

(Model.)

3 Sheets—Sheet 1.

A. ESTRADE.  
RAILWAY VEHICLE.

No. 253,592.

Patented Feb. 14, 1882.

Fig. 1.

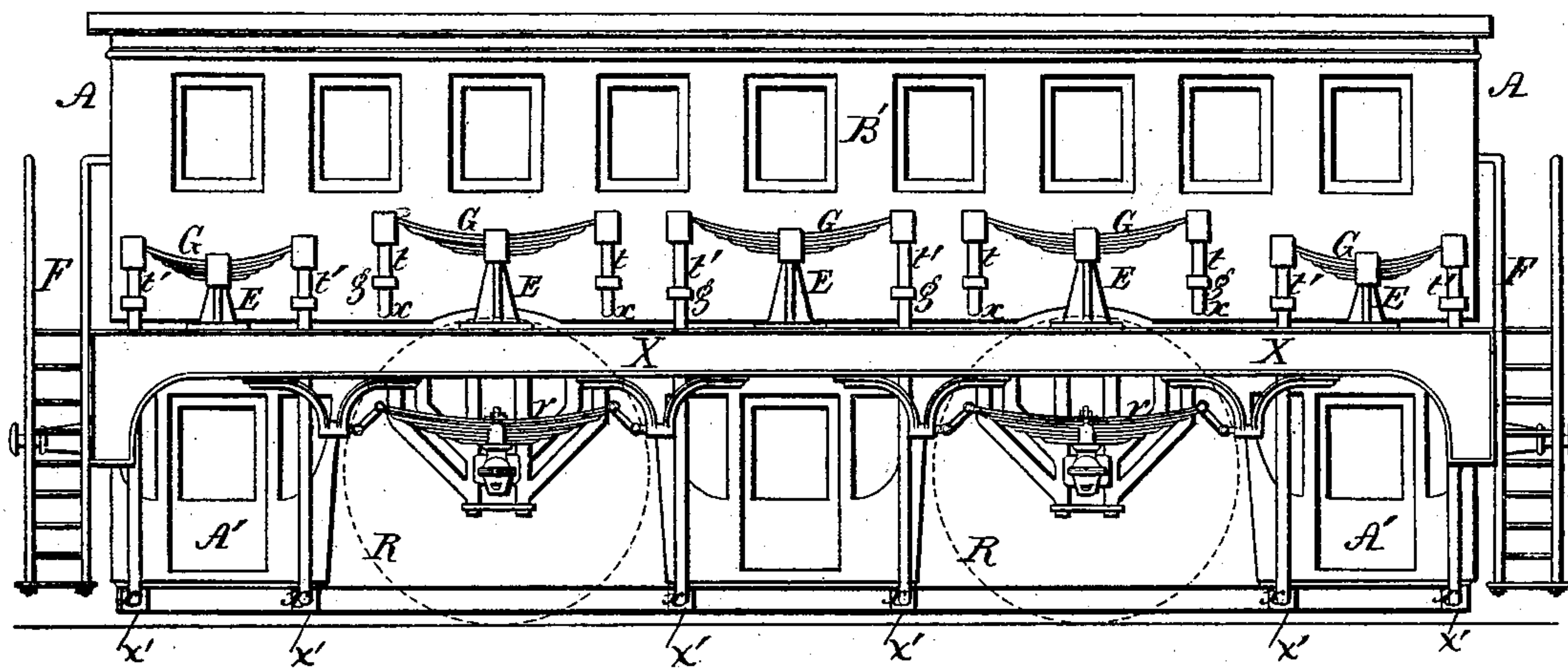
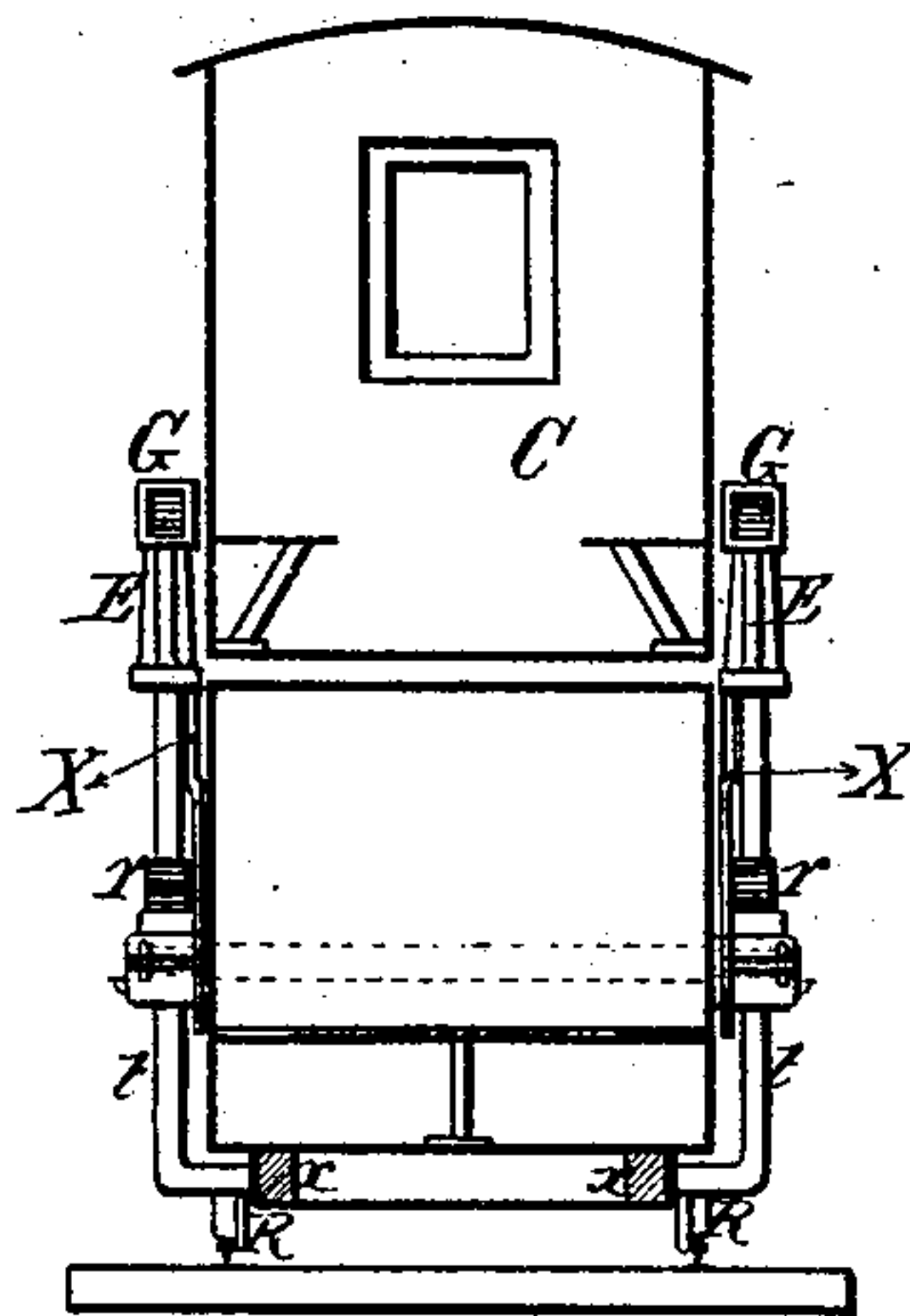


