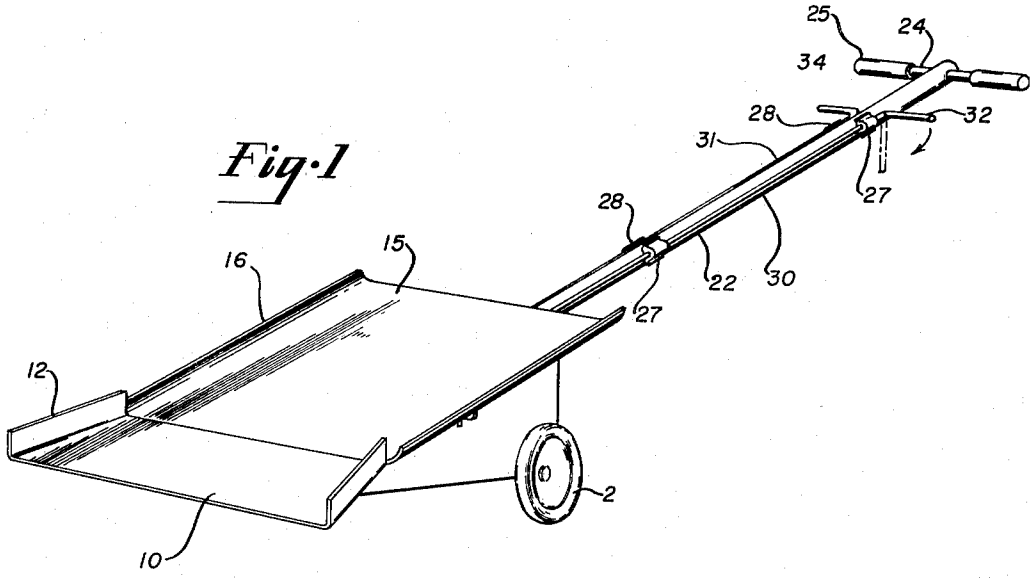
Oct. 11, 1955 C. W. CHAMBERLIN 2,720,043

