Dec. 14, 1943. J. LEUNIS 2,336,553

MATERIAL AND SNOW MOVER

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FIG 1

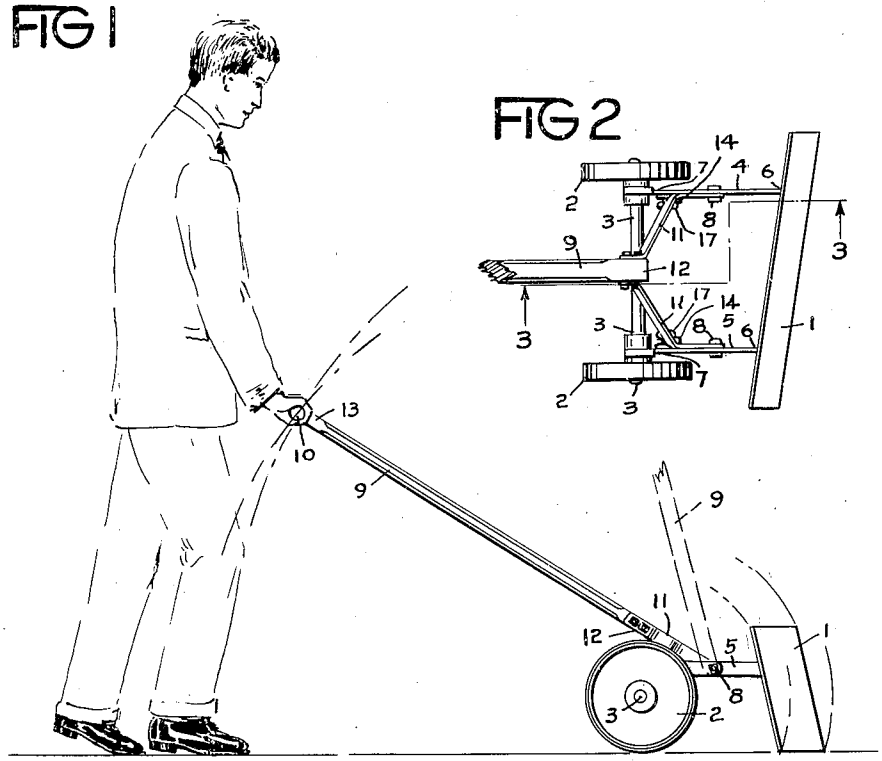


FIG 2

FIG 3

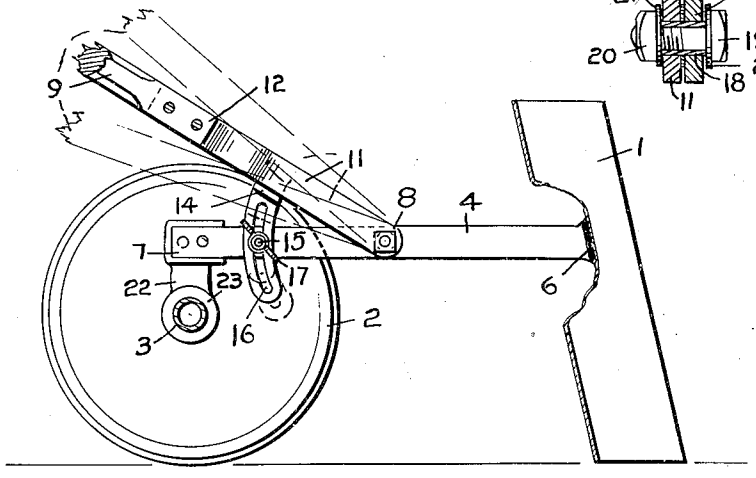


FIG 4

INVENTOR.
JOSEPH LEUNIS.

BY
Paul A. Talbot.
ATTORNEY.

