No. 799,014. PATENTED SEPT. 5, 1905.

J. H. MORCOM.

APPARATUS FOR REPAIRING ASPHALT PAVEMENTS.

APPLICATION FILED DEC. 5, 1904.

2 SHEETS--SHEET 1.

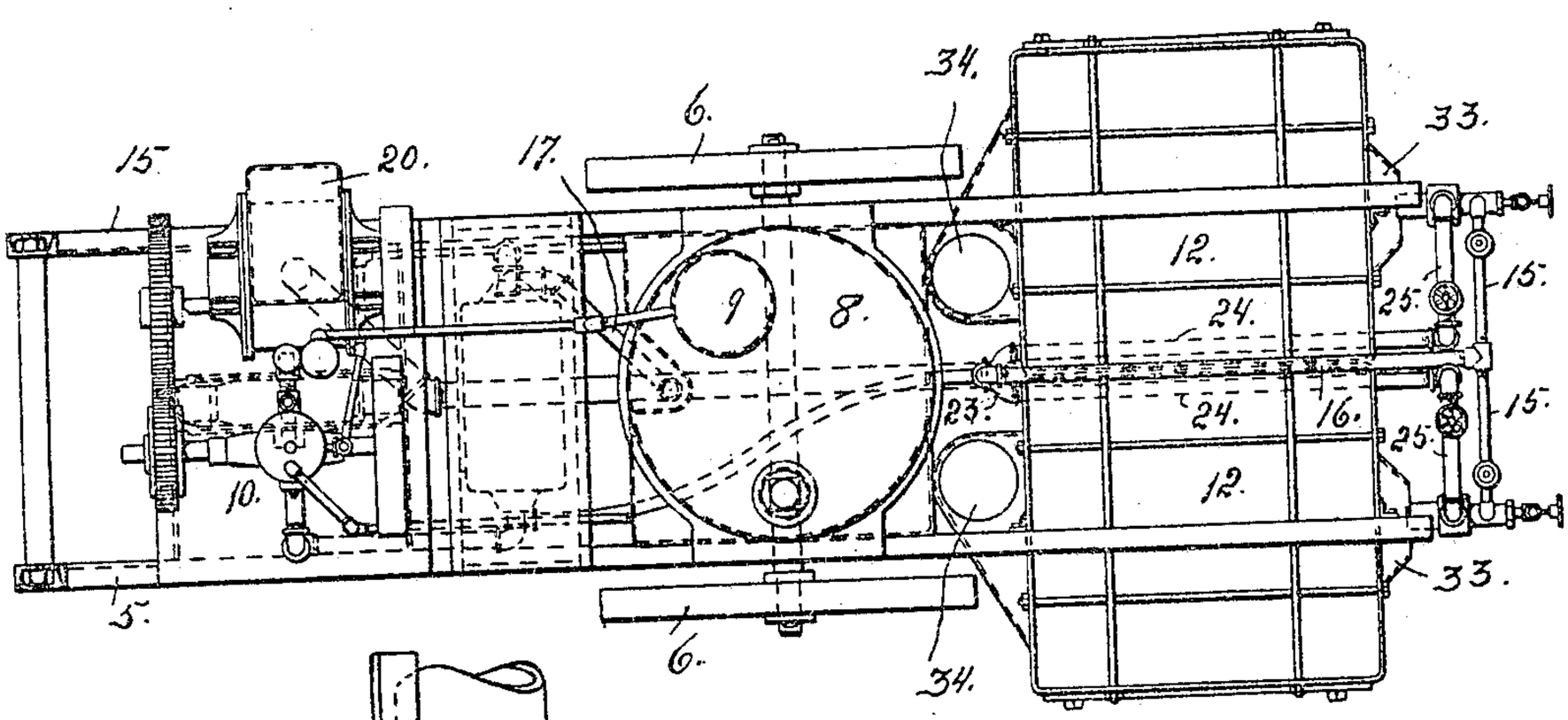

Fig. 1.