Fig. 2.



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Fig. 1<sup>a</sup>

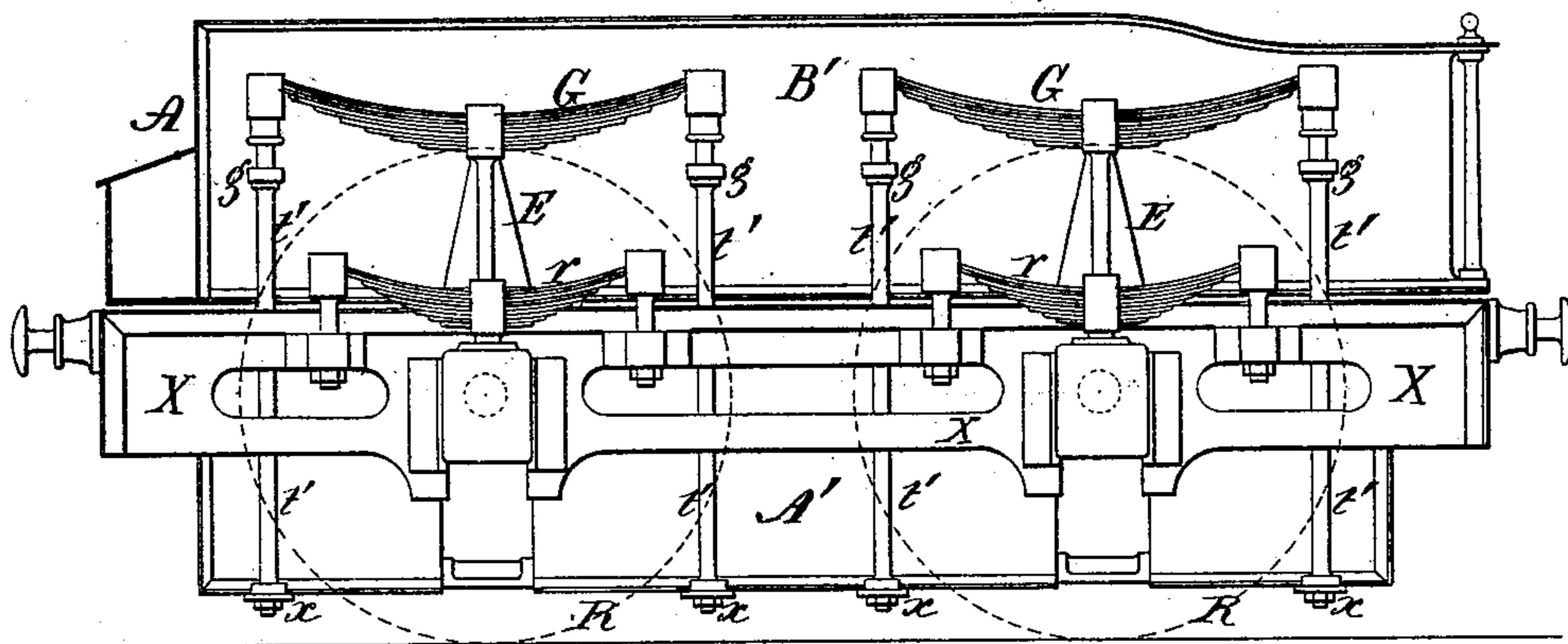
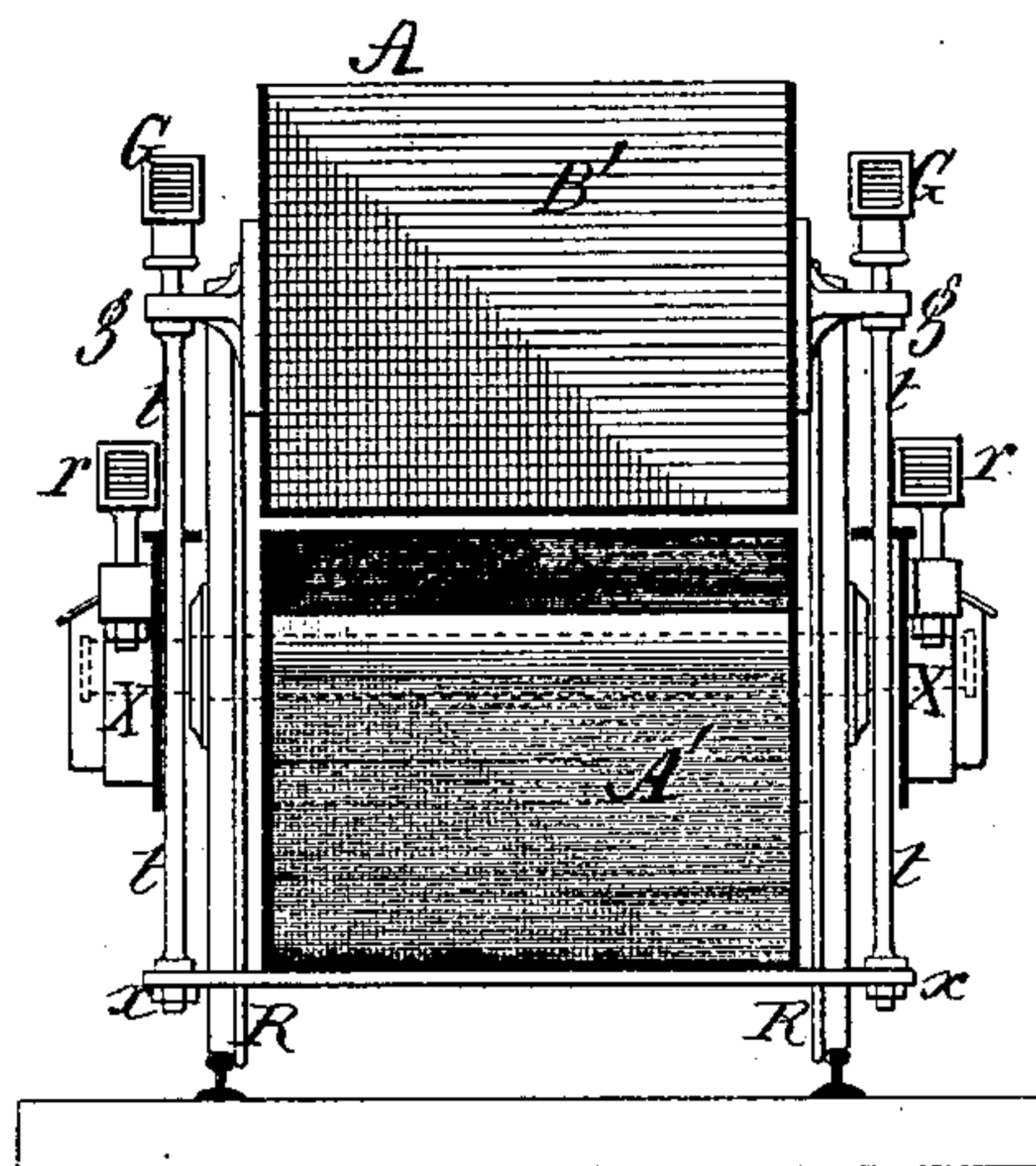


