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Chetwynde

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[54] **SNOW HANDLING DEVICE**

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[52] **U.S. Cl.** **37/130,** 37/53, 280/47.26, 294/54

[51] **Int. Cl.** **E01h 5/02**

[58] **Field of Search** 37/16, 53, 130; 294/55, 54; 280/47.26; 214/370

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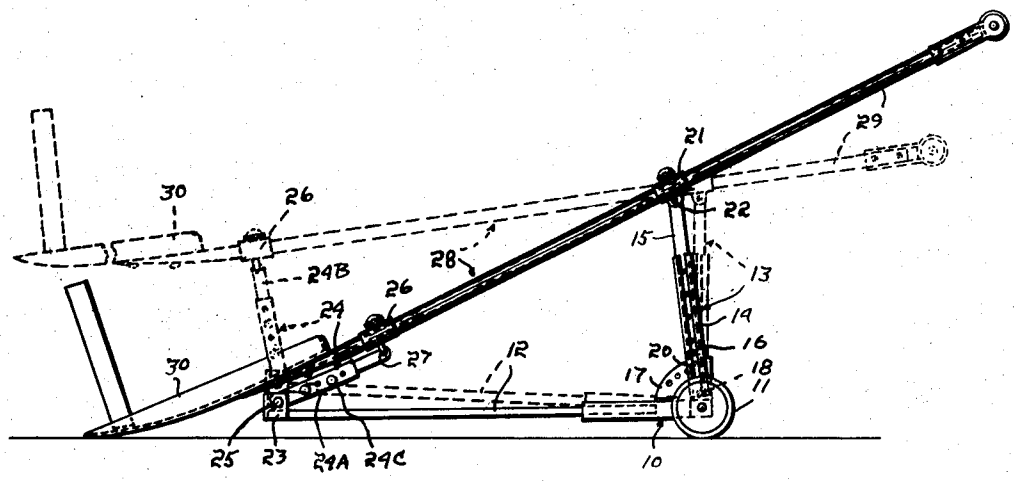
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Assistant Examiner—Eugene H. Eickholt
Attorney—Abbott Spear

[57] **ABSTRACT**

A snow handling device is disclosed in which a carriage has a jack to which a central portion of the handle of a snow shovel is pivotally connected both to rotate and for axial movement relative thereto and a forward extension to which the handle is connected by a link permitting the handle to be turned but limiting its axial movement. When the shovel is full, the operator depresses the rear portion of the handle with the lifting of the shovel enabling the device to be easily moved and also erecting the link to hold the shovel in an elevated position relative to the forward extension. The jack may then be operated by again raising the rear portion of the handle to establish a higher dumping position of the shovel.

