

(No Model.)

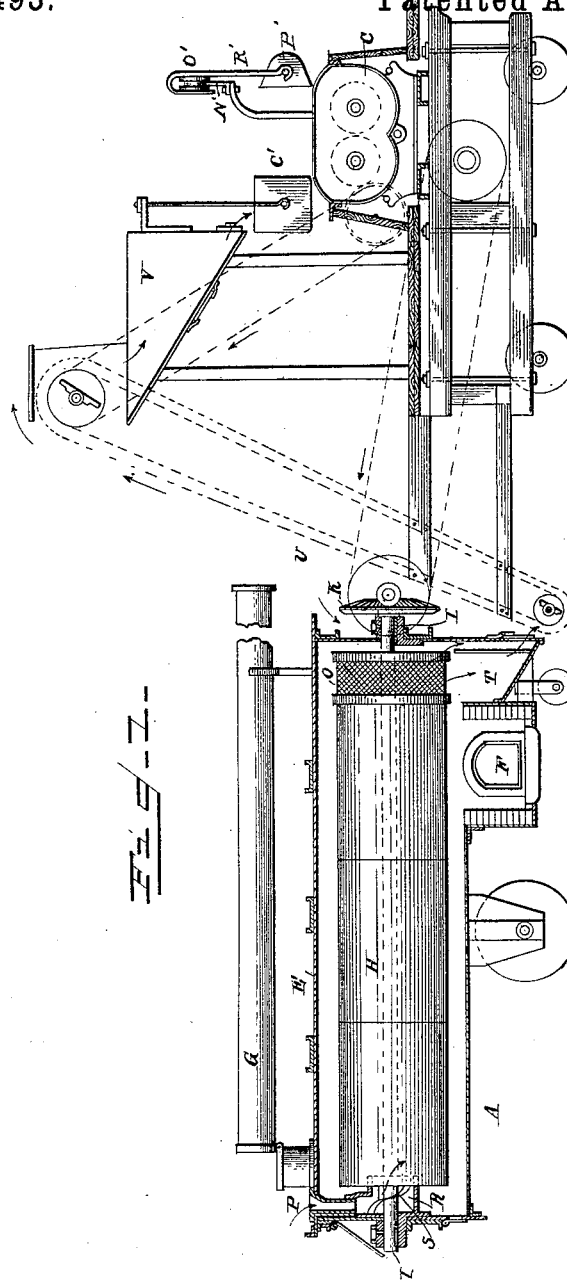
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F. V. GREENE.

DEVICE FOR MANUFACTURING ASPHALTIC CONCRETE FOR PAVING
PURPOSES.

No. 348,493.

Patented Aug. 31, 1886.



Witnesses

Edwin I. Yewell,

Daniel Scott

Inventor

Francis V. Greene

By his Attorney

Edw. J. Sinsabaugh

(No Model.)

