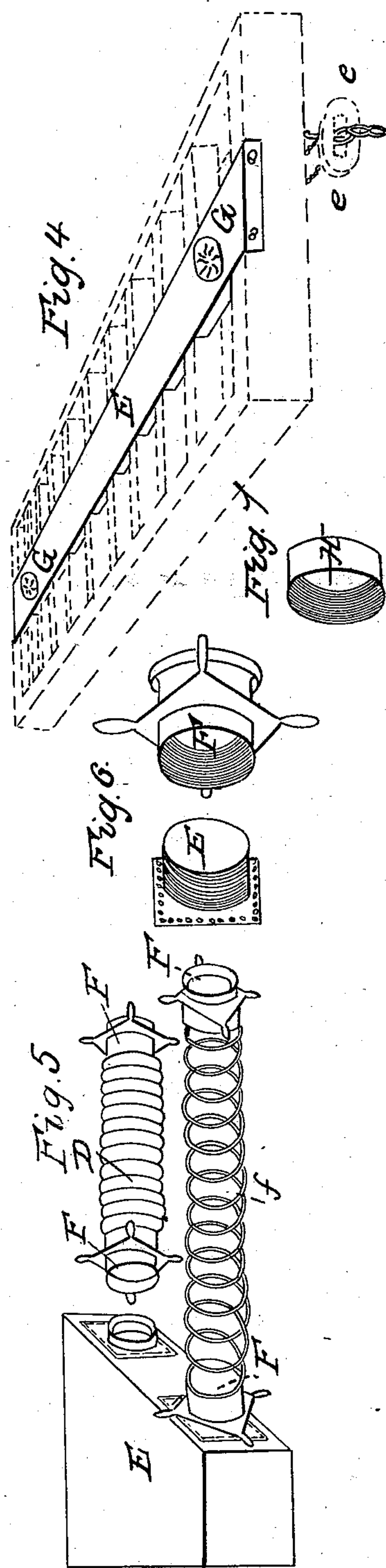
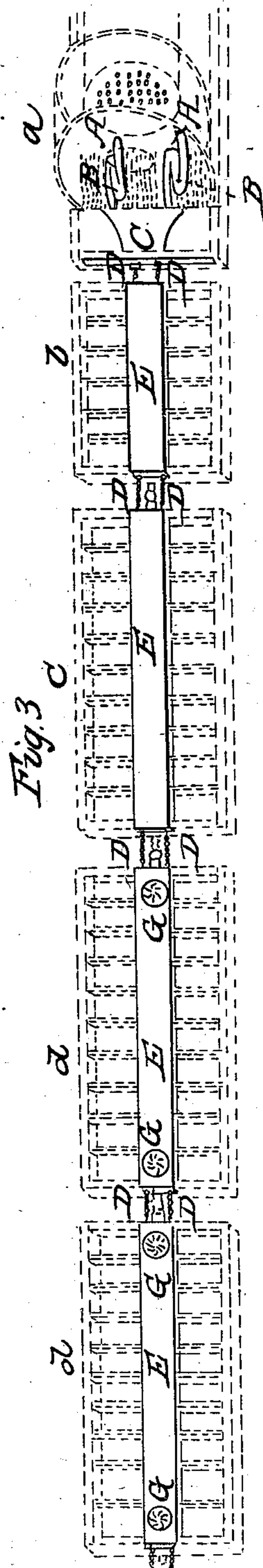
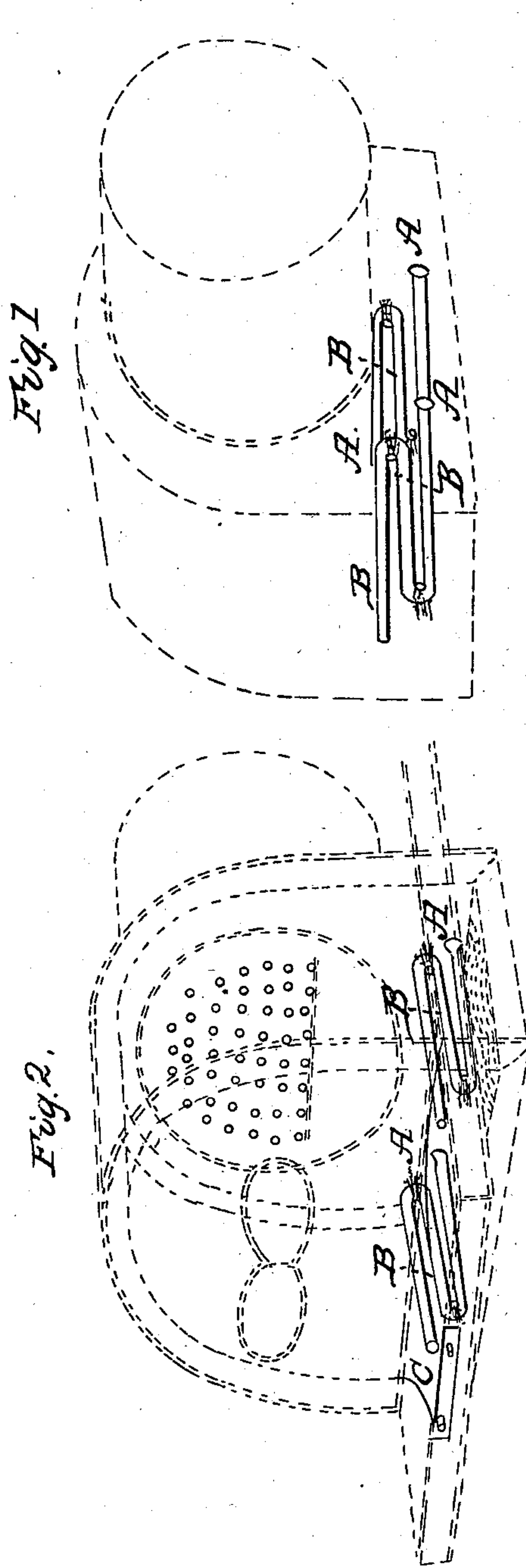


