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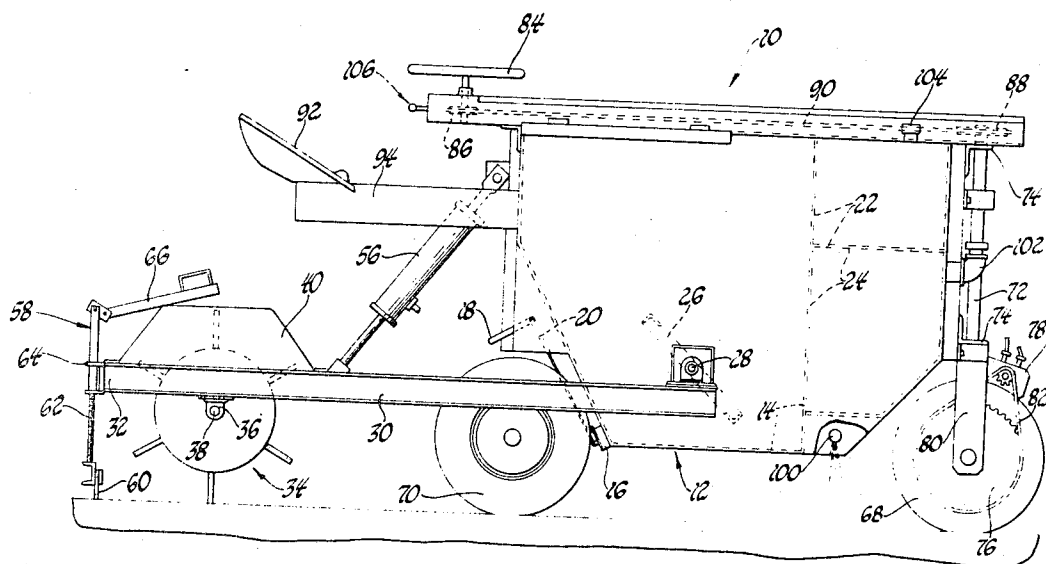
[54] **ASPHALT SEALING MACHINE**
 10 Claims, 3 Drawing Figs.

