

April 3, 1951

F. C. HASSKAMP  
SNOW LOADER

2,547,752

Filed Dec. 24, 1946

5 Sheets-Sheet 1

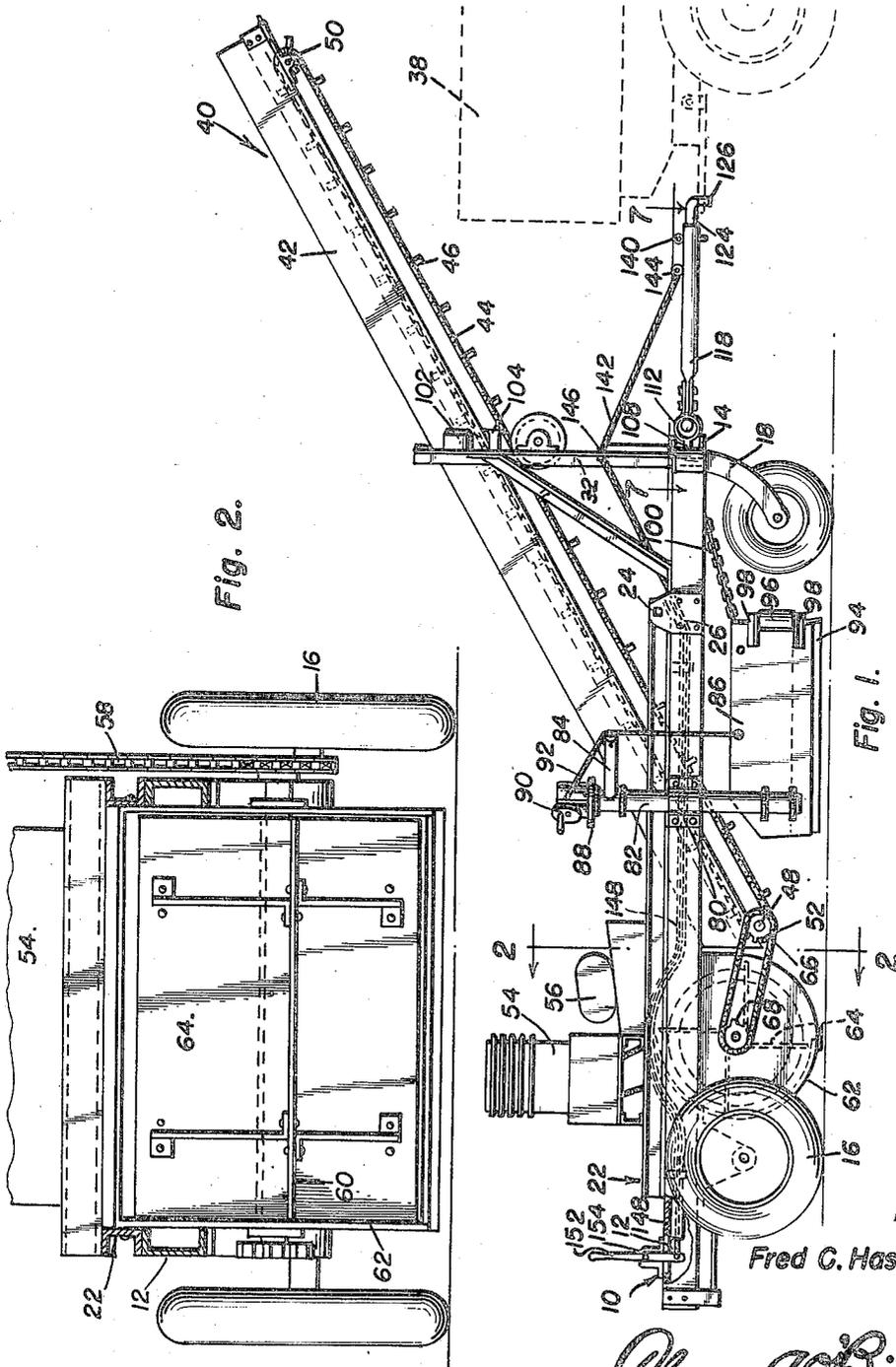


Fig. 2.

