(No Model.)

T. J. MAYALL, Dec'd.

L. A. MAYALL, Executrix.

QUATERNARY YIELDING LEVER.

No. 382,267. Patented May 1, 1888.

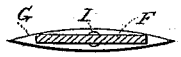


Fig. 1.

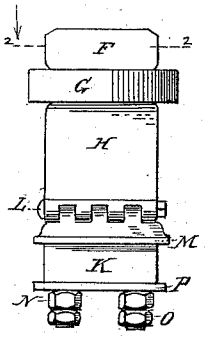


Fig. 2.

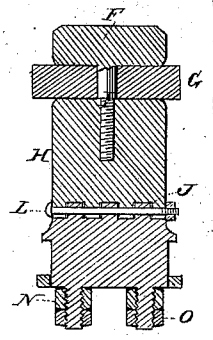
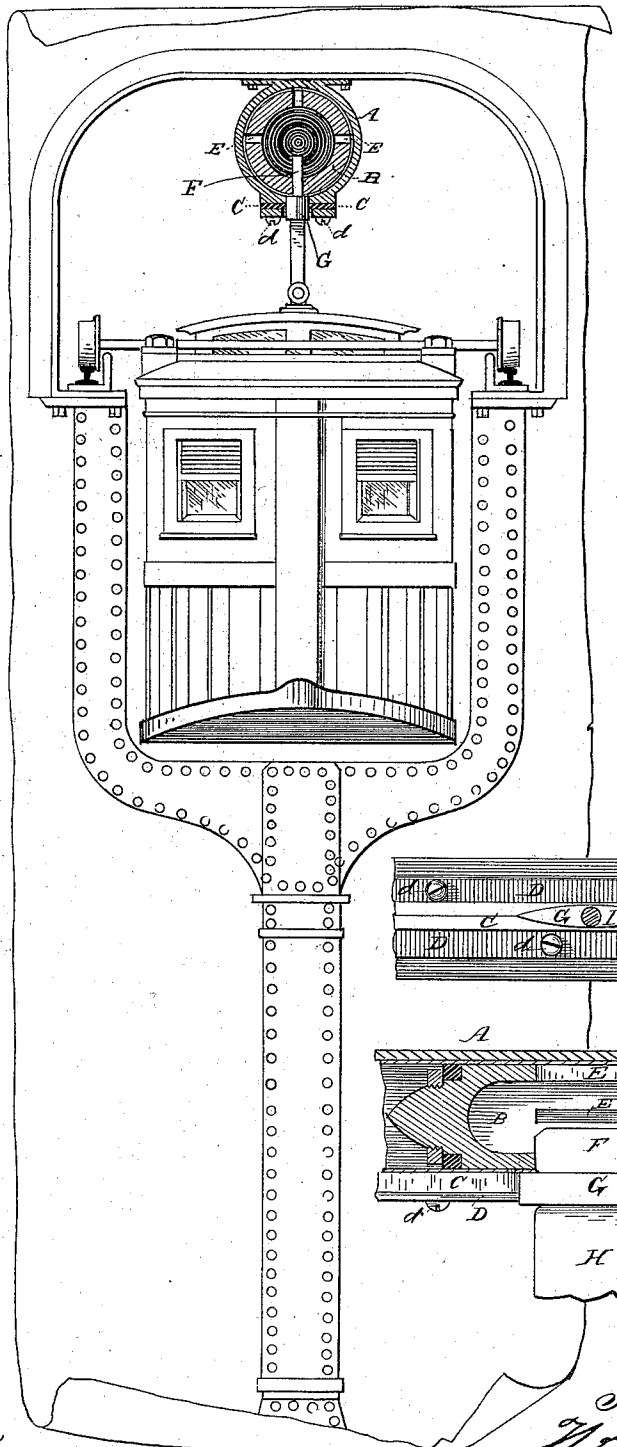


Fig. 3.



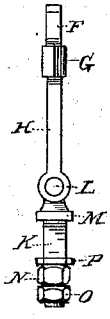


Fig. 4.

Fig. 5.

Fig. 6.

Witnesses.
Wm. H. Hutchinson.
C. J. Hedrick.

Fig. 7.

Inventor.
Thos. J. Mayall.

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UNITED STATES PATENT OFFICE.

THOMAS J. MAYALL, OF READING, MASSACHUSETTS; LUCY A. MAYALL EXECUTRIX OF SAID THOMAS J. MAYALL, DECEASED.

QUATERNARY YIELDING LEVER.

SPECIFICATION forming part of Letters Patent No. 382,267, dated May 1, 1888.

