

M. WOOD.

APPARATUS FOR HEATING RAILWAY PASSENGER CARS.

No. 397,212.

Patented Feb. 5, 1889.

Fig. 1.

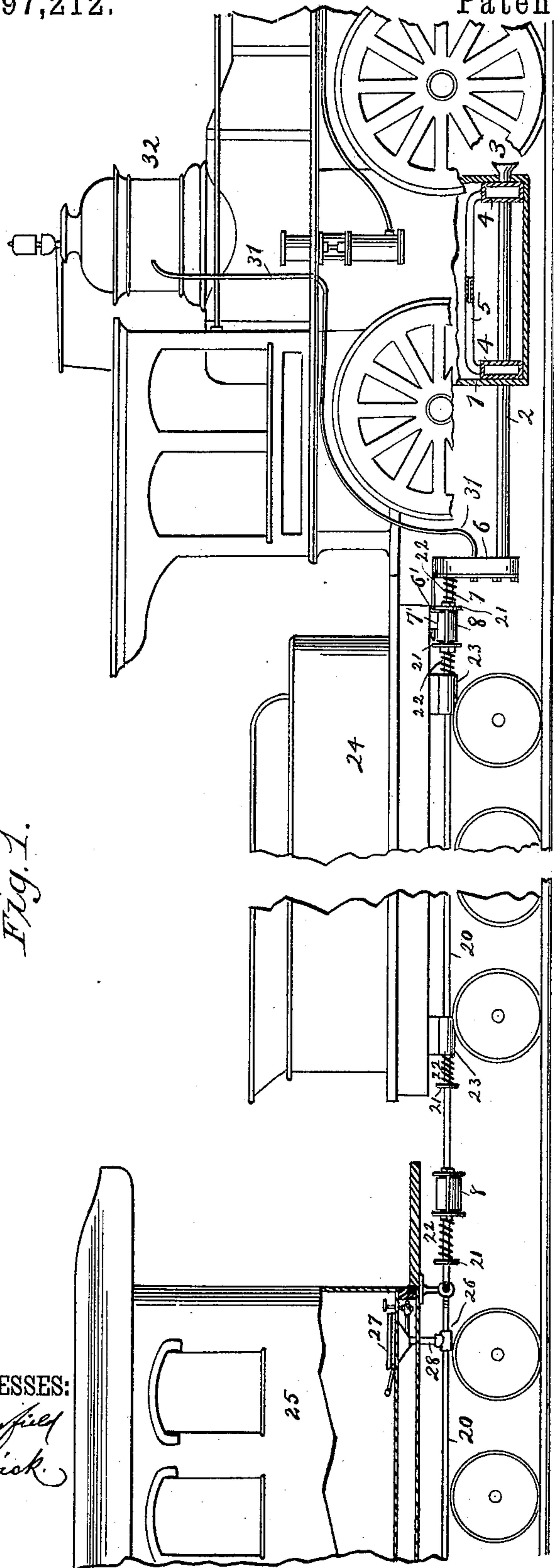
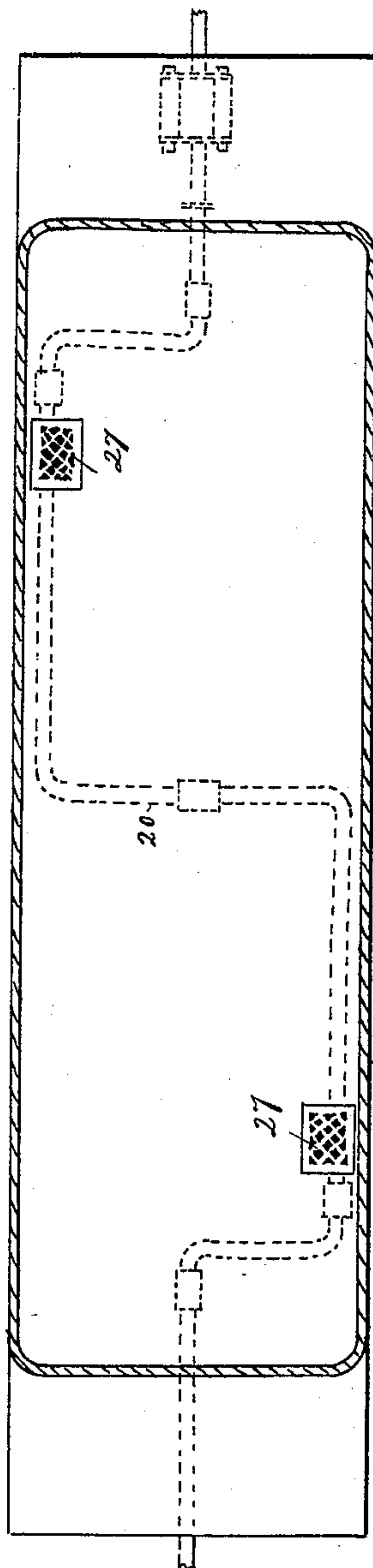