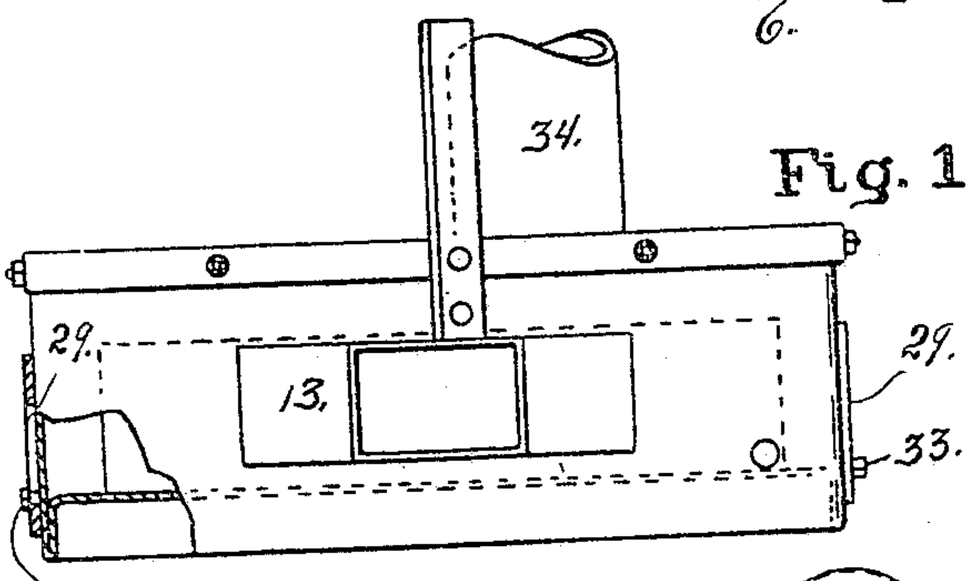

Fig. 3.

