United States Patent [19]

Tasse

[11] **3,833,262**

[45] **Sept. 3, 1974**

[54] **DUMPING SCRAPER-BARROW**

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[22] Filed: **Feb. 20, 1973**

[21] Appl. No.: **334,145**

[52] **U.S. Cl.** **298/2,** 298/3

[51] **Int. Cl.** **B62b 1/24**

[58] **Field of Search** 298/2, 5, 3; 37/53, 103

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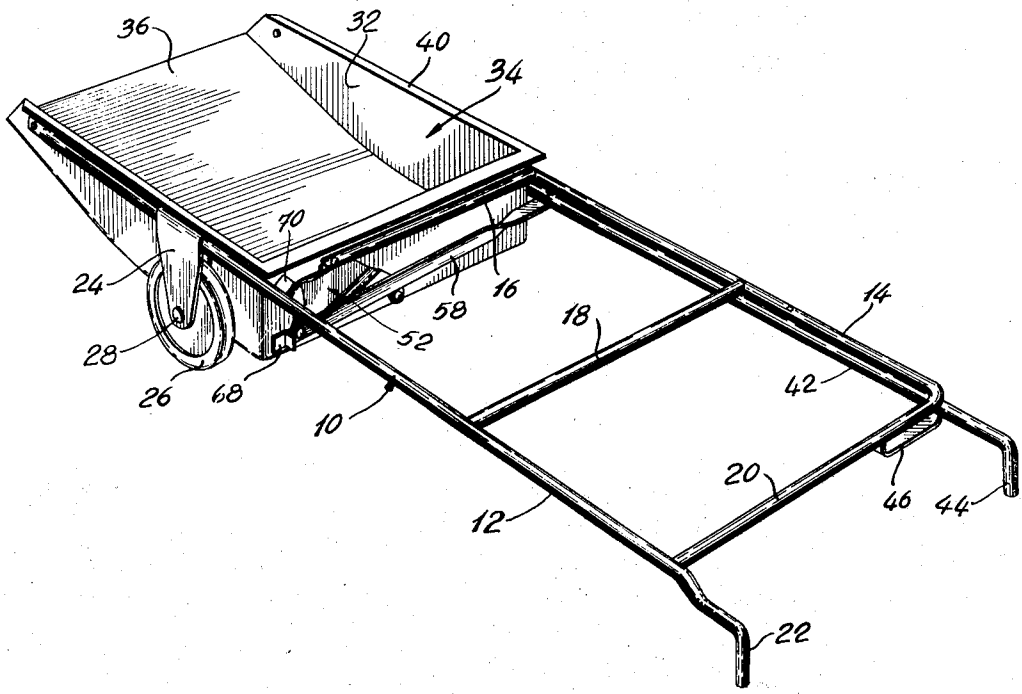
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[57] **ABSTRACT**

There is disclosed a dumping scraper-barrow in which raising of the scoop to dumping position is effected by pulling one of the handles towards the other thereby actuating a linkage connecting the handle to the back of the scoop. The users thereby are enabled to raise the scoop or even to adjust the angle during scraping by simply squeezing together with his arms without the necessity of letting go of one of the handles. The arrangement also gives the users plenty of leverage for raising the scoop when the same is loaded down with material to be dumped.