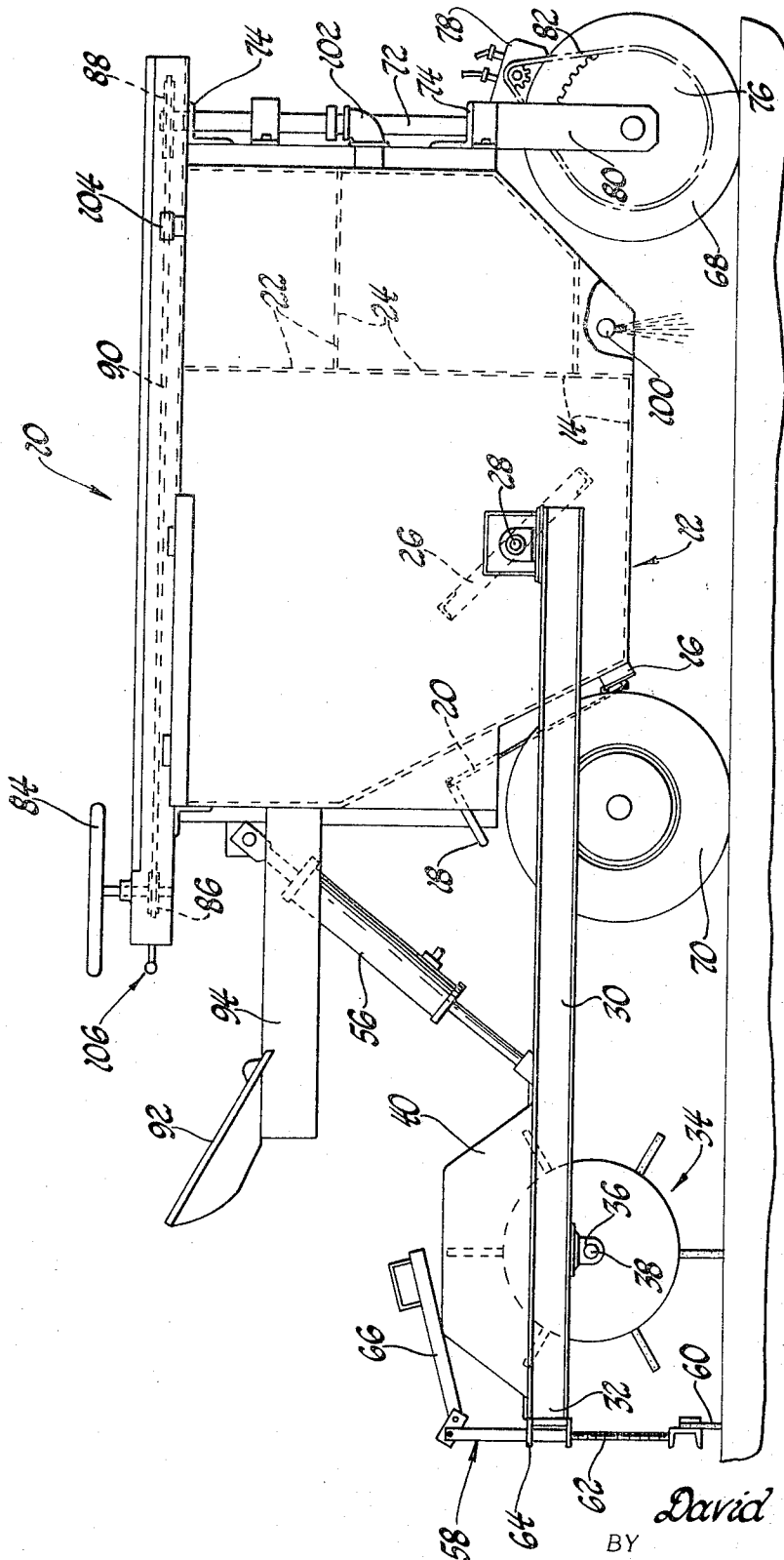
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 [50] Field of Search 94/40, 39,
 44, 46

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ABSTRACT: An asphalt sealing machine for applying a sealant coating to asphalt pavement. The machine includes a body supported on three wheels with the front wheel being a dirigible or steerable wheel driven by a hydraulic motor through a chain and sprocket arrangement. The body means includes a coating storage tank in which is disposed a rotatable agitator supported on a shaft which extends through the sides of the body. Support beams are pivotally connected to the ends of the shaft and extend rearwardly to rotatably support a paddle wheel which spreads the coating fluid. The agitator and the paddle wheel are driven by a single hydraulic motor through a chain entrained around sprockets connected to the agitator and paddle wheel respectively.





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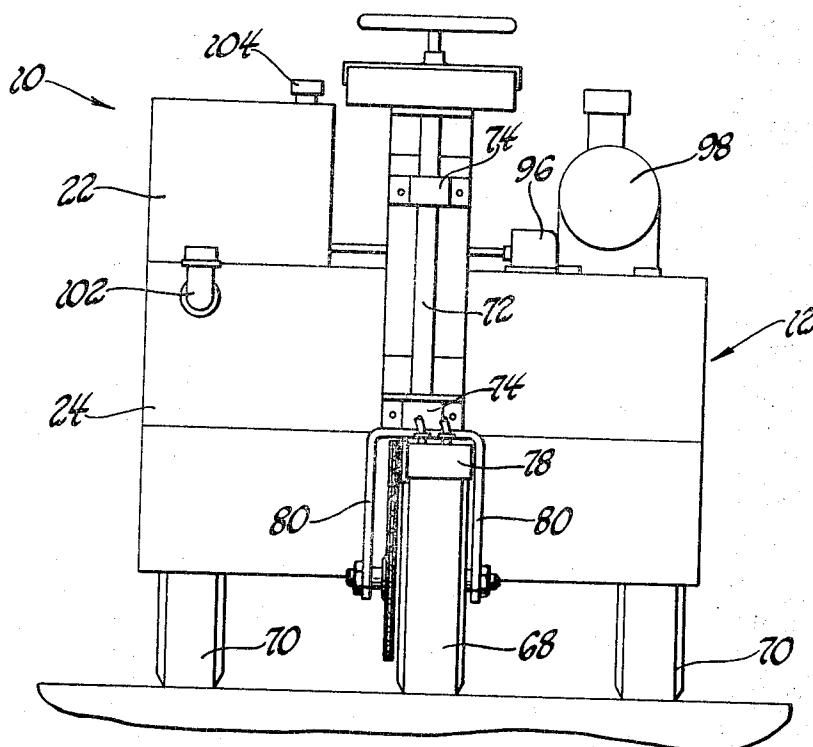


