United States Patent

Wikel et al.

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[45] **Nov. 28, 1972**

[54] **SEAL COATING MACHINE**

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[52] **U.S. Cl.** **94/44**

[51] **Int. Cl.** **E01c 19/12**

[58] **Field of Search** ..... 94/39, 44, 46; 172/417, 484; 180/50 D; 299/39

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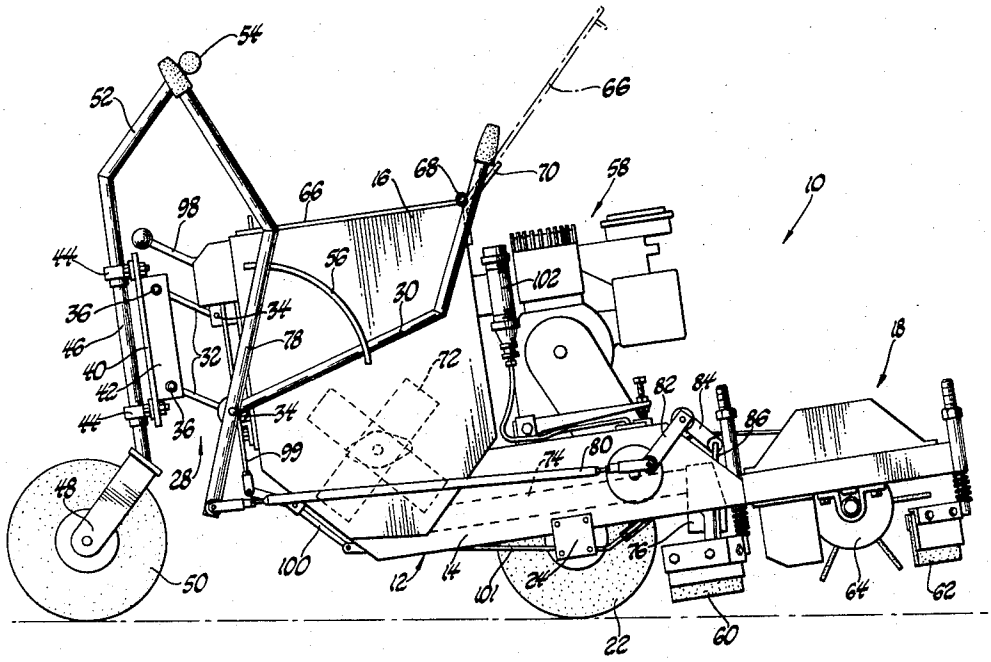
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[57] **ABSTRACT**

An asphalt sealing machine for applying a sealer coating to asphalt paving or the like. The machine includes a body having a tank for storing fluid and a spreader means including two spaced scrapers and a rotary spreader to which fluid is dispensed from the tank. A pair of spaced wheels movably support the body and are connected to the body for rotation about an axis. A second or dirigible wheel is operatively connected to the tank by positioning means. The dirigible wheel is on one side of the axis of the first pair of support wheels and the spreader means is on the opposite side of the axis. The positioning means interconnecting the tank and the dirigible wheel include a pair of spaced parallel links and a lever arm connected thereto which may be pivoted to raise and lower the tank to thereby raise and lower the spreader means from a position engaging the surface over which the machine moves to a position spaced above the surface.