Fig. 2.



WITNESSES:  
*J. D. Garfield*  
*C. Sedgwick*

INVENTOR:  
*M. Wood*  
BY *Munn & Co*  
ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

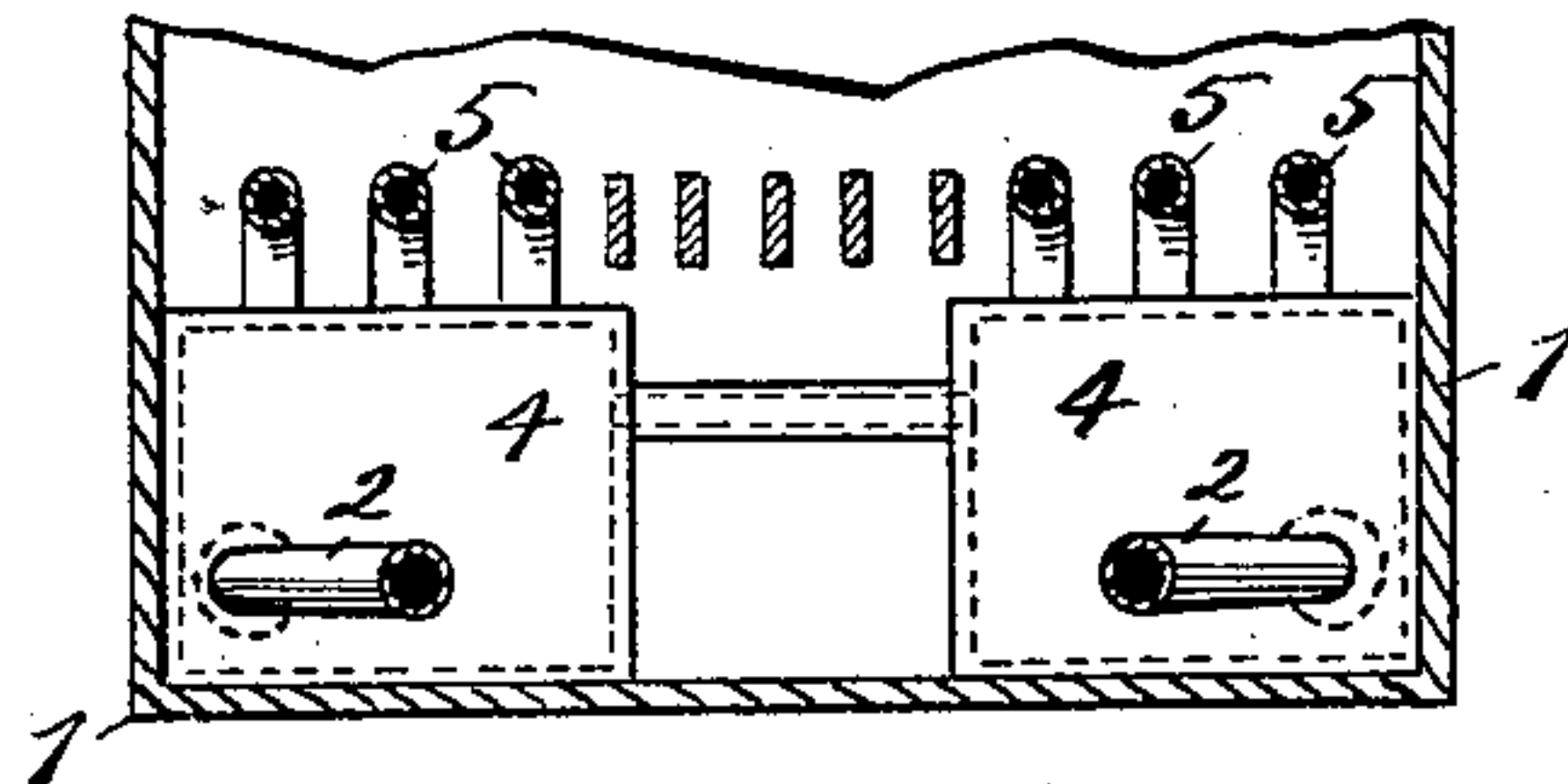
M. WOOD.