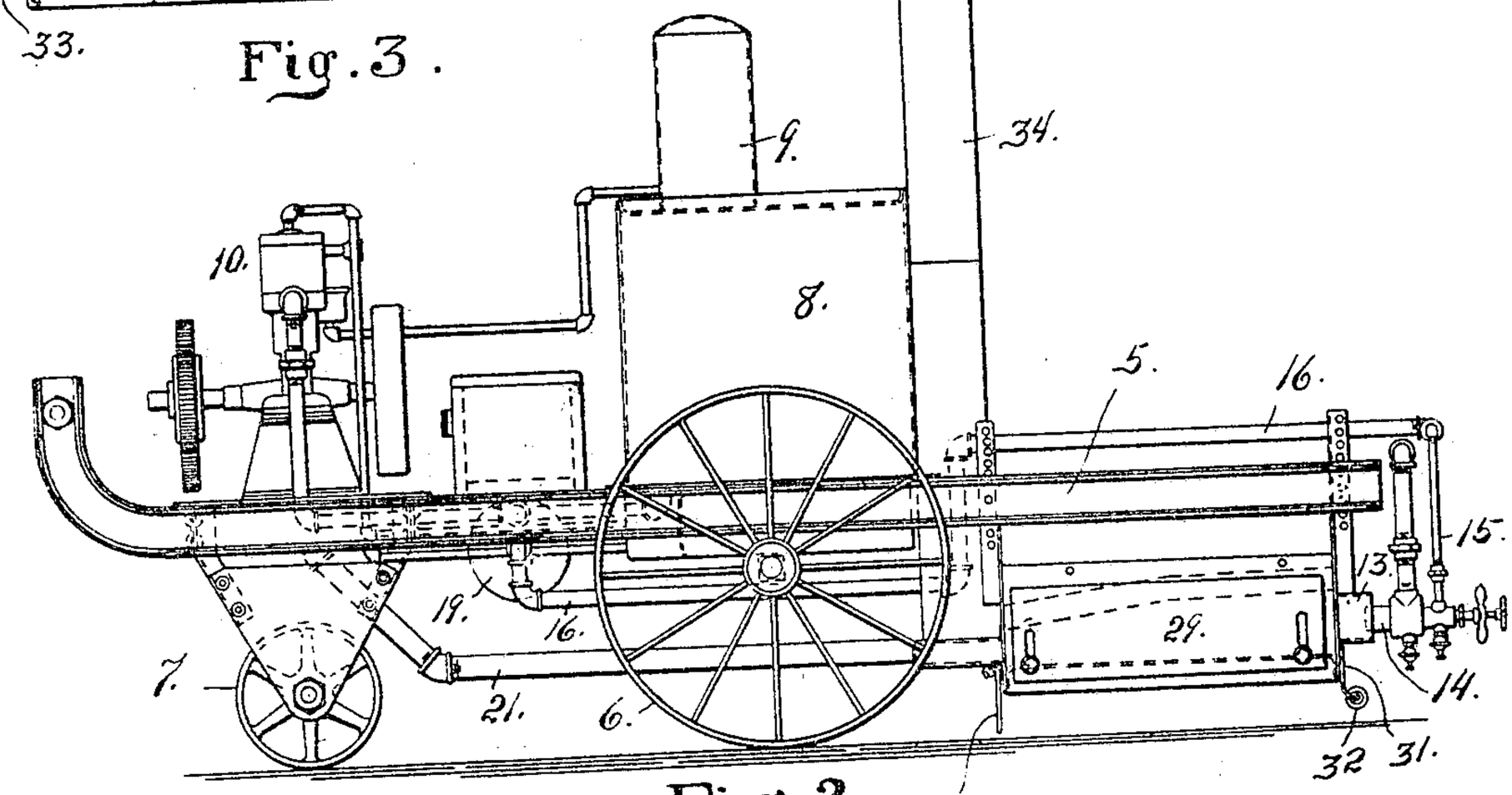

Fig. 2.

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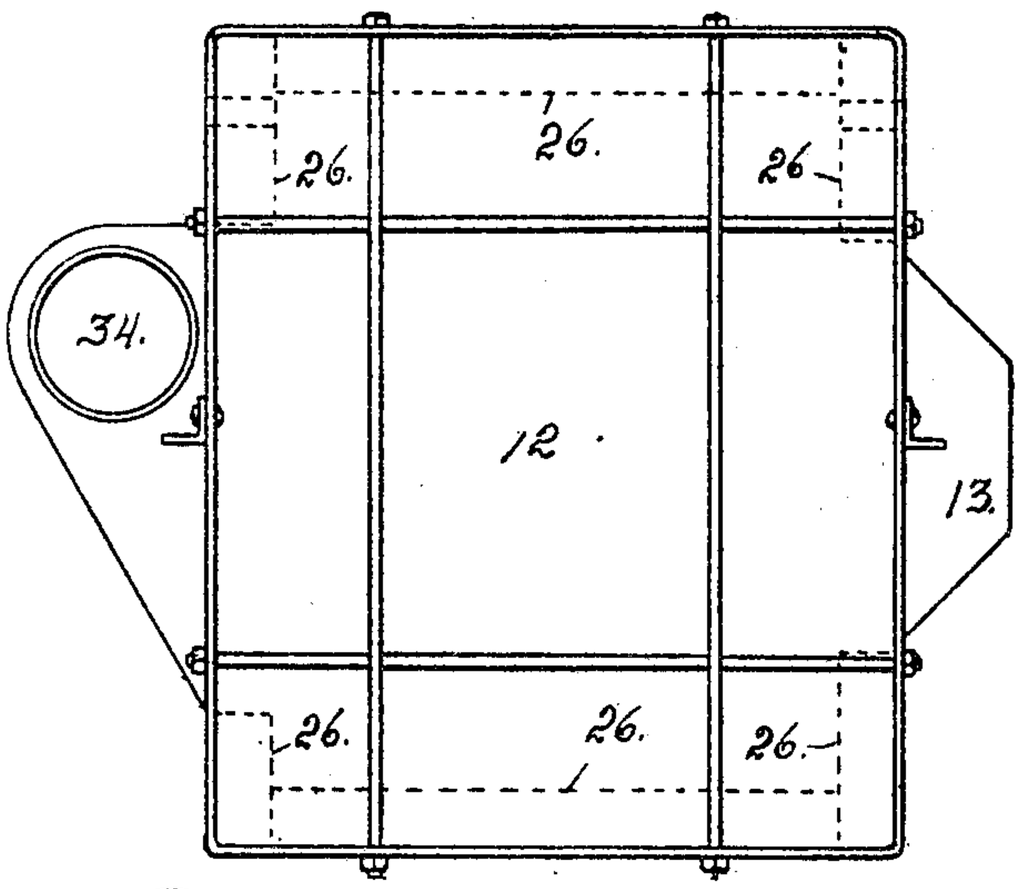