Fig. 2

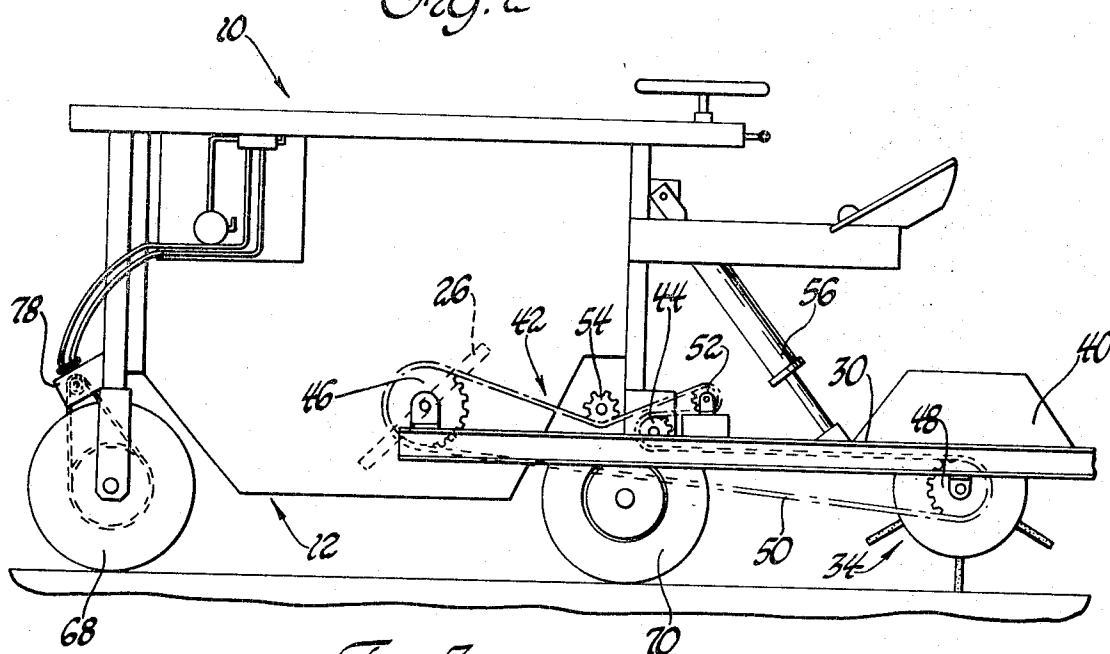


Fig. 3

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ASPHALT SEALING MACHINE

This invention relates to a machine of the type for applying a coating to a surface such as applying a sealant to asphalt pavement. Such machines are frequently called seal coaters or sealing applicators.