Fig. 2<sup>a</sup>



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W. F. Kircher

Inventor:

Auguste Estrade  
by Joan A. Diederichsen Atty.

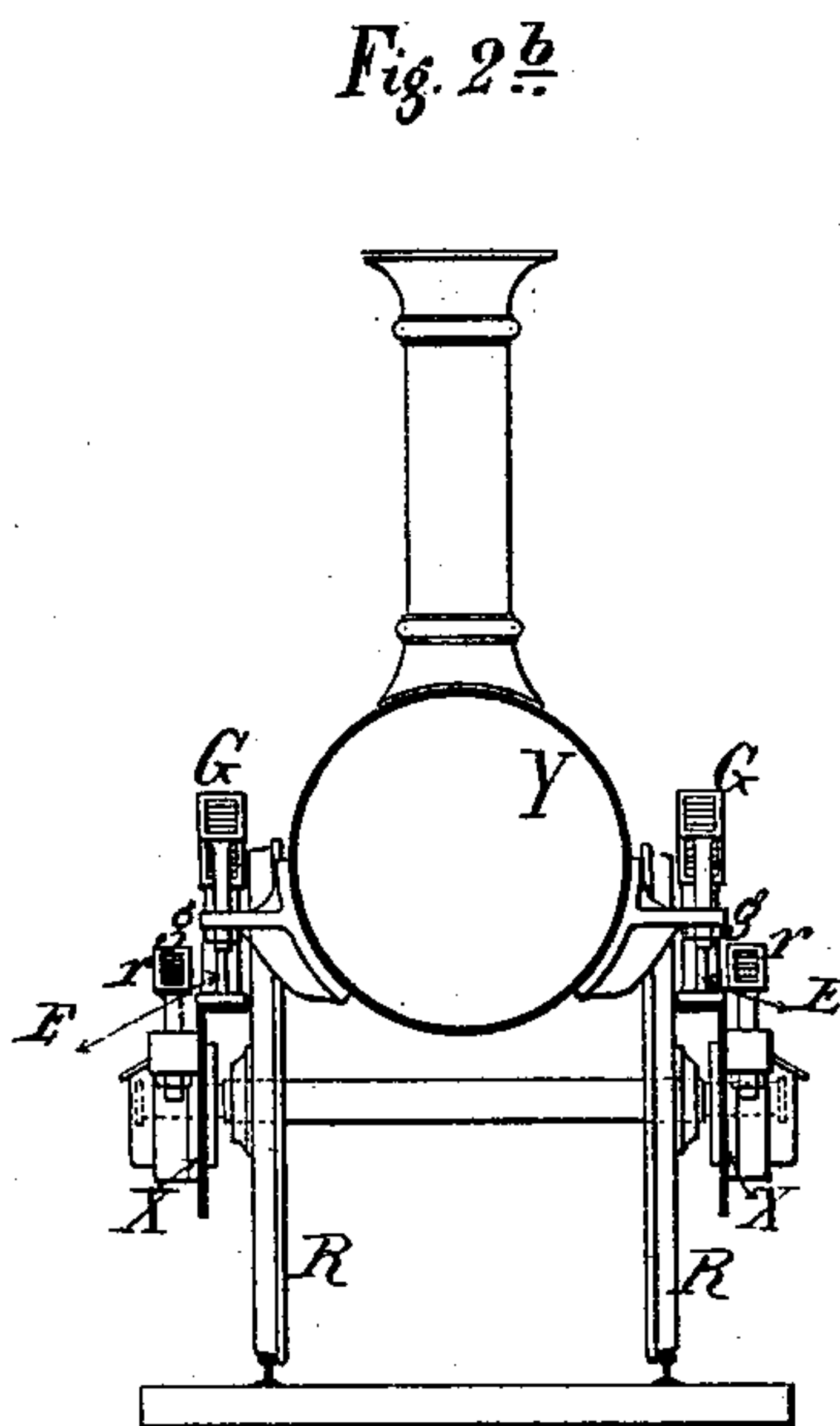
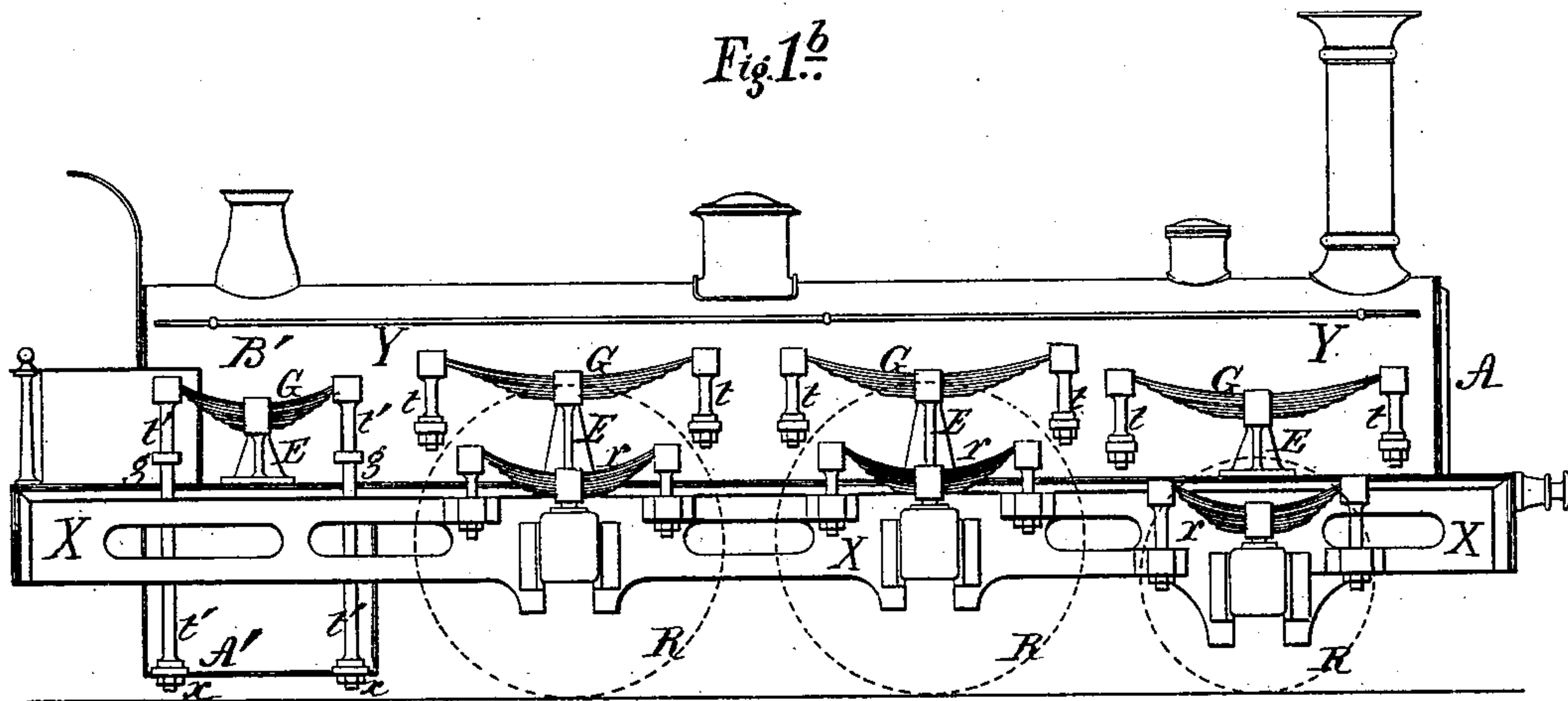
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Witnesses:

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Inventor:

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# UNITED STATES PATENT OFFICE.