← 3.

Fig. 4.

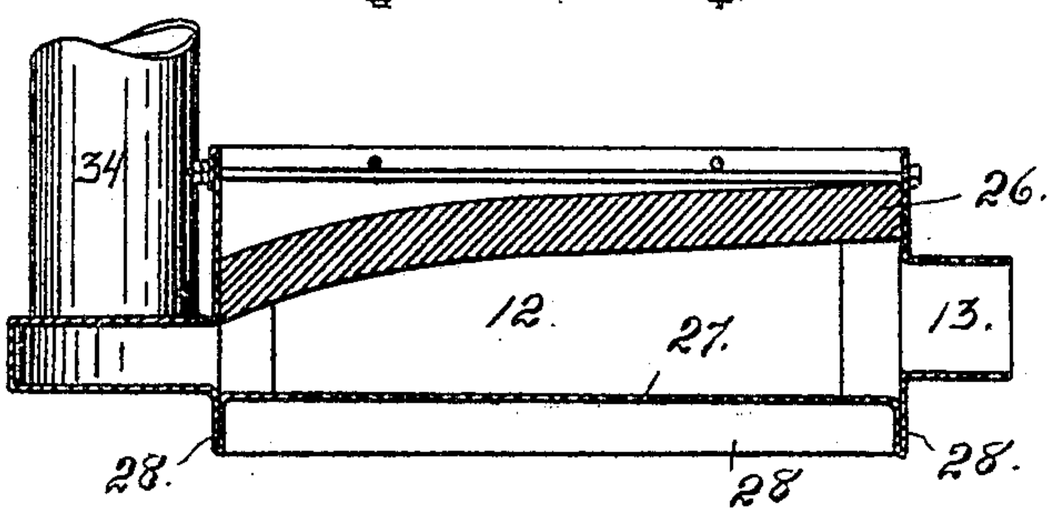

Fig. 5.

