

(No Model.)

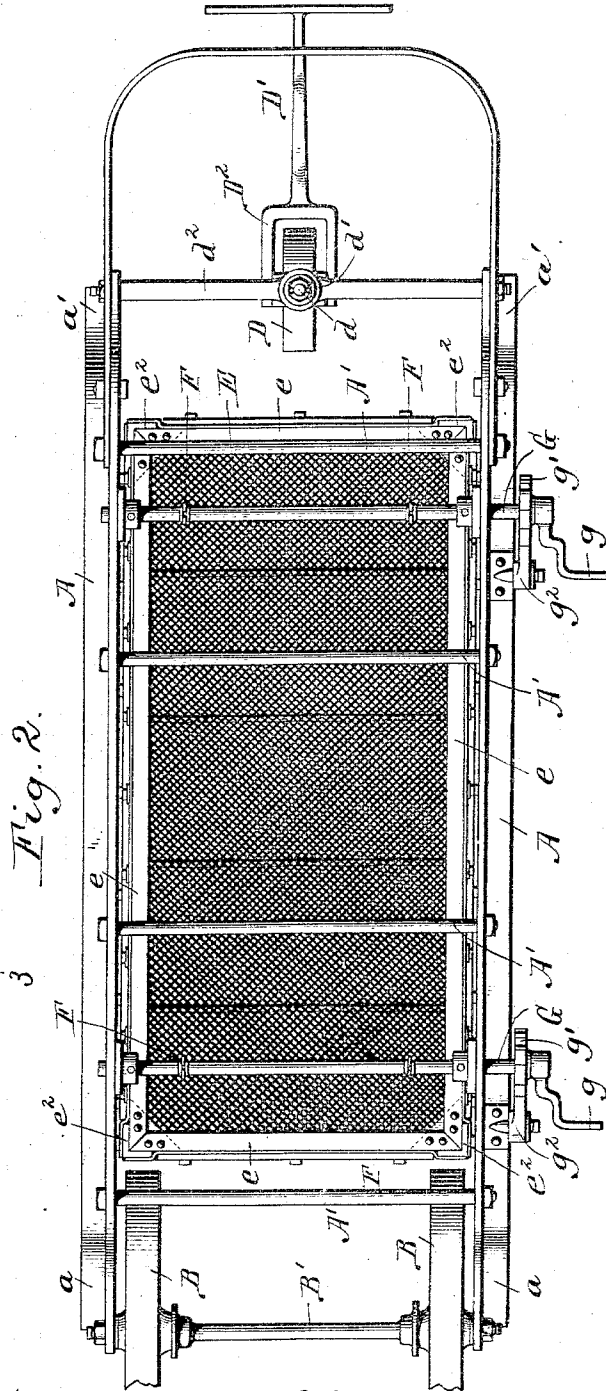
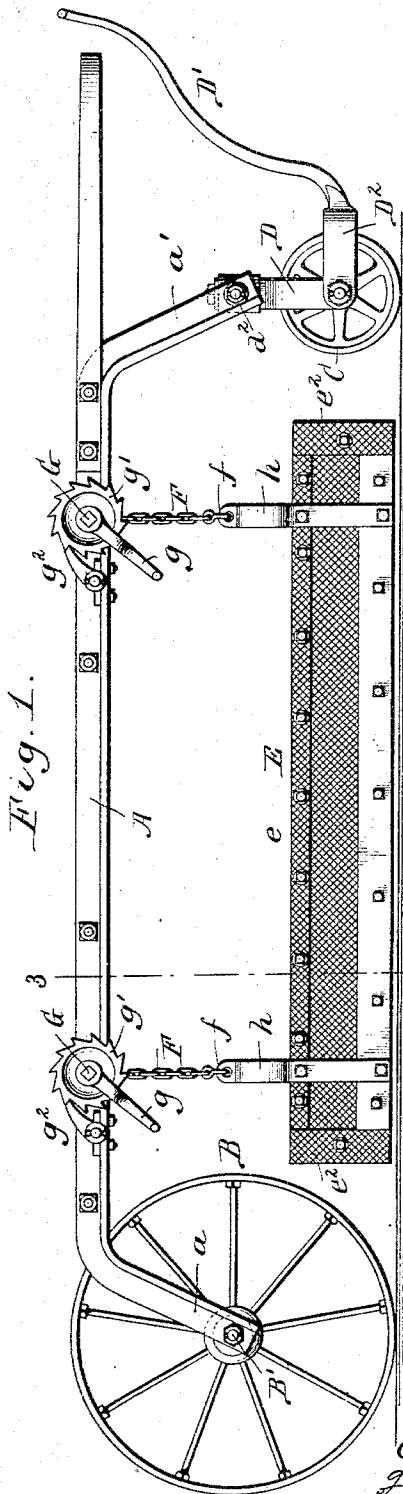
2 Sheets—Sheet 1.

J. R. PENBERTHY.

APPARATUS FOR REPAIRING ASPHALT PAVEMENTS.