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FIG 5

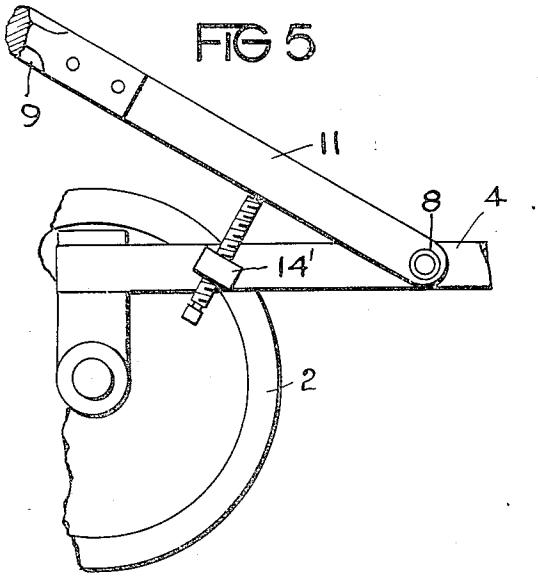


FIG 6

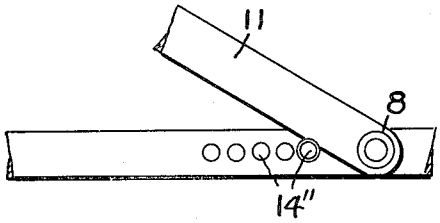


FIG 7

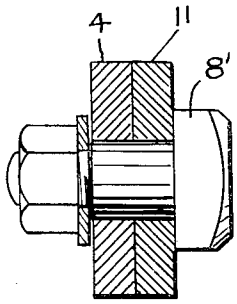
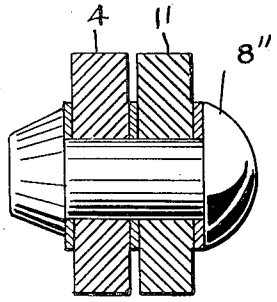


FIG 8



INVENTOR.
JOSEPH LEUNIS.
BY Paul A. Talbot.
ATTORNEY.

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MATERIAL AND SNOW MOVER

Joseph Leunis, Scarborough-on-Hudson, N. Y.

Application February 24, 1941, Serial No. 380,208

5 Claims. (Cl. 37—53)

My invention relates to a device for moving materials and particularly for clearing snow from walks and drive ways.

Among the purposes and objects of my invention are to provide:

A simple, effective, manually operated device that performs the combined functions of a snow shovel, snow plow and pusher.

A device for handling materials by manual operation efficiently.

A snow removing device that will not also remove the loose pebble surfacing of road ways along with the removal of the snow.

A blade and handle adjusting means to permit accurate adjustment of the material handling blade.

A wheel supported material handling blade and an adjustable pusher handle fulcrumed on the axial center of the wheels supporting the blade.

A wheel supported material handling blade and a swingingly secured handle permitting the blade to be raised and dropped to chip ice from walks, etc.

I accomplish these and other objects by the construction herein described and illustrated in the accompanying drawings forming a part hereof, in which:

Fig. 1 is a side elevation showing one of the applications of my device.

Fig. 2 is a plan view.

Fig. 3 is a sectional elevation at 3—3 Fig. 2.

Fig. 4 is a detail of the handle joint.

Figs. 5 and 6 are fragmentary details of modifications of the handle adjustment.

Figs. 7 and 8 are fragmentary details and sections of modifications of the handle joint.

Similar reference characters refer to similar parts throughout the drawings and in the specifications to follow.

In the drawings and description herein constituting my disclosure, I have not attempted to illustrate and describe all of the various modifications which may be employed to carry out the purpose and function of my invention or the underlying principles. I have rather, illustrated and described one of the constructions embodying these principles in detail so that my device may be more easily understood by those skilled in the art to which it pertains and who, after a study of this disclosure, may understand how numerous modifications may be made without departing from the underlying principles of my invention.

My invention is set forth in the appended claims and for which this Letters Patent has been granted.

Illustrative of the many uses of my device is that of snow removal, and instead of the laborious work of shoveling snow, my device is much more rapid in clearing a given area and less tiring. The snow does not have to be lifted and tossed, yet even this may be done by a quick down thrust of the handle while my device is in forward motion.

For chipping ice frozen onto the walk, the handle may be raised from its normal pushing position and the blade raised and dropped onto the ice with remarkable results.

When my device is used to remove snow from a pebble surfaced road, the blade may be so precisely held that the snow may be removed without also displacing the loose pebbles. The handle is so adjusted in relation to the bottom edge of the blade that the desired elevation is maintained and the handle may be raised or lowered a substantial amount without a corresponding change in elevation of the blade because the blade is much closer to the wheels than the handle which is so attached by its tongue to the blade as to be fulcrumed on the axle on which the wheels revolve.

Referring particularly to Fig. 1 of the drawings, the blade 1 is disposed obliquely across and in front of the wheels 2 which revolve freely on the axle 3 to which the tie bars 4 and 5 are swingingly secured at one end and are rigidly secured at the opposite end to the blade 1.

Between the ends 6 secured to the blade 1 and the ends 7 swingingly connecting the tie bars to the wheels, I have provided the pivotal connections 8 which swingingly secure the tongue 9 and handle 10 to the tie bars 4 and 5 by means of the spreaders 11 which are secured to the tongue near its lower end 12, while the handle is preferably secured to the tongue across its upper end 13.