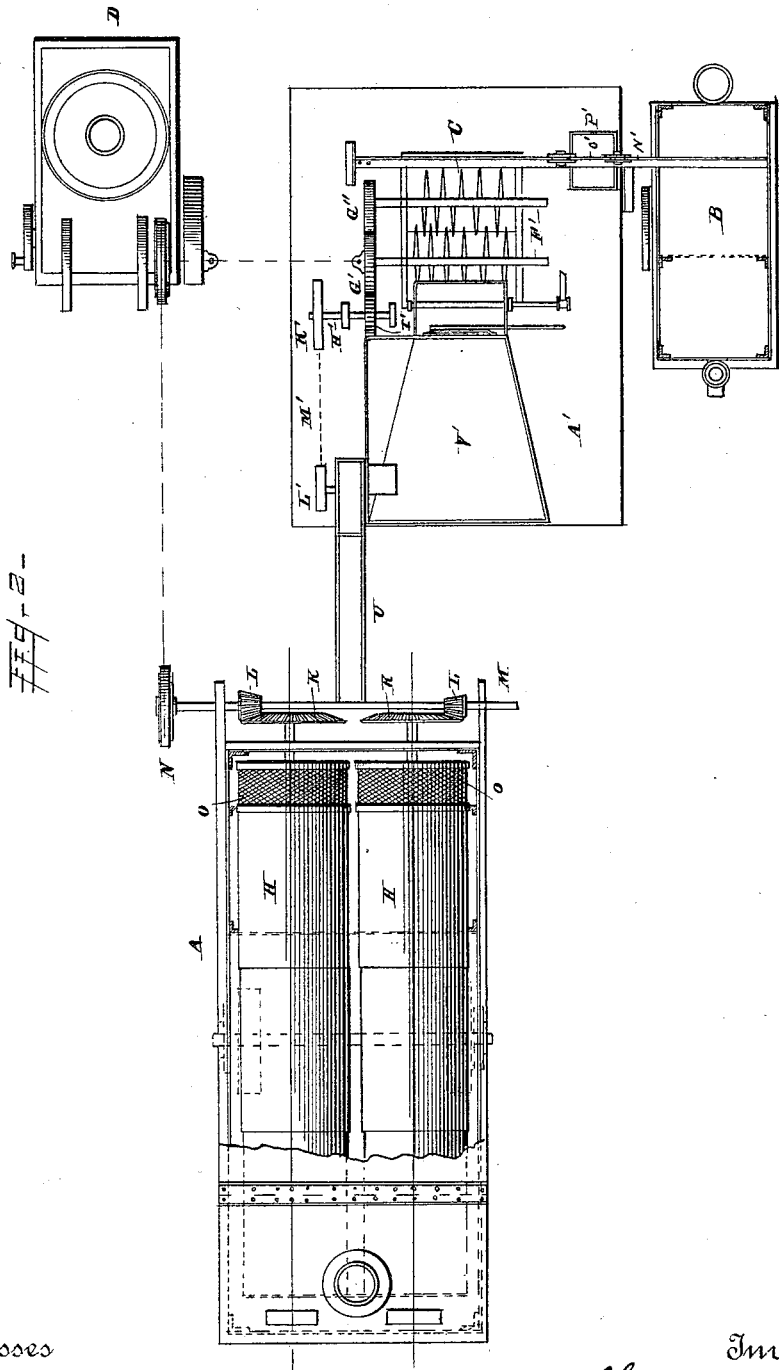
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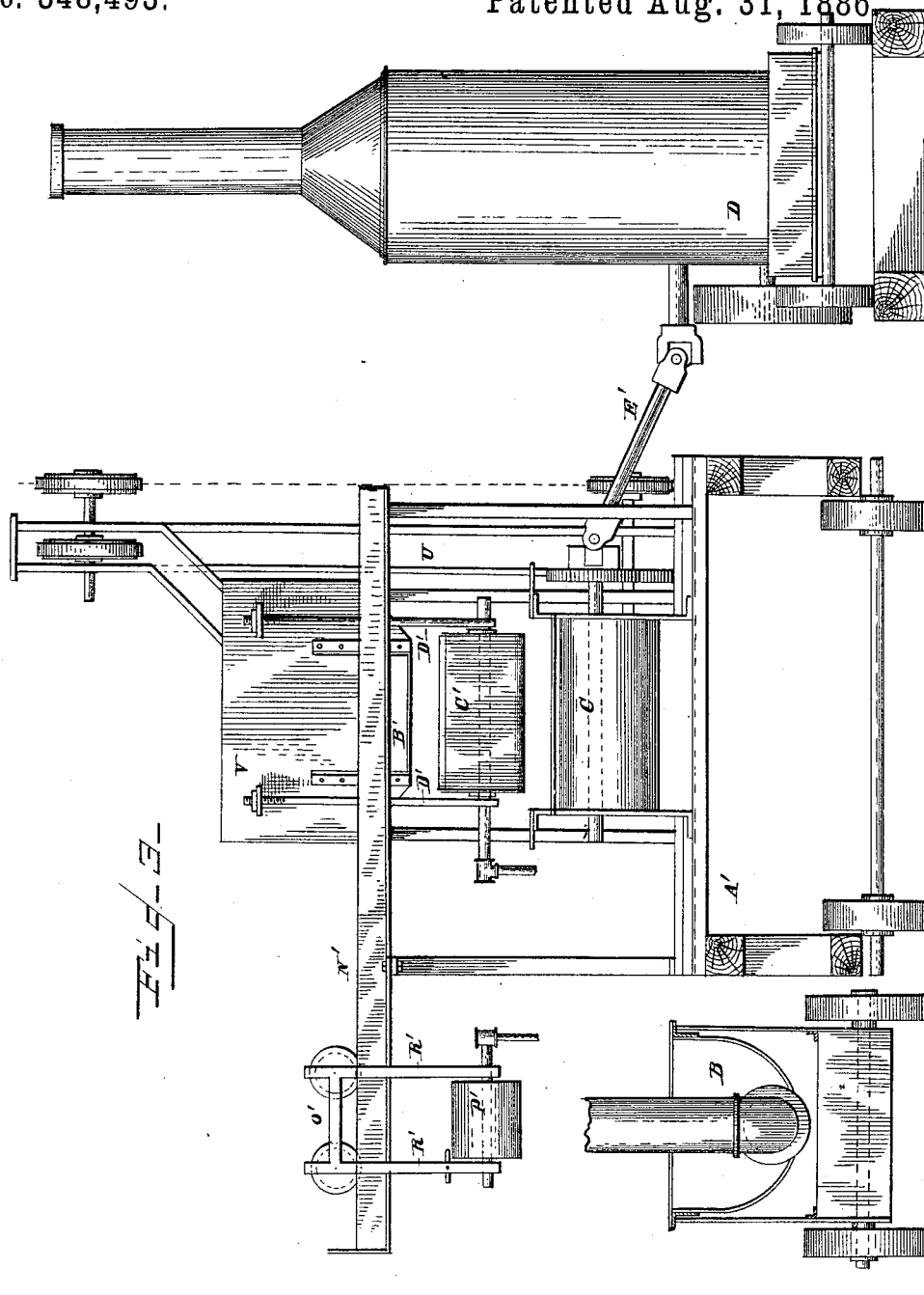
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