

No. 816,397.

PATENTED MAR. 27, 1906.

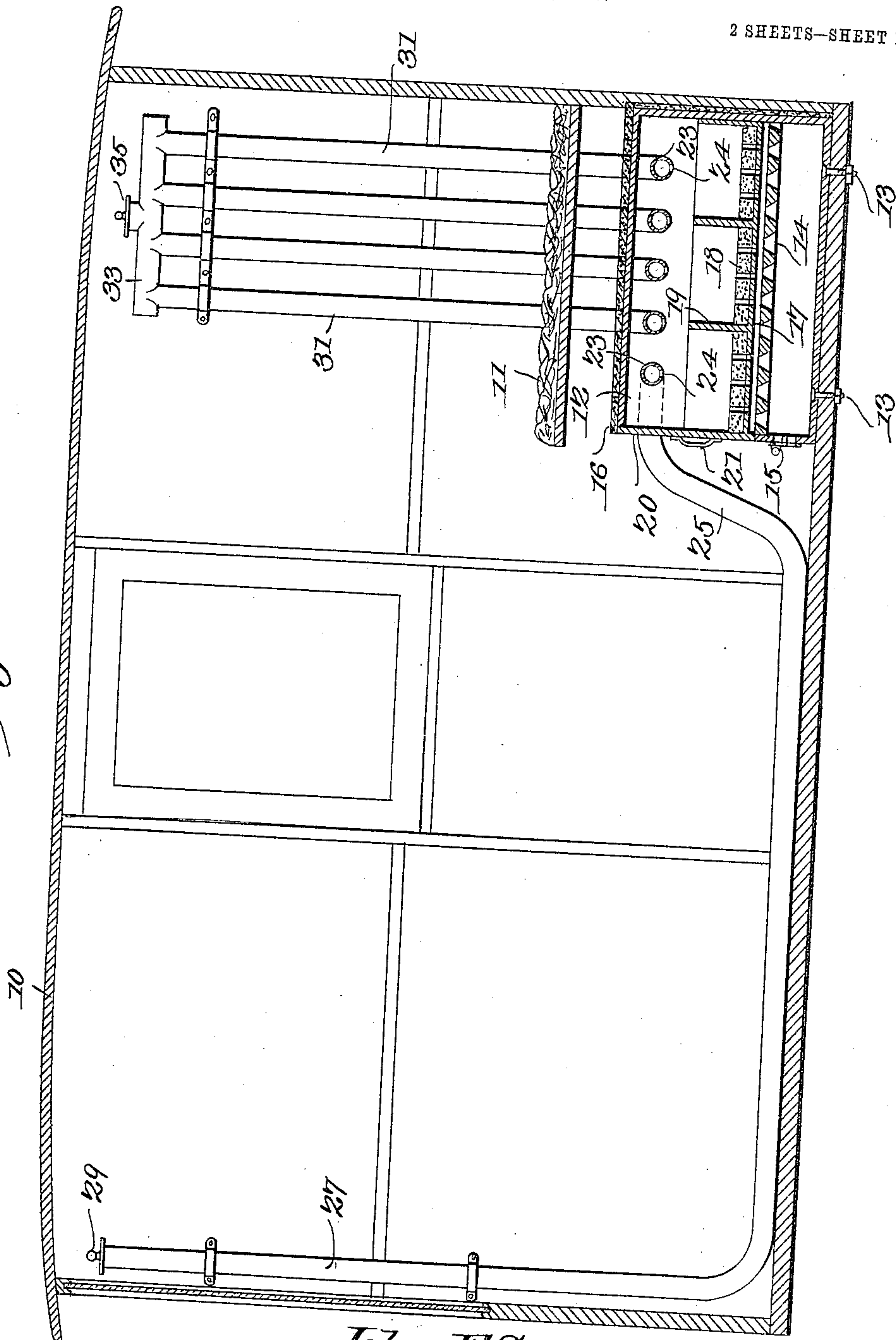
J. F. SWENGEL & D. BYRNE, JR.

VEHICLE HEATER.