Fig. 1.

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5 Sheets-Sheet 2

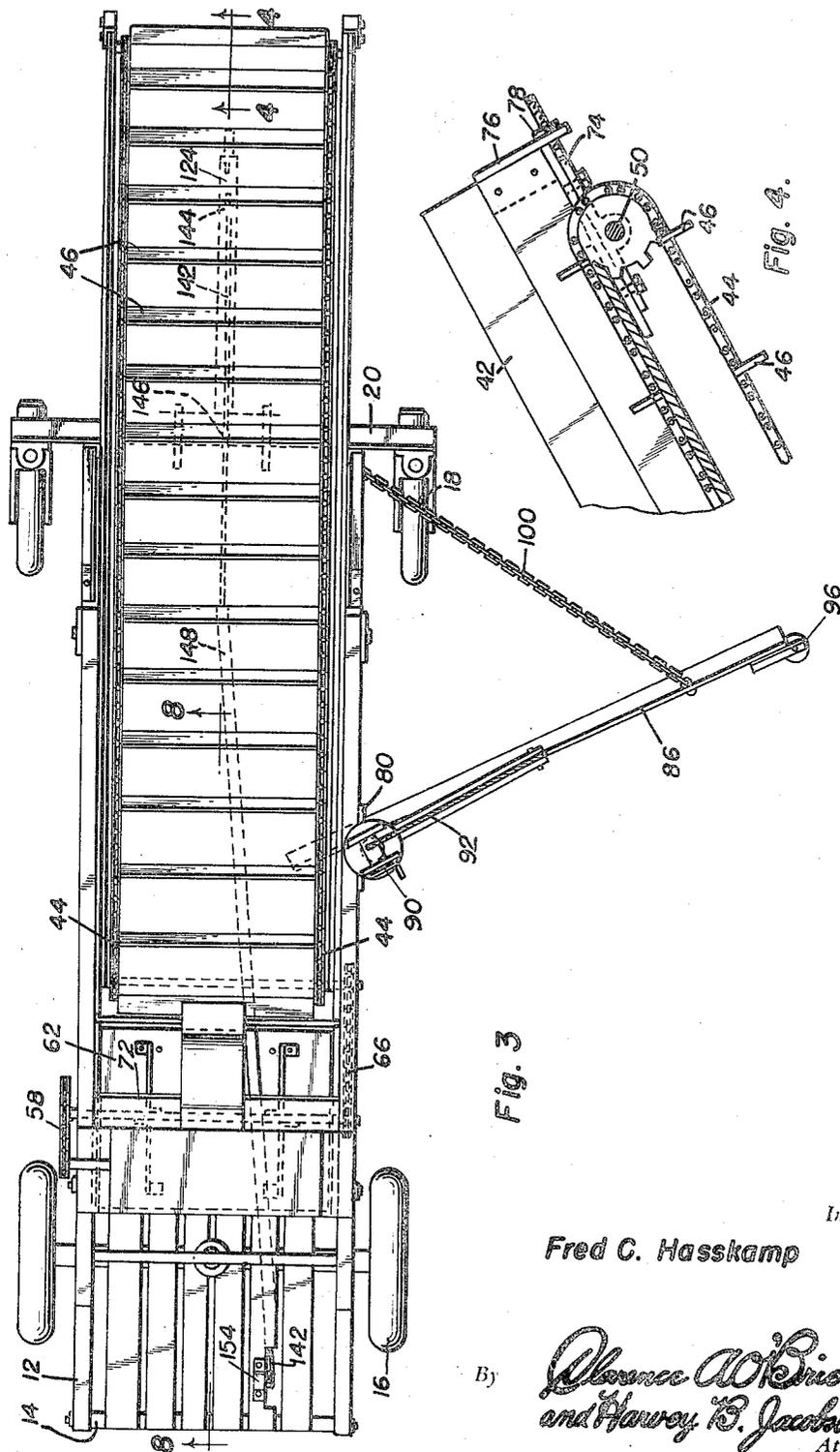


Fig. 3

Fig. 4.