9 Claims, 8 Drawing Figures



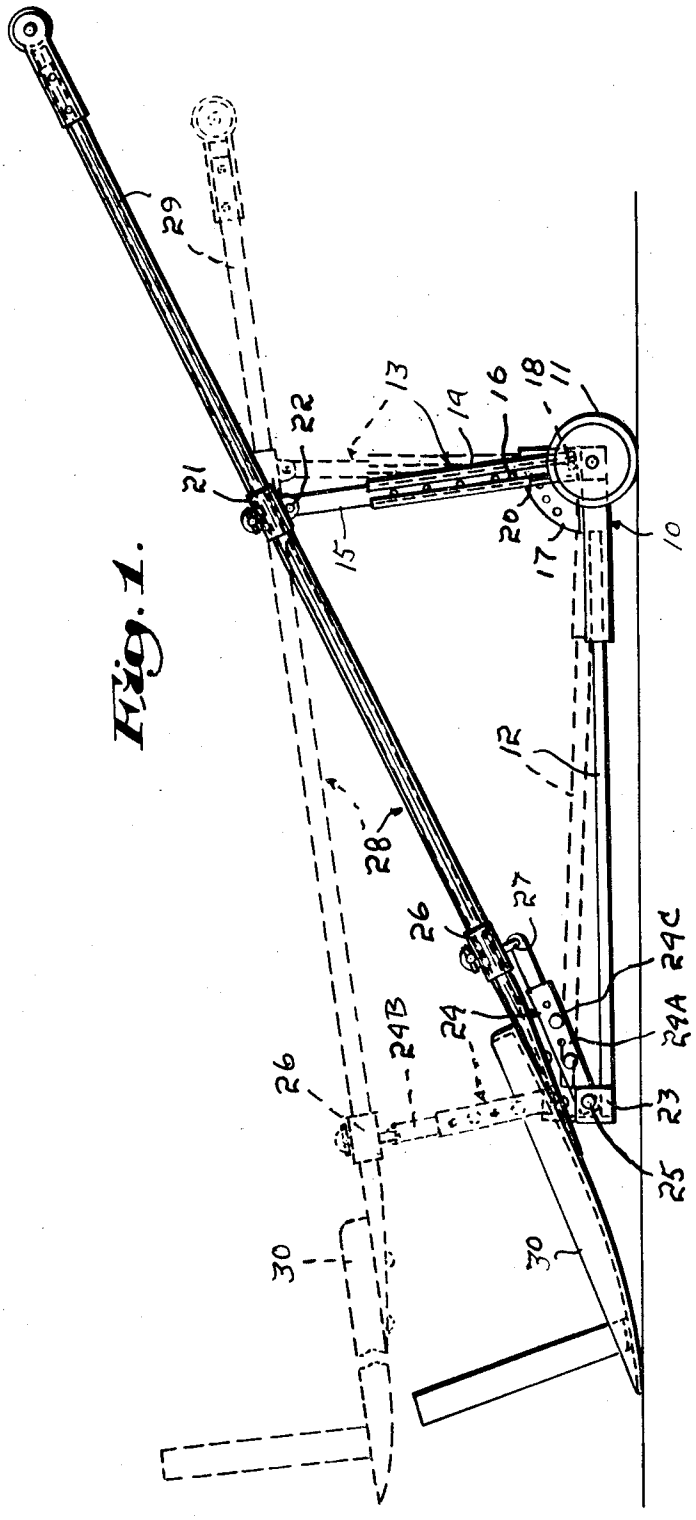

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Fig. 1.