APPLICATION FILED APR. 18, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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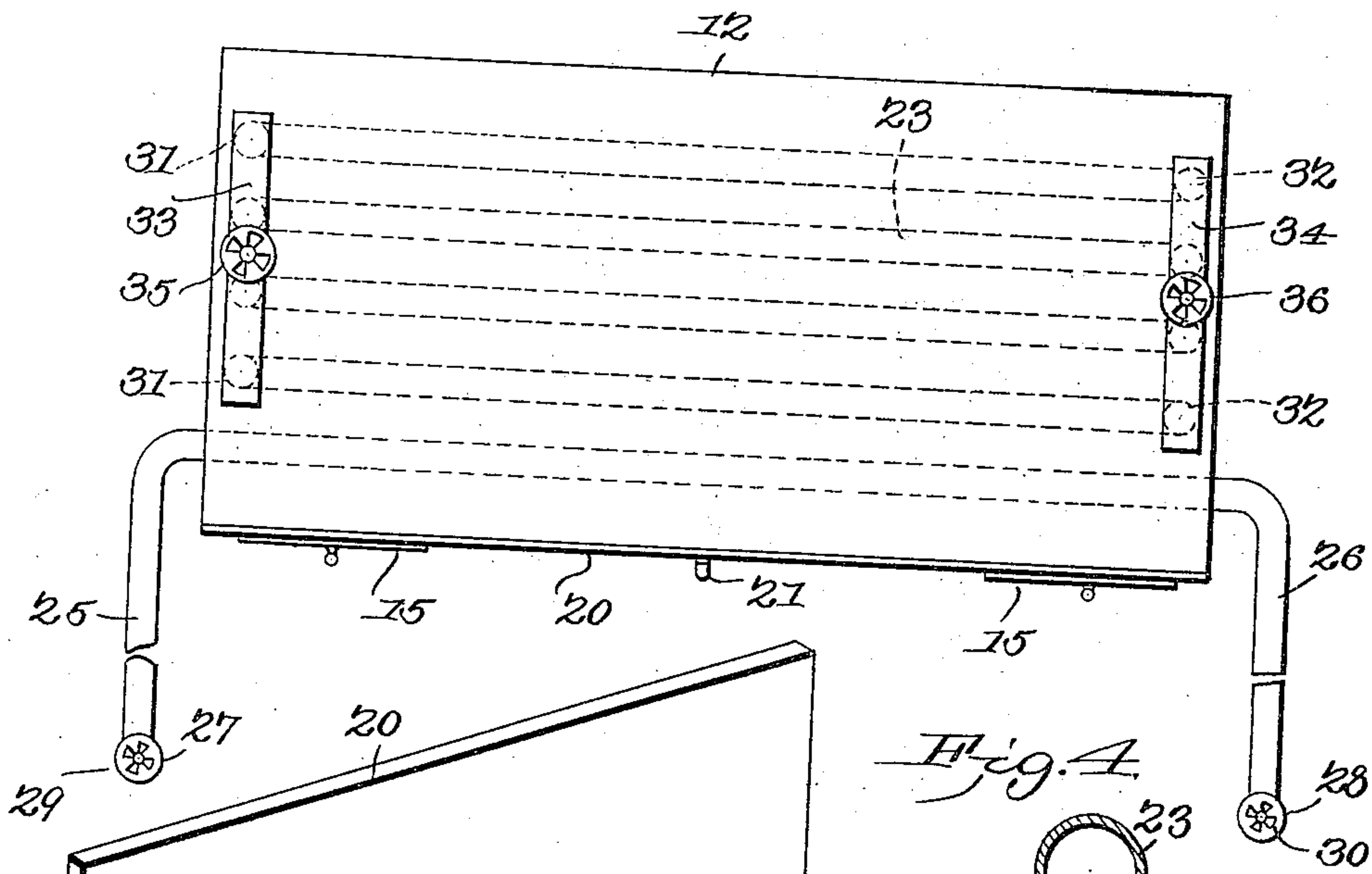
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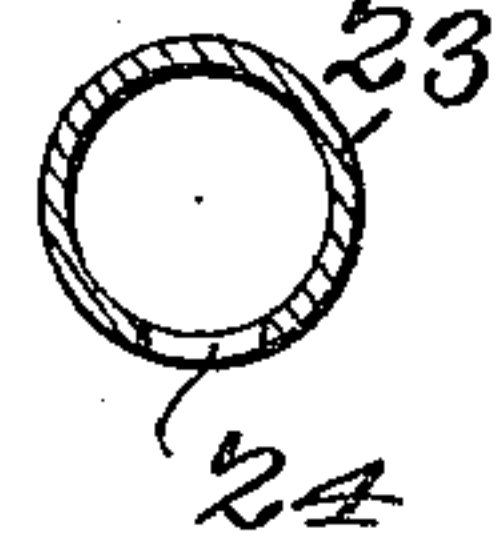
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2 SHEETS—SHEET 2.