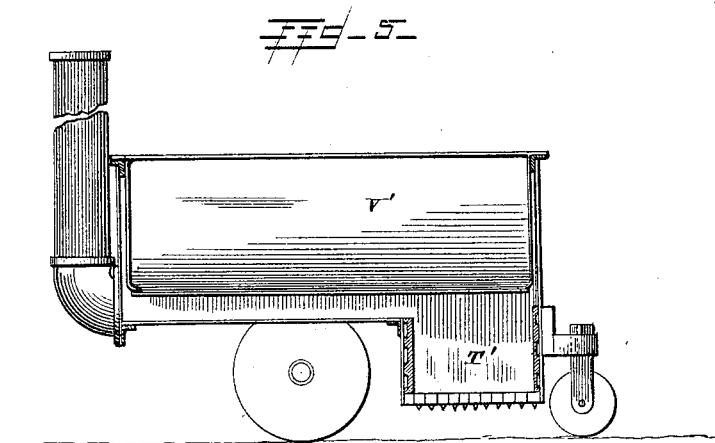
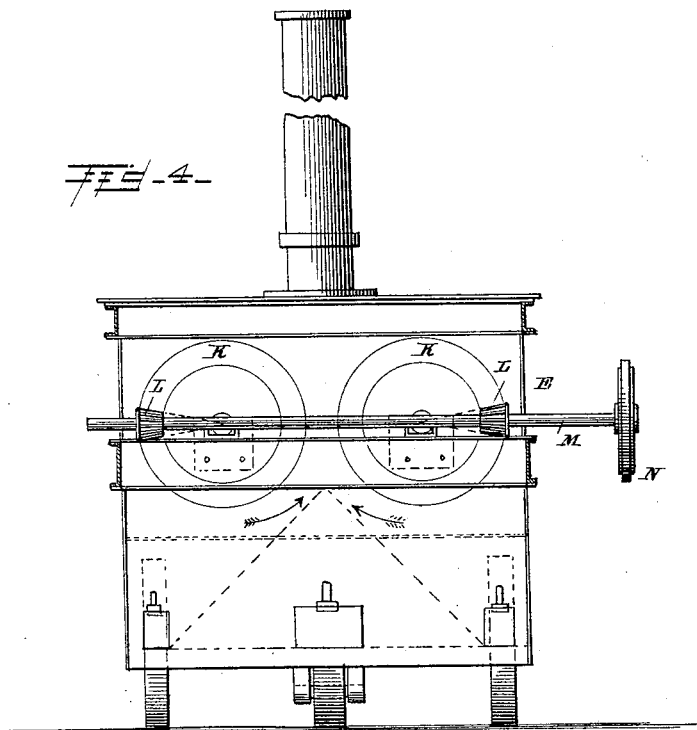
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Witnesses