7 Claims, 3 Drawing Figures



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SHEET 1 OF 3

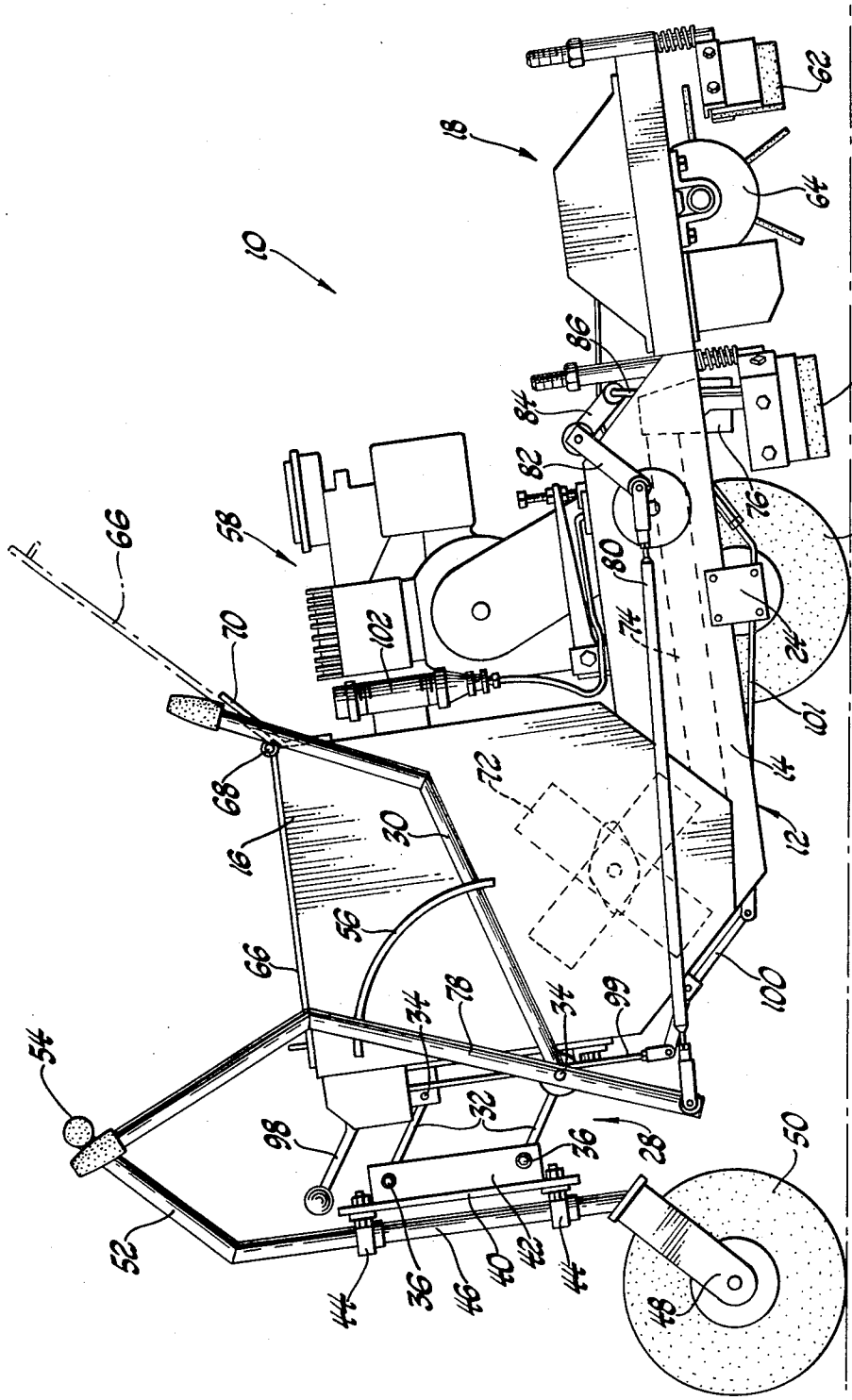


Fig. 1