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5 Sheets-Sheet 3

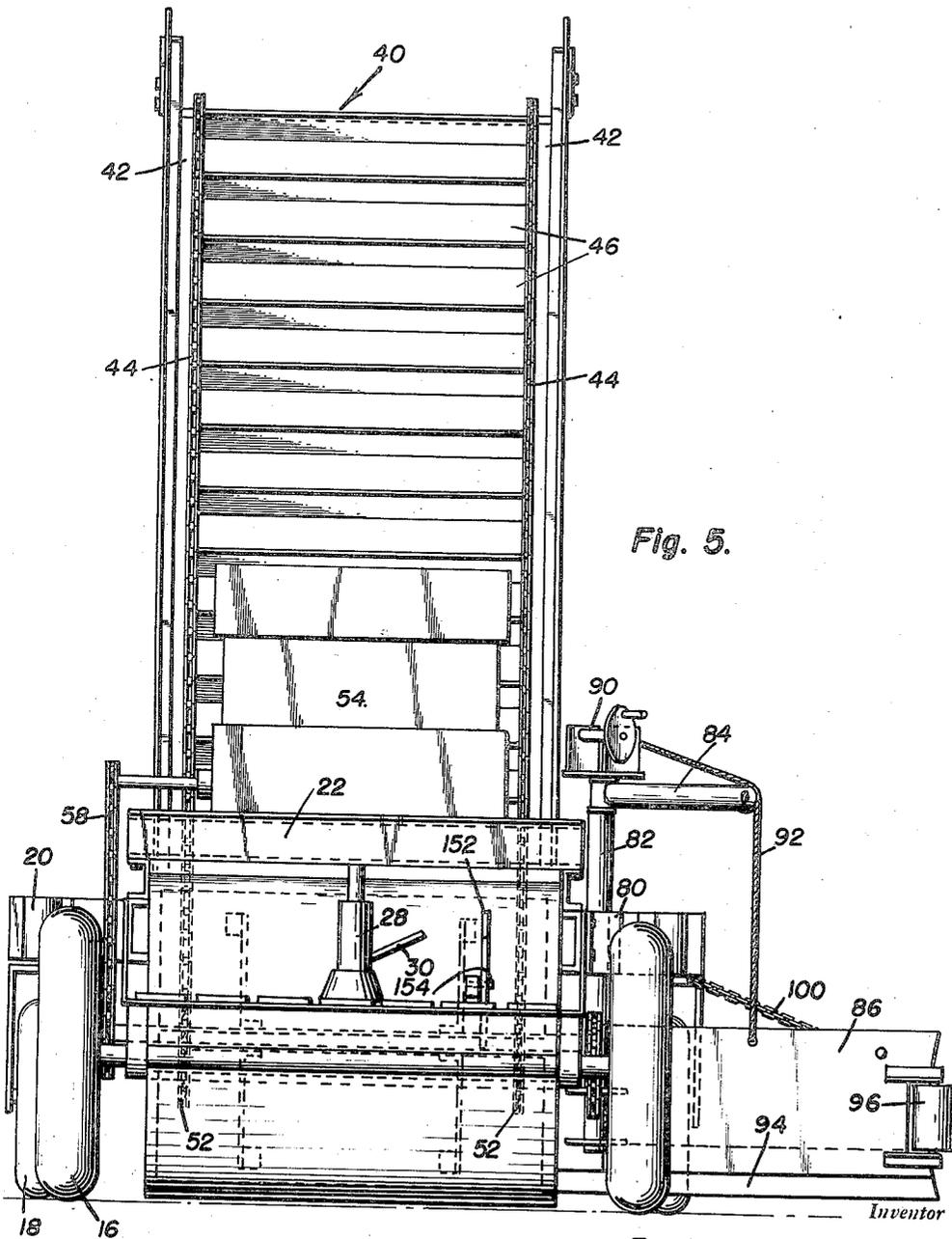


Fig. 5.

