April 23, 1963 G. J. KLEIMAN 3,086,789

ADJUSTABLE WHEEL SUPPORT FOR SIDEWALK SNOW SWEEPER

Filed June 17, 1960

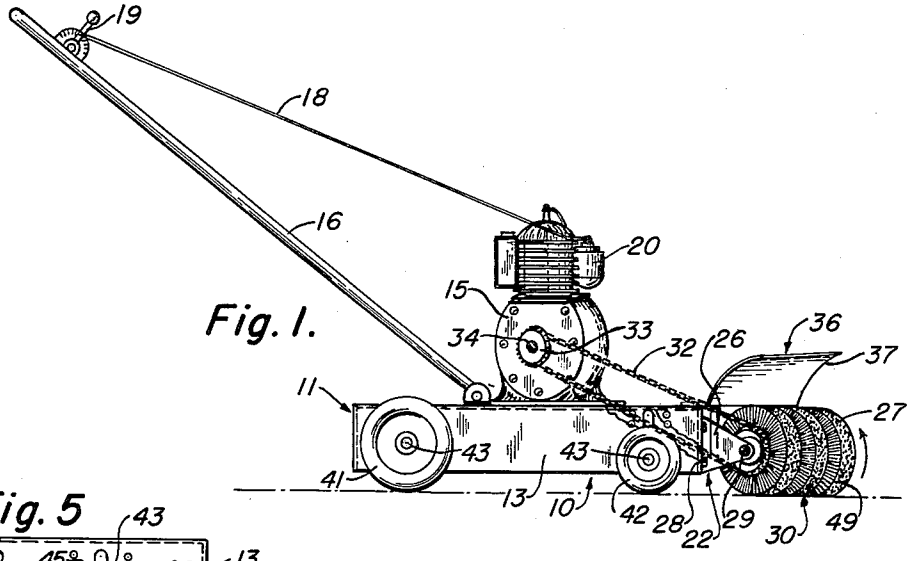


Fig. 1.

Fig. 5

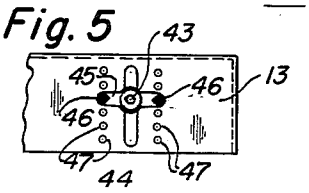
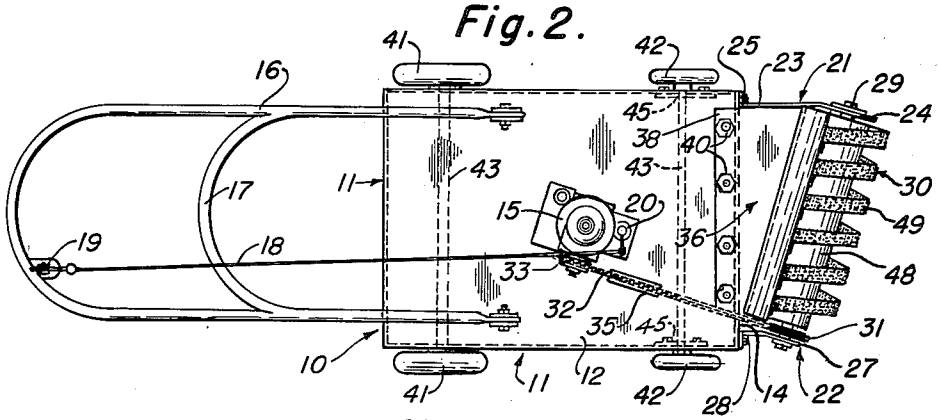


Fig. 2.



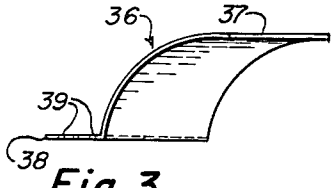


Fig. 3.

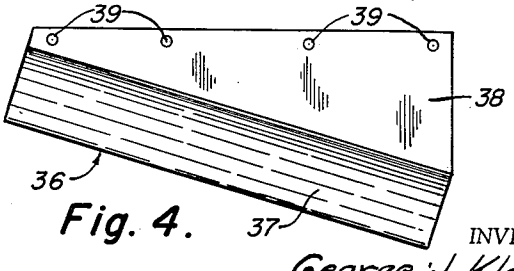


Fig. 4.

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United States Patent Office 3,086,789 Patented Apr. 23, 1963

3,086,789

ADJUSTABLE WHEEL SUPPORT FOR SIDEWALK SNOW SWEEPER

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Filed June 17, 1960, Ser. No. 36,973
1 Claim. (Cl. 280—43)

This invention relates to an adjustable wheel support for a sweeping machine and more particularly to a device or machine which is especially suitable for use in sweeping snow off of sidewalks or the like.

