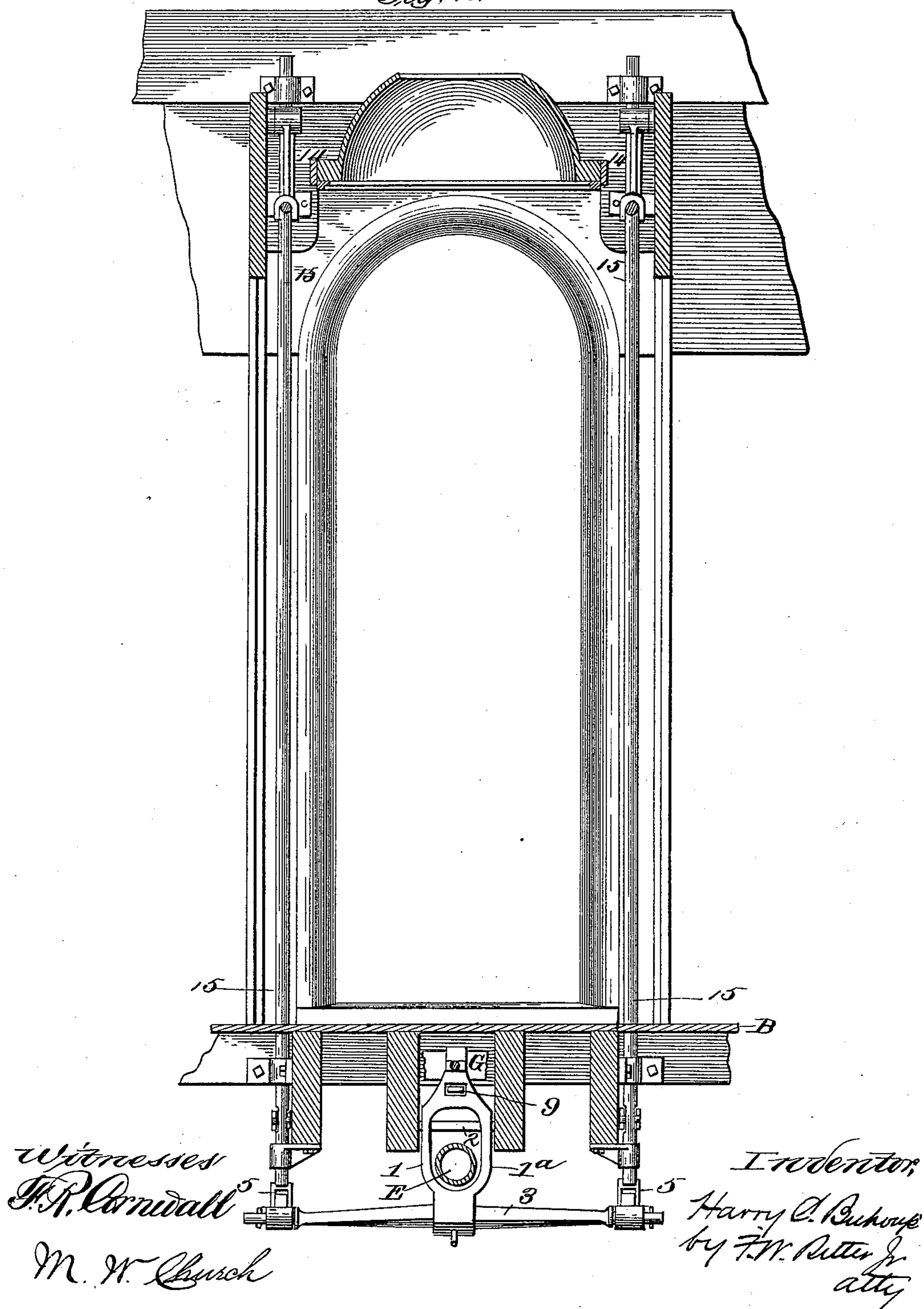
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Fig. 2.



(No Model.)

