(No Model.)

W. W. MUNSELL.

CAR HEATING.

No. 485,209. Patented Nov. 1, 1892.

Fig. I.

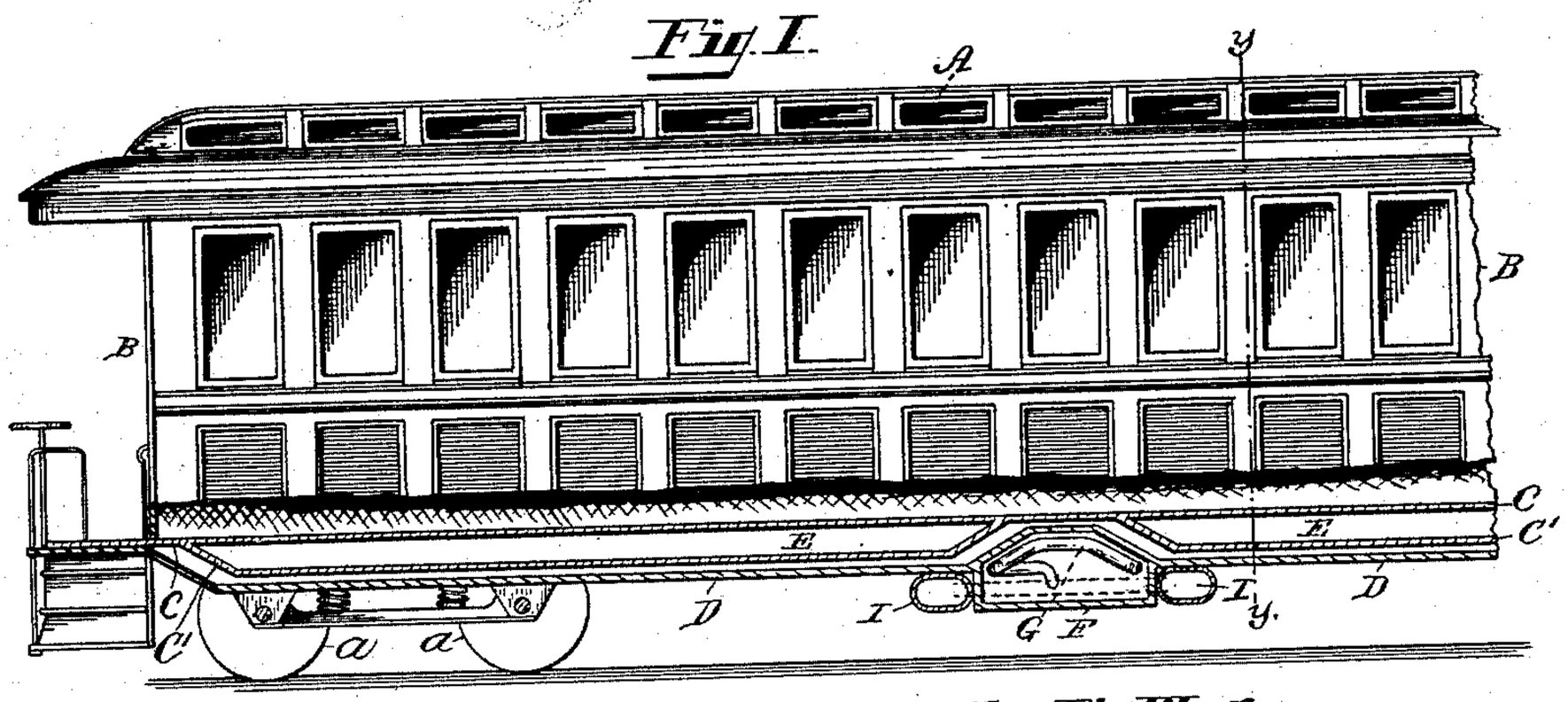


Fig II

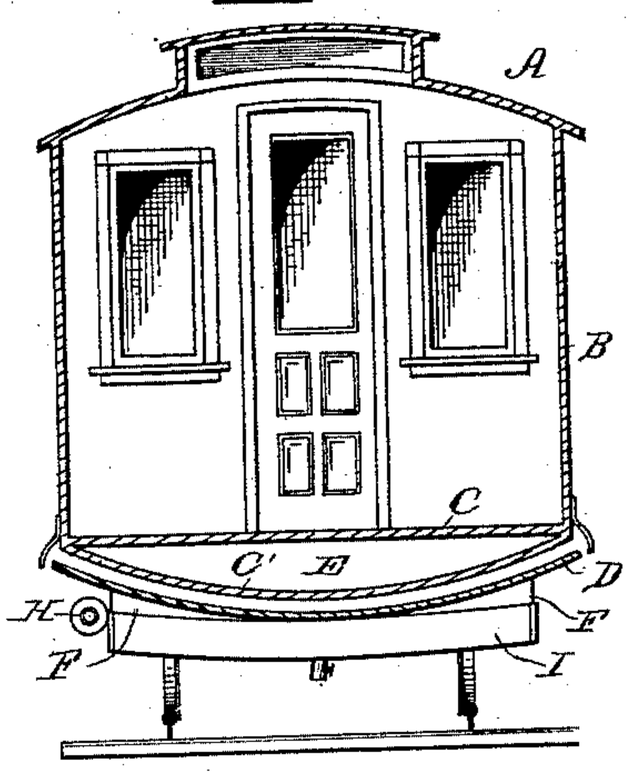


Fig III

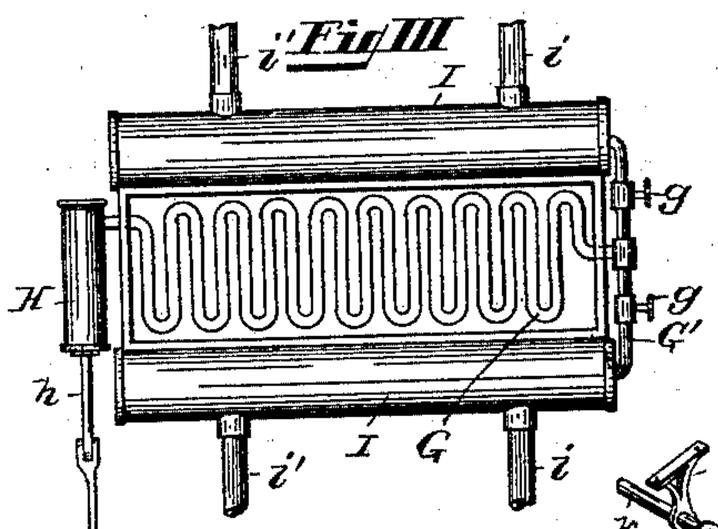
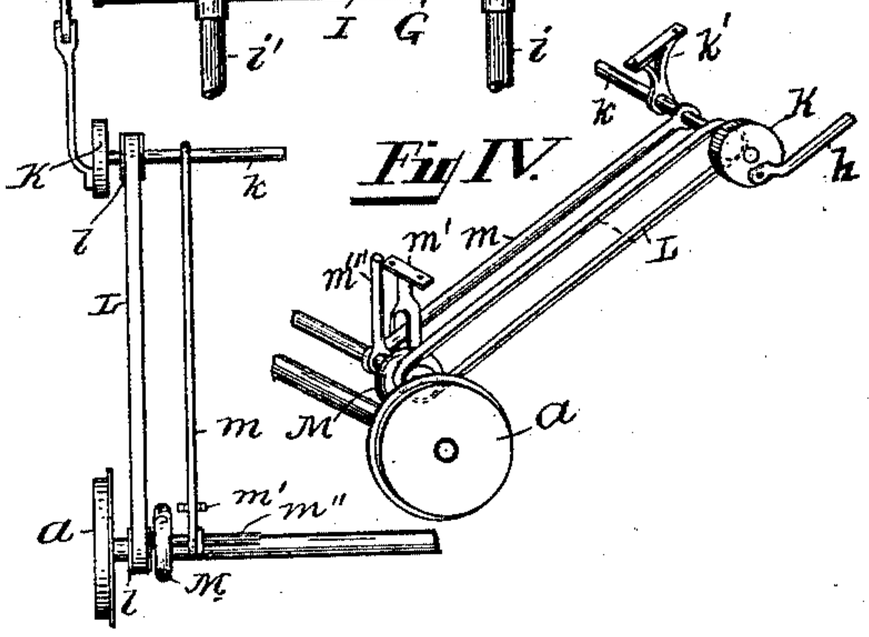


Fig IV.



Witnesses:
R. Young,
J. F. Lathy

Inventor
W. W. Munsell,
By: Lathy & Baldwin,
His Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM W. MUNSELL, OF DODGE CITY, KANSAS.

CAR-HEATING.

SPECIFICATION forming part of Letters Patent No. 485,209, dated November 1, 1892.

Application filed November 13, 1891. Serial No. 411,789. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. MUNSELL, a citizen of the United States, residing at Dodge City, in the county of Ford, State of Kansas, have invented certain new and useful Improvements in Car-Heating, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in car heating and cooling; and my objects are, first, to provide a safe, sure, and economical means of heating and chilling passenger-cars by constructing a box under the cars and placing a coil-pipe therein, through which a current of air may be forced into the coach through suitable conduits and registers by means of an air-pump, and said box is adapted to carry fire for heating the coil-pipe therein or ice for chilling said pipe; second, to provide an apparatus for heating or chilling railway coaches or cars, which will be constructed separate from the coach or applied to passenger-coaches now in use, if so desired, by securing the same under the car-floor by suitable strap-irons and stirrups and cutting the necessary openings in the floor for registers, &c.