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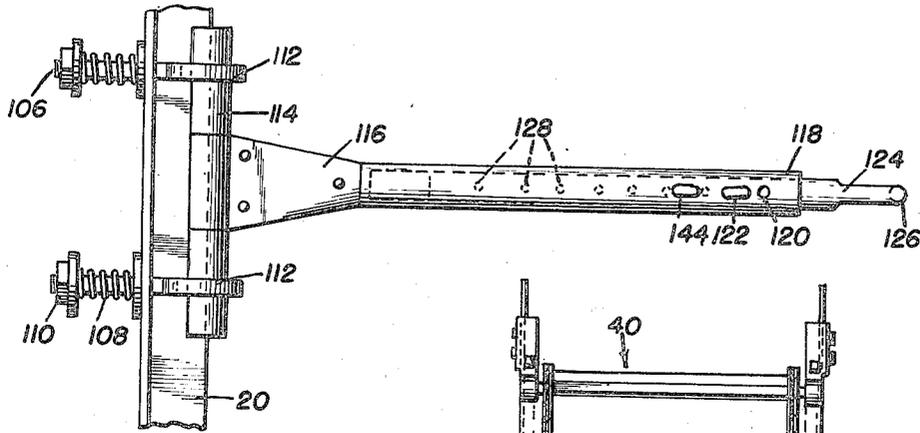


Fig. 7.