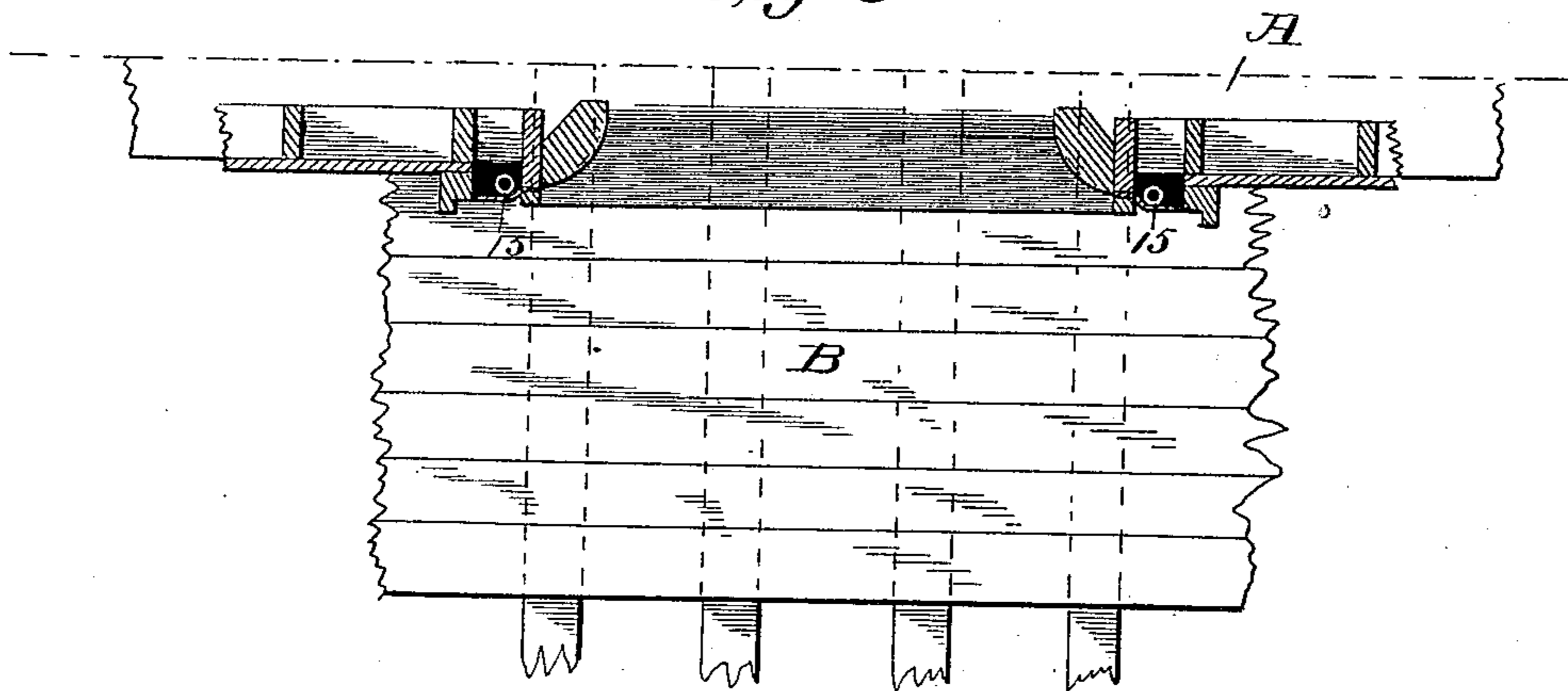
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Fig. 3



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UNITED STATES PATENT OFFICE.

HARRY C. BUHOUP, OF CHICAGO, ILLINOIS.

RAILROAD-CAR.

SPECIFICATION forming part of Letters Patent No. 466,975, dated January 12, 1892.

Application filed August 15, 1891. Serial No. 402,753. (No model.)

To all whom it may concern:

Be it known that I, HARRY C. BUHOUP, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railroad-Cars; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, wherein—

10 Figure 1 is a vertical longitudinal section of the end of a car and its platform having applied thereto devices which embody my invention. Fig. 2 is a vertical transverse section taken on the line $x x$, Fig. 1, looking in
15 the direction of the arrow. Fig. 3 is a horizontal section taken on the line $y y$, Fig. 1.

Like symbols refer to like parts wherever they occur.

My invention relates to the construction
20 and operation of that class of buffing mechanism applied for the purpose of and intended to steady the motion of a train of cars and limit and restrain the surging and oscillation or swaying of the individual cars. This class
25 of devices has heretofore been applied in two general forms—that is to say, either as separate spring-supported buffers or buffing-plates, or, as in the case of vestibuled trains, in the form of spring-supported frame-plates
30 or continuous buffer-plates, the latter of which afford vertical and lateral support as well as horizontal top and bottom support to the cars. So far as I am aware the larger part of the buffing mechanism heretofore devised for this
35 purpose has depended on the projecting force of the springs employed, which is necessarily limited in power, unequal in application, and decreases in proportion to the distance between the cars until finally effective frictional contact is so reduced that the devices
40 become more or less inefficient for the purposes intended, and frequently during the draft the buffers or plates at the top entirely separate. So far as the lower or platform
45 buffers are concerned the same have, however, been coupled to or connected with the draw-bar, so as to reinforce the spring-supports thereof by the movements of the draw-bar; but experience has proved that it is the
50 top or upper buffers or bearings which have the greatest tendency to separate, are least