No. 533,608.

Patented Feb. 5, 1895.



Witnesses: J. R. Penberthy Inventor.
Emil Neuhart By Wilhelm Bonnet.
F. Gustav Wilhelm. Attorneys.

(No Model.)

2 Sheets—Sheet 2.

J. R. PENBERTHY.

APPARATUS FOR REPAIRING ASPHALT PAVEMENTS.

No. 533,608.

Patented Feb. 5, 1895.

Fig. 3.

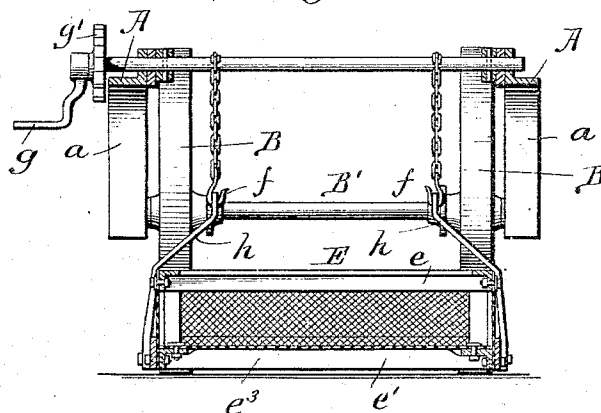


Fig. 4.

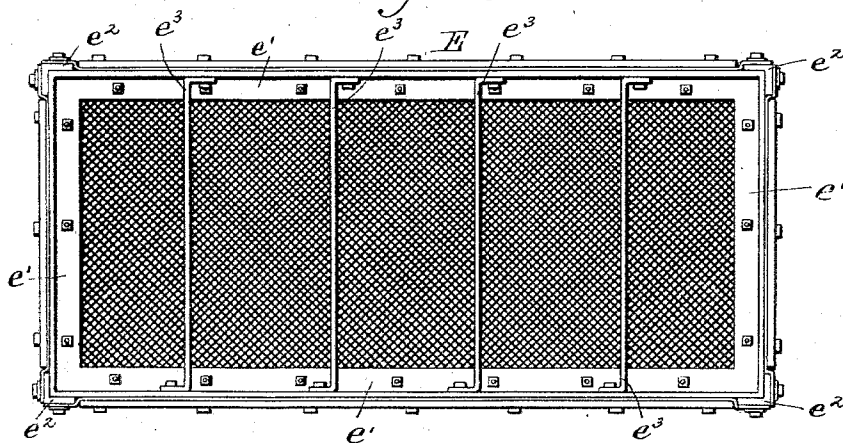


Fig. 5.

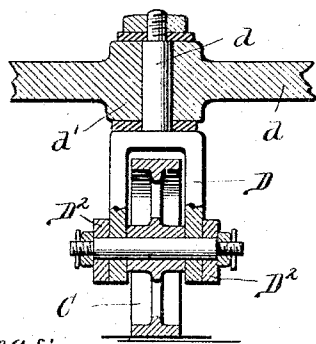
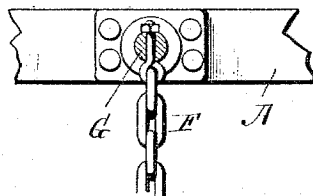


Fig. 6.



Witnesses:

Emil Neuhart.
F. Gustav Wilhelm.

James R. Penberthy Inventor.
By Wilhelm Bonnet
Attorneys.

UNITED STATES PATENT OFFICE.

JAMES R. PENBERTHY, OF BUFFALO, NEW YORK.

APPARATUS FOR REPAIRING ASPHALT PAVEMENTS.

SPECIFICATION forming part of Letters Patent No. 533,608, dated February 5, 1895.

Application filed October 24, 1894. Serial No. 526,835. (No model.)

To all whom it may concern:

Be it known that I, JAMES R. PENBERTHY, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Apparatus for Repairing Asphalt Pavements, of which the following is a specification.

This invention relates to the portable heating devices which are used for melting or softening the surface of asphalt pavement in repairing the same.

Heretofore an apparatus consisting of a series of hydro-carbon burners supported upon a wheeled frame in close proximity to the surface of the pavement, has been employed for this purpose, but this apparatus is objectionable because the flames coming in contact with the pavement are liable to burn the surface before the particles below the surface are sufficiently softened. Such burners also heat the pavement unevenly, the portions thereof in contact with the flames being softened to a greater degree than the intermediate portions. Furthermore, the naphtha contained in the hydro-carbon fuel crumbles or disintegrates the surface of the pavement when brought in contact therewith, so that leakage of the burners is liable to render the work defective.

The object of my invention is to provide an apparatus whereby heat may be uniformly applied to the surface of the pavement without liability of burning it, and which permits the use of fuel that is free from the objections of hydro-carbons.

