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COMBINATION SNOW PLOW AND SCOOP

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8 Claims.

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This application is a continuation-in-part of applicant's application Serial No. 205,969, filed June 28, 1962, and now abandoned.

This invention relates to snow cleaning tools, and more particularly to that type of snow cleaning and removal tool which may be used as a plow to push the snow to the side of the path of operation, and also as a scoop to be loaded with snow which is then moved from the path of operation to be cleaned to a dumping area for dumping.

Prior to my invention, snow plows, both machine and manually operated, were well known, as well as snow shovels of various types which could be used to either plow or shovel snow. There are also various types of scrapers. These implements, known to the art, require a great deal of strength or power for their operation, and none of them combine the features of the plow and shovel or scoop.

It is, therefore, an object of my invention to provide a combination snow plow and scoop in which the desirable features of both implements may be combined in one tool and may be operated by a single handle which may be reversible.

It is a further object of my invention to provide a snow removal implement which is easy to manage, and which will require less strength or power to operate than the usual equipment.

It is also an object of my invention to provide a snow removal implement which is easy to construct, has great strength of construction, and which will be economical to manufacture.

I achieve these objects and advantages with the device illustrated in the accompanying drawings in which:

FIG. 1 is a side elevational view with a portion of the outer end of the handle of the invention cut off, and with the handle shown in phantom to show it in reversed position, and partly in section;

FIG. 2 is an enlarged top plan view;

FIG. 3 is a detail of the handle mounting shown greatly enlarged;

FIG. 4 is a top plan view of the handle, greatly enlarged, with the center section cut away;

FIG. 5 is a top plan view of an alternate form of the invention;

FIG. 6 is an elevational view of the form of invention shown in FIG. 5;

FIG. 7 is a view of the handle means of the form of invention shown in FIG. 5, partly in plan, partly in phantom, and partly cut away;

FIG. 8 is a detail of one of the handle mounting means of the alternate form of invention; and

FIG. 9 is an enlarged detail of a portion of FIG. 7.

Similar numerals refer to similar parts throughout the several views.

I prefer to make my snow removal tool 10 from sheet aluminum. A curved floor plate 24 is rolled with a 32" radius on a rolling machine, or by any other method. A pair of curved walls 21 and 22 are also rolled and curved on the same radius of 32". The walls 21 and 22 are riveted to the curved floor plate 24 at lower flanges thereof, by means of rivets 23. The aluminum material used in making the curved floor plate 24 and the walls 21 and 22 may be spot welded together rather than riveted, if preferred, or they may be fastened by any other suitable means known to the art.

I have found that a gauge of 0.65 aluminum is suitable for the walls 21 and 22, and a gauge of 0.81 aluminum is suitable for the curved floor plate 24. Where the walls 21 and 22 come together at a point designated as reference numeral 18, they are again either riveted by means of rivets 19 or spot welded, or fastened together to form a V edge in any manner known to the art.

Above the walls, I provide a top plate 20 which may be riveted or spot welded in any manner known to the art. In the form shown in the drawing, the top plate 20 has depending flanges 26a which are riveted to walls 21 and 22 by means of rivets 17.

I provide a pair of runners 25 and 26 on the bottom of the curved floor plate 24. These runners 25 and 26 are preferably parallel to each other, and run parallel to the direction in which the device would normally be pushed. The runners 25 and 26 are riveted by means of rivets 25a and 26a to the bottom of curved floor plate 24.

While I prefer to use a pair of runners, any suitable number for the size of the device can be used. The purpose of these runners, which are made of cold rolled steel, case hardened, is to provide a durable protective frame or guard for the underneath part of the device.

This is necessary in a device of this type because since it will be principally used to shovel or remove snow, and, as the snow is removed the bottom of the device will hit ground, or concrete, or cement which sometimes will be irregular in surface and perhaps rocky. Another feature of the runners 25 and 26 is that it will be much easier to push the device over the runners as less friction or other resistance will be afforded than if the entire bottom were to contact a ground surface at the same time.

I provide a handle mounting on top plate 20 comprising a pair of angles 27 and 28 which serve as a base means for the handle mounting means 29. The handle mounting means 29 has a central opening 30 and several U-shaped detent receiving means 31 through 36 inclusive. The handle comprises a shaft 40, handlebars 41 and 42, a T-shaped tubular fitting 43 to attach the handlebars 41 and 42 to the shaft 40, a tubular sleeve 44 which fits over the other end of the shaft, and contains a spring means 45, a pair of fingers 46 and 47, and a detent 48. The T-shaped member 43 as well as the sleeve 44 are fastened to the shaft 40 by means of bolts, rivets or any other suitable means as indicated at reference numerals 49 and 50. The shaft 40 and the handlebars 41 and 42 may be made of wood or any other suitable material such as aluminum or steel tubing.

