LIQUID BLACKTOP SEALER MACHINE

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ABSTRACT

A machine of the manual push type particularly adapted for spreading liquid blacktop sealer on driveways and the like. The machine includes a supply tank for the sealer, a set of wheels supporting the supply tank, a rear swivel wheel, and a handle, all of which allows the supply tank to be easily pushed, and guided as desired, over the blacktop surface to be coated. A discharge manifold is connected to and extends outward from the supply tank, the manifold being oriented relative to the wheels so as to be at right angles to the push path of the machine when it is being used. The discharge manifold deposits the sealer in a relatively wide swath on the blacktop, and is located just in front of a doctor blade/brush unit that is positioned parallel to the manifold. The doctor blade/brush combination provides a dual function in that the doctor blade acts as a rought spreader (and prevents sealer buildup in the broom), and the broom acts as a finish spreader, for the sealer coating as it is laid down. This structure allows the operator to walk off to the side, i.e., not directly on, the sealer coating as it is laid down by the machine so that the operator's shoes do not get covered with the sealer, and so that the operator does not make tracks in the sealer that has just been laid down.

1 Claim, 3 Drawing Figures
LIQUID BLACKTOP SEALER MACHINE

This invention relates to machines adapted to deposit liquid blacktop sealer as a coating on blacktop surfaces such as driveways and the like.

The sealing of a blacktop driveway of that type which commonly serves the average home is generally accomplished in one of two ways. First, the homeowner may hire a commercial blacktop sealer company to coat the blacktop sealer on the driveway. When a blacktop sealer company is hired to coat a homeowner's driveway with liquid blacktop sealer, the company usually has a specially designed tank truck holding many hundreds of gallons of the liquid sealer; the truck is usually provided with a special spray unit attached thereto for spraying the liquid sealer onto the blacktop surface. At least two workmen are generally sent to each job for using the equipment, i.e., for sealing the driveway, so that the work can be completed in a relatively short period of time. This is a relatively expensive way to seal a blacktop driveway because of the workmen that must be paid to accomplish the job, and because of the expensive capital equipment the company must own in order to accomplish the job in a time efficient manner, i.e., at a relatively economical rate.

The second general way that is available to a homeowner for sealing a driveway is the 'do-it-yourself' approach. Liquid blacktop sealer is commonly sold in, e.g., 5-gallon cans, at hardware stores and the like. A homeowner may purchase as many such cans of liquid blacktop sealer as is necessary to cover his driveway, and then perform the manual work of coating the driveway himself. Such manual work is generally accomplished by pouring the sealer out of the can a little at a time in a puddle on the driveway, and then using a squeegee or a brush to spread the coating around as evenly as possible on the driveway. This approach, while being limited in cost to the expense of the liquid blacktop sealer used, is a time consuming method of coating and, in essence, is dirty, hard work.

In summary, the method of sealing a blacktop driveway which makes use of a commercial company to do the work is, generally speaking, too expensive for the average homeowner. On the other hand, the do-it-yourself approach to sealing a blacktop driveway requires heavy manual work by the homeowner and is quite messy indeed.

Therefore, it has been an objective of this invention to provide a machine particularly adapted for spreading liquid blacktop sealer on blacktop surfaces such as driveways, gasoline station aprons, small parking lots, and the like that is adapted to be pushed manually, i.e., that is non-motorized.

It has been another objective of this invention to provide a machine particularly adapted for spreading liquid blacktop sealer that is simple of structure, and economical to manufacture, relative to other types of machines used for spreading liquid blacktop sealer as are presently known to the prior art.

In accomplishing these objectives, the machine for spreading liquid blacktop sealer of this invention includes a supply tank for the sealer, a set of wheels supporting the supply tank, a rear swivel wheel, and a handle, all of which allows the supply tank to be easily pushed, and guided as desired, over the blacktop surface to be coated. A discharge manifold is connected to and extends outward from the supply tank, the manifold being oriented relative to the wheels so as to be at right angles to the push path of the machine when it is being used. The discharge manifold deposits the sealer in a relatively wide swath on the blacktop, and is located just in front of a doctor blade/brush unit that is positioned parallel to the manifold. The doctor blade/brush combination provides a dual function in that the doctor blade acts as a rough spreader (and prevents sealer buildup in the broom), and the broom acts as a finish spreader, for the sealer coating as it is laid down. This structure allows the operator to walk off to the side, i.e., not directly on, the sealer coating as it is laid down by the machine so the operator's shoes do not get covered with the sealer, and so that the operator does not make tracks in the sealer that has just been laid down.

