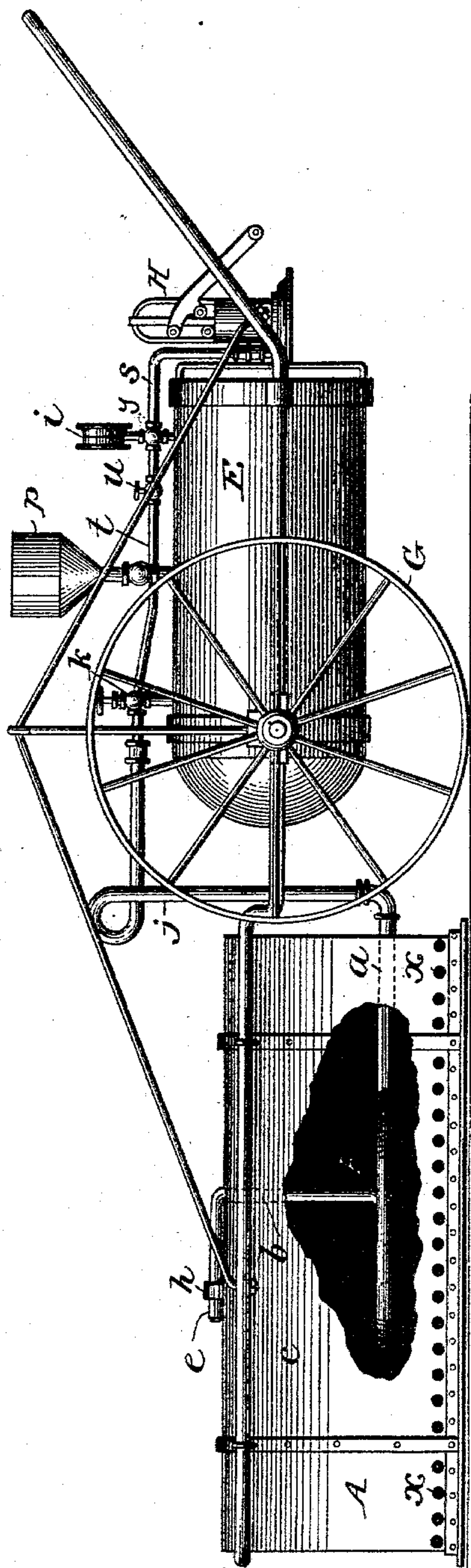


(No Model.)

2 Sheets—Sheet 1.

H. W. LASTER.  
METHOD OF AND APPARATUS FOR REPAIRING ASPHALT PAVEMENTS.  
No. 552,913. Patented Jan. 14, 1896.

Fig. 1.