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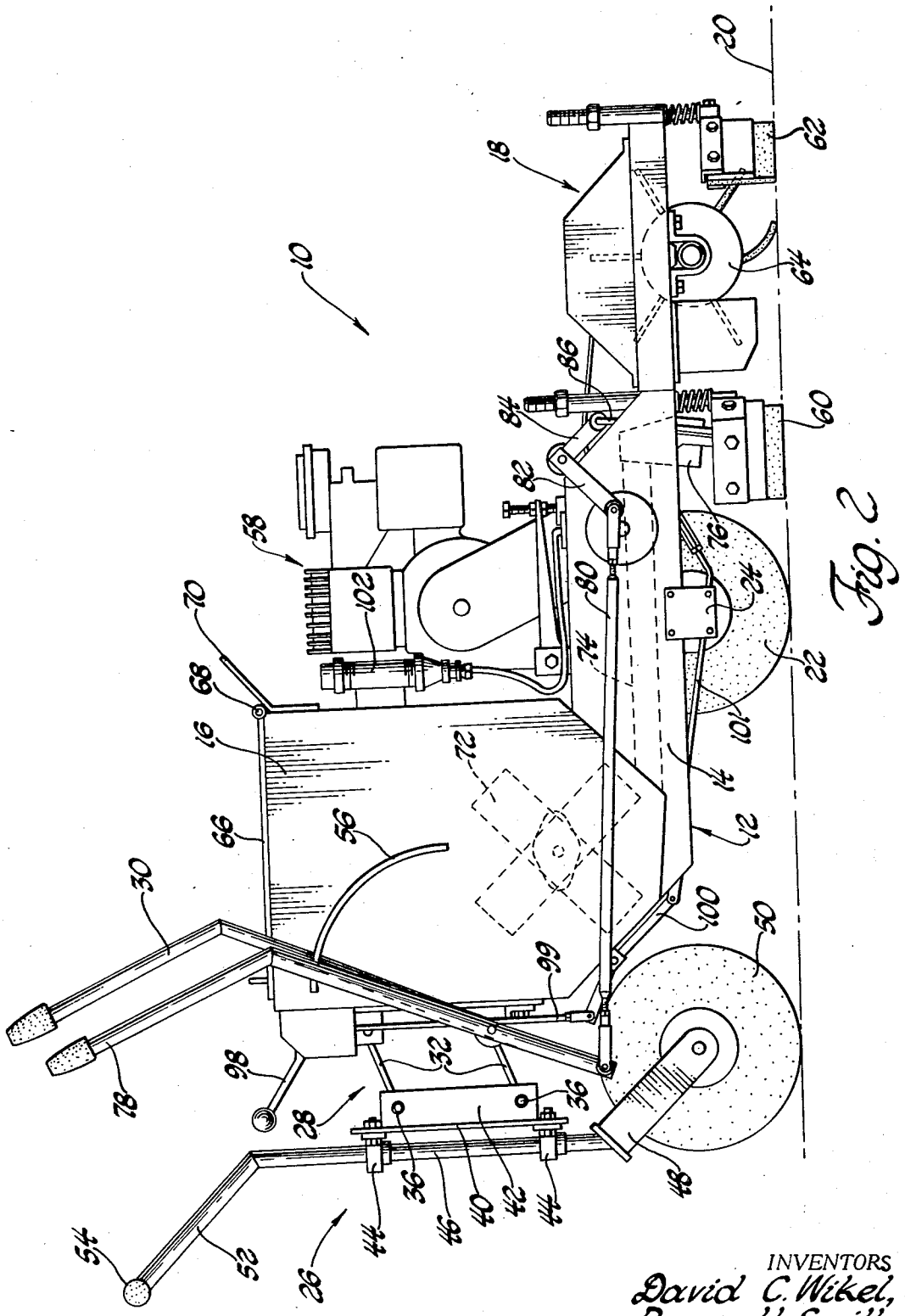


Fig. 2

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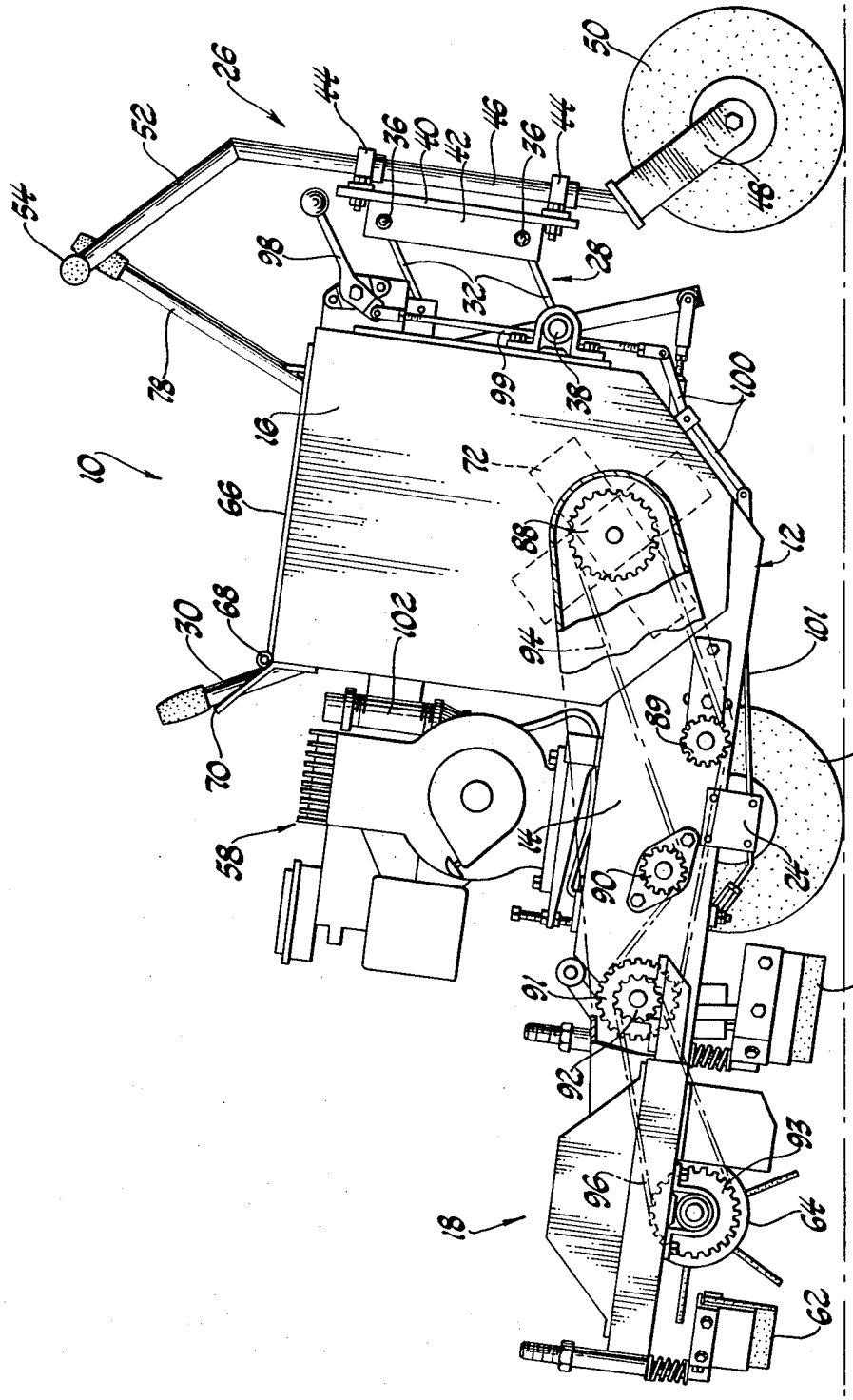