effectively supported by the applied force, are subjected to the greatest lateral force and motion, and have the most work to do in restraining the swaying or oscillation of the car, 55 and, further, in the case of vestibuled trains this imperfect contact or separation of the frame-plate at its top permits the entrance of dust and cinder, which is highly objectionable. So far as I am aware no provision has heretofore been made for supplementing or reinforcing said upper buffers or the corresponding portion of the spring-supported frame-plate of a vestibule by the longitudinal or endwise movement of the cars, and to accomplish this is the object of my invention. To
60 this end the main feature of my invention embraces the combination, with the upper buffers or upper part of the frame-plate, of suitable mechanism whereby the endwise movement of the cars either to or from each other shall cause the outward movement of the said buffer or plate and increase the pressure and frictional contact, whereby the surging and oscillation of the car are effectively controlled. 65 70 75

There are other minor features of invention pertaining to preferred combinations and particular details of construction, all as will hereinafter more fully appear.

For the purposes of illustration I have here- 80 in shown and described my invention as applied by means of the spring-supported frame-plate or continuous buffer-plate common to vestibuled trains; but it will be evident that the invention is equally applicable to independent or separate buffers, and therefore 85 what has been chosen for illustration is not to be taken as imposing any limitation on the invention.

I will now proceed to describe my invention 90 more specifically, so that others skilled in the art to which it appertains may apply the same.

In the drawings, A indicates the end of a car with the usual platform B, vestibule C, 95 and spring-supported frame-plate D common to vestibuled cars, the portions $d d'$ of said frame-plate D being the equivalents of the horizontal independent buffers frequently applied to non-vestibule cars to control the surging and oscillation of the car, all of which is 100 familiar to those skilled in the art.

E indicates the movable draw-bar or coupling with its springs *e*, tail-bolt *f*, and follower-plates *g* and *h* properly arranged and supported on the longitudinal sills of the car in any approved manner.

1 indicates a yoke-lever pivoted on the longitudinal sills of the car at a point above the draw-bar, as at 2, and through the yoke 1^a (which constitutes the lower arm of the lever) the draw-bar E passes, as shown in Fig. 2.

Secured to the lower arm of yoke-lever 1 is an equalizer 3, which extends transversely of the car and has its ends connected by rods or links 4 4 with bell-crank levers 5 5, for purposes which will hereinafter appear.

6 indicates a movable pin which projects through a suitable slot in the shank of the draw-bar E, so as to engage and force backward the lower or yoke arm 1^a of the yoke-lever 1, and with said arm the equalizer 3, whereby motion is communicated to the links 4 4 and bell-crank levers 5 5. This horn 6 may be provided with a longitudinal slot 7, whereby it is suspended from a pin, and may be formed as by rounding at its lower front end to enable it to recede into the shank of the draw-bar E when encountering resistance in the outward movement of said draw-bar. To prevent its recession when acting on the yoke 1, it may be provided with a shoulder 10, if desired.

Connected with the rear follower-plate so as to move therewith and extending forward therefrom over the draw-bar E is a thrust-bar 8, having a narrow tongue 9 or guide adapted to pass through a slot in the upper arm of yoke 1, (see Fig. 2,) and said thrust-bar is otherwise formed to bear against the rear face of said upper arm, so that the yoke-lever may be supported by and respond to the forward movement of said rear follower-plate *h*.

F indicates one of the lower buffers commonly applied in the plane of the framing-sills, said buffer here shown as forming part of the frame-plate of a vestibule. G indicates an equalizing-bar for connecting said lower buffers when two or more are used, and 12 a T-bolt which connects the equalizer G with the upper arm of the lever-yoke 1, so as to control the buffers from said lever-yoke.

H indicates one of the usual upper buffers, in the present instance also shown as connected with or forming part of a frame-plate D, provided with stem *h'*, which passes through suitable keepers *h*² at the top of the vestibule, and with the usual projecting spring *h*³, which bears against a shoulder on the stem *h'*. On the stem *h'* I also place a movable bearing or follower plate 13 and support the same by one arm of a pivoted bell-crank lever 14, the opposite arm of said bell-crank lever 14 being connected with a rod 15 or equivalent connection extending down to the bottom of the car and there connected with one arm of the pivoted bell-crank lever 5, so that whenever the said bell-crank lever

5 shall be operated from the yoke-lever 1 by either the inward or outward movement of the draw-bar said movement will be communicated to the follower-plates 13 and cause the outward movement of the buffers H or their equivalent, the upper portion of the frame-plate D. It is to be understood that the bell-crank levers 5 and 14 and the vertical connecting-rods 15 are duplicated for opposite sides of the car, as is clearly shown in Fig. 2 of the drawings.