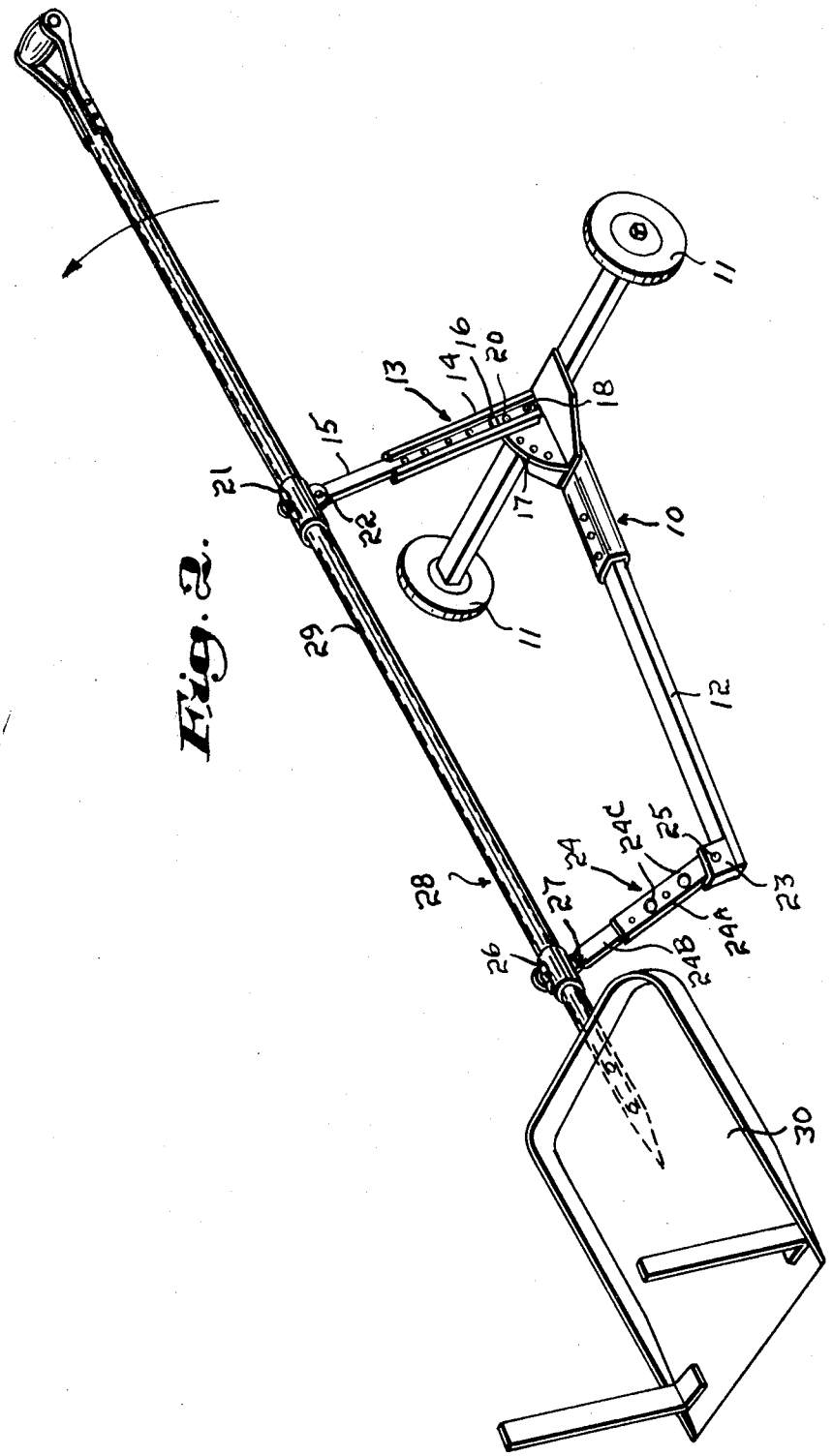

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Fig. 2.

Fig. 8.