Such machines typically include a body having various tanks one of which is a tank for storing the coating fluid with means for dispensing the coating fluid from the storage tank. Such machines have wheels, one of which is driven, and include some sort of spreading device disposed rearwardly of the machine to spread the coating material over the surface such as the surface of asphalt pavement. The spreader device must be movable in a vertical direction relative to the body of the machine to accommodate unlevel terrain and to remove the spreading device from the operative position. In the prior art machines, various power inputs and power trains have been utilized to accomplish the operative functions of the various mechanisms in the machines. Such components have been numerous in any given prior machine which, of course, add significantly to the initial cost of such machines and increases the maintenance cost of such machines because of the increased likelihood or chance of failure and malfunction of such components.

Accordingly, it is an object and feature of this invention to provide a machine of the type for applying a coating to a surface and constructed in such a manner that the number of drive components is reduced to a minimum thereby reducing cost and maintenance problems.

In correlation with the foregoing object and feature, it is another object and feature of this invention to provide such a machine wherein a spreading means is rotatably supported on a support means which is in turn pivotally supported on the body means for rotation about the axis of rotation of the agitator in the coating fluid storage tank whereby one drive means may be utilized to drive both the spreading means and the agitator means.

In correlation with the foregoing object and feature, it is another object and feature of this invention to provide such a machine which utilizes a simplified and directly connected drive to one of the wheels of the machine for providing the motive power for the machine.

Other objects and attendant advantages of the present invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings wherein:

FIG. 1 is a side elevational view of a preferred embodiment of the instant invention;

FIG. 2 is a front elevational view of the preferred embodiment of the instant invention;

FIG. 3 is a schematic side elevational view of the preferred embodiment but taken from the side opposite to that shown in FIG. 1.

Referring now to the drawings wherein like numerals indicate like or corresponding parts throughout the several views, a preferred embodiment of the asphalt sealing machine of the instant invention is generally shown at 10. The machine 10 is of the type for applying a coating to a surface such as applying a sealant coating to asphalt pavement.

The machine 10 includes a body means generally indicated at 12. The body means has upper and lower extremities interconnected by opposite sides and front and rear ends. The body means includes a reservoir means for storing and distributing a coating fluid. More specifically, the reservoir means includes a coating tank 14 and first and second valves 16. A valve 16 is disposed adjacent each side of the body means for allowing fluid to flow from each side of the coating tank 14. Also included are first and second foot actuated pedals 18 (only one shown) respectively operatively connected by the linkage 20 to a valve 16 for opening and closing the valves 16. In other words, one pedal 18 is actuable to operate one valve 16 while the other pedal 16 is operable to open and close the other valve 16. The body means 12 also includes a hydraulic fluid tank 22 and a water tank 24.

A rotary agitator means 26 is disposed in the coating fluid tank 14 for mixing the fluid therein. The agitator means 26 is defined by a generally rectangularly shaped frame secured to a shaft 28. The shaft 28 extends through the sides of the body means 12 and has seals associated therewith to prevent leakage of the coating fluid from the tank 14.

There is also included support means comprising the beams 30 supported on and extending from the body means 12 for pivotal movement about the axis of rotation of the shaft 28 of the agitator means. The elongated beams 30 are pivotally or rotatably supported on the opposite ends of the shaft 28 and extend rearwardly to interconnected distal ends 32. A channel member extends between and interconnects the distal ends 32 of the beams 30.

The machine also includes a spreader means generally shown at 34 and rotatably supported by the beams 30 adjacent the distal ends 32 thereof for moving the coating fluid over a surface. The spreader means 34 comprises a paddle wheel rotatably supported by and extending between the beams 30 adjacent the distal ends 32 thereof. Brackets 36 are attached to the beams 30 and rotatably support opposite ends of the shaft 38, which is in turn connected to the paddle wheel. A cover 40 is supported by the beams 30 and is disposed over the paddle wheel of the spreader means 34.