The object of the invention is to provide an adjustable wheel support for a sweeper which includes a rotary brush that is adapted to be driven or rotated by a suitable engine or motor, whereby as the machine moves along a particular area such as a sidewalk, the snow or other material will be conveniently swept or cleaned from the sidewalk so that it is not necessary to shovel or otherwise remove the snow from the area to be cleaned.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this application, and in which like numerals are used to designate like parts throughout the same:

FIGURE 1 is a side elevational view of the sweeper.

FIGURE 2 is a top plan view of the sweeper.

FIGURE 3 is an end elevational view of the deflector or baffle.

FIGURE 4 is a plan view of the deflector of FIGURE 3.

FIGURE 5 is a fragmentary elevational view of the present invention.

Referring in detail to the drawings, the numeral 10 indicates the sweeper of the present invention which comprises a body member 11 and includes a horizontally disposed top wall 12 as well as vertically disposed spaced parallel side walls 13 and a vertically disposed front wall 14.

Mounted on the top wall 12 and fastened thereto in any suitable manner is an engine or motor 15, and the numeral 16 indicates a handle which is connected to the top wall 12. The handle 16 is provided with a brace 17, FIGURE 2.

There is further provided a control rod or linkage 18 which has a manual lever 19 on its rear end, and the front end of the linkage 18 is connected to the carburetor 20 of the engine 15, so that by manually moving the lever 19 the power output or speed of the engine 15 can be readily controlled or regulated as desired.

Arranged contiguous to the front of the body member 11 are spaced apart brackets 21 and 22 which each have generally the same construction except that the bracket 21 is longer than the bracket 22 for a purpose to be later described. The bracket 21 includes inner and outer sections or portions 23 and 24 which are arranged angularly with respect to each other, and the rear end of the bracket 21 is fastened as at 25 to the front wall 14 of the body member 11.

The other bracket 22 includes inner and outer sections 26 and 27 which also are arranged angularly with respect to each other, and the rear end of the bracket 22 is fastened as at 28 to the front wall 14 of the body member 11.

Extending between the outer portions 24 and 27 of the brackets is a horizontally disposed shaft 29 which has a rotary brush 30 mounted thereon. A sprocket 31 is arranged on the shaft 29, and an endless chain 32 is trained over the sprocket 31, and the chain 32 is also trained over a sprocket 33 which is on the engine shaft 34. As shown in FIGURE 2 for example, a portion of the top wall 12 may be recessed or cutaway as indicated by the numeral 35 so as to provide clearance for a portion of the chain 32.

As shown in the drawings there is further provided a shield 36 which includes a main section 37 of arcuate or curved formation, and the numeral 38 indicates a triangular plate which is suitably affixed to or formed integral with the rear portion of the section 37. As shown in FIGURE 4 the plate 38 is provided with a plurality of spaced apart apertures 39 whereby securing elements such as the bolts 40 can extend through these apertures 39 and into engagement with the front portion of the top wall 12 in order to fasten the shield on to the front of the machine.

As shown in the drawings there is further provided rear and front wheels 41 and 42, and an adjustable mounting means is provided for these wheels so that for example as the brush 30 becomes worn, the wheel assemblies can be adjusted in order to compensate for the wear of the brush. This mounting means is shown partially in FIGURE 5 wherein it will be seen that the side wall 13 is provided with vertically disposed slots 44 through which extend the wheel axles 43 and bearing members 45 are suitably affixed to the axles 43. Suitable securing elements such as bolts 46 extend through the bearing member 45 and these securing elements also extend through certain of the spaced apart apertures or openings 47 in the side wall 13 so that by positioning the securing elements 46 in the desired apertures 47 the effective elevation of the parts can be regulated or controlled as desired. The apertures 47 are arranged in vertical rows on opposite sides of the slots 44.

From the foregoing, it is apparent that there has been provided a sweeper which is especially suitable for use in sweeping snow off of various areas such as sidewalks or the like. While the present invention has been described for use in sweeping snow however, it is to be understood that it is also adapted to be used for other purposes, as for example for sweeping leaves or other material off of any desired location or area.

With the parts arranged as shown in the drawings, it will be seen that when the engine 15 is actuated, the lever 19 can be manually moved to regulate or control a suitable portion of the engine 15 such as the carburetor or throttle and the lever 19 is arranged adjacent the upper inclined portion of the handle 16 so that the user of the machine can readily gain access to the lever 19 in order to control the machine. As the engine 15 is actuated, the shaft 34 will rotate and this will turn the sprocket 31, it will be seen that the sprocket 31 will rotate. Since the sprocket 31 is mounted on the shaft 29, it will be seen that the shaft 29 will rotate and this will cause rotation of the brush 30 since the brush 30 is mounted on the shaft.

In addition, in the event the brush 30 becomes worn, then the securing elements 46 can be loosened and removed, from the apertures 47 so that the bearing member 45 and axle 43 can be shifted upward or downward as desired, and the axle 43 is adapted to move through slots such as the slots 44 in the side walls 13, and after these parts have been moved to their desired location, the securing elements 46 are inserted through other apertures 47 and suitable nuts or other fasteners may be arranged on the securing elements whereby the parts will be maintained immobile, in their adjusted or desired positions. This arrangement provides a means for adjusting the machine as for example when the brush 30 becomes worn since the effective elevation of the parts can be controlled or regulated in order to compensate for any wearing which takes place.