There is also a pin 51 for fastening the fingers 46 and 47 to the handle mounting means 29. This is done by placing fingers 46 and 47 on either side of handle mounting means 29, and lining up openings 52 and 53 with opening 30, and placing the pin through all three openings and securing pin 51 either by means of a nut or rivet means, or by any other suitable means. Thus, the entire handle may be swivelled around the handle mounting means and may be fixed in any position where the detent 48 will fit into a detent receiving means such as 31 to 36 inclusive.

In FIG. 1 of the drawings, the handle shown in solid line is in position with detent 48 in detent receiving means 33, and the handle in dotted line shows detent 48 in position in detent receiving means 34. Reference to the drawings will show that walls 21 and 22 act as dividing means with the curved floor plate 24 to divide the device into a scoop means, or portion 61 and plow means, or portion 62. The scoop means or portion 61 is comprised of the walls 21 and 22 and a portion of floor plate 24. The plow means or portion
are comprised of the walls 21 and 22 and portions of the curved floor plate 24. The main advantages of my combination snow plow and scoop is derived from the fact that it has a curved bottom or floor plate 24 in conjunction with the runners 25 and 26. The runners will aid in steering and directing the device. The curved bottom is provided to permit leading edge 60 of the scoop portion 61 of floor plate 24 to be raised or lowered receptively as the device is pushed toward a layer of snow on the ground.

I refer now to FIG. 1 of the drawings. There is an illustration in section of a quantity of snow 70 designated in height by the arrows and the letter H. I have also marked off levels A, B and C. Let us assume that H represents a layer of snow one foot or twelve inches deep. It would be extremely difficult for a man handling a large shovel or scoop to scoop up the entire layer twelve inches thick and lift the shovel for removal. With my device, the user may bear down on the handle 54 and rock the device on runners 25 and 26 and floor plate 24 so that leading edge 60 will move upward until it is at the snow layer 70. The device is then pushed forward, and the scoop will scoop up approximately the top 3 inches of the layer, and this forward movement is continued until the scoop is filled. The device is then pulled backwards on the runners without lifting, and pushed toward an area where the snow may be removed by pushing the device forward, and pulling back sharply, so that the snow will continue to move forward and leave the forward end clearing the scoop 61. The operation is then repeated. Only this time, as the device is pushed toward the snow layer, leading edge 60 is rocked to be approximately the same height as level B of the snow 70. At the next scoop filling, leading edge 60 is rocked to the height of level C and finally the scoop is rocked forward until leading edge 60 is at ground level G. In this manner, as the scoop is filled and emptied, each time, without lifting the device from the ground, large quantities of snow may be removed with little effort. For convenience, the handle 54 may be shifted to higher and lower positions by removing the detent 48 and replacing it in another detent receiving means as desired.

Instead of pulling the device backwards when the scoop 61 is filled, the operator may bear down on the handle 54 and leading edge 60 and continue to push scoop 61 forward, to a snow removal, location, and then remove the snow from the scoop 61 and come back for more.

When the handle 54 is reversed by swivelling it around on the handle mounting means 29 so that the plow portions 62 of floor plate 24 are in a forward position, the same rocking action may be provided to selectively position leading edge 63 of plow portions 62 against different heights of a layer of snow. Thus, in a layer of snow one foot thick, a path approximately 3 or 4 inches deep can be plowed out in the first operation, then the plow can be returned over the same path with the edge level as level A in inches, and so on, until a path a foot deep is cleared down to ground level. Thus, the plow 62 is used by sliding the device on the curved bottom plate 24 and the runners 25 and 26 with very little comparative effort because of the rocking action provided by the curve of bottom plate 24.

It will be appreciated that because of the curved bottom construction of my device and the runners 25 and 26, the device may be pushed over soft snow, even with a heavy load of snow in the scoop 61, without sinking. In this manner, the device may be used repeatedly over the same section of snow until cleared down to ground level, or at any section of the snow and moved at will to any other part of a snow layer for removal, with very little effort.

The various handle positions which may be provided by the handle mounting means 29 and the differently positioned U-shaped detent receiving means 31 through 36 further facilitate the positioning of the leading edges 60 and 63 through rocking action. The device can, by these means, be adjusted for use by taller or shorter men, or by women and children.

I also provide lateral runners 65 and 66 which are made of cold rolled, case hardened, steel riveted to the leading edge 60 and 63 of the scoop and plow portions 62 through the curved floor plate 24, by means of rivets 68 and 69. The leading edges of both of these lateral runners are chamfered for ease of operation. The purpose of lateral runners 65 and 66 is to provide a strong leading edge which will not be denied in the event that an object is struck by the device.

I also provide an alternate form of my invention, as shown in FIGS. 5 through 8 of the drawings. In this form, I provide a main body portion 100 which is substantially similar to the form of invention shown in FIGS. 1 through 4 with the exception that it is provided with a top cross member or brace 101 which can be used as the operating detent means, and a different form of reversible handle and mounting thereof. Inasmuch as the second form of invention is substantially the same as the first form of invention with the exception of the seating means 101 and handle means 102, none of the other parts of the invention shall be re-described and shall be referred to in the drawings by the same reference numerals as the first form of the invention.