Fig. 3

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SEAL COATING 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 seal applicators.

Such machines typically include a body including a tank for storing the coating fluid with means for dispensing the coating fluid from the storage tank. They also include some sort of spreading device to spread the coating material over the surface. The machines are supported by wheels, some of which are driven and others of which are steerable. Most seal coating machines of this type in the past are relatively large and provide a seat so that they may be ridden by the operator. All such machines provide some provision whereby the spreading assembly may be raised out of contact with the surface over which the machine is moving. Typical of such prior art machines is that shown in U.S. Pat. No. 3,533,336. Although the machine shown in that patent is an excellent machine, it is particularly adapted for coating relatively large areas and there is not available a suitable smaller machine which may be economically utilized for smaller areas such as driveways and the like.

Accordingly, it is an object and feature of this invention to provide a machine of the type for applying a coating to a surface in an efficient and effective manner when the area of the surface is relatively small.

In correlation with the foregoing object and feature, it is another object and feature of this invention to provide such a machine wherein the spreading means is a rigid part of the body of the machine and is raised and lowered by relative vertical movement between the other end of the body means and one of the wheels.

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 showing the machine with the spreader means in the raised position;

FIG. 2 is a side elevational view similar to FIG. 1 but showing the spreader means in the lowered position engaging the surface over which the machine is moving; and

FIG. 3 is a side elevational view similar to FIG. 1 but showing the opposite side of the machine.

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

The machine includes a body means generally indicated at **12**. The body means **12** includes longitudinally extending channel members or support means **14** which are interconnected by appropriate braces. The body means also includes a reservoir means comprising a tank **16**. Also included is a spreader means generally indicated at **18** for distributing fluid over a surface as indicated at **20** in FIG. 2. The tank **16** stores fluid and dispenses the fluid to the spreader means **18**.

The machine also includes wheel means comprising a pair of spaced wheels **22** which movably support the body means **12**. The wheels **22** are supported by one or more shafts which are connected to the body means **12** through the plates **24**. The wheels **22** rotate relative to the body means about the axis of these shafts.

The machine also includes a second wheel means comprising the dirigible wheel generally indicated at **26**. The spreader means **18** is disposed on a first side of the axis of rotation of the wheels **20** and the dirigible wheel **26** is disposed on a second side of an axis of rotation of the wheels **22**.

The machine further includes positioning means generally indicated at **28** interconnecting the dirigible wheel **26** and the body means **12** for rotating the body means **12** about the axis of rotation of the wheels **22** to vary the vertical position or height of the spreader means **18** above the surface **20** upon which the machine is supported.

The positioning means **28** includes a manually graspable lever arm **30** which is pivotally supported on the tank **16** for movement between an extreme raised position as illustrated in FIGS. **1** and **3**, where the spreader means **18** is at a maximum height relative to the surface **20**, and an extreme lowered position as illustrated in FIG. **2**, where the spreader means **18** is at a minimum height relative to the surface **20**.