6 Claims, 4 Drawing Figures



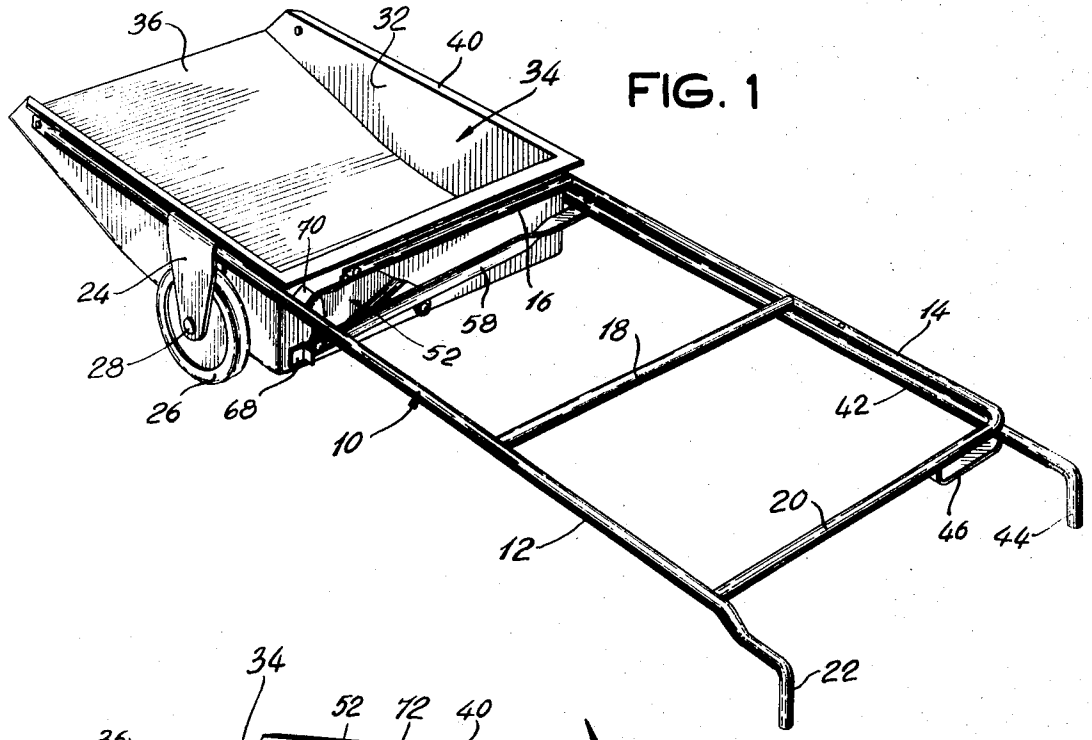

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FIG. 1

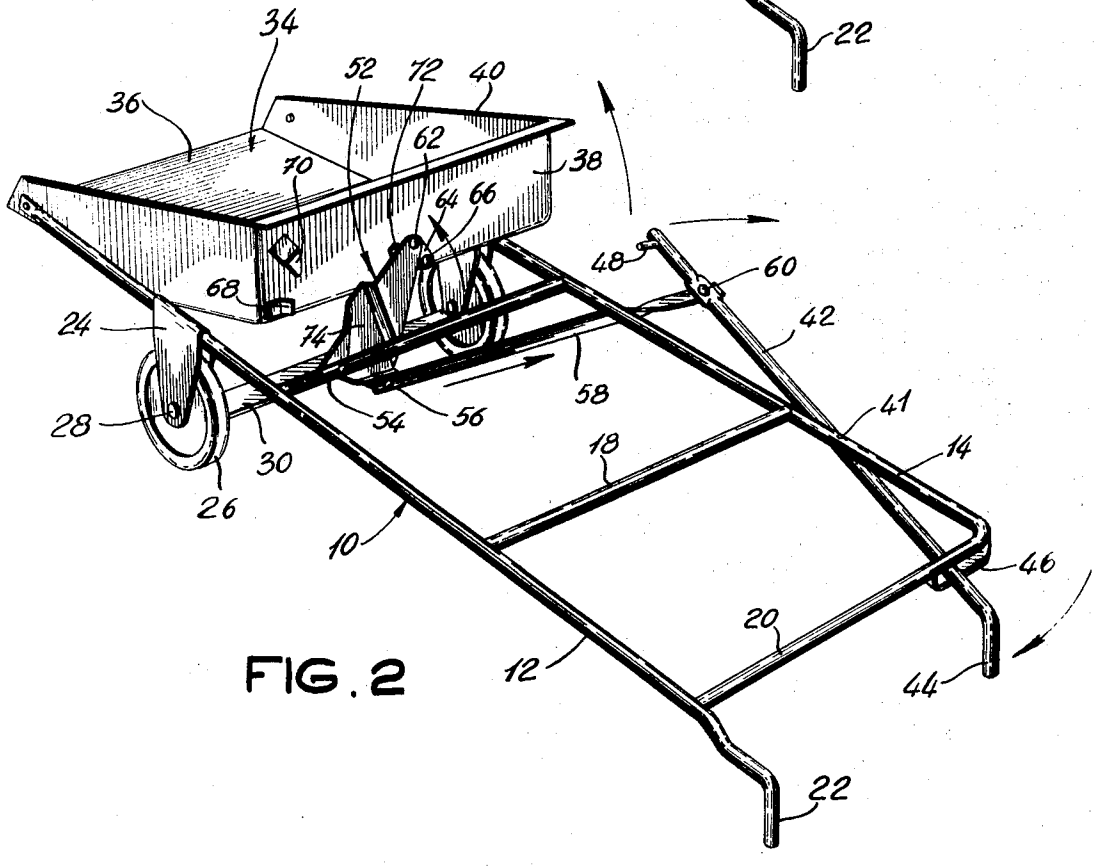
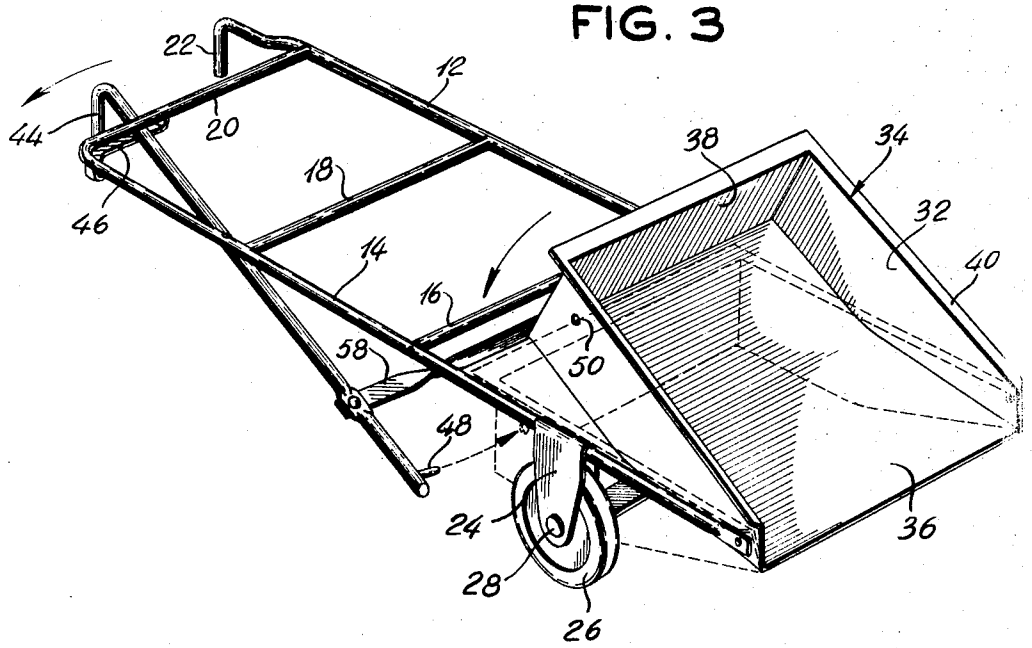