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

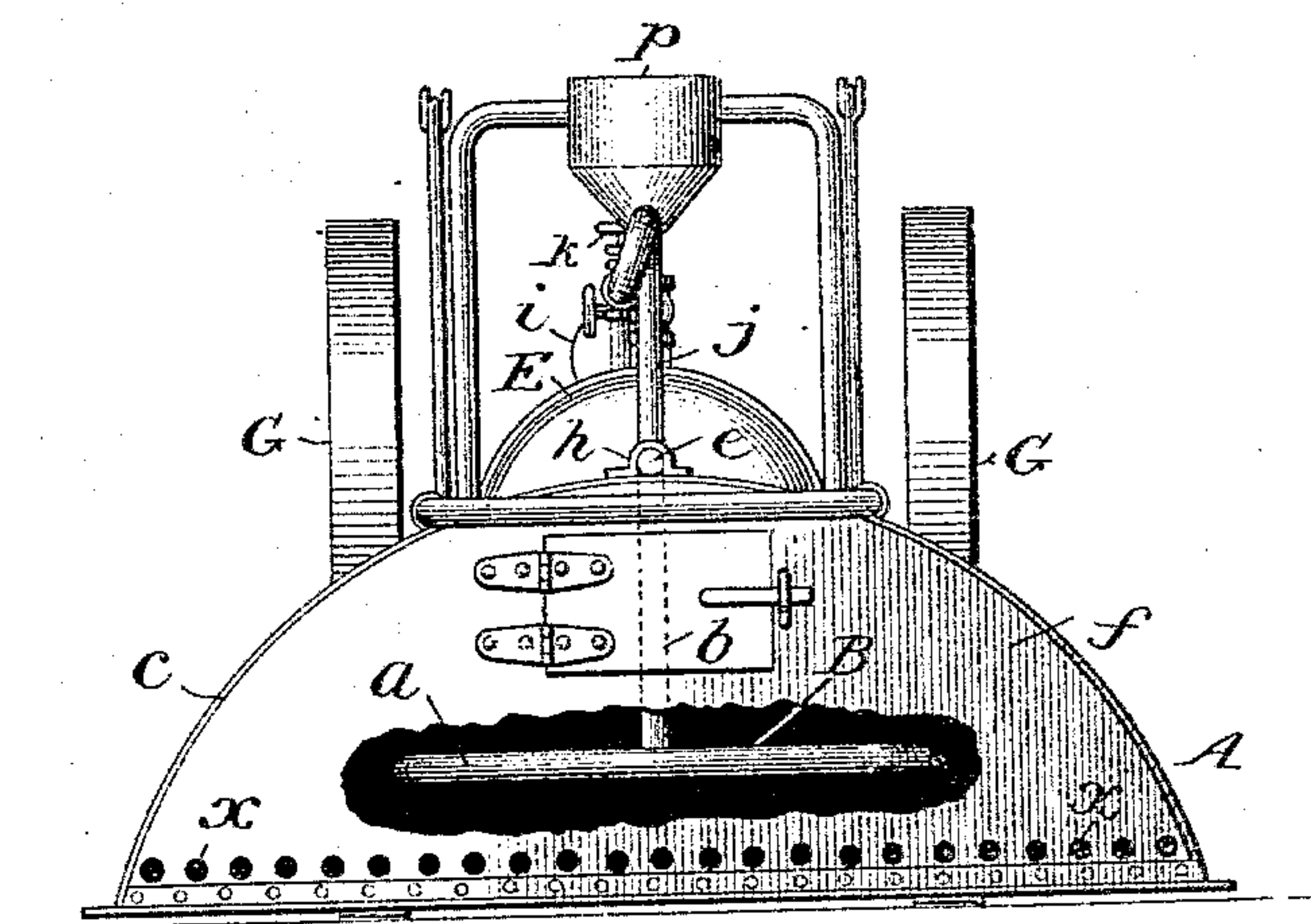
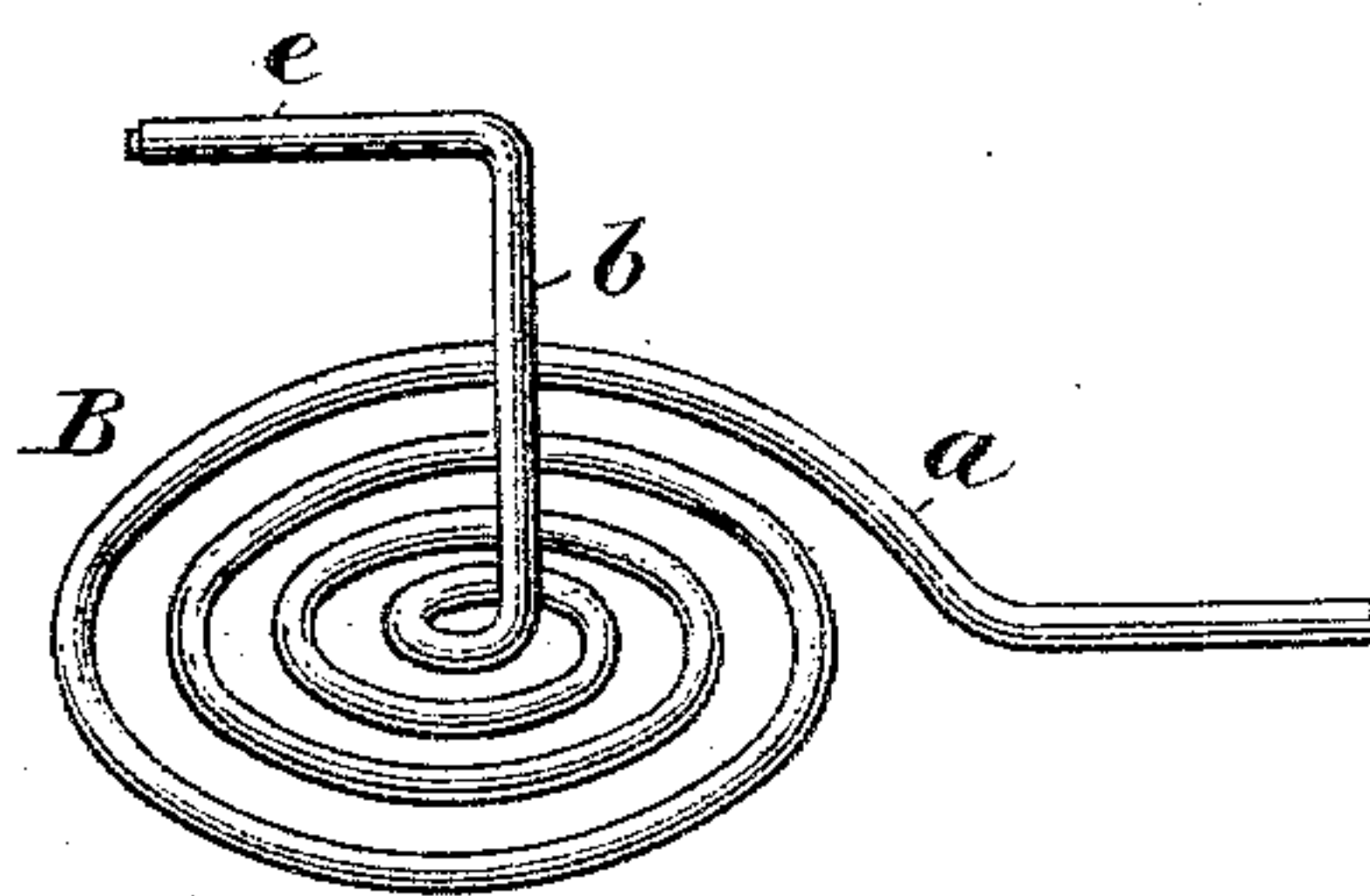


