

(No Model.)

J. A. MILLER.  
PROTECTOR FOR CAR HEATERS.

No. 390,182.

Patented Sept. 25, 1888.

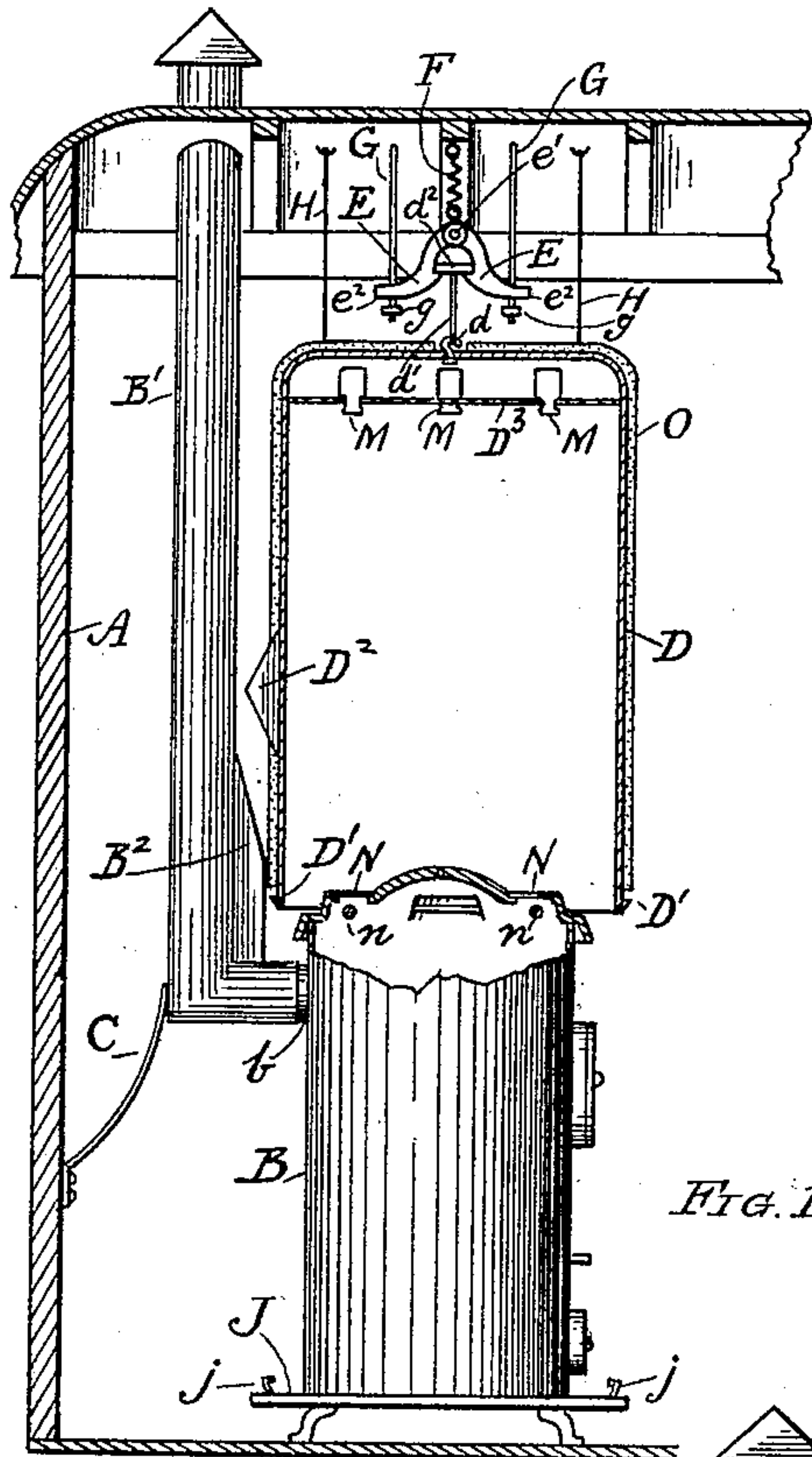


FIG. 1.