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FIG. 2

FIG. 3


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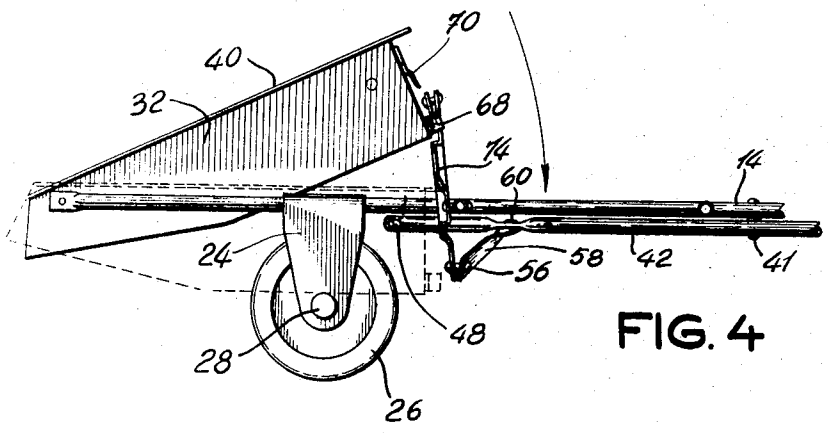

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FIG. 4

DUMPING SCRAPER-BARROW

The present invention relates to a dumping scraper-barrow which may be used for scraping up snow and taking it to a dumping location, picking up sand or other materials from a pile and dumping them gradually or all at once somewhere else as well as for a variety of other purposes.

Various dumping scraper-barrows are known in which various means have been applied to obtain the raising of the scoop to dumping position. In most cases, the leverage offered by the dumping means was insufficient for anything but very light loads such as snow. In other cases, the dumping position is achieved by pushing forward on the scraper which presupposes an obstacle against which dumping is carried out. Such an obstacle is not always present and furthermore dumping in these cases is effected with the front of the scoop in contact with the ground or with a pile of material already dumped, which prevents complete emptying of the scoop.

In all prior art constructions furthermore, the means for effecting the dumping or for releasing the scoop require letting go of one of the handles with resulting inconvenience for the user.

It is an object of the present invention to provide a dumping scraper-barrow in which dumping is effected by moving one of the handle, preferably towards the other handles so that the inconvenience of having to let go of one of the handles is avoided and plenty of leverage is provided by squeezing the arms together to dump relatively heavy loads.

It is a further object of the invention to provide a dumping scraper-barrow in which the angle of the scoop can easily be adjusted during the scraping operation to adapt to the conditions of the material which is being scraped.