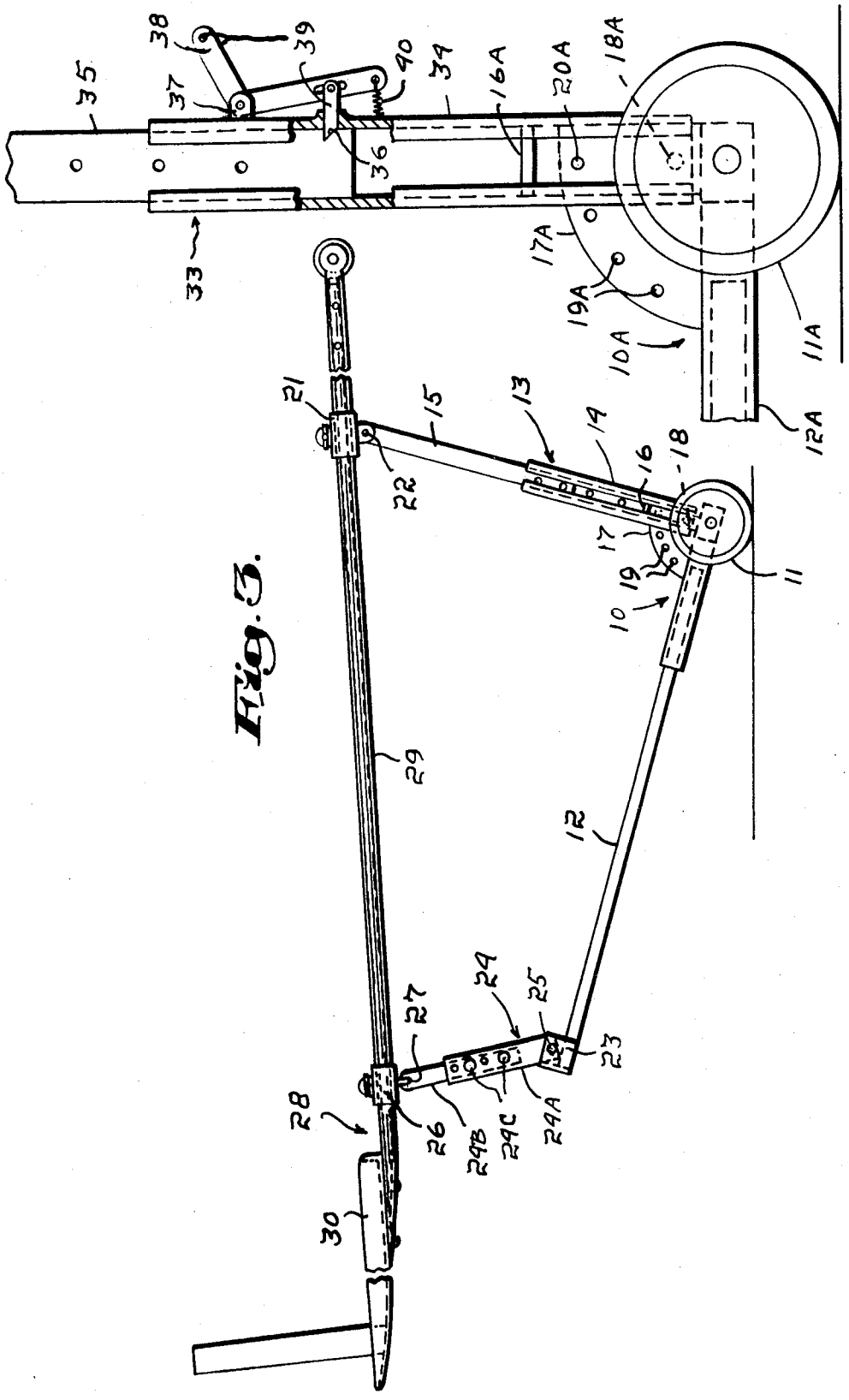

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Fig. 9.

Fig. 3.

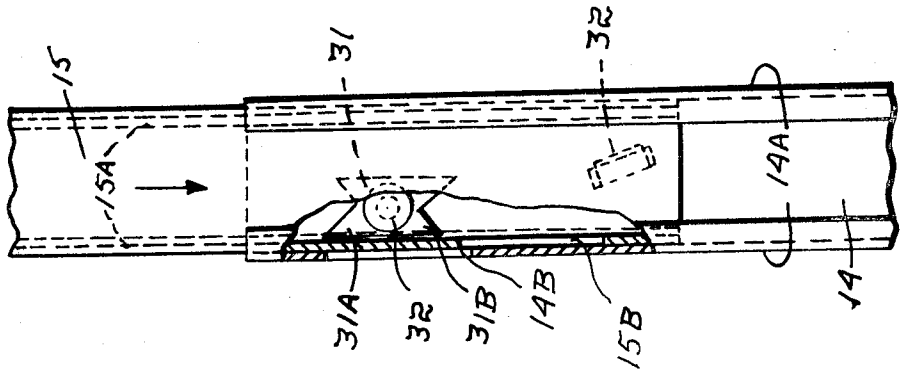


Fig. 6.

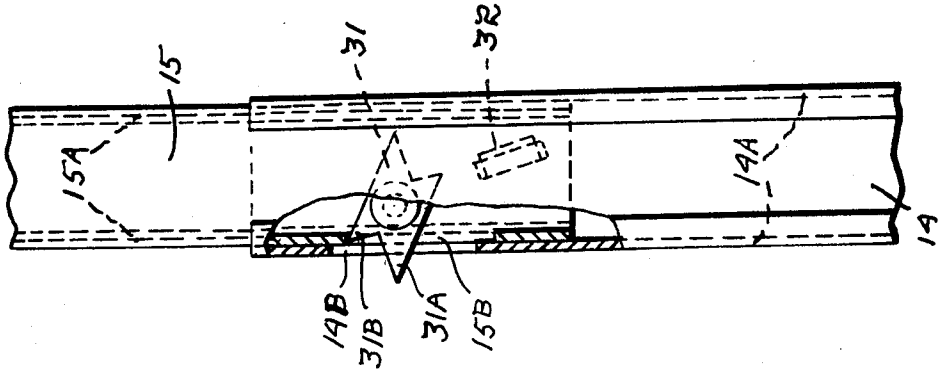


Fig. 5.