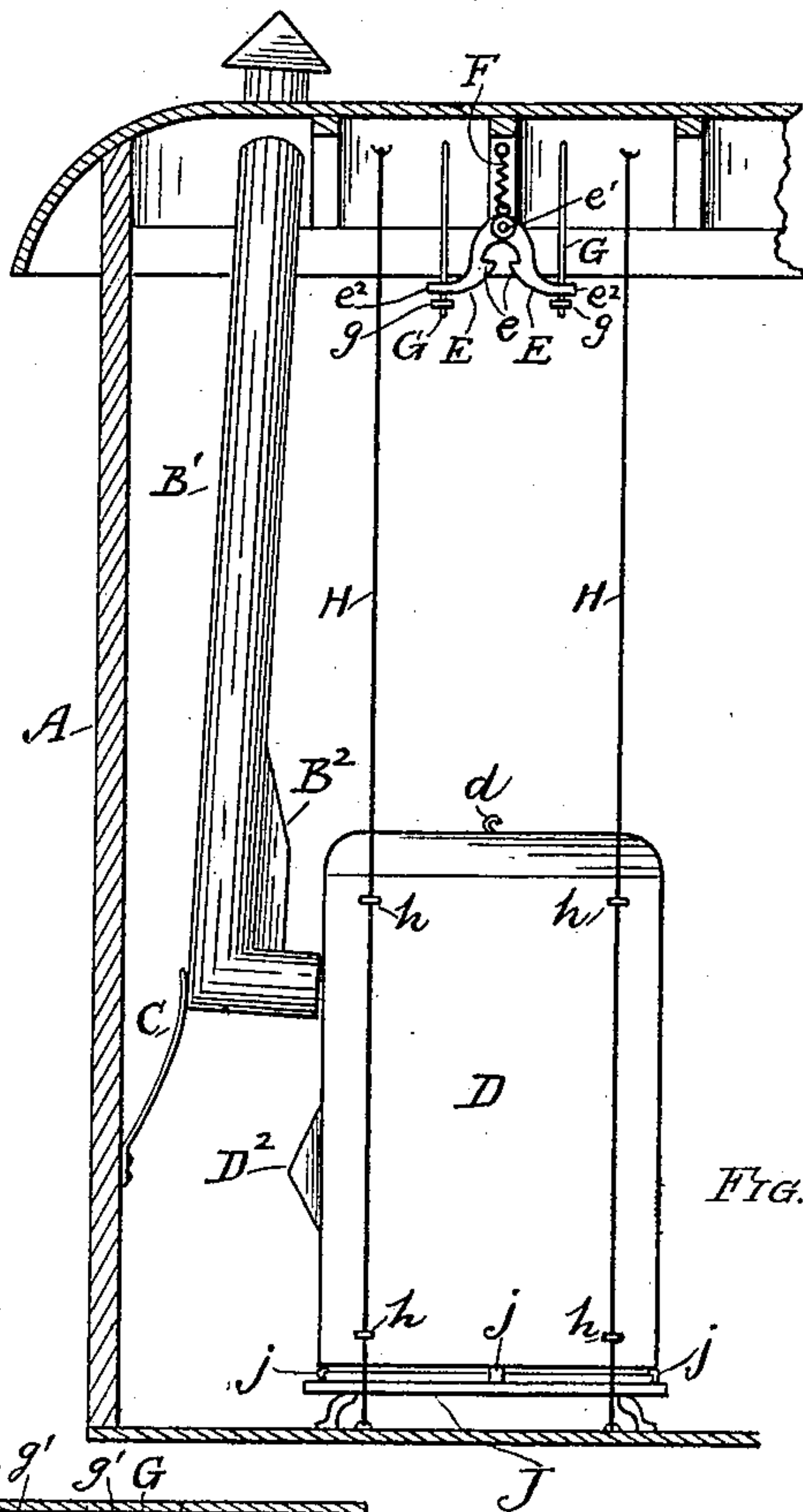


FIG. 2.