APPARATUS FOR HEATING RAILWAY PASSENGER CARS.

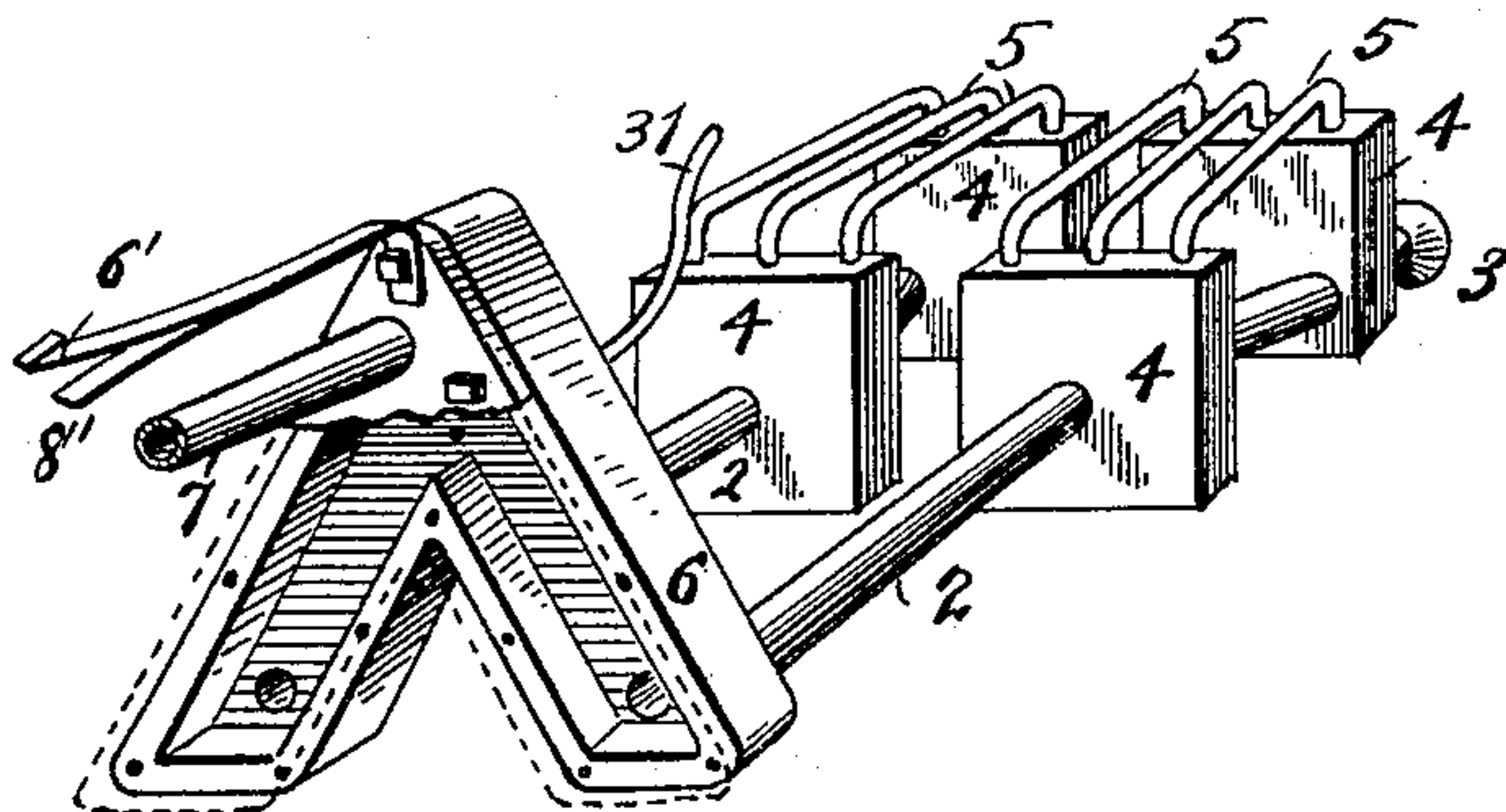
No. 397,212.