The second form differs by the provision of the seating means 101 which is mounted on top of walls 121 and 122. The walls 121 and 122 define substantially straight sections 121a and 122a respectively from the leading edge 160 to a point substantially midway in the main body portion of the device. The walls then curve inwardly to form sections 121b and 122b respectively, and come together at a point designated as reference numeral 118. Cross brace or seating means 101 is strong leading edge which will not be denoted in the event in FIGS. 1 and 2 of the drawings by any suitable means such as screw fasteners or rivets or by any other means known to the art.

I provide a pair of handle mounting means 129 which are mounted on either side of the seating means 101. Seating means 101 may be made of any suitable material, I prefer to use board or plywood of sufficient strength such as ¾" plywood of a width of about 4". Handle 102 is in the shape of a U having ends with fingers 146 and 147 and detents 148. I also provide pins 151 for fastening the fingers 146 and 147 to handle mounting means 129 respectively. The U-shaped handle 102 is comprised of tubular material, and contains spring means 145 to urge the detents 148 into any of the various positions defined by the U-shaped detent receiving means 180 through 188 of the handle mounting means 129. I also provide operating means for the detents 148 comprising wires or rods 190 connected to an operating bar 191 located near handle grip 192 of FIG. 1. The operator places his hand or hands on handle grip 192 and squeezes operating bar 191 toward handle 192 thereby compressing springs 145 to remove detents 148 from the respective detent receiving means 180 through 188 in which they might be located so that the handle 102 may be moved from a position, such as designated by A in FIG. 6 of the drawings, to a reversed position such as designated by B in FIG. 6 of the drawings.

It will be appreciated that in the alternate form of invention, I have provided a combination snow plow, snow scoop and sled. A person may sit on the seating means 101 and be pushed forward by the opening of the sled. In addition, materials such as groceries, tools and any other material which will fit into the scoop portion of the device can be transported from one place to another over snow areas. For example, a person may go shopping at a supermarket with one or two children,
place the purchases in the scoop portion and seat the children on the seating means, and then pull the supplies and children home by placing the handle means 102 in the proper position.

Handle means 102 are provided for this form of invention in U-shaped form so that it may be moved from one position to another without interfering with the person or persons (not shown) who may be seated on the cross brace or seating means 101.

I have described my shovel as being made of aluminum and steel. This is in its preferred form. The shovel or device may, of course, be made of other materials which are suitable such as fiberglass, plastic of a high impact durable type, other metals, or even wood such as marine type plywood, or any other suitable material. I have also given certain measurements herein-above as well as gauge of metal. These again are given as preferred measurements and are not critical. Any suitable measurements may be used. Other features of the invention shown in their preferred forms, such as the handle shaft 40 and the handlebars 41 and 42 and connecting means such as fitting 43 may, of course, be varied in any suitable manner known to the art.

While I have described my invention in its preferred forms, there are other forms which it may take without departing from the spirit and scope of the invention, and I, therefore, desire to be protected for all forms coming within the claims hereinafter.

Wherefore I claim:

1. A combination plow and scoop having a main frame comprising a pair of walls mounted on a curved bottom, each of said walls having a relatively curved section and a relatively straight section in faced opposed relationship to define substantially a V shape over the said bottom portion, a seat member positioned at facing opposed top portions of the said walls, and a U-shaped handle connected to a pair of mounting means on the seat member near the opposite ends thereof; in which said walls and a portion of said curved bottom comprise scoop means, and in which said walls and a portion of said curved bottom comprise plow means, and in which said handle mounting means are adapted to hold the said U-shaped handle means in reversible relation with respect to the said main frame.

2. The device as defined in claim 1, in which the seat member is located at a juncture on each side of the device of the said relatively curved sections and relatively straight sections respectively of the said walls.

3. A combination plow and scoop device having a main frame comprising a pair of upright walls mounted on a curved bottom, said pair of walls being positioned so they are touching at one end to form a plow and are divergent at another end to form a scoop, said curved bottom including an arcuate outer surface having a lower central portion and raised fore and aft ends for slidably and rockably supporting the device upon material to be plowed or scooped, and handle mounting means centrally located on the main frame for adjustably receiving a reversible handle.

4. The device as defined in claim 3, in which the said handle mounting means comprises selective positioning means.

5. The device as defined in claim 3 provided with a handle having dent means, and in which said handle mounting means has a plurality of dent receiving means so that the handle may be selectively placed in various positions relative to the said device.

6. The device as defined in claim 3, in which, each of said walls has a relatively curved section and a relatively straight section, and in which said walls are in faced opposed relationship to define a V-shape over the said bottom portion.

7. The device as defined in claim 6 having a plurality of runners beneath the said bottom portion.

8. The device as defined in claim 6, in which the bottom portion has a leading edge associated with the scoop means which is relatively longer than a leading edge associated with the plow means, and the straight portion of each of said walls is contiguous with at least a portion of a side of the said bottom portion.

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