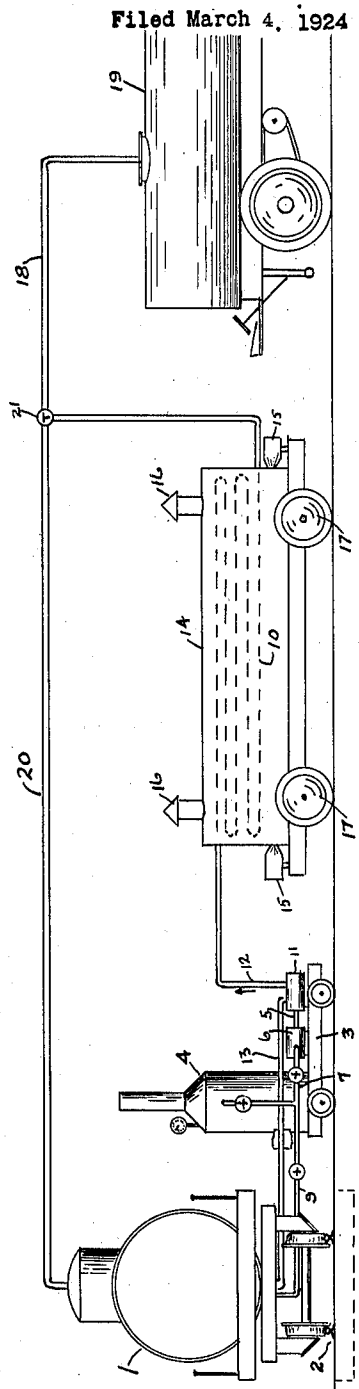
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APPARATUS FOR HEATING BITUMINOUS MATERIAL FOR ROAD CONSTRUCTION OR MAINTENANCE

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WITNESS

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APPARATUS FOR HEATING BITUMINOUS MATERIAL FOR ROAD CONSTRUCTION OR MAINTENANCE.

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To all whom it may concern:

Be it known that I, WILLIAM T. HEADLEY, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Apparatus for Heating Bituminous Material for Road Construction or Maintenance, of which the following is a specification.

Bituminous material is heated in tank cars and is applied to the road-surface in sufficiently fluid condition obtained by heating by means of suitable distributors.

Objects of the present invention are, first, to provide a supply of bituminous material made fluid by heat, when the distributor is ready to receive the same at the tank car and to haul it to the road and there distribute it, thus avoiding layovers or loss of time by distributors; and second, to effect an economy in and to facilitate the operation of heating the bituminous material in the tank car, it being well understood that such heating equipment as is available for use is incapable of furnishing enough heat at the tank car for sufficiently softening the bituminous material to fit it for application to road surfaces by means of distributors.

According to the present invention the bituminous material in bulk in the tank car is heated by means of coils arranged in the car and supplied with steam from usually a portable plant which is incapable of providing enough heat to fit the bituminous material for use in distributors, and continuously further heating the preheated bituminous material by discharging it through an externally heated discharge coil providing a single passage and connectible with the distributor or back to the tank car.

In the following description reference will be made to the accompanying drawing in which the single figure is illustrative of apparatus of the invention.

In the drawing 1 is a tank car and it may be placed upon a railway siding 2. 3 is a power plant which may be portable or not as desired. However, it is shown as mounted on wheels. The power plant comprises a boiler 4 and a pump 5 having its steam cylinder 6 connected with the boiler 4 by a valved pipe 7. There is a valved steam line 9 from the boiler to a coil arranged within the tank car 1 and not shown because it is too well understood. 10 is a discharge coil providing a single passage and it is connected with the pump cylinder 11 by a pipe 12, and the pump cylinder 11 is connected with the tank car by a pipe 13. The discharge coil is shown as arranged in a furnace 14 and it is heated externally by flames from burners 15. The furnace is shown as provided with offtakes 16 for the products of combustion of the burners 15, and it is also shown as mounted upon wheels 17. From the coil 10 leads a pipe 18 that may be connected and disconnected with the distributor 19, and from the discharge end of the coil 10 the pipe 20 leads back to the tank car 1. 21 is a three-way valve for directing heated bituminous material from the coil 10 either to the distributor 19 or to the tank car 1.

In practicing the invention in connection with the described apparatus, bituminous material, for example asphaltic oil or asphalt, is heated in bulk by means of coils arranged in the tank car 1 and heated from the boiler 4 by way of the pipe 9, usually to a degree sufficient to permit of its being pumped as by the pump 5. The distributor 19, when present, is connected up with the is not present, heated bituminous material from the tank car 1 is further heated or superheated by pumping it by the pump 5 through the externally heated discharge coil 10 to the pipe 18. When the distributor 19 is not present, heated bituminous material discharged from the coil 10 may be returned to the tank car 1 and there stored so as to keep the tank car warm until the advent of a distributor 19. By regulating the burners 15, the temperature of the coil 10 may be adjusted and under some circumstances the steam connection 9 closed and the tank kept warm by the return of bituminous material that has traversed the coil 10, but in any event there is always available a supply of bituminous material made properly fluid by heat ready for the distributor 19 so that waste of time in the operation is avoided because the distributor can be filled as soon as it arrives at the station. For the reason set forth a comparatively large number of distributors can be employed and kept busy. Again the bituminous material in the tank car 1 need only be heated to a degree well within the capacity of the boiler 4. There is no waste of heat while at the same time the bituminous material is heated to the re-

quired fluidity and a sufficient supply of it in that condition is always available whenever one of the distributors is ready to receive it. The entire equipment can be moved from place to place and the operation of treating roads is made considerably more expeditious and therefore less expensive than heretofore.

It will be obvious to those skilled in the art to which the invention relates that modifications may be made in details of procedure without departing from the spirit of the invention which is not limited as to such matters or otherwise than as the prior art and the appended claims may require.

I claim:

1. An apparatus for successively heating bitumen in two steps which consists of a tank provided with a steam coil for heating the bitumen in bulk, a pump, a suction line from the tank to the pump and through which the partially heated bitumen is drawn, a furnace having an oil burner and of which the temperature is under control, a discharge line leading from the pump through the furnace and which provides a single passage in which the bitumen is further heated, and a power plant for furnishing steam to the coil and to the oil burner and to the pump.

2. An apparatus for successively heating bitumen in two steps which consists of a tank provided with a steam coil for heating the bitumen in bulk, a pump, a suction line from the tank to the pump and through which the partially heated bitumen is drawn, a furnace having an oil burner and of which the temperature is under control, a discharge line leading from the pump through the furnace and which provides a single passage in which the bitumen is further heated, a power plant for furnishing steam to the coil and to the oil burner and to the pump, and connections for returning heated bitumen from the discharge line to the tank.

WILLIAM T. HEADLEY.