AUGUSTE ESTRADE, OF NEAR PERPIGNAN, FRANCE.

## RAILWAY-VEHICLE.

SPECIFICATION forming part of Letters Patent No. 253,592, dated February 14, 1882.

Application filed November 10, 1879. Renewed December 13, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, AUGUSTE ESTRADE, residing near Perpignan, France, have invented a new and useful Improvement in Railway-Vehicles or Rolling Stock, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side elevation of a passenger-car embodying my invention. Fig. 2 is an end view thereof. Fig. 1<sup>a</sup> is a side elevation of a tender embodying my invention. Fig. 2<sup>a</sup> is an end view thereof. Fig. 1<sup>b</sup> is a side elevation of a locomotive embodying my invention. Fig. 2<sup>b</sup> is a front end view thereof.

Similar letters of reference indicate corresponding parts in the several figures.

My invention has for its object the construction of rolling stock whereby it may be run with greater speed, have increased accommodations for conveyance, and decrease of jarring and noise.

The invention consists in forming the body of a car with a secondary or extended apartment reaching below the axles and suspending it upon a duplex system of springs, so that the car sets low and runs with ease and smoothness, and increased accommodations are provided, whereby I may employ large wheels, serviceable for great speed, and liability of overturning of the car is lessened, as the center of gravity is lowered.

It also consists of the suspension of the body of the car by a double system of springs, whereby the motion of the car is vastly eased and the comfort of travel therein correspondingly increased.

Referring to the drawings, A represents the body of a passenger-car, formed of an upper and lower story, A' B', each provided with suitable seats, a platform, and usual appurtenances, access being had to the upper story, B', by means of stairs F, suitably applied. The lower story or apartment, A', reaches below the axles of the car-wheels R R, so that said apartment reaches just above the track, the wheels being within the width of the car-body. In Figs. 1<sup>a</sup> 2<sup>a</sup> I show a tender similarly constructed.

It will be seen that the body of the passenger-car being double provides increased ac-

commodations for passengers, and the body sets low down, whereby the center of gravity of the car is lowered and liability of overturning decreased. By this provision, also, the wheels may be made of large diameter, as they set along the side of the car-body and are not limited, as when under the same. The car-body is suspended by a duplex system of springs, as follows: One set of springs, G, is suspended from standards *t*, secured to the upper part of the car-body and bearing on pedestals E, rising from and supported on the surrounding truck-frame X, which in turn bears on springs *r*, connected to or supported on the car-axle boxes.

For the lower apartment of the car the standards *t* pass loosely through or outside of the frame X, and are connected to said lower apartment, as at *x'*.

The tender of the car has two apartments or bunkers—one for fuel, the other for water—and the system of springs G *r* is employed, only that the upper set is dispensed with, although applicable, if desired. The springs G *r* are applied to a locomotive similar to those of the passenger-car and tender. The body is suspended from springs G, resting on the frame X, and the latter is suspended from axle bearings or boxes by means of springs *r*; but the extended uprights *t' t'* are secured to the ash-pit. The uprights *t t* are passed through guides *g g* for evident purposes.

It will be seen that as the body of the car is suspended from the upper springs, G, which are sustained on the frame X, and the latter is sustained on the springs *r*, which rest on the car-axle boxes or bearings, easy motions are imparted to the car and the jarring noise thereof is obviated.

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

1. The car-body having upper and lower apartments, A' B', and a duplex system of springs, G *r*, substantially as and for the purpose set forth.

2. The body A, in combination with a duplex system of springs, G *r*, and the intermediate frame, X, substantially as and for the purpose set forth.

3. The body A and frame X, in combination with the upper springs, G, uprights *t*, pedestals E, and lower springs, *r*, substantially as and for the purpose set forth.

- 5 4. The body A, with upper and lower apartments, A' B', in combination with the double set of springs G *r*, standards *t*, pedestals E, frame X, and extended standards *t'*, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

ESTRADE.

Witnesses:

ROBT. M. HOOPER,  
A. CABY.