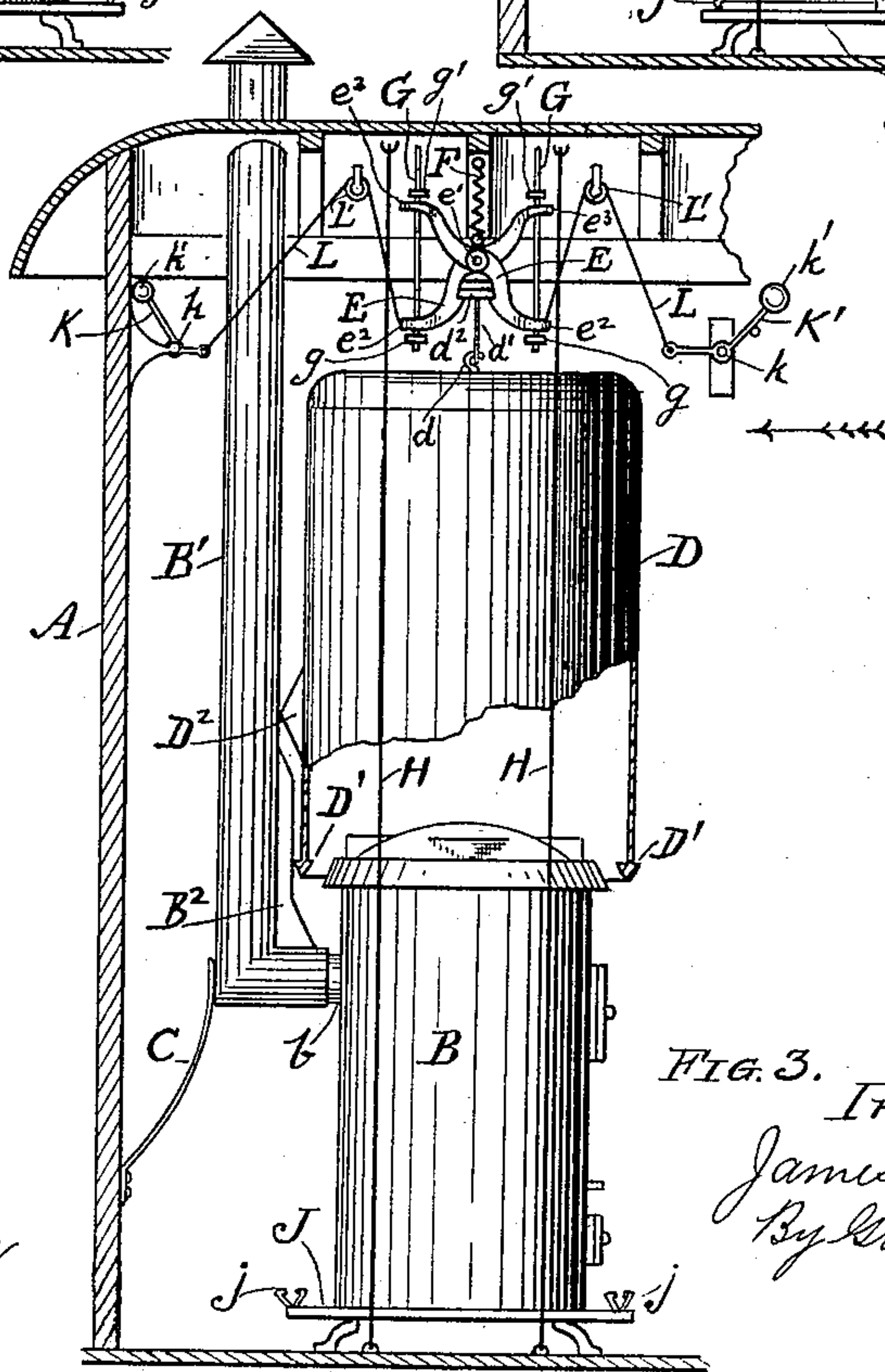


FIG. 3.

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# UNITED STATES PATENT OFFICE.

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OF SAME PLACE.

## PROTECTOR FOR CAR-HEATERS.

SPECIFICATION forming part of Letters Patent No. 390,182, dated September 25, 1888.