Application filed August 26, 1887. Serial No. 247,937. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. MAYALL, a citizen of the United States, and a resident of Reading, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Quaternary Yielding Levers, of which the following, taken in connection with the accompanying drawings, is a specification.

The object of my invention is to produce a device adapted to my improved system of pneumatic elevated railways for the purpose of establishing a yielding connection between a traveler sliding within the horizontal pneumatic tube and the top of a suspended car, said system of railway being fully set forth in my recent application for Letters Patent, Serial No. 240,728, filed June 9, 1887.

I consummate my purpose through the application of the invention herewith illustrated, which I designate as a "quaternary" yielding lever, the purpose of which is to provide an intermedial attachment to the car-top in such a manner as to permit the slightest oscillation of said car, or any variation of the angle of the axles with the plane of the rail or track, without affecting the rigidity or horizontal action of the rotating portion of my device, which separates in its transit the elastic surfaces of the materials closing the slatted aperture of the pneumatic tube above through its connection with the aforesaid traveler. A succinct description of its construction with the method of operation and its efficiency will be fully ascertained by reference to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 designates a plan and section of the pivoted separating-plate on dotted line 2 2, Fig. 2, Fig. 2 being a side elevation of the quaternary lever with its parts assembled. Fig. 3 is a longitudinal vertical central section thereof. Fig. 4 illustrates an edge elevation of the same. Fig. 5 indicates a plan of the bottom of the pneumatic tube with the separating-plate only in position between the elastic bearings closing the aperture of said tube. Fig. 6 illustrates a longitudinal central portion of said tube inclosing the traveler and displaying the connection of the latter in section with said lever in elevation, while Fig. 7 is an exhibit of my organized elevated railway, showing the application of my invention to establish the connection of the car with the aforesaid pneumatic tube and traveler, the two latter being in section.

Like letters of reference designate corresponding features throughout the several views, referring to which—

A indicates the pneumatic tube, and B the traveler resting within, motion to which is imparted by exhausting the air in said tube to produce a vacuum in advance of the car by or through a series of relay-pumps, sufficiently explained in my application alluded to.

C designates the elastic material closing the aperture of the tube, which is arranged and is of such a nature as to perfectly exclude the external air, forming a junction throughout the length of the line, and only separated momentarily by said pivoted portion of the lever as it propels the car. Binding-pieces D D, sustained by tap-bolts *d*, serve to confine said elastic bodies to the base of the tube A. Circumferentially the traveler B is provided with slots, (observed at E E,) which admit the attached locking-plate F, closely fitting said slots, which thereby forms the point of connection between the traveler and lever. Below this appears the separating-plate G. (Shown in position in its relation to the tube A in Figs. 5 and 6.) Its office, as above intimated, is to sunder the junction of the elastic material, C, in such a manner as will not permit the admission of air within the tube. To this end its construction approaches the elongated elliptical form, which is best adapted to momentarily separate the adjoining surfaces and to permit their subsequent union without injury, while it is pivotally connected with the intermediate body, H, by the screw I, forming an integral part of the end bearing. Said body H at the end remote from the separating-plate is provided with re-entering angles J J to admit corresponding projections in the base-plate K to form a hinge, which permits the oscillatory movement of the car without disarranging the superimposed parts.

L is the bolt or hinge pin establishing the connection of the plate. At M there is an off-

set having a bearing upon the car-top, through the timbers of which the plate H enters, (in a manner similar to the reception of the bearing F in the traveler,) and is held securely through the medium of nuts and check-nuts. (Observed at N and O.)

To accommodate the variable space in the diverse constructions, one or several compensating plates, P, will intervene between the wood-work of the car and said nuts to insure firmer support, as well as to protect the car interior from injury.

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

1. In combination with a car for the transportation of passengers or freight, the assembled devices, comprising a quaternary lever consisting of a flanged base-plate, K, adapted to be loosely united to an intermedial plate, H, the separating-plate G, and the locking-plate F, organized to coact with a pneumatic traveler, B, substantially as and for the purpose set forth.

2. In combination with the pneumatic tube A, having an aperture separably closed by an elastic sealing material, a separating-plate, G, constructed to dissever said elastic material by its impact and to permit it to instantly reunite after said impact, so as to avoid the admission of air within said tube, in conjunction with the aggregated parts F H K, as previously described, and in the manner specified.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 25th day of August, A. D. 1887.

THOS. J. MAYALL.

Witnesses:
WM. H. HUTCHINSON,
E. L. WHITE.