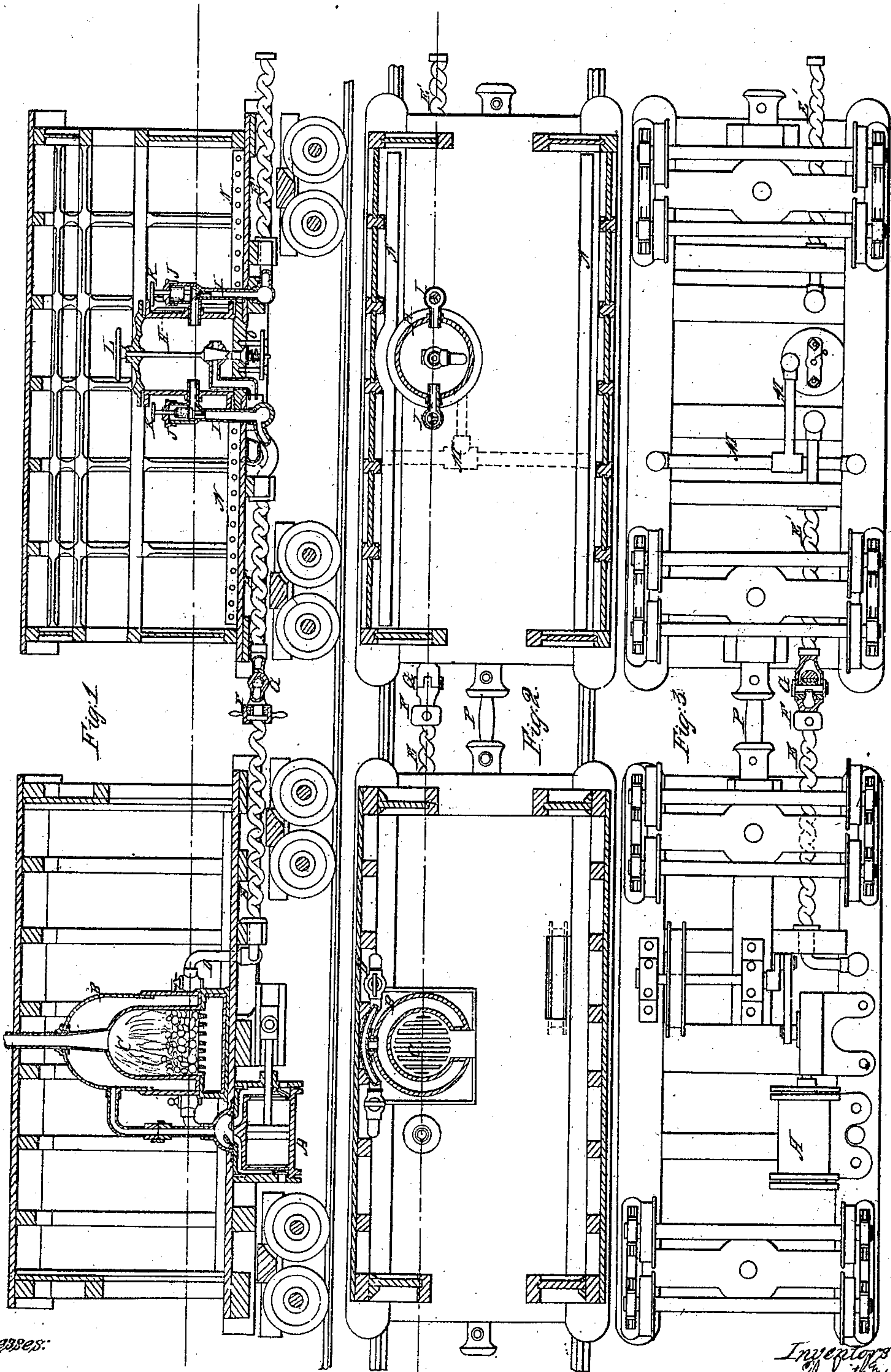


SMITH & REILLEY.

Car Heater.

No. 82,885.

Patented Oct. 6, 1868.