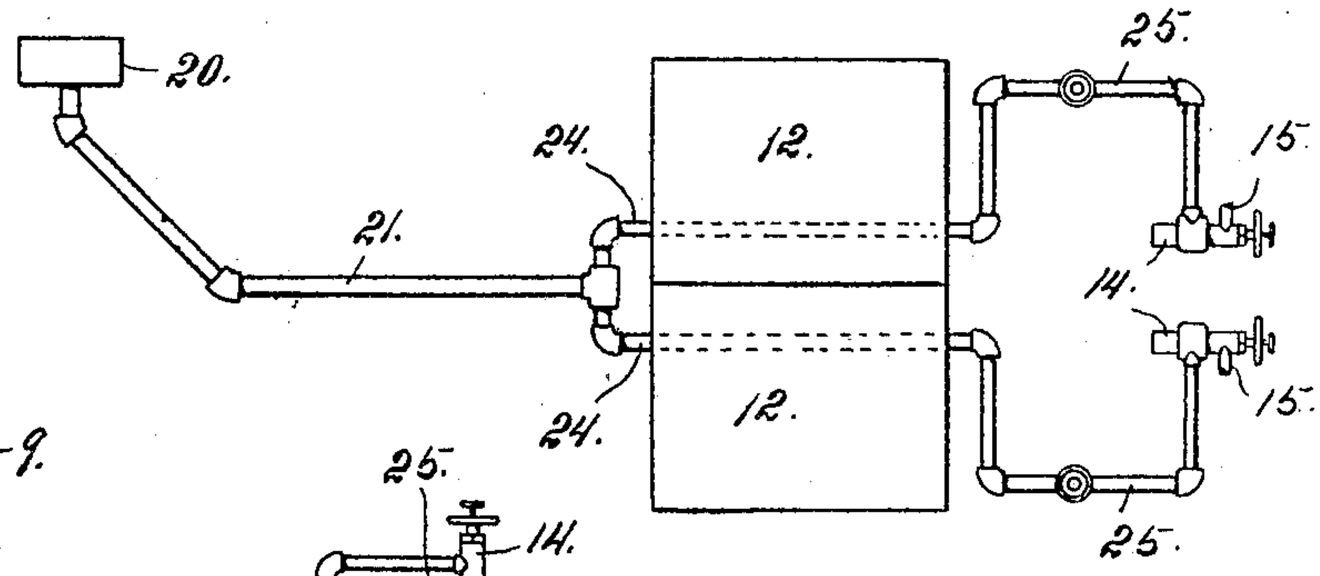

Fig. 6

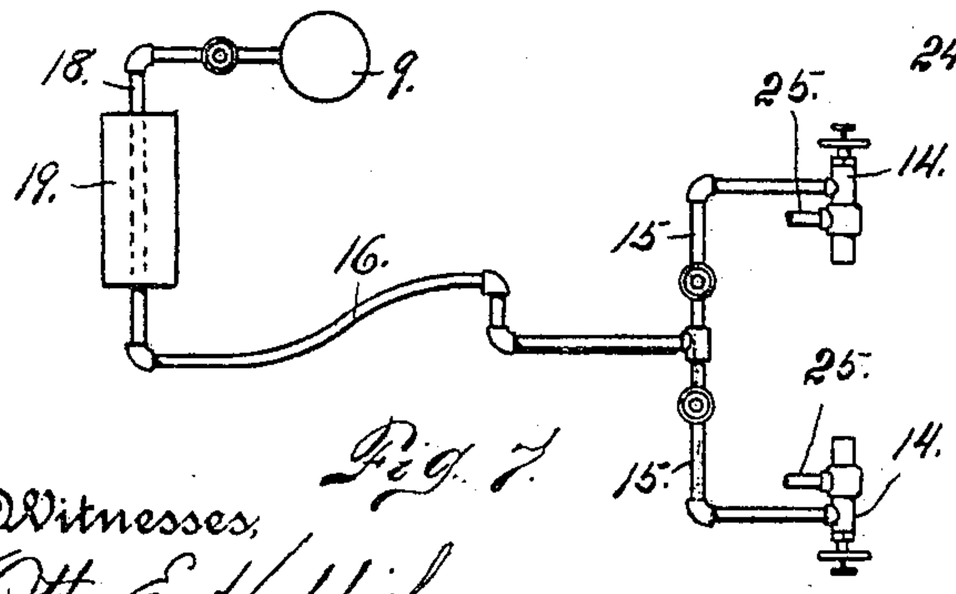

Fig. 7.

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UNITED STATES PATENT OFFICE.

JOHN H. MORCOM, OF DENVER, COLORADO, ASSIGNOR TO THE ECONOMIC ASPHALT STREET REPAIRS COMPANY.

APPARATUS FOR REPAIRING ASPHALT PAVEMENTS.

No. 799,014. Specification of Letters Patent. Patented Sept. 5, 1905.

Application filed December 5, 1904. Serial No. 235,518.