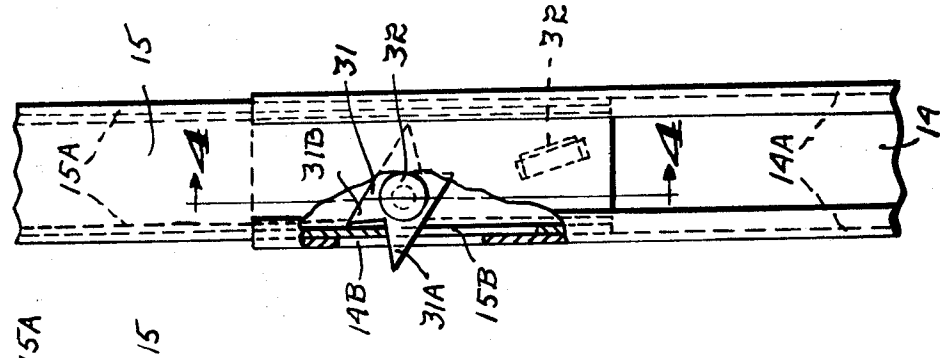
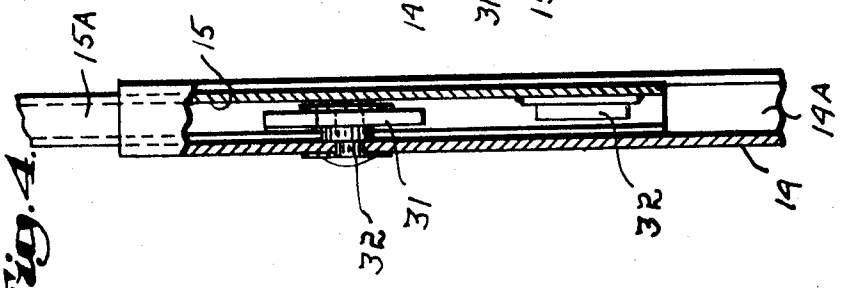


Fig. 4.



SNOW HANDLING DEVICE

BACKGROUND OF THE INVENTION

Snow shoveling is a troublesome task and proposals have been made to lessen the work involved. Among such proposals is that of mounting a shovel on a two-wheeled carriage in a manner enabling the carriage to be pushed forwardly with the shovel in a position then to be loaded, the rear portion of the handle depressed to raise the shovel, and the handle turned to dump the snow carried by the shovel. See for example U. S. Pat. Nos. 2,846,785 and 2,520,606.

While such proposals are useful, they are not adapted for use where the snow to be shoveled is deep or where, adjacent the area to be cleaned, there are substantial snow banks.

THE PRESENT INVENTION

Snow handling devices in accordance with the invention do not have the above referred-to limitation on their use since, when the shovel of such a device is loaded, its dumping position can be elevated if necessary or desirable.

This result is attained by providing the carriage with a jack to which a central portion of a shovel handle is pivotally connected in a manner permitting it to be turned and to be moved axially relative thereto. The carriage has a forward extension to which a link is pivotally connected to swing forwardly and upwardly from a first position beyond center into a predetermined second position. The link is connected to the handle close to the scoop of the shovel in a manner permitting the handle to be turned to dump the scoop contents but limiting the extent to which the handle may be moved axially.

In use, once the device has been pushed forwardly to load its shovel, the rear portion of the handle is depressed raising the scoop of the shovel so that the device may be easily moved and, at the same time, shifting the link from its first into its forward, second position so that the link, forward extension, jack and the portion of the handle between the jack and the link establish a quadrilateral held against collapse by the weight of the loaded shovel holding the link in its second position. If the device cannot then provide a dumping position that is high enough, the rear portion of the handle is raised with the forward extension coming in contact with the ground and the jack becoming extended so that when the rear of the handle is again depressed, the dumping position is elevated.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings, there is shown a preferred embodiment of the invention of which

FIG. 1 is a side view of the device showing, in solid lines, the load-receiving position thereof and, in dotted lines, the erection of the shovel-supporting link;

FIG. 2 is a perspective view of the device with the handle being raised to extend the support jack;

FIG. 3 is a side view of the device with the jack extended and the device in an elevated load-dumping position;

FIG. 4 is a fragmentary and partly sectioned edge view of the jack taken approximately along the indicated line 4—4 of FIG. 5;

FIG. 5 is a fragmentary and partly sectioned side view of the jack with its sections interconnected by its latch in their extended relationship;

FIG. 6 is a like view thereof but with the latch being turned to permit the jack to be shortened;

FIG. 7 is a like view but with the latch positioned to permit the jack to be extended or shortened; and

FIG. 8 is a like view of a jack in accordance with another embodiment of the invention.

In the embodiment of the invention illustrated by FIGS. 1 – 3 of the drawings, the device consists of a carriage 10 of a type supported by a pair of wheels 11. The carriage 10 includes a forward extension 12 and an upwardly extending jack, generally indicated at 13 and desirably defining with the forward extension an angle of less than 90° with the smaller the size, the greater the resulting lift.