Fig. 3.



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# UNITED STATES PATENT OFFICE.

HARRY W. LASTER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE BARBER ASPHALT PAVING COMPANY, OF NEW YORK, N. Y.

## METHOD OF AND APPARATUS FOR REPAIRING ASPHALT PAVEMENTS.

SPECIFICATION forming part of Letters Patent No. 552,913, dated January 14, 1896.

Application filed June 4, 1895. Serial No. 551,685. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY W. LASTER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Methods of and Apparatus for Repairing Asphalt Pavements, of which the following is a specification.

Heretofore in repairing asphalt pavements it has been common to subject the portion to be repaired to blasts of hot air to soften the asphalt or composition, in other instances to effect the same result by the heat obtained from series of burners carried in proximity to the surface, and in other instances the heating is effected by crates of hot coals carried over the surface of the pavement. All these various methods and the use of the apparatus heretofore devised have been attended with more or less expense, inconvenience and difficulties, which it is the object of my invention to remedy. For instance, it is difficult to maintain a uniform and even body of incandescent fuel in an effective condition for any great length of time in a crate. Where burners are used, there are necessarily numerous joints which it has been found impossible to maintain tight, so that the liquid fuel will escape at some points, run onto the pavement and ignite, overheating parts of the apparatus. Further, in cases where liquid fuel is used in connection with a generator for generating gas the construction has been such as to frequently result in the bursting of the generator-pipes. An additional objection to such apparatus as has heretofore been employed with liquid fuel has arisen from the fact that owing to the character of the burners it is necessary to make use of gasoline or other expensive oil. Where the heating has been effected by means of blasts of hot air, it has been difficult to secure the requisite high temperature without an apparatus which is expensive to construct and operate. I obviate these objections, using neither incandescent fuel, air-blasts or vapor-burners, by heating the pavement by means of burning gas and air contained beneath a suitable hood above the surface of the pavement, as fully set forth hereinafter, and as illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the apparatus used in connection with my improvement. Fig. 2 is an end elevation. Fig. 3 is a detached perspective view of the generator, burner, and heater-coil.