To all whom it may concern:

Be it known that I, JOHN H. MORCOM, a citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Apparatus for Repairing Asphalt Pavements; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to means or apparatus for repairing asphalt pavements. It is well known that pavement of this character needs repair in spots at intervals, and my improved apparatus is designed to facilitate and cheapen this work by treating the old pavement in place in such a manner as to cause it to unite with the new compound necessary to even or level the worn-off surface, thereby saving a great waste of material as compared with the method now in vogue in which the old pavement is chopped out and thrown away and replaced entirely with new material. Heretofore, so far as I am aware, the machines employed for this purpose are adapted to apply either a direct flame or a blast of hot air directly to the pavement. Either of these methods (especially the flame) has a tendency to burn the surface of the asphalt, thus preventing it from uniting with the new material.

In my improved construction the heat is conveyed by radiation from the bottom of the combustion-chamber, which is maintained in suitable proximity to the pavement, whereby the heat is effectually applied. I also employ means surrounding the combustion-chamber and adapted to drop down upon the surrounding pavement to prevent the cooling action of the outer air, which otherwise would result. By means of this protection the heat of the combustion-chamber is more economically utilized.

Having briefly outlined my improved construction, as well as the function it is intended to perform, I will proceed to describe the same in detail, reference being made to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a top or plan view of my improved apparatus provided with two combustion-chambers. Fig. 2 is a side elevation of the same. Fig. 3 is a rear view of Fig. 4 or a view looking in the direction of the arrow 3 in Fig. 4. Fig. 4 is a top or plan view of one of the combustion-chambers shown on a larger scale than in Figs. 1 and 2. Fig. 5 is a central section taken through one of the combustion-chambers. Fig. 6 is a diagrammatic view illustrating the air-supply used in connection with the oil-burners. Fig. 7 is a similar view illustrating the apparatus for supplying the fuel-oil to the burners.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a suitable framework mounted on large wheels 6 and a centrally-located small wheel 7. In the drawings I have simply illustrated a suitable vehicle adapted to support my improved apparatus, together with such other appliances of ordinary construction as are found convenient for use in connection therewith. These consist of a fuel-oil tank 8 for supplying the oil-burners and a gasolene-tank 9 for supplying the gas-engine 10.

Supported upon the rear extremity of the vehicle are two combustion-chambers 12, each of which is provided with a rear opening 13, into which projects an oil-burner 14, suitably mounted and supplied with oil from a branch pipe 15. The two branch pipes lead from a main oil-supply pipe 16, which communicates with the fuel-oil tank 8. The portion of the pipe immediately connected with the bottom of the oil-tank I will designate 17. This pipe leads to a branch 18, which passes through the muffler 19 of the gas-engine in order to heat the oil preparatory to its delivery to the burners in order to facilitate its vaporization. After passing through the muffler 19 the oil flows to the main oil-pipe 16, which extends rearwardly a suitable distance, thence upwardly, and thence rearwardly again above the combustion-chambers, as best illustrated in Fig. 2. The necessary air is supplied to the burners from a blower 20, whence it passes through a pipe 21 to a point 23 just in front of the combustion-chambers, where it divides into two branches 24, which pass through the respective combustion-chambers in which the air is heated in order to facilitate the atomizing and ignition of the oil. These pipes 24

lead to valve-controlled branch pipes 25, which enter the burners 14 between the oil-delivery pipes 15 and the forward extremities of the burners.

Each combustion-chamber is lined at the top and sides with fire-brick or other suitable material 26. The top lining is clearly shown in Fig. 5, while the lining at the sides and ends is illustrated by dotted lines in Fig. 4. The bottom of each combustion-chamber is closed by a comparatively thin plate 27. This bottom of each chamber is surrounded by a depending flange 28. Each combustion-chamber is further supplied with vertically-adjustable side slides 29, adapted to be dropped down upon the pavement surrounding the place of repair in order to further confine the heat, which it is of course desirable to limit in its action to the exact spot on the pavement where repair is necessary. The front of each combustion-chamber is provided with a depending hinged plate 30, while the rear extremity of each chamber is provided with a plate 31, having a roller 32 at its lower extremity. Each slide 29 is provided with slots, through which pass set-bolts 33. It is evident that by loosening these bolts the slides may be raised and lowered at will. The front of each combustion-chamber is connected with a vertical stack or smoke-pipe 34.