The jack 13, see FIGS. 4 – 7, includes a U-shaped lower section 14 whose sides 14A have inturned margins and a U-shaped upper section 15 whose sides 15A also which inturned margins and which is dimensioned to be a slidable fit in the section 14 with the inturned margins of each section in engagement with the other section so that the sections are spaced apart. The upper section 15 normally rests on a stop 16 with which the lower section is provided. The carriage 10 is shown as having a plate 17 to which the jack section 14 is connected by a pivot 18 an;d which has an arcuate series of holes 19 with the jack section 14 secured by a bolt 20 through a selected one of which to fix the jack in a selected angular relationship relative to the carriage. The upper jack section 15 has a split sleeve 21 connected to its upper end by a pivot 22.

At the front end of the forward extension 12 there is a U-shaped holder 23 to which a link, generally indicated at 24 is connected by a transverse pivot 25 so that it may swing between its full and dotted line positions shown in FIG. 1. In its full line or first position, the link 24 is rearwardly disposed. In its dotted line or second position, the link 24 has been swung upwardly and forwardly beyond center to define an angle of more than 90° with the extension 12 held by the closed end of the holder 23 against swinging further forwardly. At its upper end, the link 24 is provided with a split sleeve 26 connected thereto by a transverse loop 27 permitting the sleeve 26 to be turned to a substantial extent. The link 24 is desirably adjustable as to its length and to that end is shown as including sections 24A and 24B interconnected by bolts 24C extending through selected ones of the holes of a series thereof with which each link section is provided.

A shovel, generally indicated at 28 has a relatively long handle 29 extending through the sleeves 21 and 26 with the sleeve 21 freely receiving the handle 29 so that it may be turned or moved axially relatively therewith and with the sleeve 26 clamped thereto to limit the extent to which it may be moved axially. The clamped position of the sleeve 26 is so close to the scoop 30 of the shovel 28 that, when the link 24 is in its first position, its holder 23 is under said scoop. The handle 29 may include detachable end portions with a joint conveniently of the ferrule type.

In practice, the device is pushed forwardly into the snow to load the shovel, for that purpose utilizing the rear portion of the handle 29. The rear end of the handle 29 is then depressed to enable the device to be more easily moved and as the loaded scoope 30 is

raised, the link **24** is pulled forwardly into its second position with the handle **29** sliding forwardly through the sleeve **21** as the latter is pivoted. It will be noted that the link **24**, the forward extension **12**, the jack **13** and the portion of the handle **29** between the jack and the link define a quadrilateral held against collapse by the loaded shovel scoop **30**. The device may then be pushed to the dumping area and the handle **29** then turned to an extent sufficient to dump the snow. When the device is pulled rearwardly by the handle, the quadrilateral collapses with the link **24** swinging rearwardly and downwardly with the parts returning to their FIG. **1** positions.

Turning again to FIGS. **4 – 7**, it will be noted that the jack sections **14** and **15** are assembled so that a latch **31** pivotally connected by a pivot **32** to the jack section **14** adjacent its upper end is within the extension **15** with its pivot axis close to one of the sides **15A** thereof which side has a lengthwise slot **15B** thereon. The corresponding one of the sides **14A** of the jack section **14** also has a lengthwise slot **14B**. The slots **14B** and **15B** are dimensioned to permit the ends of the latch **31** to extend therethrough as the latch is turned with said slots in registry. The ends of the latch **31** are notched to provide arms **31A** and **31B** whose proximate surfaces define an angle of about 90° with the arms **31A** being somewhat longer than the arms **31B**. The jack section **15** has an actuator **32** fixed on its inner surface adjacent its lower end in a position to engage with and turn the latch **31** to a predetermined extent each time the jack section **15** is fully extended by the raising of the rear portion of the handle **29.**

Except when the jack **13** is extended, the latch **31** is positioned as shown in FIG. **7** so that the section **15** may be freely moved in either direction. When the section **15** is fully raised, the actuator **32** strikes the depending arm **31A** and so turns the latch **31** as to bring the upwardly disposed arm **31** into the path of the upper edge of the slot **15B** when the section **15** slides downwardly a short distance which then turns the latch **31** into its operative position shown in FIG. **5.** When the jack section **15** is again raised, the actuator **32** reengages the latch **31** and this time turns it to present an arm **31B** to the upper edge of the slot **15B** as the jack section **15** slides downwardly with the latch **31** then being turned from its FIG. **6** into its FIG. **7** position.