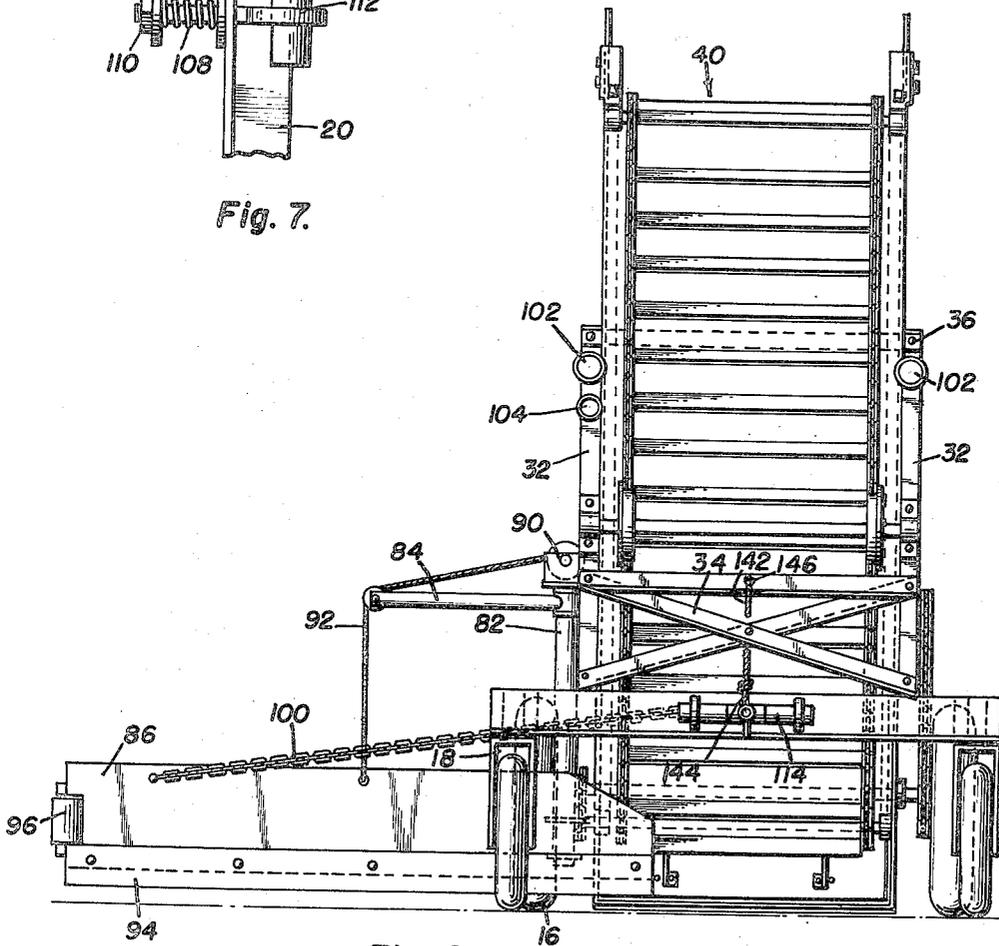


Fig. 6.