The positioning means **28** further includes a pair of generally parallel links **32** which are pivotally connected at the first ends thereof to the tank **16**, for pivotal movement about horizontal axes, as indicated at **34**, and pivotally connected at the second ends thereof to the dirigible wheel **26**, for pivotal movement about horizontal axes, as indicated at **36**. Preferably the links **32** are flat plate-like members with the lower link **32** rigidly connected to a shaft **38** as shown in FIG. **3**. The lever arm **30** is also rigidly connected to the shaft **38** so that upon pivotal movement of the arm **30**, the links **32** move between the raised position illustrated in FIGS. **1** and **3** and the lowered position illustrated in FIG. **2**.

The dirigible wheel assembly **26** includes a shaft support comprising a plate **40** with a pair of spaced flanges **42** extending perpendicular therefrom so as to be pivotally connected to the links **32**. A pair of spaced bearing brackets **44** are connected to the plate **40** and rotatably support a generally vertically disposed steering shaft **46**. Thus, the steering shaft **46** is rotatably supported by the shaft support which is in turn pivotally connected at **36** to the links **32**. A fork or yoke **48** is attached to the lower end of the shaft **46** and is rotatably connected to the dirigible wheel **50**. A steering means comprising a bent extension **52** and a T-bar **54** is connected to the upper end of the shaft **46** for rotating the shaft **46** to steer the machine. As viewed in FIG. **1**, the shaft **46** and the dirigible wheel **50** are in the position they would normally be in when the machine is moving to the right as viewed in FIG. **1**. As viewed in FIG. **2**, the steering shaft **46** is in the position it would normally be in when the machine is moving to the left as viewed in FIG. **2**, it being remembered that the machine moves to the left as viewed in FIG. **2** when applying a coating to the surface **20**.

A guide means comprising an arcuate plate **56** having a slot therein is secured to one side of the tank **16** for guiding the movement of the lever arm **30**. The slot in the plate **56** has an offset portion at the upper arcuate end thereof in which the lever arm **30** may be

disposed to retain the lever arm in the position illustrated in FIG. 2 which is the extreme lowered position. This is necessary because when the tank **16** is full of fluid the moment about the axis of rotation of the wheels **22** is such that the machine would tend to move to the position illustrated in FIGS. **1** and **3** if the handle **30** is not maintained in the position illustrated in FIG. **2**.

The machine also includes a motor drive means generally indicated at **58**. The motor drive means preferably includes a gasoline type internal combustion engine and a hydrostatic transmission. The engine and the transmission are disposed on the opposite extremity of the tank **16** from the dirigible wheel assembly **26** and between the tank **16** and the spreader means **18**. The hydrostatic transmission is in driving engagement with the pair of spaced wheels **22** for propelling the machine.

The spreader means **18** includes a first scraper means **60** and a second scraper means **62**. The spreader means **18** also includes a rotatable spreader **64** comprising a plurality of elongated flexible rubber-like members of the type well known for use with this type of machine.

The tank **16** has an opening in the top which may be closed by the cover **66** which is hinged at **68** to the top of the tank. A bracket **70** is attached to the tank and limits opening movement of the cover **66** as illustrated in phantom in FIG. **1**. Also disposed within the tank **16** is a rotary agitator means **72** for mixing the fluid disposed within the tank **16**.

A conduit shown in phantom at **74** in FIG. **1** extends from the bottom of the tank **16** to a valve **76** disposed above the first scraper **60**. A control lever **78** is pivotally supported on the tank **16** and is connected to the valve **76** by the linkage means including the links **80, 82, 84** and **86**. Movement of the control lever along the side of the tank **16** opens and closes the valve **76** to selectively dispense fluid from the tank **16** to the first scraper **60**.

As illustrated in FIG. **3**, motion transmitting means comprising sprockets **88, 89, 90, 91, 92** and **93** and the chains **94** and **96** operatively interconnect the hydrostatic transmission of the drive means **58** and the agitator means **72** and the rotatable spreader **64** for rotating the same.

There is also included a power control means including the handle **98** which is operatively supported by the tank **16** adjacent the dirigible wheel assembly **26** and the links **99, 100** and **101** which operatively connect the handle **98** to the hydrostatic transmission for controlling the direction and speed of movement of the machine.

The container **102** serves as a reservoir for supplying fluid to the hydrostatic transmission.