The construction being of substantially the character hereinbefore specified will operate as follows: Upon coupling up the cars of a train the buffers or frame-plates of adjacent cars will be forced in frictional contact by the usual projecting springs, as now commonly takes place; but when the train is drawn out or moving forward the draw-bar E will, by means of the thrust-bar 8, force forward the upper arm of yoke-lever 1, thus causing the lower arm of the yoke-lever to move backward, and through the medium of equalizer 3, links or pivoted levers 4 4, and bell-crank levers 5 5 draw down the vertical rods or connections 15, thus actuating the bell-crank levers 14 to force forward the follower-plates or bearings 13 of the upper buffers, and thus compress the springs *h*³ *h*³ and increase the force and projection of the said upper buffers or upper part of the frame-plates, as the case may be. Like results will follow in case of sudden arrest of the motion of the trains or in backing, though in the latter case the inward thrust of the draw-bars will act on the lower arm of yoke-levers 1, through the medium of horn 6, and the movement being thence transmitted to the upper buffers or upper part of the frame-plate through equalizer 3, links or levers 4 4, bell-crank levers 5 5, rods 15, and bell-crank levers 14, as before specified.

It will be at once evident to persons skilled in the art that any connection between the equalizers 3 of two cars which will utilize the approach and recession of said cars to cause the recession of said equalizers 3 and the operation of rods 15 and bell-crank levers 14 will be the full equivalents and may be substituted for the draw-bar E, lever-yoke 1, and horn 6 without departing from the spirit and scope of my invention.

Having thus described the nature, operation, and advantages of my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with buffers arranged at the upper part of the car, of coupling devices for connecting the cars and interposed mechanism adapted to cause the outward movement of said buffers by the endwise movements of the car, substantially as and for the purposes specified.

2. The combination, with the upper spring-buffers, of a coupling mechanism and intermediate connections which extend from the

buffers at the top of the car to the coupling mechanism at the bottom thereof, substantially as and for the purposes specified.

3. The combination, with the upper buffers, of a coupling device, a yoke-lever actuated thereby, an equalizing-bar connected with the yoke-lever, and intermediate connections extending from the upper buffers to the equalizing-bar, substantially as and for the purposes specified.

4. The combination, with the upper buffers, of a coupling, a yoke-lever, a thrust-bar connected with the coupling and adapted to operate the yoke-lever, an equalizing-bar connected to the yoke-lever, and suitable connections between the equalizing-bar and the upper buffers, substantially as and for the purposes specified.

5. The combination, with upper buffers, of two sets of pivoted levers, one at the bottom and the other at the top of the car, suitable connections between the said pivoted levers, and a car-coupling device with which the lower levers are connected, substantially as and for the purposes specified.

6. The combination, with upper buffers, of two sets of pivoted levers, one set arranged to operate the upper buffers, suitable connections between the pivoted levers of the same side, and an equalizing-bar for connecting the lower set of pivoted levers, substantially as and for the purposes specified.

7. The combination of two cars, each having upper buffers, a coupling device for connecting said cars, and intermediate connections which extend from the coupling device to the buffers at the top of each car, whereby the movement of the cars in either direction will cause the projection of said upper buffers, substantially as and for the purposes specified.

8. The combination, with upper buffers, of bell-crank levers which actuate the buffers, connections extending from said bell-crank levers to the bottom of the car, bell-crank levers arranged at the bottom of the car and which receive said connections, an equalizing-bar which connects said last-recited bell-crank levers, a coupling having a thrust-bar attached thereto, and a pivoted lever connected with the equalizing-bar and actuated by the thrust bar of the coupling, substantially as and for the purposes specified.

9. The combination, with an upper buffer-plate and its projecting spring, of a movable follower or bearing plate and means for causing the forward movement of said follower-plate by the endwise movement of the car, substantially as and for the purposes specified.

10. The combination, with a buffer plate or plates arranged at the upper part of the car and the draw-bar or coupler, of intermediate vertical and lateral connections whereby the endwise motion of the draw-bar is converted into an outward movement of the buffer-plates, substantially as and for the purposes specified.

11. The combination, with the upper portion of a car, of a buffer plate or plates, their projecting springs, a movable bearing for said projecting springs, and a vertical rod which actuates the movable bearing-plate from the coupler or draw-bar, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 27th day of July, 1891.

HARRY C. BUHOUP.

Witnesses:

J. B. BRADY,
R. E. JANNEY.