Application filed May 5, 1887. Serial No. 237,173. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES A. MILLER, of Chicago, in the county of Cook and State of Illinois, have invented a certain new, useful,  
5 and Improved Protector for Car-Heaters, of which the following is a description, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a sectional view of a portion of  
10 a railway-car in which is shown a heating-stove having my improved protector applied thereto, said protector being shown in its normal position. A vertical sectional view of said protector is given in order to show the bottles  
15 therein filled with a fire-extinguishing compound, while the top of the stove is partially broken away to indicate means for admitting the extinguishing material to the fire. Fig. 2 is a like view of a car in which is represented  
20 a side view of said protector as it appears when inclosing the stove; and Fig. 3 shows a side view of said protector when suspended above the stove, as in Fig. 1, with additional mechanism for operating the same.

25 Like letters of reference indicate like parts in the different figures.

The object of my invention is to prevent conflagrations in railway-cars, resulting from the overturning or breaking of stoves caused  
30 by collisions or other railway accidents. I accomplish said object by means of a strong close cover or jacket in connection with suitable automatic devices so arranged as to act upon or release said jacket in the event of a severe jar  
35 or concussion and cause the same to envelop the stove in such manner as to completely prevent the escape of fire therefrom, while at the same time fire-extinguishing liquids or gases are preferably caused to be brought into contact  
40 with the fire, all of which is hereinafter more particularly described and claimed.

A in the drawings represents the body of a railway-car, within which is placed the usual heating-stove, B, having a pipe, B', which is  
45 extended through the roof of the car and loosely connected with the collar b of the stove, said connection being normally maintained by means of a spring, C, attached to the side of the car.

50 D is a strong drum or jacket constructed of

steel or boiler-iron, open at the bottom and closed at the top. A suitable hook or staple, d, is attached to said top, with which is connected a rod, d', having a head, d<sup>2</sup>, upon its upper end, adapted to engage with notches e,  
55 Fig. 2, formed in jaws E E, which are hinged to each other at e', at which point they are attached to a spiral spring, F, suspended from the roof of the car. Said jaws E are provided with laterally-extended arms e<sup>2</sup>, through  
60 which are passed rods G G, which are attached rigidly to the roof of the car. Said rods are screw-threaded and are provided with nuts g g, which are adjusted at a sufficient distance from the ends of the arms e<sup>2</sup> so as not to be  
65 brought into contact therewith as the spring F expands from the ordinary motion of the car. If preferred, additional arms, e<sup>3</sup> e<sup>3</sup>, Fig. 3, may be formed upon the jaws E, in which case additional nuts, g' g', may be placed upon  
70 the rods G above the arms e<sup>3</sup>, for the purpose hereinafter stated.

Guide-rods H H, of which there are preferably four, are attached to the floor and roof of the car, respectively, as shown, and are loosely  
75 attached to the jacket D by means of staples h, Fig. 2, through which said rods are loosely passed. I prefer to insert a bushing of rubber or leather in said staples to prevent them from rattling. The bottom of the stove consists of or has attached thereto a plate, J, of  
80 iron or steel, which projects outwardly, as shown, around the entire stove, and is provided upon its edge with a number of spring-clamps, j, which are adapted to engage with V-shaped  
85 hooks D' upon the bottom of the jacket D. An angular projection, D<sup>2</sup>, is formed upon the jacket and a corresponding projection or flange, B<sup>2</sup>, is secured to the pipe in such a way as that the two may engage with each other upon the  
90 falling of the jacket.

K K, Fig. 3, are elbow levers loosely pivoted at k to brackets or other suitable supports attached to the body of the car. To the end of the long arm of each of said levers is attached a weight, k', and suitable stops are provided for limiting the movement of said arms,  
95 so that they are normally retained in the respective oblique positions shown. To the short arms of said respective levers are at- 100



tached cords L L, which are trained over pulleys L' L', secured to the top of the car, and in turn attached to the ends of the arms  $e^2$   $e^2$ , respectively.

5 Within and near the top of the jacket D is secured a shelf, D<sup>3</sup>, Fig. 1, having perforations therein which serve as rests for a series of glass bottles, M, containing any well-known fire-extinguishing compound. Located in the top  
10 of the stove, coincident with the respective positions of the bottles M, is a series of mica windows, N, through which the bottles are designed to be driven upon falling, as hereinafter stated. Cross-bars  $n$  are preferably ar-  
15 ranged beneath said windows to insure the breaking of the bottles. The jacket D is covered with a coating of asbestos, O, Fig. 1, or other non-conductor of heat, which may in turn be covered by a sheet-metal envelope and  
20 ornamented to any extent desired.