In carrying out my improved mode of heating I generate a volume of combustible gas and bring the flame resulting from the combustion thereof into intimate contact with a sufficient volume of air, projecting the flame and heated gases toward the pavement and confining the whole volume of gas in a vessel or hood above the pavement until the latter is heated and softened to the desired extent. To this end I arrange a burner and generator B of sufficient capacity within an inverted vessel or hood A, closed except at the bottom and where inlet air-openings *x* are arranged and cause the flame from the burner to be projected into the generator and toward the pavement.

The generator and burner may be of any desired construction; but as shown they consist of a continuous pipe bent into a flat coil *a*—that is, all of the coils are in a horizontal plane—and at the inner coil the pipe is continued upward to constitute a vertical stem *b*, by means of which the coil may be suspended, and is then bent to a horizontal position, plugged at the end, and holes are bored at the under side of the horizontal portion *c* to form a series of perforations to constitute the burner. The said generator is properly supported within a hood or casing A within a short distance of the pavement, the lower edge of the hood almost in contact therewith.

The coils of the generator are highly heated, so that the liquid hydrocarbon admitted to the coils is rapidly vaporized and the vapor freely escapes from the burner and fills the hood with gas, which burns rapidly in combination with the air admitted from below the edges and through the air-openings *x*, the hood retaining the gases in contact with the pavement below, which speedily becomes heated and softened without danger of burning the same or overheating it. The temperature may be maintained constant for any desired length of time, and all danger from leakage is avoided by the use of a continuous unbroken pipe, while it will be evident that the



generator is of such a construction that no fracture or explosion can possibly occur.

While the above-described parts may be constructed in different ways, I prefer the construction which I will now describe, because of its simplicity, cheapness, strength and facility of manipulation.

The hood A consists of a curved sheet of metal *c*, with segmental end pieces *f* riveted thereto to form nearly a semicylinder. The generator B is suspended within the hood, with the exception of the horizontal extension *e*, which lies upon the top of the hood so as to support the remaining portion, and is secured in place by a clip *h*, the hood being perforated below the burner-openings. The frame which supports the hood and tank E is provided with journals which constitute the axles of two wheels G supporting the whole structure.

At the end of the tank E is supported the air-pump H, the delivery-pipes of which communicate at *y* with the interior of the tank and is provided with a gage *i*. The coil *a* communicates with a pipe *j* that is provided with a cock *k* and extends downward into the tank. Between the pipe *j* and the pipe *s* extends a pipe *t*, provided with a cock *u*, so that when desired, by opening the said cock, the air that is in the tank may be discharged into the pipe *j* instead of being discharged into the outer air. The tank is provided with the usual funnel *p* for filling.

One of the advantages of the character of heater which I have described is that it permits the use of crude and less expensive oil than has heretofore been required.

Without limiting myself to the precise construction of apparatus shown, I claim as my invention—

1. The within described improvement in the art of preparing asphalt pavements for re-surfacing the same consisting in maintaining in contact with the part to be repaired, a heated and ignited mixture of gas and air forming a continuous body of flame, substantially as described.

2. An apparatus for heating asphalt pavements for repairs consisting of a closed top and open bottomed hood or casing, a gas generator arranged within the same above the pavement, a vapor burner connected to the generator and arranged at the top of the hood to direct the ignited vapor downward across the generator and maintain the body of flame in contact with the pavement, substantially as described.

3. The combination in an apparatus for heating asphalt pavements of a generator coil consisting of a continuous bent pipe, supported in a substantially horizontal plane, a burner communicating with the coil, with openings arranged to direct the flame across the coil toward the pavement, and a closed-top and open-bottomed hood extending over the coil and burner, substantially as set forth.

4. The combination in an apparatus for repairing asphalt pavements, of a horizontal coil, a burner communicating therewith having openings for directing the flame across the coil and a hood having a closed curved top and segmental end portions, the end of the pipe constituting the burner resting in contact with and connected to the top of the hood, substantially as set forth.

5. An apparatus for heating asphalt pavements for repairs comprising a hood having an open bottom and top which is closed against communication with the exterior atmosphere a frame for supporting the bottom of the hood above the pavement, a vapor burner located at the top of the hood, and a source of fuel supply connected therewith, the openings of said burner being arranged to project the ignited vapor into and beneath the hood and produce a body of flame filling the hood and in contact with the pavement, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY W. LASTER.

Witnesses:

A. H. CRANEY, Jr.,  
JOHN R. COLEMAN.