The invention accordingly provides a dumping scraper-barrow comprising a frame, handle means on the frame, ground engaging mounting means connected to the frame, a scoop pivotally mounted on the frame, and linkage connected between the scoop and the frame to pivot the scoop with respect to the frame, a portion of the linkage constituting part of the handle means. It can be seen that this structure responds to the aforementioned objects and offers the advantages discussed above.

More specifically, the handle means comprises one handle fixed on the frame and another handle pivotally mounted on the frame and constituting the aforementioned portion of the linkage.

Preferably according to the invention, the pivotable handle is mounted on the frame to pivot substantially towards the fixed handle which gives the user a favorable mechanical advantage.

Further according to the invention, the pivotable handle is pivoted to the frame intermediate the ends thereof and the linkage further comprises a lever having an intermediate pivot connected to the frame and lateral pivots to either side of the intermediate pivot and a link connected to each lateral pivot, one of the links being pivoted to the scoop and the other to the handle. This arrangement is simple to manufacture and enables the maximum dumping height desired to be adjusted by varying the proportions of the lever, links and handle.

Further according to the invention, the one link is connected to a point of the scoop lower than the pivotal connection of the link to the lever and the other link is connected to the handle on the side of the pivotal connection of the handle to the frame remote from a hand held portion of the handle. With this arrangement, both links are only stressed tensionally against the load on the scoop and may thus be made of light weight material.

Further according to the invention, the scoop carries a hook engageable with the lever securing and limiting the lever in a lowered position of the scoop. The scoop also carries a stop engageable with the one link limiting the link in a raised position of the scoop.

Still according to the invention, the pivotable handle carries a locking means engageable with the scoop in a lowered position of the scoop and disengageable from the scoop upon movement of the pivotable handle towards the fixed handle so that if desired, the scraper-barrow can be used as a rigid unit without the pivotal dumping feature.

Still according to the invention, the frame is wheel mounted and the scoop is pivoted to the frame forward of the wheel mount to allow dumping of the load from the scoop in a raised position of the front edge of the scoop.

An embodiment of the invention is illustrated by way of example in the accompanying drawings in which

FIG. **1** is a perspective view of a dumping scraper-barrow according to the invention in normal position,

FIG. **2** is a perspective view corresponding to that of FIG. **1** showing the scraper-barrow in dumping position,

FIG. **3** is a perspective view of the scraper-barrow in dumping position seen from the side opposite to FIGS. **1** and **2**,

FIG. **4** is a fragmentary elevation of the scraper-barrow in dumping position.

Referring to the drawings, the scraper-barrow illustrated therein, comprises a frame **10** made of two longitudinal members **12** and **14** joined by cross members **16, 18** and **20.** One longitudinal member **12** has the rear end thereof bent to form a handle **22.** Each frame member **12** and **14** carries a yoke **24** supporting a wheel **26** journaled on a shaft **28.** The lower inner ends of yokes **24** are connected by a crossbar **30.**

To the forward ends of frame members **12** and **14,** are pivotally connected the front end of sidewalls **32** of a scoop **34** which also comprises a bottom **36** and a rear wall **38.** Sidewalls **32** and the rear wall **38** are provided with an outwardly extending lip **40** which in the normal or lowered scraping position rests on the frame members **12** and **14** and on the cross member **16** which is adjacent the rear end of the scoop. Wheels **26** are located intermediate the longitudinal extent of the scoop **34** towards the rear end thereof.

A handle **42** with a bent hand held portion **44** at the rear end thereof is pivotally mounted on longitudinal frame member **14** for rotation about axis **41** substantially perpendicular to the plane containing frame members **12** to **20.** Handle **42** is disposed underneath the frame member **14** and slides within a slide way formed by a looped bracket **46** secured to the underside of rearmost frame cross member **20.** Handle **42** is pivotable between a position where it is essentially aligned with frame member **14** and a position in which

the hand held portion **44** has moved towards the handle **22**, this latter position being limited by the extent of the looped bracket **46**.

The handle **42** has at its forward end a projecting lock pin **48** extending in a plane generally parallel to the plane of the frame **10** and engageable with a hole **50** in the corresponding sidewall **32** of the scoop **34** when the handle **42** is in line with frame member **14**. In this position of the handle therefor, the scoop is positively locked in its lowered or scraping position; pivotal movement of the handle **42** away from this position extracts the lock pin **48** from the hole **50** and frees the scoop **34** for pivotal movement.