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5 Sheets-Sheet 5

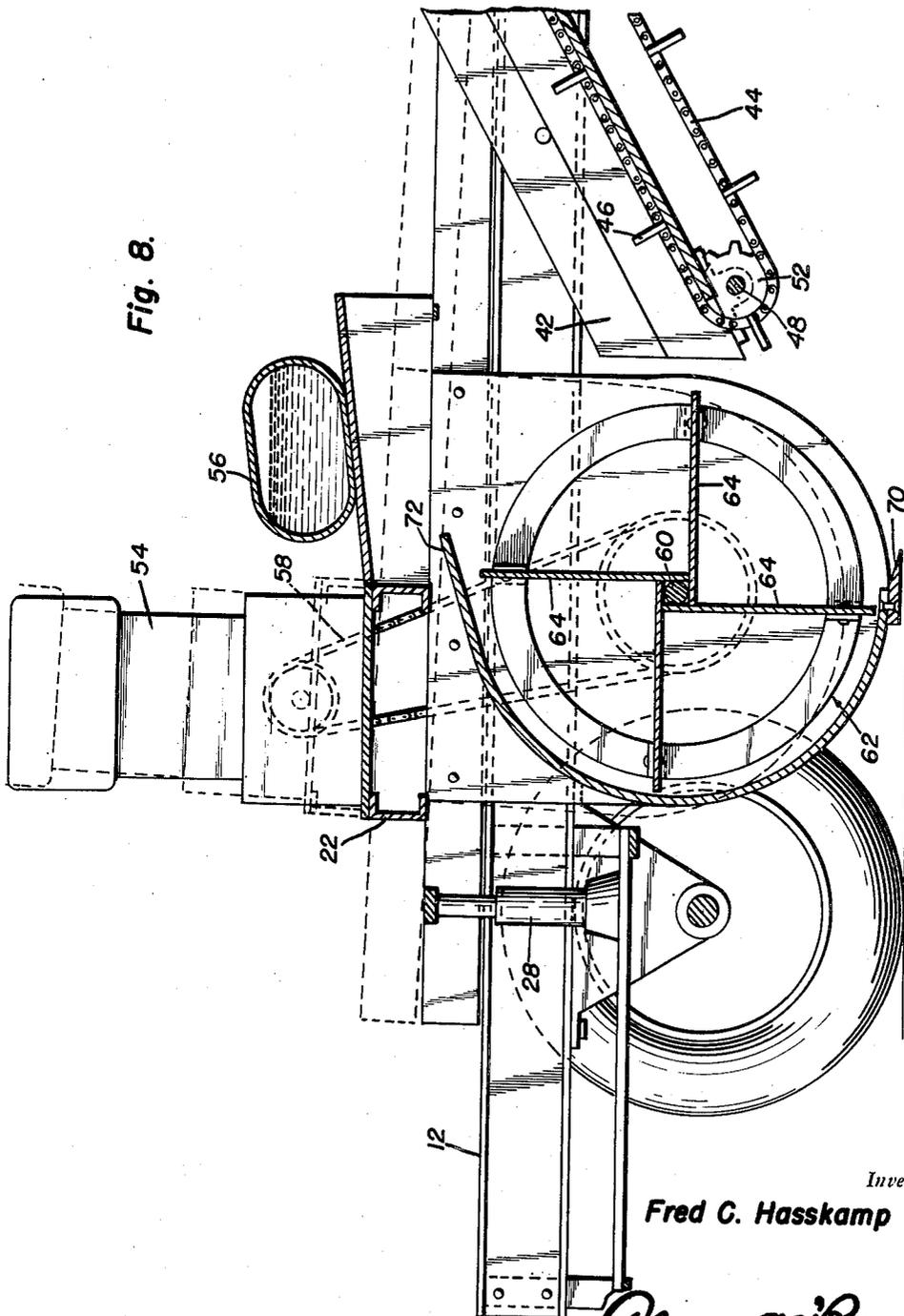


Fig. 8.

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## UNITED STATES PATENT OFFICE

2,547,752

## SNOW LOADER

Fred C. Hasskamp, Crosby, Minn., assignor of 1/3 to Severin E. Koop, Crosby, Minn., and by decree of distribution of 6/27 to Laura Hasskamp, 2/27 to Myrtle Hasskamp Murphy, 2/27 to Irene Hasskamp Roth, 2/27 to Fred H. Hasskamp, 2/27 to Robert J. Hasskamp, 2/27 to Kenneth J. Hasskamp, and 2/27 to Patricia Ann Hasskamp.

Application December 24, 1946; Serial No. 718,176

3 Claims. (Cl. 37-45)

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This invention relates to novel and useful improvements in a snow loader and more particularly pertains to a device in the form of a trailer, which may be detachably connected with a towing vehicle for the purpose of collecting, elevating and discharging snow or the like into the truck compartment of the towing vehicle.

The principal objects of this invention reside in providing a device for loading snow upon a truck, wherein power operated means are provided for collecting, elevating and delivering the snow to the truck body; wherein novel and improved means are provided for adjusting the inlet means of the snow delivering mechanism relative to the surface of the road or ground over which the device travels; wherein power operated means are provided for operating the snow discharging and the snow elevating means; wherein a laterally extending plow or blade is provided for collecting and directing the snow towards the inlet means of the device; wherein the elevation of said plow blade may be controlled in a novel and highly beneficial manner; wherein the effective width of the collecting means relative to the device may be adjusted and varied as desired; wherein an anti-friction guide means is provided upon the outer end of the blade for rolling contact as with a curb or the like; wherein a novel and releasable draw bar connection is provided for attaching the device to the rear of a truck or the like; and wherein signalling means is provided upon the device in convenient and advantageous position.

These, together with various ancillary objects of the invention which will later become apparent as the following description proceeds, are realized by this device, one embodiment of which has been illustrated by way of example only in the accompanying drawings, wherein:

Figure 1 is a side elevational view of the device shown attached to the rear of a towing truck or the like;

Figure 2 is a transverse vertical sectional view through the device upon the section line 2-2 of Figure 1;

Figure 3 is a top plan view of the device;

Figure 4 is a detail in longitudinal vertical sectional view, being taken substantially upon the section line 4-4 of Figure 3;

Figure 5 is a rear elevational view of the device as seen in Figure 1;

Figure 6 is a front elevational view of the device as shown in Figure 1;

Figure 7 is a horizontal plan view of the draw bar connection and is taken substantially upon

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the line 7-7 of Figure 1, looking in the direction of the arrows; and;

Figure 8 is a sectional detail view in vertical longitudinal section and is taken substantially upon the section line 8-8 of Figure 3.

