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MIXING APPARATUS

Filed Nov. 23, 1928

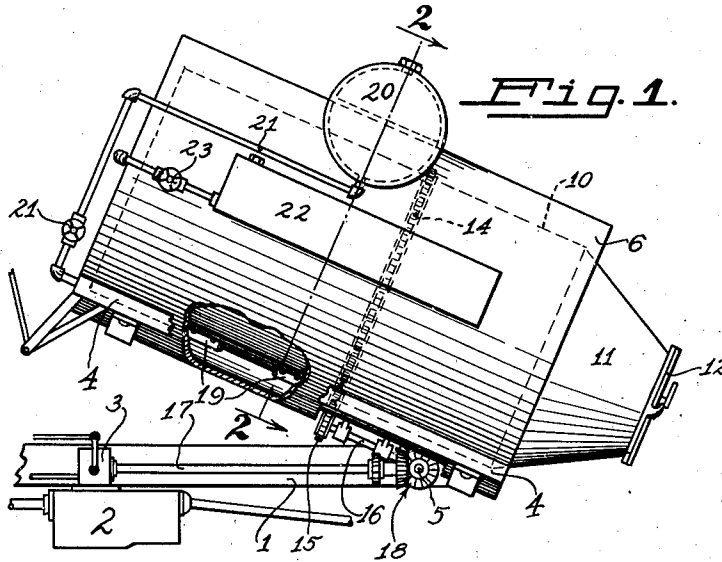
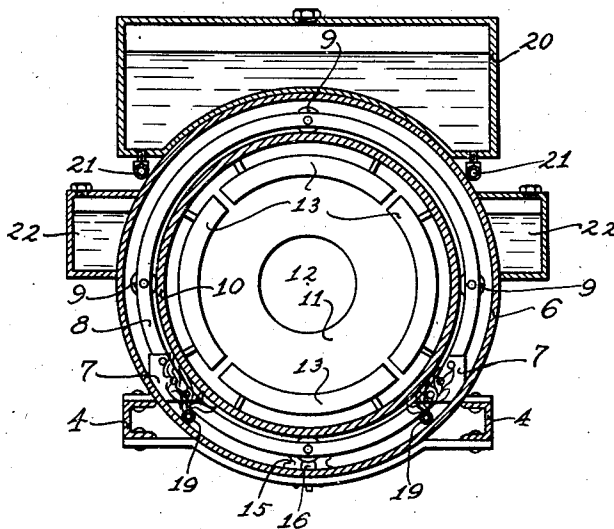


Fig. 2.



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MIXING APPARATUS

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It has been found desirable under certain structural conditions, in the formation and repair of highways and other ways necessitating a hard surface, to employ hot oil macadam and heated asphalt in the construction of the way.

It is the present practise to construct mixing plants for the asphalt and hot oil macadam and to convey, in suitable trucks, batches from the plant to the point of use.

This conveying has many objections, the principal one being that the oil macadam cools during its transportation, and when arriving at the point of use is required to again be heated, which operation is costly, or if laid in its condition of arrival, fails, due to temperature, to set, and form a homogeneous mass.

The present invention relates to an apparatus designed particularly for transporting oil macadam and asphalt and maintain the same heated during its transportation so that it will be delivered to its point of use in its maximum state of binding efficiency; also to an apparatus adapted for transporting a concrete aggregate mix in cold weather and to maintain the temperature thereof during its transportation, such as to enable the concrete to be readily poured and set and delivered to its point of use.

The invention consists in the mixing or agitating member, preferably of the rotating cylinder type, the surface of which is heated by suitable self contained burner mechanism, the heat passing over the surface of the cylinder; there being also provided, if desirable, a shell or shield surrounding the cylinder to confine the heat to the surface thereof, together with means for rotating the cylinder, and means, if desirable, for supplying fluid, whether it be water or hydrocarbon to the aggregate contained within the cylinder.

With the above mentioned and other objects in view, the invention consists in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawings and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion,

size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

To more clearly comprehend the invention, reference is directed to the accompanying drawings, wherein—

Fig. 1 is a view in side elevation of the preferred embodiment of my invention, illustrated in inclined dumping position on the chassis of a transit member.

Fig. 2 is a vertical sectional view on line 2—2 of Fig. 1.

In the drawings, wherein like characters of reference indicate corresponding parts, 1 designates the frame of a truck chassis; 2 the gear box and 3 a power take-off associated with the mechanism on the interior of the gear box. An auxiliary or sub-frame 4 fulcrums on an axis 5 at the rear of the frame 1, and the same mounts a cylindrical shell 6 interiorly of which is supported on brackets 7 the rings 8, each carrying anti-friction devices 9. The anti-friction devices afford supporting means for a mixing cylinder or drum 10 rotatably mounted within the rings 8. The cylinder or drum 10 is preferably closed at its forward end and is illustrated as formed with a conical discharge 11 at its rear end, the discharge being controlled by a gate 12.