Edwin I. Yewell,

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(No Model.)

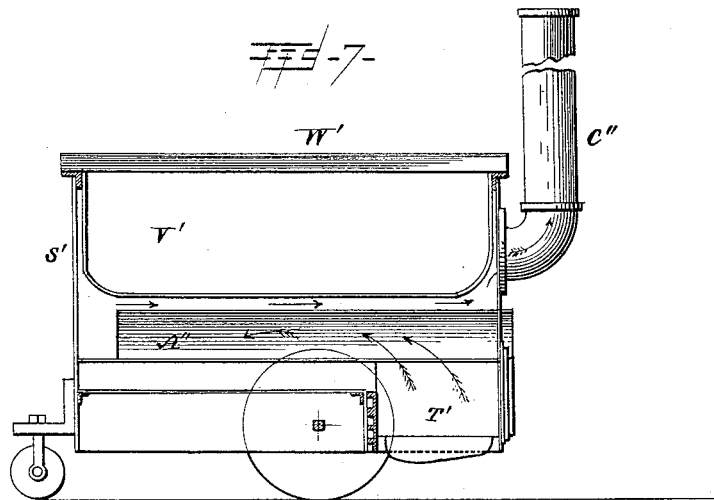
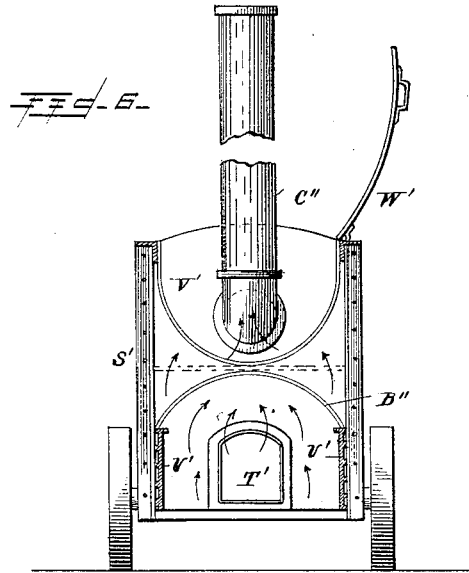
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Patented Aug. 31, 1886.



Witnesses
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UNITED STATES PATENT OFFICE.

FRANCIS V. GREENE, OF NEW YORK, N. Y., ASSIGNOR TO THE BARBER
ASPHALT PAVING COMPANY, OF WASHINGTON, D. C.

DEVICE FOR MANUFACTURING ASPHALTIC CONCRETE FOR PAVING PURPOSES.

SPECIFICATION forming part of Letters Patent No. 348,493, dated August 31, 1886.

Application filed May 24, 1886. Serial No. 203,150. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS V. GREENE, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Devices for Manufacturing Asphaltic Concrete for Paving Purposes, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improved plant or arrangement of devices for facilitating the laying of asphalt-concrete pavements.

The object of my invention is to provide means by which the sand or pulverized stone is heated, the asphaltum melted, and the two mixed together and laid on the road-bed without losing any appreciable amount of its heat.