The operation of the machine is apparent from the above description but will be briefly reviewed. When the machine is not being used to apply a coating, it is stored and driven in the position illustrated in FIGS. **1** and **3**. In this position, the lever **30** is in the extreme forward position or in the extreme raised position. The valve **76** is closed and the spreader means **18** is raised from and spaced from the surface **20** supporting the machine. When the machine is in the position illustrated in FIGS. **1** and **3**, it may travel in either direction and if traveling to the right as viewed in FIG. **1**, dirigible wheel **50** will be in the position shown in FIG. **1**. However, if the machine is traveling to the left as viewed in FIG. **1**, the dirigible wheel **50** will be reversed and will be in the position illustrated in FIG. **2**.

When it is desired to apply a coating to a surface, the tank **16** is filled with fluid and the lever **30** is moved to the position illustrated in FIG. **2** which is the extreme lowered position where the spreader means **18** engages the surface **20**. The power control handle **98** is moved to the position where the machine moves to the left as viewed in FIG. **2** and at the same time the handle **78** is manipulated to allow a certain amount of fluid to be dispensed to the left of the first scraper **60** which extends across the machine and has engulfing sides as illustrated. Preferably, the first scraper **60** is of a configuration to form a rectangular elongated pocket into which the material is dispensed. As the machine moves over the surface, the rotating spreader **64** spreads the material over the surface followed by the material being engaged by the second scraper **62**. As the machine is moving over a surface, it is steered by moving the handle **54**.

The invention has been described in an illustrative manner, and it is to be understood that the terminology which has been used is intended to be in the nature of words of description rather than of limitation.

Obviously, many modifications and variations of the present invention are possible in light of the above teachings. It is, therefore, to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

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 spreader means for distributing fluid over a surface and reservoir means for storing fluid and dispensing fluid to said spreader means, first wheel means movably supporting said body means and connected to said body means for rotation relative thereto about an axis, said spreader means disposed on a first side of said axis, second wheel means disposed on a second side of said axis, and positioning means interconnecting said second wheel means and said body means to move the body means relative to the second wheel means for rotating said body means about said axis to vary the vertical position of said spreader means above the surface supporting said machine said second wheel means including at least one shaft support operatively connected to said positioning means, at least one shaft rotatably supported by said shaft support, at least one dirigible wheel operatively connected to said shaft, and steering means connected to said shaft for rotating said shaft to steer said machine.

2. A machine as set forth in claim **1** wherein said positioning means includes a manually graspable lever arm pivotally supported on said body means for movement between an extreme raised position where said spreader means is at a maximum height relative to the surface and an extreme lowered position where said spreader means is at a minimum height relative to the surface.

3. A machine as set forth in claim 2 wherein said positioning means further includes a pair of generally parallel links pivotally connected at first ends thereof to said body means and pivotally connected at second ends thereof to said shaft support, said links being connected to said lever arm for movement therewith.

4. A machine as set forth in claim 3 wherein said second wheel means includes a single dirigible wheel.

5. A machine as set forth in claim 4 wherein said first wheel means includes a pair of spaced wheels.

6. A machine as set forth in claim 5 wherein said reservoir means comprises a tank, said first ends of said links being pivotally connected to said tank for pivotal movement about a horizontal axis, said lever arm being pivotally connected to said tank for fore and aft movement along one side thereof, guide means secured to said one side of said tank for guiding movement of said lever arm and for retaining said lever arm in at least said extreme lowered position, a motor drive means disposed on the opposite extremity of said tank from said dirigible wheel and between said tank and said spreader means, said motor drive means being operatively connected to said pair of spaced wheels, said spreader means including a first and second scraper means with a rotatable spreader disposed therebetween, rotary agitator means disposed in said tank for mixing the fluid therein, a conduit extending from said tank to a valve disposed above said first scraper means, linkage means operatively connected to said valve and extending to a control lever pivotally supported on said tank for opening and closing said valve to selectively dispense fluid to said first scraper means, motion transmitting means operatively interconnecting said motor drive means and said agitator means and said rotatable spreader for rotating same, and power control means operatively supported by said tank adjacent said dirigible wheel and operatively connected to said motor drive means for controlling the direction and speed of movement of said machine.

7. A machine as set forth in claim 5 including a motor and a hydrostatic transmission, said hydrostatic transmission being operatively connected to said pair of spaced wheels, and power control means operatively supported on said body means adjacent said dirigible wheel and operatively connected to said hydrostatic transmission for controlling the direction and speed of said machine.

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