With these objects in view my invention consists in the novel construction and arrangement illustrated in the accompanying drawings, in which—

Figure I is a side elevation of a car, partly broken away, showing the manner in which my devices are secured, also showing a specially-constructed air-reservoir under the entire floor-surface of said car. Fig. II is a cross-sectional view taken on line *y y* of Fig. I. Fig. III is a detail plan view of the box, coils, and storage-reservoirs, together with the pump and devices for operating same. Fig. IV is a detail in perspective of the pulleys, belt, and levers which operate the air-pump.

Referring to the drawings by letter, A represents a car constructed in the ordinary manner or with an upper and lower section, substantially as shown in Figs. I and II, said upper section B being secured to the truck-section by suitable columns, hangers, tie-rods, &c.

C is the car-floor, which may be suitably laid and braced so as to give the requisite strength and at the same time form a reservoir between said floor and the segmental or sub floor C′.

D is the floor for the truck, the contour of which conforms to the segmental floor C′, and it is under this floor that the box and other devices are secured.

E represents the reservoir between floors C and C′.

F is the box, located at a central point under the car and held in position by means of strap-irons or stirrups or in any practicable manner.

G is a coil-pipe in said box, through which a current of air is continually forced. One end of this coil-pipe is connected to the air-pump H and the opposite end is secured to a Y or T branch G′, which will convey the heated or chilled air from said coil into storage-reservoirs I I, and from thence into the car, by means of pipes or flues *i i′* when applied to the old style of car; but when applied to the specially-constructed car, as illustrated, the reservoirs and pipes may be dispensed with and the hot or cold air will be stored in reservoirs E E and then distributed through the car by registers located under the seats, level with or above the floor-surface, or in the side walls at a convenient point above the floor. The pump H keeps a continual current of air passing through the coil-pipe G, and this air is heated or chilled while passing through said coil-pipe from the fire or ice contained in said box F.

Suitably secured to the truck is a shaft *k*, carrying a pulley K, to which is secured the piston-rod *h*. This shaft and pulley are operated by a belt L, or an equivalent passing around suitable pulleys *l l*. The power is transmitted to this belt by a friction pulley or roller M, cased with a rubber rim, which receives motion by operating against the revolving car-axle. Said pulley M is secured on an independent shaft *m″*, which is braced to the truck by a bracket or bearing *m′*, and, as before stated, is operated by contacting with the revolving axle, and may be released or thrown out of gear, when desired, by means of a lever *m‴*, or its equivalent, which passes up through the car-floor, so that it may be operated from the interior of said car.

m is a brace-rod secured in a suitable manner to shaft *k*, its opposite end carrying the independent shaft *m″*, so that when the car

is passing over a curve or uneven track said pulley will adjust itself to the axle. Any lateral motion of the pulley is obviated by means of a guide *m'*. (See Fig. IV.)

The pipe G', which connects the coil-pipe G with storage-reservoirs I I, is provided with valves *g g*, by means of which the supply of hot or cold air may be regulated. It will perhaps be found practicable to provide more heat or chilled air for the forward end of the coach than for the rear end, and to provide for this the two reservoirs are constructed so that the heat or chilled air may be conveyed into them in the desired quantities through said valves *g g*.

The reservoir E, between the segmental casing C' and floor C, is nominal as to depth, as it may be constructed from six to twelve inches at center, as found desirable. It will be readily understood that where this heater or cooler is used on the passenger-car as now constructed there will be no reservoir E; but the heated or chilled air will be distributed throughout the coach by means of the pipes *i i'*, which may be provided at intervals with escape-valves or registers. Said pipes *i i'* may be laid under the floor or under the car-seats or close against the walls of the car or elsewhere, as may be found desirable.

Any fuel—such as coal, oil, gas, or other suitable substance or material—may be used for heating the coil-pipe G.

The devices illustrated and described may be used as a cold-air generator by packing the box F with ice, or other known cooling medium, which will cool the air in coils G, so that by means of pump H said cold air may be discharged into the car in the same manner as the heated air, thereby keeping said car cool and comfortable in warm weather at a very small expense.

All the pipes, storage-reservoirs, &c., may be wrapped or lined with some fireproof material, such as fire-clay, asbestus, or asbestus cement. This is to prevent the heat from penetrating to the woodwork of the car or becoming exhausted by radiation before it reaches the interior of the car.

The entire box may be surrounded and incased with some fireproof material, so that in case of wrecking of car the fire supplying heat to the car would not come in contact with the woodwork or inflammable portions of said car, thus preventing conflagrations.

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

In a car heating and cooling device, the combination of the box F, situated under the car, coil-pipe G, situated in said box, storage-reservoirs I, one on each side of said box, pipes *i i'* to conduct heated or chilled air into said coach, pump H, adapted to force air through said coil G and through said pipes, and means for operating said pump, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM W. MUNSELL.

Witnesses:

PEARL YOUNG,

J. K. LATHY.