As illustrated in FIG. 3, there is included a drive means generally shown at 42 for rotating the agitator means 26 and the spreader means 34. The drive means 42 includes a single hydraulic motor 44 which is supported on one of the beams 30 of the support means for movement therewith. The drive means 42 also includes a first rotatable member or sprocket 46 driving the agitator means 26 and a second rotatable member or sprocket 48 driving the paddle wheel of the spreader means 34. The drive means 42 also includes a flexible-endless-loop driving member or chain 50 which is entrained about the sprockets 46 and 48 and is in driven engagement with the hydraulic motor 44 through another sprocket. The chain 50 is also entrained about an idler wheel 52 and a sprocket 54 which drives a water pump, the purpose of which will be described hereinafter.

There is also included a hydraulic actuator means 56 which interconnects the body means 12 and the beams 30 for pivoting the beams 30 about the axis of rotation of the shaft 28 to raise and lower the spreader means 34. As is noted, the beams 30 pivot about the axis of the shaft 28 of the agitator means and therefore the hydraulic motor 44, the idler sprocket 52, and the water pump 54, all being attached to the support beam 30, also move therewith about the axis of the shaft 28. Thus, one hydraulic motor 44 may be utilized to rotate all of these components.

A scraper means generally indicated at 58 is movably attached to the distal ends of the beams 30 and is angularly adjustable relative thereto for scraping the coating fluid over the surface. There is included a scraper plate 60 extending across the width of the machine and supported by a shaft 62 which extends through a bracket 64. The bracket 64 is secured centrally between the beams 30. A handle means 66 may be utilized for changing the angularity of the scraper plate 60 relative to the direction of movement of the machine. The plate 60 may be disposed so as to plow the liquid from one side of the path of travel to the other.

The machine also includes wheel means for movable support thereof. The wheel means includes a driven wheel 68 and the wheels 70. The pair of wheels 70 are disposed at either side of the body means 12 and adjacent the rear end thereof but inboard of the beams 30 and the sides of the body means 12. The driven wheel 68 is a dirigible or steerable wheel rotatably connected to and centrally of the front end of the body means by a shaft 72. The shaft 72 extends to the upper extremity of the body means and is rotatably supported by the brackets 74. A rotatable member or sprocket 76 is non-rotatably connected to the wheel 68 for rotation therewith. A second hydraulic motor 78 is supported on the yoke 80 for rotation with the shaft 72. A flexible-endless-loop driving member or chain 82 is entrained about the sprocket 76 and is in driven engagement with the hydraulic motor 78.

A steering wheel 84 is rotatably supported adjacent the intersection of the rear end and the upper extremity of the body means 12 and an endless-loop-chain drive means, comprising sprockets 86 and 88 and the chain 90, drivingly interconnect the steering wheel 84 and the shaft 72 for steering the driven wheel 68.

A seat 92 is supported in the cantilevered fashion by beam 94 extending from the rear end of the body means 12.

A hydraulic pump 96, as shown in FIG. 2, is supported on the upper extremity of the body means 12 and is in fluid communication with the hydraulic tank 22. The hydraulic pump 96 is also in hydraulic communication with the motors 44 and 78 through various selector valves not shown. The hydraulic pump 96 is driven by a power means comprising the internal combustion engine 98.

The water pump 54 is in fluid communication with the water tank 24 and pumps water to a spray means comprising an elongated pipe 100. The pipe 100 extends across the body means 12 at the lower extremity thereof and rearwardly of the driven wheel 68 for spraying water on the surface which is to be coated with the coating fluid being dispensed from the valves 16. A filling spout 102 is utilized to fill the water tank 24. A filling spout 104 is utilized to fill the hydraulic tank 22.

Various operating levers generally indicated at 106 are utilized to throttle the engine 98 and to control various selector valves for supplying hydraulic fluid under pressure from the hydraulic pump 96 to the various hydraulic motors 44 and 78 to drive the hydraulic motors 44 and 78 in either direction. The actuator means 56 is also in fluid communication with the hydraulic pump 96 and various selector valves are utilized for actuating the actuator means 56 for moving the beams 30.