WHEEL MOUNTED MANUALLY OPERATED NON-LIFTING SNOW-THROWING SHOVEL

Filed Oct. 21, 1952

2 Sheets-Sheet 1

Fig. 1



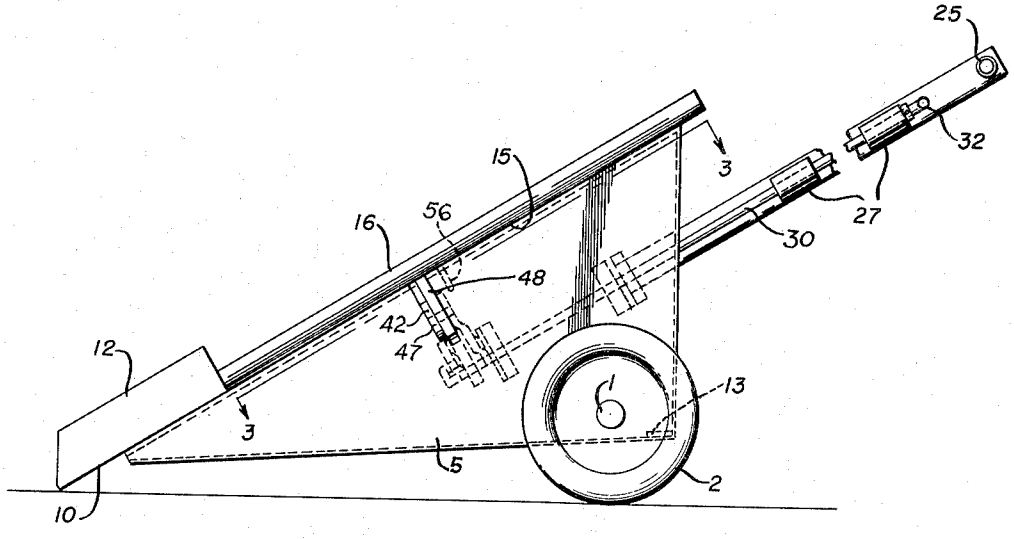


Fig. 2

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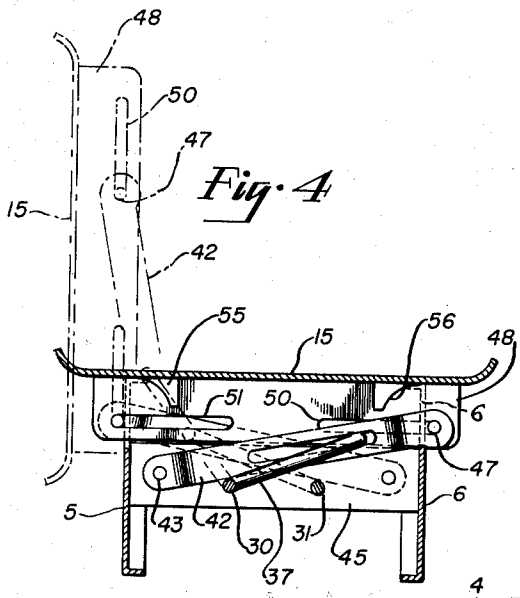


Fig. 4

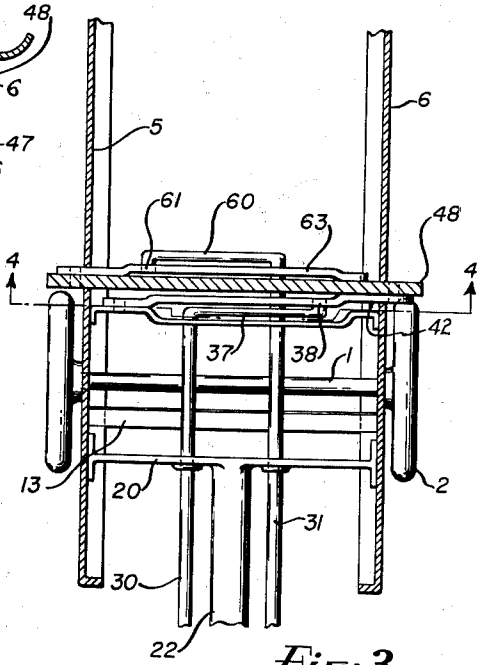


Fig. 3

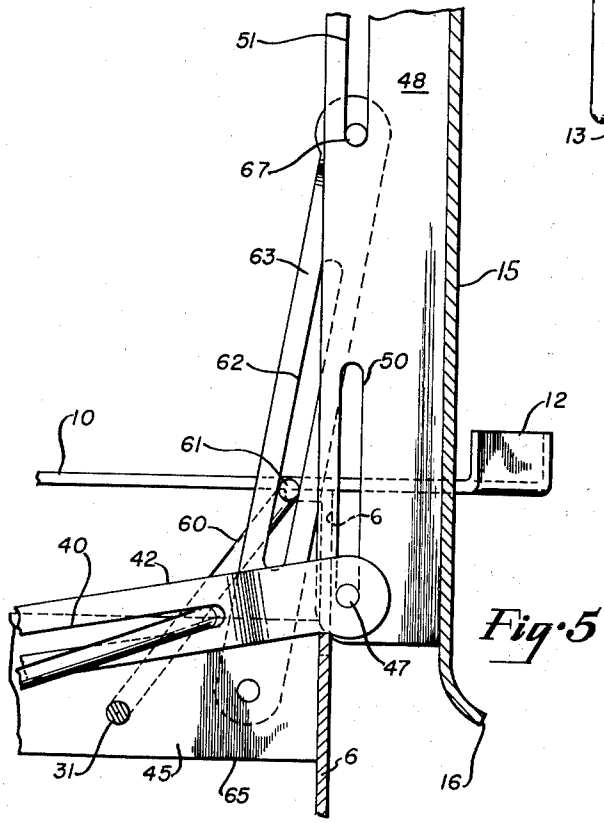


Fig. 5

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2,720,043

WHEEL MOUNTED MANUALLY OPERATED NON-LIFTING SNOW-THROWING SHOVEL

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Application October 21, 1952, Serial No. 315,947

5 Claims. (Cl. 37—53)

This invention relates to snow shovels, and its general objects are to provide a construction whereby a large size, manually operated snow shovel may effectively handle snow with increased rapidity and substantially reduced effort on the part of the user.

My snow shovel is so designed as to enable removing snow from walking or driving surfaces, or the like, by the following steps:

First, the shovel is manually pushed into the snow to be removed. When the shovel is filled, one of two operating handles may be pressed downwardly effecting a tilting and throwing action of the shovel, or snow-carrying platter, thus throwing the snow to one side or the other without the manual effort of lifting and swinging the load.