The operation of said device is as follows: Upon the derailment of the car and the sudden striking of the wheels upon the ties the weight of the jacket D causes a severe jerk upon the  
25 spring F and expands it sufficiently to bring the ends of the arms  $e^2$  in contact with the nuts  $g$ , which limits the further movement of the arms and causes the jaws E to spread sufficiently to release the head  $d^2$  from their grasp,  
30 whereupon the jacket falls. In its fall the projection D<sup>2</sup> thereon impinges upon the projection B<sup>2</sup>, attached to the pipe, and the latter is suddenly thrown back, as shown in Fig. 2, so as to permit a free downward passage of the  
35 jacket. Upon its descent, being guided by the rods H, the hooks D' engage with the spring-clamps  $j$ , firmly locking the jacket to the plate J and closely enveloping the entire stove. In the meantime the bottles M are  
40 forced through the mica plates upon the top of the stove, shattered upon the rods  $n$ , and their contents brought into immediate contact with the fire.

The simple suspending devices shown in Figs. 1 and 2 is deemed sufficient in case of the derailment of the car, the shock of which would be in a vertical plane; but in the event of a collision it might fail to act, and the levers K K' are provided for effecting the desired result.  
50 Assuming the train to be moving in the direction of the arrow shown in Fig. 3, a collision with a forward train would throw the weight  $k'$  upon the arm K' in the same direction, and thus jerk the cord L, thereby opening the  
55 jaws E and permitting the jacket D to fall. In case the car should receive a shock from the rear, such as might be caused by another train running into it, the weight upon the arm K would then receive a backward impulse and  
60 effect a release in like manner.

The object of the arms  $e^2$  is to take advantage of the bouncing movement of the jacket in case of derailment, in which event the re-

coil of the spring would force the arms  $e^2$  against the nuts  $g'$ , and thus open the jaws. 65 The nuts  $g'$  may be regulated to the normal tension upon the spring F, so as to prevent the jaws from being opened by an ordinary jar.

The advantages of said device are that it is 70 simple, cheap, and positive in its action, while it is obvious that it would be impossible for the live coals to escape and set fire to the train, however destructive the wreck might be.

Having thus described my invention, what I 75 claim, and desire to secure by Letters Patent, is—

1. The combination, with a railway-car heater having mica windows in the top, of a 80 metallic jacket open at the bottom and containing bottles filled with a fire-extinguishing compound located in the top of said jacket at points coincident with the respective positions of said windows, an automatic clamp for normally suspending said jacket above the heater, 85 rods G G, having nuts  $g$   $g$ , for disengaging said clamp in the event of a severe shock to the car, and spring-clamps for automatically locking said jacket to the base-plate of the heater, substantially as and for the purposes specified. 90

2. The combination, with a railway-car stove, of the jacket D, a suspending-rod having a large head,  $d^2$ , hinged jaws suspended by means of a spiral spring to a stationary support, rods G and nuts  $g$ , arms upon said jaws 95 in operative connection with said rods, and nuts for opening the jaws upon a sudden shock to the car, guide-rods for directing the descent of said jacket, plate J, and spring-clamps for clamping the bottom of said jacket upon its 100 descent to said plate, substantially as shown and described.

3. The combination, with the stove B and jacket D, and an automatic spring-clamp for normally suspending the latter and for releasing it upon a sudden shock, of the projections D<sup>2</sup> B<sup>2</sup> upon the jacket and pipe, respectively, whereby the pipe will be automatically disconnected from the stove upon the descent of the jacket, substantially as and for the purposes 110 set forth.

4. The combination of the stove B, jacket D, hung thereover, a suspending-rod having a head,  $d^2$ , hinged jaws E, for normally clamping said head, weighted elbow-levers K K', 115 and cords L, in operative connection with said levers and the extremities of said jaws, respectively, whereby a sudden shock to the car will cause said levers to act upon the cord and thus disconnect the jaws from their engage- 120 ment with the suspending-rod, substantially as shown and described.

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