As heretofore practiced, the works for heating the sand, melting the asphaltum, and preparing the asphaltic concrete are often located at some remote point in the city or town, thus necessitating long hauls in open carts, which chill the concrete and causes it to part with a large amount of its heat. This is objectionable, for the reason that the asphaltic concrete should be laid as hot as possible, so as to insure a perfect hard surface and form a continuous and unbroken pavement.

Referring to the drawings, Figure 1 is a side elevation, partly in section, of the sand heater and mixer, showing their relation to each other. Fig. 2 is a top or plan view of the sand-heater, asphalt-melter, mixer, and engine. Fig. 3 is an end view of the engine, mixer, and melter and the apparatus for moving the material from one device to the other. Fig. 4 is an end view of the heater. Fig. 5 is a longitudinal sectional view of one form of device for melting and heating the asphaltum. Fig. 6 is an end view of another form of melting device. Fig. 7 is a longitudinal sectional view of the device shown in Fig. 6.

The different devices will first be referred to in a general manner, and then so much of them as are considered novel will be described in detail and specifically claimed.

A indicates the sand-heater; B, the furnace and caldron, in which the asphaltum is melted; C, the mixing-machine, in which the sand

and asphaltum are mixed together to form the asphaltic concrete; and D, the engine, which is employed for imparting motion to the mixer and in turning the drums of the heater, as will more fully hereinafter appear, said engine being, by preference, of that class known as "road-engines," as it can be utilized not only in imparting motion to the devices already described, but can be used to advantage in hauling the heater, mixer, and melter from one point to another, all of these devices being mounted on wheels, so they can be moved along the street to be paved and transported to other points.

As before intimated, A indicates the heating device, in which the sand or powdered stone is heated prior to being mixed with the liquid asphaltum. The heater consists of a rectangular box or chamber, E, made of heavy boiler-iron, the front end of which is provided with a suitable furnace, F, while the rear end is provided with a smoke-stack, G.

H are heavy sheet-iron drums or cylinders secured to the shafts I, said shafts being mounted in suitable bearings in the ends of the chamber E and adapted to be rotated by means of the beveled gear-wheels K, secured to the ends of the shafts I, which mesh with the beveled gear-wheels L on the shaft M, said shaft being mounted in suitable bearings transverse to the shafts I.

N is a band-pulley secured to the outer end of the shaft M, by means of which power is imparted from the engine to revolve the drums H. A portion of the front end of the drums H are provided with wire-cloth O, which act as screens to sift the sand or broken stone and free it from pebbles or large-sized pieces.

P is an opening formed in the rear end of the casing E, in which is placed a hopper or chute for directing the sand into the chamber R, said chamber being projected a short distance into the rear end of the drum H, as shown in Fig. 1. The rear ends of the shafts I are provided with a spiral flange or endless screw, S, the office of which is to move the material out of the chamber R into the rear ends of the heating-drums H, said drums being made slightly larger at their front ends than they are at the rear ends, as shown in

Fig. 2, so that the material will gravitate toward the front end of the heating-drums and be deposited in the chute or chamber T, formed in the front end of the casing E, from whence it is taken by the elevator U and deposited in the hopper V, located above the mixing-machine C. It will be noticed that the heating-drums are inclosed in the case or chamber B, and that they are surrounded by and subjected to the heat from the furnace F, which heats the sand or pulverized rock up to the proper temperature, so as to absorb the asphaltum when brought into contact with the same in the mixing-chamber. The heating device is mounted on suitable wheels, so that it can be moved from place to place.

A' is a platform mounted on suitable wheels, so as to be readily moved from place to place, on which is mounted the mixing-machine C, said machine being of any suitable construction. The elevator U and hopper V are also mounted upon and supported by the platform A', and, as before intimated, the hopper V is located above the mixing-machine C, and is designed to receive the heated sand from the heater. The front end of the hopper V is provided with a door, B', through which the sand is admitted to the measuring vessel or chamber C'. The measuring-vessel is mounted on trunnions in the supports D', so that it can be tilted and deposit the sand into the mixing-machine C. The engine D is located at one end of the mixing-machine and communicates power to the same by means of the shaft E, the shafts F', carrying the mixing-arms, being geared together by the pinion-wheels G' G''.