After each throwing action the snow-carrying portion or platter of my shovel returns to normal position on either side by reverse movement of the lifting and throwing lever handle or "flip rod," as will hereinafter appear.

Because of the efficiency in handling relatively large amounts of snow with a minimum of lifting or pushing and lifting action, and correspondingly with much less strain on the user, I refer to my shovel as the "heart saver," inasmuch as it should afford relief to persons so afflicted with that condition as to normally prevent their using the usual type of snow shovels.

Other objects include a simple, efficient construction whereby the snow-lifting and throwing platter may be mounted upon a wheel-supported frame, and the provision of a simple mechanism for the tilting and throwing action.

Still other objects and advantages will become apparent in the following specification which refers to the accompanying drawings, in which:

Fig. 1 is a perspective view of a preferred form of shovel constructed in accordance with the present invention;

Fig. 2 is a side elevation of the same;

Fig. 3 is a sectional detail view taken on a plane indicated by the line 3—3 of Fig. 2;

Fig. 4 is a transverse section taken substantially on a plane indicated by the line 4—4 of Fig. 3, showing the operating mechanism for tilting the platter and throwing the load, the upright dumping position of the snow-carrying platter being indicated in broken lines; and

Fig. 5 is an enlarged fragmentary detail view of linkage and operating members taken on the same plane as Fig. 4, showing the position of the parts with the snow-carrying platter in its opposite upright position.

The wheel support, as shown, comprises a shaft **1**, a pair of wheels **2** suitably mounted at the ends of the shaft, and the shaft is shown as passing through side plate-like members **5** and **6**, which, however, may be considered illustrative of any suitable framework. The side frame members **5** and **6** may be connected by suitable cross braces, as will appear.

The upper edge of the side frame members is preferably sloped on an angle of twenty to thirty degrees from the horizontal end. Rigidly connected across and bridging the forward lower portions of the members **5** and **6** is a scraper blade **10** having upturned and outwardly and forwardly flaring side flanges **12**; this blade **10** being several inches across and serving also as a brace between the forward ends of the frame members. At the lower rear portion of the members **5** and **6** they may be connected by a cross brace **13** for additional rigidity.

Lying in the sloping plane along the upper edges of the frame members **5** and **6**, and normally resting thereon, is the snow-carrying shovel proper, or platter **15**, preferably formed of rigid metal and having its side edges curved upwardly slightly forming flanges **16** to aid in retaining the snow until the throwing action.

Extending between the blades and above the wheels is another bracing and cross member **20** which may be rigid with a tubular handle shaft **22**, shown as extending upwardly and rearwardly, and as provided at the upper end with a cross bar **24**, extending each way from the tubular shaft, and on which may be fitted suitable handle grips **25** of rubber, or the like.

Journaled at either side of the handle shaft **22** in supports **27** and **28** are a pair of oscillating rods or shafts, which I may term "flip rods" **30** and **31**, each having an outwardly extending lever handle **32** and **34**. At the inner end these oscillating shafts pass through and are journaled in the cross member **20**, and each is provided with a crank arm connected with linkage for tilting the platter **15** and throwing the snow therefrom.

The arm **30** having its crank arm **37** extending to the right in Fig. 3, has a journal tip indicated at **38** which projects into a slot **40** in an operating link arm **42**, pivoted at **43** to a cross member **45** rigid with the frame members **5** and **6**. The other end of the link **42** carries a stud just outside of the frame member **6**. A member **48** constituting a depending rigid strip extending transversely of and secured to the platter has slots **50** and **51** therein, parallel with the platter, and in one of which the pin or stud **47** may slide.

The member **48** is preferably a flange-like strip which may fit into slots in the upper edge of the members **5** and **6**, as shown. Thus, when the flip rod **30** is turned by pressing downwardly upon the handle **32**, the arm **37** swings upwardly with its journal tip **38** sliding in the link slot **40**, swinging the link **42** upwardly and to the left while the stud pin **47** slides in the slot **50**, and the platter **15** may thus be swung upwardly and to the left to the position shown in broken lines in Fig. 4. This motion may be rapidly effected by the multiplying action of the linkage, thus actually throwing a load of snow from the platter to the left of the supporting frame.

To prevent the platter from moving sideways or downwardly during this tilting motion, I may provide stops with curving inner edges, as shown at **55** and **56**, which ride on the upper edges of the frame members **5** and **6** during this swinging and throwing action.