On its interior, the cylinder or drum 10 is provided with mixing blades 13 which cause an agitation of the material contained within the cylinder when the latter is rotated.

On its periphery the cylinder mounts a toothed ring 14 with which engages a pinion 15 on the shaft 16 which pivots with the frame 4, the shaft being driven from the power take-off driven shaft 17 through a gear mechanism 18.

Extending parallel with the walls of the cylinder or drum 10, one preferably at each side of a line extended vertically through the cylinder or drum, are the perforated burner pipes 19 supplied with fuel through a tank 20 through valve controlled line 21. The tank 20 is preferably positioned transversely of and above the shell 6 so that the liquid hydrocarbon contained therein will be main-

tained temperate by the rising heat from the burners 19.

Auxiliary tanks or containers 22 extend longitudinally of either side of the shell 6 and discharge through valve controlled lines 23 into the interior of the cylinder or drum 10.

The contents of the tanks 22 depend on the material transported, they preferably containing liquid hydrocarbon, should an oil macadam or asphalt be transported, and water, should cement or concrete aggregate, either wet or dry, be transported.

It will be apparent that by controlling the burners 19, the temperature of the cylinder or drum 10 may be varied, at will, and the heat from the burners is confined around the surface of the shell or drum 10 by the casing 6.

It is to be understood that suitable mechanism, not shown, is provided for raising and lowering the cylinder on its pivotal mounting. This forming no part of the invention, it is not described or illustrated herein.

I claim:—

1. A heated mixing apparatus comprising an elongated axially rotated cylinder provided at one end with an inlet and discharge, means for rotating the cylinder, means for tilting the cylinder on an axis at right angles to its axis of rotation to dump the contents therefrom through said discharge, a liquid fuel burner extending beneath the cylinder held from rotation and tiltable with the cylinder, and a liquid fuel tank connected with the burner and held from rotation with the cylinder.

2. A heated mixing apparatus comprising an elongated axially rotated cylinder provided at one end with an inlet and discharge, means for rotating the cylinder, a liquid fuel burner disposed longitudinally of and beneath the cylinder for heating the surface thereof, a shell embracing the cylinder and between which and the surface of the cylinder the heat from the burner rises, and a liquid fuel tank connected with the burner and carried by the shell for heating thereby.

3. A heated mixing apparatus comprising an elongated axially rotated cylinder provided at one end with an inlet and discharge, means for rotating the cylinder, a shell embracing the cylinder and held from rotating therewith, a liquid fuel burner positioned between the shell and cylinder, a liquid fuel tank connected with the burner, and means for supporting the cylinder, shell, burner and fuel tank and tiltable on an axis transverse to the axis of rotation of the cylinder.

4. A heated apparatus comprising a rotatably mounted cylinder provided at one end with an inlet and discharge, a frame supporting the cylinder, means for rotating the cylinder, a liquid fuel burner disposed longitudinally beneath the cylinder, a shell

embracing the cylinder and affording a heat confining space surrounding the cylinder and within which the burner is located, means for tilting the frame, and a liquid fuel tank connected with the burner and tiltable with the cylinder.

5. A heated mixing apparatus, comprising a rotatably mounted cylinder having an inlet and discharge opening at one end thereof, means for rotating the cylinder, a shell embracing the cylinder and held from rotating therewith, a liquid fuel burner positioned between the shell and cylinder, a liquid fuel tank connected with the burner and rigidly secured to the shell, a fluid storage tank rigidly secured to said shell and communicating with the interior of the cylinder, and means for dumping the contents of said cylinder.

6. A heated mixing apparatus, comprising a frame, a shell fixed to said frame, annular support means rigidly secured to the inner walls of said shell, a mixing cylinder rotatively mounted in said support means and provided at one end with an inlet and discharge opening, means for rotating the cylinder, a liquid fuel burner disposed longitudinally beneath the cylinder between the latter and the shell, a liquid fuel tank connected with the burner and straddling said shell in fixed relation thereto, and means for dumping the contents of the mixing cylinder.

7. A heated mixing apparatus, comprising a frame, a shell fixed to said frame, a series of rings rigidly secured to the inner walls of said shell, anti-friction devices mounted upon said rings, a mixing cylinder rotatably mounted within the rings and supported by said anti-friction devices, means for rotating the cylinder, a liquid fuel burner disposed within the shell and extending beneath the cylinder, and a liquid fuel tank carried by said shell, and connected with the burner.

8. The combination in a heated mixing and transporting apparatus, of a frame, a shell fixed to said frame, annular support means rigidly secured to the inner walls of said shell, a mixing and transporting cylinder rotatively mounted within said support means and having an inlet and discharge opening at one end, means for rotating the cylinder, and means for heating the same.

In testimony whereof I have signed my name to this specification.

ALBERT KNOWLES.