In addition, the parts such as the brackets and shield can be reversed or turned around so that the snow can be caused to be thrown out on either left or right side of the machine as desired.

The parts can be made of any suitable material and in different shapes or sizes.

The machine may be provided with an instant spring starter or a pull coil starter as desired. Different sizes of chains and sprockets can be used depending upon the engine horsepower and speed desired. The wheels may be provided with solid rubber tires. Suitable bearings, braces and the like can be used wherever desired or required, and a handle **16** may be made of tubular reinforced material. The top wall **12** may be provided with suitable apertures or openings whereby securing elements such as the bolts can be used and extended through such openings for fastening the engine **15** onto the top wall. The body may be made from a suitable material such as 12 gauge cold rolled plate steel 7/64 inch thickness and this type of steel has considerable tensile strength wherein the engine will be properly supported, and wherein vibration and buckling will be minimized or prevented.

The four rubber tired wheels give the body of the sweeper the needed support and also eliminates vibration as for example when two wheels are used or when caster wheels are used and such devices. In addition the four rubber tired wheels **41** and **42** are arranged so that the machine is completely balanced and wherein there will be level operation in a straight line course with increased traction. The rotary brush is driven by a simple straight lined chain which is mounted on the two sprocket wheels for direct drive so as to produce immediate and full power in turning the rotary brush wherein there will be no slippage as for example when a belt drive is used. A friction or magnetic clutch can be used as desired. The sweeper can be easily turned to the desired direction by pushing down on the handle and turning the machine on the rear wheels, and the machine embodies a construction which is exemplified by its simplicity, and wherein it will be low in cost and efficient in operation.

The machine is especially suitable for sweeping snow off of sidewalks or the like so that it will not be necessary to shovel the snow and this is an important health or safety factor since it is a well known fact that heretofore many persons have experienced health problems such as heart attacks or the like as the result of the work in laboriously shoveling snow, and the machine of the present invention will help overcome or eliminate these problems. The machine is adapted to be made at a low cost so that it will be within the average person's means to own or purchase the same. While the present invention can be used for sweeping other material, it is primarily suitable for and especially adaptable for sweeping snow off of different areas. The machine is ruggedly built and will operate smoothly. As the brush **30** wears, the wheels can be placed in a higher position with respect to the side walls and this will tend to lower the brush to keep the brush even with the surface for sweeping. The shield **36** prevents any kick-back of the snow. Suitable brackets can be provided for attaching the handle **16** to the top of the member **11**. The brackets **21** and **22** can be reversed so that the brush will sweep the snow to the right side or left side as desired. The rear wheels are larger diameter than the front wheels,

and the gas throttle control **19** is attached to the rear upper end of the handle **16**. Self aligning precision ball bearing pillow blocks can be provided for the ends of the shaft **29**.

The machine is economical to own and operate and is especially suitable for use by a person or persons who have to shovel snow, and wherein sidewalks, driveways, and the like can be cleaned of snow easily and efficiently. The snow will be thrown to the desired distance according to the power of the engine or speed at which the engine is operated and the snow can be thrown to the right or to the left by changing the brackets which hold the brush accordingly. The machine is easy to operate, and the parts such as self aligning precision ball bearing pillow blocks permit the shaft **29** to turn freely without sticking or binding.

The engine operates counter-clockwise so as to cause the rotary brush **30** to operate in the same manner to thereby throw the snow forward and to the side because of the offset of the rotary brush. Another important aspect or feature is the fact that the fibers such as the fibers **49** are arranged or set in the coil **48** of the brush **30** in a spiral fashion which tends to run the snow off to one side immediately as the machine moves along. This spiral arrangement of the fibers **49** on the coil **48** is shown for example in FIGURE 2.

The shield **36** is only attached to the top front of the body for the purpose of preventing some particles of snow from falling onto the body and engine as the rotary brush turns. Thus, the shield has no functional operation except to protect the engine from particles of snow which may be thrown from the rotary brush while the brush is turning counter-clockwise which motion throws the snow ahead and to one side.

Minor changes in shape, size and rearrangement of details coming within the field of invention claimed, may be resorted to in actual practice, if desired.

What is claimed is:

In a sweeper, a body member including vertically disposed spaced parallel side walls, a pair of front and a pair of rear wheels for said body member, adjustable mounting means for at least a pair of said wheels, said adjustment mounting means for said wheels comprising opposed vertically disposed slots through said side walls, axles extending through said slots, bearing members connected to said axles, there being rows of apertures in said side walls on opposite sides of said slots, and securing elements connected to said bearing members and adapted to project through certain of said apertures.

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