To effect the tilting and throwing action in the opposite direction, the shaft or flip rod **31** may be operated by pressing downwardly on the handle **34**. The rod **31** has a crank arm **60** provided with a journal tip **61**, which, in turn, engages a slot **62** in the link lever **63**, shown as pivoted at **65** to a cross member **45**, and as having an operating pivot pin **67** engaging the slot **51** in the member **48**, and which is parallel with the plane of the platter **15**, as is the slot **50**.

It will be seen that as the shaft or rod **31** is turned, the crank **60** swings from the position shown in Figs. 3 and 4 to that shown in Fig. 5, carrying the link **63** upwardly and through the pin **67**, tilting and lifting the platter **15** to the upright position shown in Fig. 5.

Various modifications may be made of this linkage, the essential objects being to provide a simple and effective means of quickly tilting the platter **15** with a throw-

ing action to actually throw or flip the snow, similar to the throwing movement effected by the tossing action of a shovel being lifted and swung by hand with its load. The important accomplishment is that the physical effort of the user is exerted essentially in a downward direction upon the handle levers **32** or **34**, which, by the way, may be of any suitable length for effective leverage. Thus, the muscular strain is very materially less by reason of the manner of applying the operating force than as though a snow load were lifted and tossed.

The wheel-mounted carriage and shovel obviously may be pushed forwardly on the wheels with the scraper blade **10** wedging the snow upwardly until the snow-carrying platter **15** is suitably loaded, and this is accomplished with much less effort than that required to thrust the usual shovel beneath the snow.

Various modifications of my invention may be made without departing from the spirit of my invention as summarized in the appended claims.

Having thus described my invention, what I claim is:

1. A manually operated snow-removing and throwing implement comprising a pair of wheels, a frame mounted thereon, a rigid handle connected to the frame and extending rearwardly and upwardly from the wheels and frame, a platter having a snow-receiving and throwing surface and mounted on the frame in a downwardly sloping position, the forward edge of which is normally adjacent to the ground, an operating shaft on each side of and journaled to the rigid handle and each provided with an operating lever projecting outwardly from the handle, and a crank at the inner end of each shaft extending from one side of the central position toward the opposite side of the platter and adapted to swing upwardly under the platter as the operating lever is pushed downwardly.

2. The device described in claim 1 in which the frame carries a scraping blade forwardly of and normally in the same plane with the platter and rigidly fixed to the frame.

3. The device described in claim 1 in which means are provided for preventing the platter sliding downwardly when in tilting and throwing position, said means comprising rigid members fixed to the platter and having curved supporting surfaces slidably engaging the frame as the platter is tilted.

4. A hand snow removing and throwing implement comprising a pair of wheels, a frame mounted thereon, a rigid handle connected to the frame and extending rearwardly and upwardly from the wheels and frame and adapted to push the same, a platter presenting a snow receiving and throwing surface and mounted upon the frame normally in a downwardly and forwardly sloping direction, the forward edge of which is positioned normally adjacent to the ground, a rigid flange having separated slot forming surfaces therein and extending parallel with the surface of the platter, an operating shaft on each side of and journaled on the rigid handle and each provided with a hand-operated lever projecting outwardly from the handle, a crank arm connected to each of said shafts, an operating pin connected with and movable by each crank arm and engaging the slot forming surfaces at a position toward the opposite side of the platter from the axis of the crank arm, whereby when either arm is swung upwardly under the platter by moving the corresponding hand-operated lever downwardly, the platter is swung upwardly while the actuating pin on the other arm engaging slot forming surfaces limits outward movement of the platter away from the frame.

5. In a manually operated snow-removing implement, a coaxial wheeled truck including an axle, a frame supported thereby, a rigid scraper edge adapted to contact the surface from which snow is to be removed, an upwardly and rearwardly extending pushing handle carried by said frame, a snow-carrying platter sloping upwardly and rearwardly from the scaper, a pair of operating rods having handles adjacent the pushing handle and so connected to the frame and to the platter as to effect swinging the platter upwardly to either side of the frame, the platter being provided on its underside with means providing a pair of horizontal slots extending from the center to points near its sides, a pair of link arms connected to the frame, one near one side and the other near the other side of the frame, and each having elements engaging and slidable in said slots, each link being provided with a longitudinal slot, crank arms having journal studs engaging the link slots, and said operating handle rods being non-rotatably connected to each of the crank arms whereby swinging one crank arm may tilt the platter upwardly and to the right of the frame, and swinging the other crank arm may tilt the platter upwardly and to the left of the frame.

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