The jack of the device may be of other types and another such jack is generally indicated at **33** in FIG. **8** with the lower section **34** having the upper section **35** slidable therein. The section **34** has a locking recess **36** while the section **35** has a bracket **37** pivotally supporting a bell crank **38** connected to a latch **39** yieldably urged into a recess entering position by a spring **40.** As the rear portion of the shovel is raised to extend the jack, the latch **39** rides along the section **34** until it enters the latching recess **36** to then interlock the sections in their extended relationship. The jack is returned to its shortened position by actuating the bell crank **38** to withdraw the latch **39.**

Dimensions are now referred to by way of illustration and not by way of limitation. With a shovel handle seven feet long clamped by the sleeve **26** and loosely held about midway between its ends by the sleeve **21** and with a link **24** of about a foot in length and the jack **13,** in its shortened position about two feet in length, the rear end of the handle is approximately four feet above the ground when the device is pushed forwardly to load the shovel. When the rear portion of the handle is depressed to bring the handle horizontal, the shovel is, say, two feet above the ground in its dumping position. With the rear of the handle **29** raised, the forward extension engages the ground and the jack is extended to its full length, say three and a half feet. The rear end of the handle is then about five and one-half feet above the ground but when it is pulled into a horizontal position, the dumping position has been substantially elevated.

I claim:

1. A snow handling device for use with a shovel, a carriage including a forward extension and a jack, said jack including a lower part, a connection between said lower part to the carriage fixing it in a predetermined upwardly disposed position, an upper part connected thereto to enable it to be pulled upwardly to provide an extended jack position, and means releasably interlocking said parts in said extended position, a holder dimensioned to slidably and rotatably support the shovel handle and pivotally connected to said upper jack part with its axis transversely of the carriage, and a link pivotally connected to said extension to swing upwardly and forwardly thereof from an inoperative position into a predetermined, forwardly inclined shovel-supporting position, said link including a connection attachable to said handle adjacent the scoop of the shovel to limit lengthwise movement but permitting the turning thereof, whereby with the handle attached to the device, the link may be erected into its shovel supporting position by depressing the rear portion of the handle as an incident to lifting the shovel into a first dumping position and the jack extended by again raising the handle a predetermined extent after the extension has engaged the ground thus to provide an elevated dumping position when the rear portion of the handle is again depressed.

2. The snow handling device of claim **1** in which the length of the link is adjustable.

3. The snow handling device of claim **1** in which, when the forward extension of the carriage rests on the ground, the jack is forwardly and upwardly inclined when erected.

4. The snow handling device of claim **1** in which the connection is adjustable to enable said predetermined position to be varied between a position substantially at right angles to the carriage and a position in which it is forwardly and upwardly inclined.

5. The snow handling device of claim **4** in which the connection includes a vertical plate fixed lengthwise on the carriage, the lower part of the jack is pivotally connected to the plate, the plate has an arcuate series of holes concentric with the pivot axis, and a connection between the lower part of the jack and the plate through a selected one of the holes of the series fixes the desired angular relation of the jack to the carriage.

6. The snow handling device of claim **1** in which the jack is of a type that once extended is unlatched by once again raising the rear end of the handle.

7. The snow handling device of claim **1** in which the jack is of the type in which the latch interconnecting the upper and lower jack parts when the jack is extended is yieldably held in its operative position and includes a release manually operable to disengage the latch.

8. A snow handling device comprising a shovel, a carriage including a forward extension and a jack, said jack including a fixed lower part, an upper part con-

nected thereto to enable it to be pulled upwardly to provide an extended jack position, and means releasably interlocking said parts in said extended position, a holder pivotally connected to said upper jack part with its axis transversely of the carriage, the handle of said shovel extending freely through said holder to permit it to be turned and slid lengthwise relative thereto, and a link pivotally connected to said extension to swing upwardly and forwardly thereof from an inoperative position into a predetermined, forwardly inclined shovel-supporting position, and a connection between said link and the handle of the shovel adjacent its scoop limiting lengthwise movement but permitting the turning thereof, whereby the link may be erected into its shovel supporting position by depressing the rear portion of the handle as an incident to lifting the shovel into a first dumping position and the jack extended by again raising the handle a predetermined extent after the extension has engaged the ground thus to provide an elevated dumping position when the rear portion of the handle is again depressed.

9. The snow handling device of claim **8** in which the shovel handle is of substantial length and includes detachable sections.

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