The spreaders and the handle and tongue are restrained in their downward movement in relation to the tie bars and blade by the adjustable stops 14 movably secured to the tie bars by the bolts 15 which are received by the slots 16 in the stops and clamped firmly to the tie bars by the wing nuts 17. The construction and adjustable means of securing the stops to restrict the movement of the handle relative to the blade of my device may obviously be modified in numerous ways; for instance, depending set screws may be so secured to the tie bars or to the spreaders as to provide adjustable stops 14', or a plurality of apertures in the tie members or spreaders may be positioned to receive pins 14'' to stop movement in

one direction and permit movement of the handle when raised.

To permit the spreaders to freely swing in relation to the tie bars, I have provided pivotal connections detailed in Fig. 4 of the drawings in which the bearing sleeves 18 are clamped by the bolts 19 and nuts 20 permitting the washers 21 and the spreaders and tie bars to freely move in relation to each other. Shoulder bolts 8' such as shown in Fig. 7 of the drawings or, rivets 8'' as shown in Fig. 8, and other modifications permitting the free movement of the parts may be substituted.

The ends 7 of the tie bars may be swingingly secured to the axle 3 by the members 22 which are secured to the tie bars and are provided with the bearings 23 engaging the axle and so positioned as to prevent axial movement of the wheels and axle.

The handle 10, it will be seen, may be swung upwardly from the pivotal connections 8 as a center and also swung downwardly, thereby raising the blade 1 about the axle 3 as the center, the blade and handle teetering over the axle; thus the handle is swingable on two centers.

The broken lines, Fig. 1, showing the tongue in a raised position, illustrates the position of the handle when raising the blade for chipping ice to remove the ice from a walk or for raising the blade from its operating position while pushing snow or other material.

The rapid forward movement of my device, with a quick downward movement of the handle, will toss snow or other light material at or near the end of each forward thrust of a back and forward movement.

The axles are preferably provided with ball bearings in each wheel to reduce friction and permit the maximum forward pushing movement to be applied to the material being moved.

I have shown the blade as flat and inclined from the perpendicular as well as diagonally or obliquely disposed; the amount of incline and obliqueness may be varied to best suit the material and the blade may also be curved or shaped to suit the operating conditions and material to be handled.

Having disclosed in detail an embodiment of my invention, that which I claim and desire to secure by Letters Patent follows:

1. In a material handling device, a pair of wheels and an axle, a blade, a pair of tie bars secured thereto at one end of said tie bars swingingly connecting said blade to said wheels, a handle and pivotal connections positioned between said axle and said blade swingingly connecting said handle to said tie bars and stops on said tie bars permitting said tie bars and said blade to be lifted by the downward movement of said handle and downward pressure on said stops.

2. In a snow remover having a pair of wheels and axle, a blade and a pair of tie bars securing said blade to said axle and a handle pivotally secured to said tie bars between said blade and said axle, said handle being free to move upwardly, stop means on said tie bars cooperating with said handle to lift said blade when said handle is moved downwardly, said handle forcing said blade downward when pushed on.

3. In a snow remover having a pair of wheels and axle, a blade and a pair of tie bars securing said blade to said axle and a handle pivotally secured to said tie bars between said blade and said axle, said handle being free to move upwardly, stop means on said tie bars cooperating with said handle to lift said blade when said handle is moved downwardly, said handle forcing said blade downward when pushed on, and means adjusting said stop means to adjust the height of said handle in relation to said blade.

4. In a material handling device, a pair of wheels and an axle, a blade for pushing and tossing the material, tie bars each secured to said blade at one end and to said axle at the opposite end, a handle and pivotal securing means therefor between the ends of said tie bars, stop means limiting the swinging movement of said handle in one direction in relation to said tie bars and said blade and permitting free movement for said handle in the opposite direction, whereby the downward movement of said handle may raise said blade and pressure may be applied to said tie bars to force said blade downwardly.

5. In a snow remover, a blade and a pair of wheels and axle disposed behind said blade and a handle disposed behind said wheels and movable downwardly to teeter and raise said blade, a pair of tie bars secured to said blade at one end and to said axle at the opposite end, a stop between said handle and said tie bars permitting the handle to be freely raised without moving said blade and raising said blade by moving said handle downwardly and adjusting means for said stop to adjust the height of said handle in relation to the height of said blade and joints disposed between the ends of said tie bars and connecting means between said handle and said joints.

JOSEPH LEUNIS.