Patented Feb. 5, 1889.

*Fig. 3.*



*Fig. 4.*



WITNESSES:

*J. B. Tarfield*  
*C. Sedgwick*

INVENTOR:

*M. Wood*  
BY *Munn & Co.*

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

MARSHAL WOOD, OF ALDERSON, WEST VIRGINIA, ASSIGNOR TO HIMSELF  
AND ALEX. McVEY MILLER, OF SAME PLACE.

## APPARATUS FOR HEATING RAILWAY PASSENGER-CARS.

SPECIFICATION forming part of Letters Patent No. 397,212, dated February 5, 1889.

Application filed February 14, 1888. Serial No. 264,017. (No model.)

*To all whom it may concern:*

Be it known that I, MARSHAL WOOD, of Alderson, in the county of Monroe and State of West Virginia, have invented a new and  
5 Improved Apparatus for Heating Railway Passenger-Cars, of which the following is a full, clear, and exact description.

The invention relates to apparatus for heating railway-cars, and has for its object to provide an improved means therefor in which  
10 the heated air is effectively conveyed to the several passenger-cars of a railway-train and without loss of room in the said cars.

The invention consists in apparatus for this  
15 purpose and in improvements in details thereof constructed and arranged as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification,  
20 in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 shows, with parts broken and partly in section, a portion of a railway-train, illustrating the heating apparatus applied  
25 thereto. Fig. 2 is a horizontal section through a passenger-car, showing a portion of this apparatus applied thereto, with parts broken away. Fig. 3 is a detail view, partly broken  
30 away and partly in section, of the fire-box of a locomotive with this invention applied thereto; and Fig. 4 is a detail view showing parts detached from the fire-box of the locomotive and beneath the cab thereof.

In carrying out this invention, 1 indicates  
35 the fire-box of the locomotive, through which pass air-tubes 2, having funnel-shaped ends 3 in position to catch the air as the train advances. The air-pipes 2 open into boxes or  
40 reservoirs 4, located in the fire-box 1 and connected by a series of small air-pipes, 5, which serve as grate-bars in the fire-box of the locomotive. The front boxes, 4, are reservoirs for the cold air entering the funnels 3 of the  
45 air-pipes 2, and the rear boxes, 4, are reservoirs for the air which has been heated by passing through the pipes 5. The hot-air pipes 2 connect with a triangular-shaped heating-drum, 6, suspended in any suitable manner beneath the cab of the locomotive and  
50 connected by means of a pipe, 7, with a coupling, 8. The pipe 7 and the hot-air pipe 20

project loosely into the coupling 8 and are provided near their ends with fixed disks 21, and between the said disks and the heads 13 is located a coiled spring, 22.

To prevent the hot-air drum 6 from becoming detached from the coupling 8, it is provided with a spring hook-arm, 6', which passes through a perforated lug, 7', in the top of the coupling 8, and is held therein by means of  
60 the spring-leaf portion 8' of the hook-arm 6', the latter being adapted to move backward and forward freely therein. It will be seen by this construction that the ends of the  
65 pipes 7 and 20 have a free longitudinal movement through the perforated ends of the coupling 8, and are held in the normal position by means of the coiled springs 22. The  
70 pipe 20 is suspended in hangers 23 beneath the tender 24, and similar pipes, 20, are suspended from each passenger-car 25 of the train by hangers 26, and practically form a continuous air-tube. A coupling is located  
75 between the first car and tender and between the several cars of the railway-train.