T. TOWNSEND.
Car Heater.

No. 4,654.

Patented July 24, 1846.



UNITED STATES PATENT OFFICE.

TAPPEN TOWNSEND, OF ALBANY, NEW YORK.

WARMING RAILROAD-CARS.

Specification of Letters Patent No. 4,654, dated July 24, 1846.

To all whom it may concern:

Be it known that I, TAPPEN TOWNSEND, of the city and county of Albany and State of New York, have invented a new and Improved Mode of Warming the Interior of Railroad Passenger-Cars; and I do hereby declare that the following is a full and exact description.

The nature of my invention consists in providing railroad trains of locomotives and cars with apparatus for generating, and distributing heater air, warmed by the fire of the locomotive, to the interior of each passenger car.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Through the furnaces of any of the known forms used in locomotives, I pass one or more cast iron pipes, which presenting enlarged orifices to the open air in front as shown at A, in the accompanying drawings, pass, and if necessary repass, and pass again through the heating element at B, and thence communicate backward with a reservoir situated in the platform upon which the fireman stands, and marked C in the drawing. From thence I receive the heated air by means of the elastic and flexible hose marked D, into a continuous trough or air chamber, which I let into the sleepers of each car as seen at E,—the flexible and elastic hose being constructed by inclosing a spiral coil of wire in metallic india rubber, that will resist, two hundred and fifty degrees of heat without melting, and which never becomes stiffened with the cold, using for the purpose of protecting the rubber Holland duck on the inside, and well tanned horsehide on the outside, or any other materials that will answer the purpose,—the Holland duck to be prepared in a solution of alum, and both the duck and horsehide, to be made sufficiently longer than the rubber and spiral coil of wire to accommodate the elasticity of both. I connect these elastic and flexible hose to the air

chambers or troughs by means of metallic coupling screws or otherwise; the coupling screws marked F, in the drawing. I thus convey the heated air from the reservoir C, through the train, and admit the same into the passenger cars, by registers G. Each car is furnished with two registers to accommodate the running of the cars either backward or forward, and each opening at the extremities of the continuous air chambers are furnished with metallic cap screws (marked H, in the drawing) to be screwed on to the orifices during summer and also to close the two orifices in the extreme, or termination of the passenger train in winter.

In the drawings Figure 1 is a front perspective view of the rear half of the engine in which the furnace is located; and Fig. 2, a rear view of the same showing the position in which the cast iron pipes will be placed. Fig. 3, a ground view of the whole train, in which, *a*, is the furnace and pipes as in Figs. 1 and 2; *b*, the tender, *c*, a baggage car, and *d*, *d*, the passenger cars. Fig. 4 the frame work of the floor of a passenger car, into which is inserted the air troughs or chambers, E representing the momentum retainer. Fig. 5, the end of the air trough or chamber, with the elastic and flexible hose D, being an external and complete view, with a section of the coupling screw F, attached, and *f*, the spiral coil of wire within. Fig. 6, an enlarged view of the two parts of the coupling. Fig. 7 is the metallic cap screw.

What I claim as my invention, and desire to secure by Letters Patent is—

The application to rail road passenger trains, of the combination of the flues connected, by the elastic and flexible hose with the openings and registers in the bottoms of the cars, as described herein, reference being also had to the accompanying drawings.

TAPPEN TOWNSEND.

Witnesses:

JOHN J. HILL,

PETER GANSEVOORT.