In the accompanying drawings consisting of two sheets: Figure 1 is a side elevation of my improved apparatus. Fig. 2 is a top plan view thereof. Fig. 3 is a cross section of the same in line 3—3, Fig. 1, looking rearward. Fig. 4 is a bottom plan view of the fuel basket. Fig. 5 is an enlarged sectional elevation of the steering wheel and its supporting frame. Fig. 6 is an enlarged cross section of one of the operating shafts of the fuel basket showing the means of connecting the suspension chains thereto.

Like letters of reference refer to like parts in the several figures.

A represents the side bars of the portable supporting frame of the apparatus and A'

are transverse rods or bars which connect the side bars at suitable intervals. These side bars are preferably constructed of angle iron and are arched or provided with downwardly bent end portions *a, a'*.

B represents a pair of wheels which support the rear portion of the frame and which are mounted on an axle B' secured to the downwardly bent rear portions *a* of the side bars.

C represents a steering wheel which supports the front portion of the frame and which is journaled in a fork D. This fork has an upwardly extending spindle *d* which turns in a bearing *d'* formed in a cross bar *d²* which latter is secured at its ends to the downwardly bent front portions *a'* of the side bars.

D' is a handle or lever connected with the fork of the steering wheel by a yoke D².

E is a fuel basket or receptacle suspended from the portable supporting frame between the front and rear wheels thereof and adapted to contain a bed of incandescent coke or similar solid fuel. This basket is preferably of the oblong form shown in the drawings and is provided with a perforated or reticulated bottom to permit the radiation of the burning fuel through the same. Its side and end walls are also preferably perforated or reticulated to supply air to the fuel on all sides.

In the construction shown in the drawings the fuel basket consists of horizontal rectangular top and bottom frames *e e'* connected at the corners by vertical angle pieces *e²*, a bottom of wire cloth secured to the bottom frame of the basket and side and end walls of wire cloth secured to the top and bottom frames, the meshes of the wire cloth being sufficiently small to prevent the fuel from dropping through the same. The frames of the basket are preferably constructed of angle iron, as shown.

e³ represents transverse bars extending across the wire cloth bottom of the fuel basket and secured at their ends to the side members of the bottom frame *e'*. These bars prevent sagging of the bottom under the weight of the fuel and also stiffen the bottom frame of the basket.

The fuel basket is suspended from the portable supporting frame by chains or cables

which are secured at their upper ends to transverse shafts G, preferably by eye bolts, as shown in Fig. 6. These shafts turn in bearings formed in the side bars A and each of the same is provided at one end with a crank *g* for turning it, and a ratchet wheel *g'* with which engages a detent *g²* pivoted to the adjacent side bar whereby the shaft is held against retrograde movement. The chains F are provided at their lower ends with hooks *f* which engage with perforated hangers *h* secured to opposite sides of the fuel basket near the ends thereof. The basket is supported by four chains, two near each end thereof, and the two chains at the same end of the basket are connected with the same operating shaft.

In using my improved apparatus, the basket is first filled from end to end with burning fuel, preferably coke, forming a solid bed which is exposed both on the bottom and the sides of the perforated basket. The apparatus is then moved to bring the fuel basket over the spot to be repaired and the basket is lowered with its bottom in close proximity to the surface of the pavement. The heat radiated from the bed of fuel through the perforated bottom of the basket in a short time softens the pavement sufficiently to permit it to be raked or agitated. The necessary quantity of fresh asphalt is next added, and after removing the apparatus the repaired spot is smoothed and burnished by the usual appliances. The supporting shafts and chains of the fuel basket permit the latter to be adjusted vertically for lowering it into a depression of the pavement or raising it clear of a ridge, in moving it from place to place. As the heating medium consists of a solid bed of fuel, the defective spot under treatment is subjected to a practically uniform degree of heat throughout the area of the

basket, softening all portions thereof evenly and insuring a complete incorporation of the old and the new material. The burning fuel though brought closely to the surface of the pavement does not come in contact therewith, thus preventing burning of the asphalt; and the danger of causing disintegration of the pavement resulting from the leakage of naphtha when hydro-carbon fuel is employed, is also obviated.

I claim as my invention—

1. In a heating apparatus for softening asphalt pavement, the combination with a portable supporting frame, of an open fuel basket adapted to contain a bed of solid incandescent fuel and having a perforated bottom through which the lower surface of the bed is exposed, and adjustable suspension devices which permit the fuel basket to be lowered in close proximity to the surface of the pavement, or raised to clear ridges of the pavement in transporting the apparatus, substantially as set forth.

2. In an apparatus for repairing asphalt pavement, the combination with a supporting frame composed of arched side bars and transverse connecting bars, of rear supporting wheels, a front steering wheel, a fuel basket arranged between said front and rear wheels and having a perforated bottom, transverse shafts journaled on said supporting frame, and suspension chains connecting the fuel basket with said shafts, substantially as set forth.

Witness my hand this 19th day of October, 1894.

JAMES R. PENBERTHY.

Witnesses:

JNO. J. BONNER,
ELLA R. DEAN.