Other objectives and advantages of this invention will be more apparent from the following detailed description taken in conjunction with the drawings in which:

FIG. 1 is a rear perspective view illustrating a liquid blacktop sealer machine structured in accordance with the principles of this invention;
FIG. 2 is a side view of the machine illustrated in FIG. 1 taken from that side which carries the discharge manifold and the doctor blade/brush unit; and
FIG. 3 is a side perspective view illustrating the doctor blade/brush unit in greater detail.

The machine 10 of this invention is broadly illustrated in FIG. 1. The machine 10 is particularly adapted for spreading liquid blacktop sealer on smaller blacktop surfaces such as driveways, e.g., home driveways, as well as on slightly larger blacktop surfaces, e.g., a gasoline station apron or an automobile parking lot. Note that the machine 10 is non-motorized, i.e., it is adapted to be manually pushed by the user, thereby allowing for a relatively simple structural unit that can be made and sold in a relatively economic fashion.

The structure of the machine 10 includes a supply tank 11 of generally cylindrical, cup-shaped configuration for the liquid blacktop sealer. This supply tank 11 is shown open at the top 12, although a lid (not shown) may be provided if desired. The supply tank 11 is fixed to a seat 13 that is carried, by means of brackets 14, on a stationary axle 15. The stationary axle 15 is positioned relative to the supply tank 11 so that same passes through the imaginary centerline 16 of the supply tank. The stationary axle 15 mounts a wheel 17 (bearings, not shown, being located inside the wheel's hub 18) at each end thereof, thereby providing a two-wheel suspension system for the supply tank 11.

A T-shaped handle 19 is bolted to the supply tank's seat 13 as at 20. The handle 19 is supplied with rubber grips 21 at a sufficient height above ground level to make pushing the supply tank 11 over the blacktop surface to be coated relatively easy by the user. The T-shaped handle 19 is also provided with cross straps 22 that are bolted, as at 23, at one end to the seat support brackets 14 and are bolted, as at 24, at the other end to the handle 19, for additional structural support. A rotatable swivel wheel 25 is mounted to the bottom of handle extension 26. The swivel wheel 25 is positioned rearwardly of the support wheels 17, and is positioned in a plane that extends traverse to the axle 15 and includes tank centerline 16, i.e., is positioned substantially centrally of the support wheels 17 relative to the machine's push path. The rear wheel 25, being swivelly
mounted to the trailing end of the handle extension 26, provides maximum maneuverability for the machine 10 as it allows the user to easily guide the machine in the desired travel direction. In this particular structural combination the rear swivel wheel 25 is especially effective in light of the tight turns that are required as the machine 10 is being used to insure that the entire blacktop surface is coated with sealer.

A discharge manifold 31 is connected to the supply tank 11 adjacent the bottom thereof, the liquid blacktop sealer within the tank feeding into the manifold from the tank. Note the manifold 31 is horizontally disposed relative to ground level, and that it is positioned below the floor of the tank. Further, note the discharge manifold extends outward from the supply tank parallel to, and in substantially the same vertical plane as, the axle 15. In other words, the discharge manifold 31 is positioned relative to the three-wheel suspension system so as to be at right angles to the push path of the machine when it is being used, and so as to insure efficient drainage of blacktop sealer from the tank.

The discharge manifold 31 is in the nature of a pipe with a plurality of holes 32 disposed along the underside thereof. The manifold 31 is sealed at its outer end by a plug 33, and communicates with the interior of the tank 11 at its inner end. A hand-operable valve 34 is disposed in the manifold piping 35 between the manifold 31 itself and the supply tank 11. The valve 34 is provided with handle 36 which is adapted to be moved between an 'on' position (where liquid blacktop sealer drains from the tank 11 into the manifold 31 and through the discharge holes 32 onto the blacktop), and an 'off' position (where such drainage or discharge is stopped).