H' is a shaft mounted in suitable supports on the platform A', and is provided with a pinion-wheel, I', which meshes with the pinion-wheel G'.

K is a pulley-wheel mounted on the outer end of the shaft H', which is connected to the pulley L' by means of the belt M', and imparts motion to the elevator-belt for raising the sand from the heater to the hopper V.

N' is an elevated track or way mounted on the platform A', on which the car or carrier O is adapted to be moved back and forth from the melter B to the mixing-chamber C.

P' is a vessel mounted on trunnions in the vertical bars R' of the car O', in such a manner that it can be turned to deposit its load of liquid asphaltum in the mixer C. It will be noticed that the melter B is located at one side of the platform of the mixing-machine, and that the track or way projects over the melter, in order that the car O' may be run over the melter to bring the vessel P' into a convenient position for receiving its load of melted or liquid asphaltum.

In operation the vessel or measure C' is filled with the heated sand from the hopper V'. The measure P' is filled with the liquid asphaltum from the melter B and moved over to the mixer. The two vessels or measures C' and P' are then dumped and deposit their loads in the mixer C. The melter is composed of a

rectangular chamber, S', made of boiler-iron or other suitable material, mounted on wheels and having a furnace, T', located in one end, said furnace being lined with fire-brick U', or other fire-resisting material.

V' is a tank secured in the upper portion of the chamber S', in which the asphaltum or other bituminous matter is placed to be melted, said tank being provided with a suitable cover, W', to retain the heat.

A'' is a movable wrought or cast iron shield or deflector, placed between the furnace and the bottom of the tank V', the object of which is to prevent the flames from the furnace from coming in direct contact with the bottom of the melting-tank, and thus prevent the scorching or burning of the asphaltum. The shield A'' is adapted to rest on top of the lining U' of the furnace and on suitable ledges formed on the inside of the chamber S', a semicircular slot, B'', being formed in the end of the chamber S', through which the shield A'' is passed, so that it can be moved back and forth to expose more or less of the bottom of the tank to the action of the heat, as occasion may require, and also afford means by which the shield can be entirely removed from the combustion-chamber of the melter when burned or worn out, and a new one inserted in its place. The products of combustion pass from the furnace T' under the shield to the rear of the chamber S', and then return above the shield and below the tank V' to the stack C''.

It will be noticed that by the arrangement herein described the engine, heater, mixer, and melter are placed in such relation to each other that all co-operate to produce or manufacture the asphaltic mastic at the place where it is to be used.

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

1. As an improvement in the art of laying asphalt pavements, the plant herein described for making the asphalt-concrete at the point where it is to be laid, the same consisting of the sand-heater, asphalt-melter, concrete-mixer, and engine, all mounted on wheels and adapted to be used jointly and moved from one point to another, as set forth.

2. In a plant for making asphalt-concrete for paving purposes, the platform A' of the mixing-machine, provided with the elevator U, hopper V, and track or way N', in combination with the heater A, mixer C, and engine D, arranged as described, and for the purpose set forth.

3. In a plant for making asphalt-concrete for paving and other purposes, the portable sand-heater A, consisting of the revoluble drums H, mounted in the casing E and operated as described, and provided with the screen portion O, in combination with the chute T and elevator U, as set forth.

4. In a plant for making asphalt-concrete for paving purposes, the portable platform or

truck A', carrying the mixing-chamber C, provided with the elevator U, hopper V, measure C', and the track or way N', adapted to support the carriage O' and measure P', as
5 set forth.

5. In a device for melting asphaltum or other bituminous substances, the removable guard or shield A'', adapted to be interposed

between the fire of the furnace and the bottom of the melting-tank, as set forth.

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

FRANCIS V. GREENE.

Witnesses:

WM. M. GAGE.

A. L. BARBER.

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