The cross member **16** carries a lever **52** which is triangular in shape and is pivoted at one of its corners to cross member **16** for rotation about an axis substantially parallel to frame member **12** and located along cross member **16** towards member **12**. This pivotal connection is indicated at **54**. Another corner of lever **52** is pivoted at **56** to one end of a link **58** which has its other end **60** pivoted near the forward end of lever **42**. The remaining corner of lever **52** is pivoted at **62** to a short link **64** pivoted at **66** to the bottom center of scoop rear wall **38**.

It will be seen that as far as the mechanics of the above-described linkage are concerned, lever **52** is a lever of the second order with pivots **56** and **62** being lateral pivots and pivot **54** being an intermediate pivot forming the fulcrum of the lever. Movement of hand held portion **44** of handle **42** towards handle **22** exerts a pull on link **58** and rotation of the lever **52** to raise the corner thereof which carries pivot **62** which in turn exerts a pull through link **54** on the rear end of the scoop **34** thus raising the scoop to a dumping position. Movement of the handle **42** in the opposite direction produces return of the scoop to lowered or scraping position until lip **40** engages the frame.

In the lowered position, the pivotal movement of the scoop **34** is simultaneously limited furthermore by engagement of the end of link **58** adjacent lever **52** with a stop **68** positioned at the lower corner of rear wall **38** adjacent frame member **12** as well as by engagement of the lever **52** by a hook **70** located near the upper corner of rear wall **38** adjacent member **12**.

The topmost dumping position is limited by engagement of link **64** with a stop **72** suitably located on the side of pivot **66** towards the frame member **12** near the center of the scoop wall **38**. For the sake of clarity, the stop **72** has been omitted in FIG. **4**.

It will be noted that the lever **52** is formed with a central sunken portion **74** which permits clearance of stop **72** and allows the lever to be grasped by the hook **70**.

It will also be seen that pivot **66** is lower than pivot **62** so that the scoop hangs by link **64** from lever **52** and link **64** is only stressed in tension. The same applies to link **58** which in raising the scoop pulls against the weight of the scoop and of the load thereon. Link **58** is made of metal strip with the ends twisted at 90° with respect to each other to provide suitable orientation of pivots **56** and **60**.

In operating the device, the user grasps handle **22** in the left hand and the hand held portion **44** in the right and he can at any time during the operation of the scraper-barrow pull the hand held portion **44** towards the handle **22** to dump the load or to vary the angle of the scoop **34** if this is desirable during scraping or while loading material to the scoop. The motion of bringing the arms together provides the user with substantial leverage to raise the scoop **34** to dumping position even if there is a heavy load on the scoop.

The illustrated embodiment is a wheel mounted scraper-barrow but it will be understood that the invention is also applicable to a drag mounted scraper designed to rest either on the scoop or on drags connected to the frame.

I claim:

1. A dumping scraper-barrow comprising

a frame,

handle means on said frame including a fixed handle,

ground engaging mounting means connected to said frame,

a scoop pivotally mounted on said frame,

and linkage connected between said scoop and said frame to pivot said scoop with respect to said frame, a portion of said linkage comprising a handle member pivoted to said frame, and movable toward said fixed handle to tilt said scoop,

said pivoted handle member having a locking means thereon engageable with said scoop in a lowered position of said scoop to lock said scoop in said lowered position and disengageable from said scoop upon movement of said pivotable handle towards said fixed handle.

2. A dumping scraper-barrow comprising:

a frame,

handle means on said frame,

ground engaging mounting means connected to said frame,

a scoop pivotally mounted on said frame,

linkage connected between said scoop and said frame to pivot said scoop with respect to said frame, a portion of said linkage constituting part of said handle means,

said handle means including one handle fixed on the frame and another handle pivotably mounted on said frame and constituting said portion of said linkage,

said pivotable handle being mounted on said frame to pivot substantially towards said fixed handle, said pivotable handle being pivoted to said frame intermediate the ends thereof and said linkage further comprising a lever having an intermediate pivot connected to said frame and lateral pivots to either side of said intermediate pivot and a link connected to each lateral pivot, one of said links being pivoted to said scoop and the other to said pivotally mounted handle.

3. A dumping scraper-barrow according to claim **2**, wherein said one link is connected to a point of said scoop lower than the pivotal connection of said link to said lever.

4. A dumping scraper-barrow according to claim **2**, wherein said other link is connected to said handle on the side of said pivotal connection of said handle to said frame remote from a hand held portion of said handle.

5. A dumping scraper-barrow according to claim **2**, wherein said scoop carries a hook engageable with said lever securing and limiting said lever in a lowered position of said scoop.

6. A dumping scraper-barrow according to claim **2**, wherein said scoop carries a stop engageable with said one link limiting said link in a raised position of said scoop.

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