*Fig. 2.*



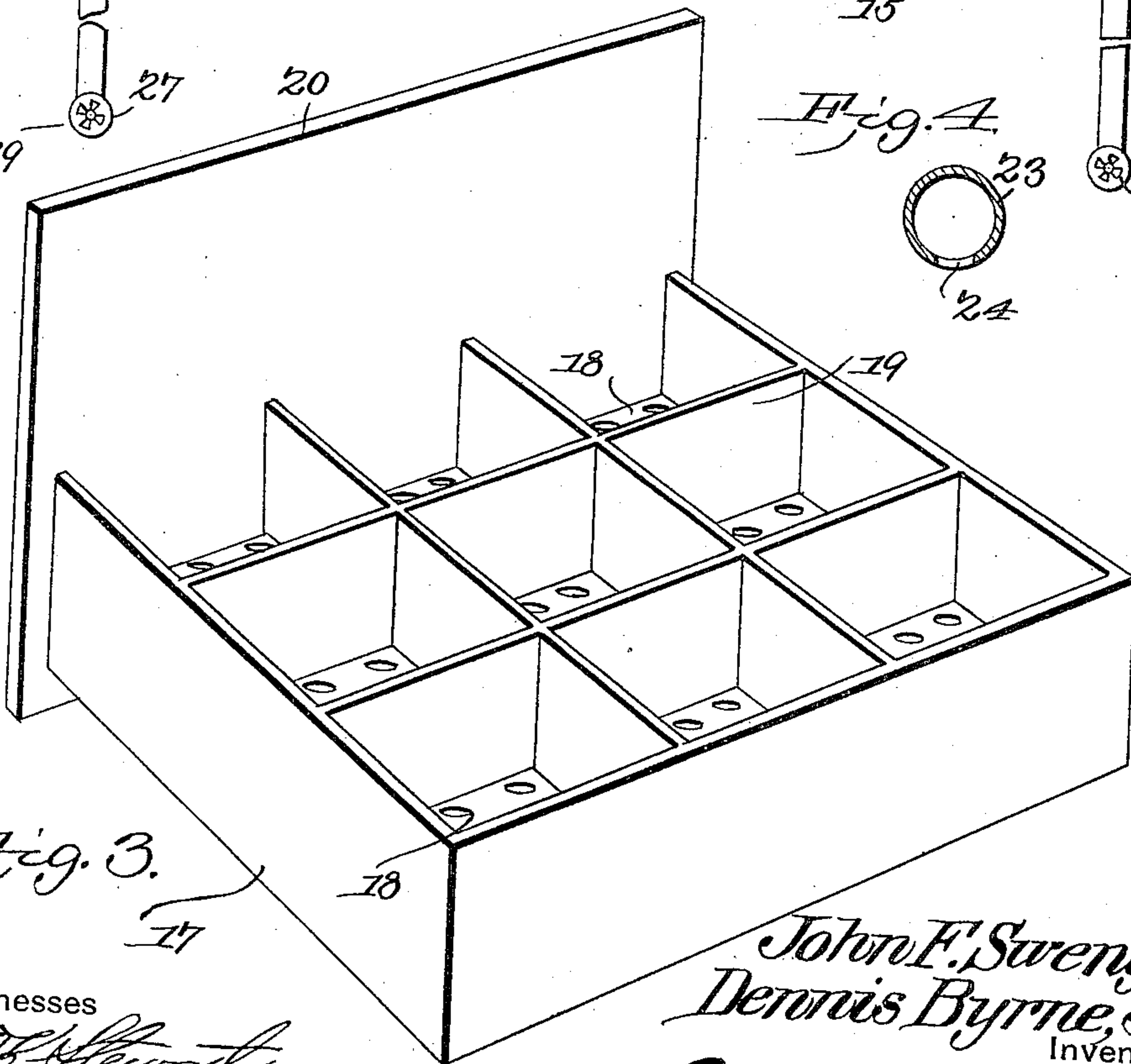
*Fig. 4.*



*Fig. 3.*

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# UNITED STATES PATENT OFFICE.

JOHN F. SWENGEL AND DENNIS BYRNE, JR., OF CLYDE, KANSAS.

## VEHICLE-HEATER.

No. 816,397.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed April 18, 1905. Serial No. 256,250.

*To all whom it may concern:*

Be it known that we, JOHN F. SWENGEL and DENNIS BYRNE, Jr., citizens of the United States, residing at Clyde, in the county of Cloud and State of Kansas, have invented a new and useful Vehicle-Heater, of which the following is a specification.

This invention relates to heating apparatus, more particularly to devices of this class adapted for use in vehicles of various kinds—such as the wagons employed in the rural free mail-service, milk-wagons, cabs, omnibuses, peddlers' wagons of various kinds, and the like—and has for its object to improve the construction and increase the efficiency and economy of fuel and convenience of operation.

With these and other objects in view, which will appear as the nature of the invention is better understood, the same consists in certain novel features of construction, as hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which corresponding parts are denoted by like designating characters, is illustrated the preferred form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the invention is not necessarily limited thereto, as various changes in the shape, proportions, and general assemblage of the parts may be resorted to without departing from the principle of the invention or sacrificing any of its advantages.