A doctor blade/brush unit 37 is connected to the supply tank's support structure 13 by virtue of being mounted on bracket 38 by bolts 39 (the bracket 38 being welded to tank seat 13). The doctor blade/brush unit 37 is connected to that bracket 38 so that the unit is located in a fixed position parallel to the manifold 31. Note the doctor blade/brush unit 37 is positioned rearwardly of the manifold 31, i.e., is positioned in back of the manifold relative to the direction of the push path of the machine when it is being used.

The doctor blade/brush 37 unit includes a rubber doctor blade 40 and a brush 41, these two elements being fixed to a mounting arm 42 by screws 43 such that the doctor blade is interposed between the manifold 31 and the brush. It is, of course, by means of the mounting arm 42 that the doctor blade/brush unit 37 is fixed to the supply tank’s support 13. The doctor blade 40 and brush 41 are disposed such that the bottom edge 44, 45, respectively, of each is in a common plane, and such that the bottom edge 44, 45 of each drags along the blacktop surface to be coated with the liquid blacktop sealer.

One basic advantage of this particular invention is that it provides a machine 10 for coating liquid blacktop sealer on blacktop surfaces that allows the user to walk to the side, i.e., not directly on, that coating laid down by the machine. Hence, the user’s shoes do not get covered with the liquid blacktop sealer, and the user does not make tracks in the sealer that has just been laid down. This for the reasons that the user walks between the front wheels 17 that support the supply tank 11, and that the manifold 31 and doctor blade/brush unit 37 extend off at substantially right angles to and beyond that path. Further, the rubber doctor blade/brush unit 37 is very useful in that the doctor blade 40 functions as an initial spreader in roughly spreading the liquid blacktop sealer discharged from the manifold 31 into a relatively continuous coating on the blacktop surface. Further, the rubber doctor blade 40 also functions to prevent liquid blacktop sealer buildup in the broom 41, i.e., adjacent the head 46 of the broom, thereby allowing the broom bristles 47 to retain flexibility. The broom 41 portion of the doctor blade/brush unit functions to lend support to the doctor blade 40 as the machine is pushed along the blacktop surface to be coated, i.e., prevents the doctor blade from flexing out of heavy frictional contact with that surface. Further, the broom 41 functions as a finish spreader in that it serves to insure that the liquid blacktop sealer deposited on the blacktop surface effectively and thoroughly coats the blacktop surface with a continuous sealer finish.

Having described in detail the preferred embodiment of my invention, what I desire to claim and protect by Letters Patent is:

1. A machine for spreading liquid blacktop sealer on a blacktop surface comprising a supply tank for the blacktop sealer mounted on a wheeled suspension system that allows said tank to be rolled over the blacktop surface to be coated, said wheeled suspension system including two main wheels for said supply tank, and a swivel wheel located rearwardly of said two main wheels in a plane substantially perpendicular to the rotational axis of said main wheels, said plane lying on the centerline of said supply tank, a handle connected with the supply tank and wheeled suspension system for manually moving the spreader as desired on the blacktop surface to be coated, a discharge manifold extending outwardly at substantially right angles relative to a walking path of the machine’s user, said manifold being disposed beneath said supply tank and connected to said supply tank at the bottom thereof, and said manifold being adapted to discharge the blacktop sealer directly onto the blacktop surface, a flexible doctor blade and a brush aligned parallel with the manifold, and positioned rearwardly thereof and fixedly connected to said suspension system, for smoothing the blacktop sealer discharged onto the blacktop surface in a relatively even coating, said doctor blade being positioned immediately in front of said brush so that said brush prevents undo rearward flexure of same as said machine is pushed along the blacktop surface, and a hand valve directly connected to said discharge manifold, the flow of blacktop sealer through said discharge manifold being manually regulated by use of said hand valve.