From the foregoing description the use and operation of my improved apparatus will be readily understood. The apparatus when in use is moved to such a position that the combustion-chambers are directly above the place in the pavement to be repaired. The side slides 29 are then dropped downwardly, the oil and air turned on to supply the burners, and the combustible mixture lighted. Flames from the burners are thus delivered to the respective combustion-chambers, whereby the bottom of each chamber is highly heated and delivers its heat by radiation to the portion of the pavement to be repaired. This heat prepares the said portion of the pavement to receive the new material and unite therewith, as heretofore explained.

Attention is called to the fact that the openings 13 of the combustion-chambers are considerably larger than the extremities of the burners which project thereinto in order to allow sufficient free air to enter the combustion-chambers by virtue of the suction induced by the issue of the air and oil from the burners for combustion purposes.

Having thus described my invention, what I claim is—

1. In an apparatus for repairing asphalt pavement, the combination of a combustion-chamber closed at the bottom, and means mounted on the apparatus for heating the combustion-chamber, whereby its bottom delivers heat by radiation at the place of repair, substantially as described.

2. In an apparatus of the class described, the combination with a suitable vehicle, of a combustion-chamber mounted thereon and having a closed bottom, means for heating the combustion-chamber, and means mounted thereon for confining the heat to the desired location, substantially as described.

3. The combination with a suitable vehicle, of a combustion-chamber mounted thereon, said chamber being closed except at its extremities which are open for the introduction of combustible mixture and free air for its combustion and for the escape of the products of combustion respectively, the closed bottom of the combustion-chamber being supported in suitable proximity to the surface where the apparatus is to be used whereby the heat may be delivered to the said surface by radiation, and suitable means mounted on the vehicle for confining the heat within the desired space or locality for the purpose set forth.

4. The combination with a suitable vehicle, of a combustion-chamber mounted thereon and having a closed bottom, the said chamber also having an opening for the introduction of a combustible mixture and free air for its combustion and also an opening for the escape of the products of combustion, a burner mounted in suitable proximity to the fuel-opening of the combustion-chamber, and means for delivering oil and air to the said burner for the purpose set forth.

5. The combination with a suitable vehicle, of a combustion-chamber having a closed bottom adapted when the chamber is heated to throw heat downwardly by radiation, a burner mounted to deliver a combustible mixture to the combustion-chamber, a conduit for delivering fuel-oil to the burner, means for heating the oil on its way to the burner, and an air-conduit passing through the combustion-chamber and connected with the said burner whereby the air is heated before it is delivered to the burner for the purpose set forth.

6. The combination with a suitable vehicle provided with a fuel-oil tank, a blower and means for operating the same, of a combustion-chamber also mounted on the vehicle and having a closed bottom, a burner mounted to deliver a combustible mixture to the combustion-chamber for fuel purposes, a conduit leading from the fuel-oil-supply tank and passing through the combustion-chamber, said conduit being connected with the burner outside of the combustion-chamber, a conduit leading from the blower to the burner, and means surrounding the air-conduit during a portion of its course, for heating the air on its way to the burner.

7. The combination with a suitable vehicle, of a combustion-chamber mounted thereon and having a closed bottom, the walls of the combustion-chamber except the bottom being protected by a lining of suitable material, a burner for delivering a combustible

mixture to the combustion-chamber, means for supplying air and fuel-oil to the burner, and means for heating the air and oil before they are delivered to the burner, substantially as described.

8. The combination with a suitable vehicle, of a plurality of distinct combustion-chambers mounted thereon and having closed bottoms, a burner mounted to deliver a combustible mixture to each combustion-chamber, an air-conduit having branches passing through the respective combustion-chambers, the said branch conduits being connected with the respective burners, and an oil-conduit for supplying the burners with oil, said conduit having branches leading to the respective burners, and suitable means for heating the oil on its way to the burners, substantially as described.

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

JOHN H. MORCOM.

Witnesses:
NORMAN V. FITTS,
DENA NELSON.