In the drawings thus employed, Figure 1 is a longitudinal sectional elevation of a vehicle-body with the improved apparatus applied. Fig. 2 is a plan view of the heating apparatus detached. Fig. 3 is a perspective view of the fuel-receptacle enlarged. Fig. 4 is an enlarged transverse section of one of the conductor-flues.

The heat-generating portion of the device is preferably designed to be placed beneath the driver's seat within the vehicle to which the device is to be applied, and for the purpose of illustration a conventional form of vehicle-body is shown at 10, with the driver's seat indicated at 11 therein.

The improved device comprises in general a heat-generating apparatus, a system of radiator or conductor tubes, and means for controlling the heat radiating from the generator. The generator portion of the device comprises an inclosing casing 12, preferably

of cast-steel or similar material and secured to the floor of the vehicle, as by bolts 13, beneath the seat 11, and with a grate 14 disposed therein and spaced from the bottom. The front of the casing 12 beneath the grate is provided with an adjustable draft-door 15, while the front of the casing above the grate is left open to provide means for inserting the fuel-receptacle, as hereinafter explained. The casing 12 is covered with asbestos or similar non-conductive material, as indicated at 16, to retain the heat and prevent waste by radiation through the walls of the casing.

The receptacle for the fuel comprises a pan 17, having a perforated bottom and preferably lined with a layer of fire-clay or similar refractory material 18 and divided by transverse and longitudinal partitions 19 to divide the fire into small portions, and thus prevent the fuel from being thrown about by the vibrations of the vehicle. The front of the fuel-receptacle is large enough to entirely fill the otherwise open front of the casing 12, and thereby form a closure thereto, and is provided with a handle 21 for controlling the same. The fuel-receptacle is supported upon rests and spaced a short distance above the grate 14. The fuel employed will preferably be in the form of "bricks" or blocks of charcoal specially prepared, which gives off no smoke and is without odor, and the receptacle will generally be large enough to hold fuel enough to last for twelve hours or more, as required.

Disposed within the casing 12 above the fuel-receptacle and extending longitudinally of the same are a plurality of conductor-flues 23 with spaced apertures 24 in their lower sides. The flue, which comes next to the front of the seat, is extended forwardly at the ends, as at 25 26, and downwardly and along the bottom of the vehicle and rising, as at 27 28, near the front of the same and terminating in dampers or air-controllers 29 30, as shown. Rising from the ends of the remaining flue members 23 are branch flues 31 32, connected at their upper ends, respectively, into transverse flues 33 34, the latter having controlling valves or dampers 35 36. The vertical branch flues extend nearly to the roof of the vehicle-body 10, as shown. By this simple arrangement the heat rising from the fuel in the receptacle 17 passes into the horizontal portions 23 of the flues and thence through the branches 25 26 27 28 to the forward upper portion of the vehicle-body and likewise through the vertical branches 31 32



and horizontal "headers" 33 34 to the rear upper part of the vehicle-body, the amount of the heat being easily controlled by the dampers 15, 29, 30, and 35 36, as will be obvious. Thus the whole interior of the body portion may be thoroughly and uniformly heated and without generating dust or requiring the carrying of an extra amount of fuel or disturbing the fuel-chamber during the trip, as the fuel-receptacle, as above noted, is charged once only in about twelve hours, and this will preferably be done just prior to starting on a trip.

The device is simple in construction, can be inexpensively manufactured, and is compact, and will therefore occupy very little room in the vehicle, or room that is of no value otherwise—that is to say, under the seat.

The parts may be of any required size and of any suitable material and varied in form to suit the various structures and forms of vehicles to which it is applicable.

Having thus described the invention, what is claimed is—

25 1. In a heating apparatus, the combination with a casing having an intake-damper adjacent its bottom, of a removable fuel-receptacle divided into compartments and having a perforate bottom disposed above the

intake-damper, a conductor-flue extending across said casing above the receptacle and pierced along its under surface by apertures disposed to receive the products of combustion from the receptacle and extending beyond the casing and provided with an opening and a closure for the opening. 30 35

2. In a heating apparatus, the combination with a casing having an intake-damper adjacent its bottom, of a slidably-removable fuel-receptacle divided into a plurality of compartments and having a perforate bottom disposed normally above the intake, a conductor-flue extending across said casing adjacent the top of the receptacle and pierced along its under surface by spaced apertures disposed to receive the products of combustion from the receptacle and extending at opposite sides beyond the casing and bent upwardly and each riser provided with an opening and a closure for the opening. 40 45 50

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

JOHN F. SWENGEL.  
DENNIS BYRNE, JR.

Witnesses:

G. G. GOODWIN,  
J. B. CANNON.