Each car is preferably provided with two registers, 27, each connected to the hot-air pipe 20 by means of a pipe, 28.

To aid in carrying the heated air through the pipes 20 into the several cars, the hot-air  
80 drum 6 is connected by means of a tube, 31, with the steam-dome 32 of the locomotive. By this means the force of the steam drives the air passing through the pipes 2 into and through the pipes 20 and into the several  
85 cars of the train.

It will be seen that by means of this apparatus the air, entering the funnel-shaped  
90 mouths 3, will be carried into the front boxes or reservoirs, 4, in the fire-box 1, and, passing through the hollow grate-bars 5, will become heated and will be stored in the rear boxes or reservoirs, 4, and will then pass, by the force of  
95 the air passing through the funnel-shaped mouths 3, along the pipes 2 into the hot-air drum 6 and through the pipes and registers 27 into the several cars of the train, thereby supplying them with heated air.

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

1. An apparatus for heating railway pas-



senger-cars, consisting of air-tubes having open ends projecting in front of the fire-box of the locomotive, passing through reservoirs in the fire-box connected by hollow tubes  
 5 serving as grate-bars, and passing to a hot-air drum beneath the cab of the locomotive, said hot-air drum being connected by a tube and flexible coupling with an air-pipe beneath the tender, which is connected in turn with  
 10 air-pipes suspended beneath the cars of the train, and provided with branch pipes and perforated openings in the floors of the said cars, said pipes being connected together between the cars by suitable flexible couplings,  
 15 substantially as described.

2. In an apparatus for heating railway passenger-cars, the combination, with register-openings in the bottoms of the said cars connected with a main hot-air pipe leading to a  
 20 hot-air drum located beneath the cab of the locomotive, which in turn is connected by hot-air pipes passing through the fire-box of the locomotive, with open ends projecting beyond the same, of a steam-pipe connecting the hot-  
 25 air drum beneath the locomotive with the steam-drum, substantially as described.

3. In an apparatus for heating railway passenger-cars, the combination, with open-end air-pipes passing through the fire-box of the  
 30 locomotive and beneath the cars of the train and connected with suitable openings in the said cars, of reservoirs located in the fire-box of the locomotive and connected by tubular bars forming the grate-bars of the fire-box,  
 35 substantially as shown and described.

4. In an apparatus for heating railway passenger-cars, the combination, with the fire-box 1, of the air-pipes 2, having funnel-shaped

ends 3, and the reservoir-boxes 4, connected by tubular grate-bars 5, substantially as described. 40

5. In an apparatus for heating passenger railway-cars, the combination, with the V-shaped heating-drum 6, located beneath the cab of the locomotive and having a pipe, 7, 45 connecting with the main heating-pipe located beneath the cars of the train, of air-pipes 2, passing through the fire-box 1, having open ends 3 and connected with the reservoirs 4, joined by hollow grate-bars 5, located 50 in the fire-box 1, substantially as described.

6. In an apparatus for heating railway passenger-cars, the combination, with the heating-drum 6, the air-pipes 2, connected with said heating-drum, passing through the fire- 55 box 1, and having open ends 3, and the reservoir-boxes 4 and grate-bars 5, connected with the said air-tubes 2, of the steam-pipe 31, connecting the hot-air drum 6 with the steam-dome 32, substantially as shown and de- 60 scribed.

7. An apparatus for heating passenger-cars of a railway-train, consisting of the air-pipes 2, with openings 3, passing through the fire-box 1 of the locomotive, connecting with reservoir- 65 boxes 4 and hollow grate-bars 5, and the hot-air drum 6, having pipe 7, with coiled springs 22 and spring-hook 6', and freely resting in the lug 7 of coupling 8, and a series of air-pipe sections, 20, connected by couplings 8, and with 70 registers 27 in the cars 25, substantially as shown and described.

MARSHAL WOOD.

Witnesses:

OLIN B. MILLER,  
 C. W. MILLER.