The operation of the machine should be apparent from the foregoing description and only need be briefly summarized. The operator, by appropriate selector handles, allows hydraulic fluid under pressure to flow to the hydraulic motor 78 which in turn rotates the driven wheel 68 to move the machine over a surface. At the same time hydraulic fluid under pressure is supplied to the hydraulic motor 44 to rotate the agitator means 26, to rotate the paddle means 34, and to operate the water pump 54. Water may be supplied to and sprayed from the pipe 100 as the machine moves along the surface and the operator may actuate one or both of the foot pedals 18 to open one or both of the valves 16. If the machine is disposed on a hill it frequently occurs that only the uphill valve 16 will be opened since the coating fluid will flow downhill over the surface and be spread thereover by the paddle means 34 and the scraper 60.

I claim:

1. A machine of the type for applying a coating to a surface such as applying a sealant to asphalt pavement, said machine comprising: body means including reservoir means for storing and distributing a fluid, rotary agitator means disposed in said reservoir means for mixing the fluid therein, wheel means movably supporting said body means, support means supported on and extending from said body means for pivotal movement about the axis of rotation of said agitator means, spreader means rotatably supported by said support means for moving fluid over a surface, and drive means for rotating said agitator means and said spreader means.

2. A machine as set forth in claim 1 wherein said drive means includes a single motor means supported on said support means for movement therewith.

3. A machine as set forth in claim 2 wherein said drive means further includes a first rotatable member driving said

agitator means, a second rotatable member driving said spreader means, and a flexible-endless-loop driving member entrained about said rotatable members and in driven engagement with said motor means.

4. A machine as set forth in claim 3 wherein said wheel means includes at least one driven wheel, a third rotatable member driving said driven wheel, a second motor means, and a second flexible endless loop driving member entrained about said third rotatable member and in driven engagement with said second motor means.

5. A machine as set forth in claim 4 wherein said first mentioned motor means and said second motor means comprise first and second hydraulic motors, a hydraulic pump in fluid communication with said motors for driving the latter, and power means for driving said hydraulic pump.

6. A machine as set forth in claim 5 wherein said power means comprises an internal combustion engine.

7. A machine as set forth in claim 5 wherein said body means includes a hydraulic fluid tank in fluid communication with said pump.

8. A machine as set forth in claim 7 wherein said body means includes a water tank, a water pump in communication with said water tank and supported on said support means, said water pump in driven engagement with said first mentioned endless-loop driving member.

9. A machine as set forth in claim 8 including hydraulic actuator means in fluid communication with said hydraulic pump and interconnecting said body means and said support means for pivoting the latter about the axis of rotation of said agitator means to raise and lower said spreader means.

10. A machine as set forth in claim 9 wherein; said body means includes upper and lower extremities interconnected by opposite sides and front and rear ends, said driven wheel is a steerable wheel rotatably connected to and centrally of said front end by a first shaft which extends to said upper extremity of said body means, said second motor is rotatable with said first shaft, said agitator means includes a second shaft extending through said sides, said support means comprises a pair of elongated beams pivotally connected to opposite ends of said second shaft and extending rearwardly to interconnected distal ends, said wheel means further includes a pair of wheels disposed at either side of said body means and adjacent the rear end thereof, said spreader means comprises a paddle wheel rotatably supported by and extending between said beams adjacent the distal ends thereof, said reservoir means includes a coating tank and first and second valves disposed adjacent said opposite sides for allowing fluid to flow from said coating tank and first and second foot actuated pedals respectively operatively connected to said valves for opening and closing thereof, each of said rotatable members comprises a sprocket and each of said endless-loop driving members comprises a chain; and including a steering wheel rotatably supported adjacent the intersection of said rear end and said upper extremity of said body means, an endless-loop-chain drive means drivingly interconnecting said steering wheel and said first shaft for steering said driven wheel, a seat supported in a cantilevered fashion from said rear end, scraper means movably attached to the distal ends of said beams and angularly adjustable relative thereto, a cover supported by said beams and disposed over said paddle wheel, and spray means in communication with said water pump and disposed at the lower extremity of said body means rearwardly of said driven wheel.