Witnesses:

Wm. B. Dwyer  
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Attorney



# United States Patent Office.

THOMAS SMITH AND JOHN O. REILLEY, OF BALTIMORE, MARYLAND

*Letters Patent No. 82,885, dated October 6, 1868.*

## RAILROAD-CAR-HEATING APPARATUS.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that we, THOMAS SMITH and JOHN O. REILLEY, of the city of Baltimore, in the State of Maryland, have invented a new and useful Apparatus for Heating Railway-Cars; and we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, which are made part of this specification.

The subject of our invention is an apparatus by which air is heated in the baggage or other car, at or near the forward end of the train, and forced by a pump through suitable pipes, by which it is delivered in a compressed state into receivers or reservoirs placed in the respective passenger-cars.

The radiation of heat from the exterior of these reservoirs of compressed hot air, may generally serve to maintain sufficient heat within the car, but in very cold weather, or for the first heating of a car, a cock or valve is opened for the discharge of air through perforated pipes extending from end to end of the car.

In the drawings—

Figure 1 is a vertical longitudinal section of our apparatus, as applied to the baggage-car and one passenger-car.

Figure 2 is a plan or top view of the same.

Figure 3 is an under side view of the cars.

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

A represents an air-pump, driven from one of the axles of the car, through the medium of a crank, gearing, or belt. By this pump the air is forced and compressed into a receiver, B, within which is a furnace, C, for heating it. Pipes, D E E', conduct the compressed and heated air from the receiver B to the passenger-cars, of which one is shown. The pipes E and E' have the represented spiral form, in order to render them elastic, and thus adapt them to conform to changes in the relative position of the cars. The coupling F, of the pipes E E', is formed with a sectional screw, so that when it is run together, a slight turn will close it tightly. One member of the coupling is connected to its pipe E' by a knuckle-joint, G, which may be formed as shown in section in figs. 1 and 3. The passenger-cars are necessarily adapted to run either end forward, and the pipes E E' and their connections with the radiating-reservoir H, are constructed similarly at the respective ends of the car. Each pipe, E', is connected to the radiator or air-reservoir H by a pipe, I, guarded by a check-valve, J, which opens upward, and may be held open, when desired, by a clutch-screw, K. In fig. 1, the valve J, on the forward side of the radiator H, is represented as held open by the influx of air, the clutch K being screwed down, so as to permit the valve to move freely and automatically. The object of this arrangement is to adapt the valve to close, so as to retain the air-pressure within the reservoir H, in the event of the influx of compressed air ceasing from the stoppage of the train or any other cause. The heat thus stored within the reservoir will be sufficient to warm the car for a considerable period. The valve J, on the rear side of the radiator H, is shown in fig. 1, as held open by the clutch K, in order to allow the flow of compressed air through the rear pipe E', to supply the other cars of the train. In the case of the rear car, both clutches are screwed down, so that both valves may be free to act, and the rear valve will thus prevent the escape of air. The valve-screw K may be further employed to hold the valve forcibly to its seat, the intermediate position of said screw allowing the automatic motion of the valve, as described.

When radiation from the air-reservoir H is insufficient to supply the amount of heat required, a cock, L, is opened to allow the escape of air into pipes M, conducting it to perforated pipes N, arranged beneath the seats at each side, and discharging the heated air within the car.

It is intended in practice to have the valve-screws K operated only by keys, in the hands of the officials of the train, but the cock L may be opened or closed by the passengers, to enable them to regulate the heat of the cars, as convenience may dictate.

O represents a safety-valve, to prevent excessive pressure in the reservoir.

P may represent the ordinary coupling by which the cars are drawn.

The following is what we claim as new, and desire to secure by Letters Patent:

1. We claim the compressed-air reservoirs and radiators H, located in the passenger-cars, in combination with a heating-apparatus, located outside of said cars, substantially as set forth.
2. We claim the combination of the air-pump A, compressed-air receiver B, and furnace C, substantially as described.
3. We claim the combination of the pipe-coupling F and conducting knuckle-joint G, as and for the purpose set forth.
4. We claim the combination of the elastic conducting-pipes D E E', air-forcing and heating apparatus A B C, and reservoir H, substantially as described.
5. We claim the construction and arrangement of the valve-mechanism I J K, in combination with the pipes E' and reservoirs H, for the purposes explained.
6. We claim the air-conducting and discharging pipes M N, in combination with the reservoirs H, and cocks or valves L, as and for the object specified.

THOMAS SMITH.  
JOHN O. REILLEY.

Witnesses:

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