Referring now more specifically to the accompanying drawings, wherein like numerals indicate similar parts throughout the several views, 10 indicates a frame which is generally rectangular in shape and will preferably be constructed of side and end members 12 and 14 respectively, and which provides or constitutes an open supporting structure, which is provided with the customary rear axles and wheels indicated at 16 and with front casters 18 swivelled upon the laterally extending frame member 20. A bed indicated generally at 22, and also constructed of generally rectangular shape and provided with the customary side and end members, is pivotally connected as at 24 upon brackets 26 secured to the side members 12 of the frame 10. The pivot 24 is located at one end of the bed 22, and is preferably disposed adjacent the casters 18. The rear of the bed 22 is provided with a hydraulic jack operating means indicated generally at 28 and which is operatively positioned between the frame 10 and the bed 22 for the purpose of raising the rearward end of the bed 22 and causing the bed to pivot about the fulcrum point 24 for a purpose to be later set forth. This jack 28, as seen in Figure 5, may be of any suitable type and for convenience is shown as being hand operated, being provided with an operating crank 30.

As shown best in Figures 1 and 6, the frame or chassis 10 is provided at its forward end with a rigidly mounted, vertically extending supporting structure consisting of parallel columns 32 suitably cross-braced or reinforced as at 34 and provided at their upper portions with a reinforcing cross-bar 36. Inclined at a convenient angle relative to the frame 10, and of sufficient length to have its lower portion terminate preferably below the bed 22 and frame 10, and with its upper end adapted to overhang the truck portion 38 of any suitable type of trucks or the like, is an elevator framework indicated generally at 40 and consisting of a pair of side members 42, provided with the customary end type of suitable cross-bracing not shown, and adapted to be rigidly supported by the above mentioned columns 32 and by the frame 10. A conveyor chain 44 of the well known chain or web or belt type, and provided with laterally extending panels or buckets 46, is suitably entrained over a pair of axles 48 and 50 mounted at opposite ends of the conveyor 40. As

shown more clearly in Figures 1 and 8, the shafts 48 and 50 may be provided at opposite ends thereof with sprockets or drive wheels 52, which serve to rotate the conveyor in endless manner as well known in the art.

A source of power, such as an internal combustion engine indicated at 54, and having a fuel supply tank 56, all as shown in Figure 1, is mounted in any suitable manner upon the bed 22, and connected as by a belt or chain drive 58 (see Figure 5) with the shaft or axle 60 of a rotary impeller indicated at 62 and which is provided with radiating vanes 64. As shown best in Figure 1, a belt 66 connects a driving sprocket 68 upon the axle 60 of the impeller with the above mentioned sprocket wheels 52 on the conveyor drive shaft 48. Thus, whenever the rotary impeller 62 is operated by the engine 54, the conveyor 40 is simultaneously actuated for a purpose to be subsequently described. Attention is now directed to Figure 8, wherein it will be seen that the impeller casing is provided with a lip or scoop 70 at its lower end, this lip being disposed in a horizontal plane parallel to the surface of the road which it is desired to scrape or clear of snow or the like. This lip extends forwardly, and constitutes an inlet opening or means for the impeller 62, wherein the rotating vanes 64 serve to sweep into the impeller casing snow or like material as the apparatus is moved forward. The impeller casing extends closely about the rotor vanes 64, and terminates at the upper end, in a portion 72 constituting a discharge guide means which extends tangentially of the circular travel of the outer periphery of vanes 64, and disposed in a position to throw or discharge the snow or other material carried by the rotating vanes 64, in a direction to impinge upon the upper surface of the conveyor 40. It will thus be seen, that as the apparatus moves forward, snow is scooped up upon the lip 70, delivered into the impeller 62, and centrifugally-hurled therefrom under the guidance of the discharge guide means 72 onto the conveyor 40, whereby the material is elevated and discharged from the end of the conveyor into the body 38 of the towing truck.

In order to properly tension the conveyor chain 44 and maintain the latter in the desired degree of tightness to compensate for wear or the like, the forward axle or shaft 50 is mounted in adjustable bearings, and as shown in Figure 4, is adjustable longitudinally of the conveyor casing or side members 42, by means of an adjusting screw 74 which is threaded through the depending end of a bracket 76 mounted in any suitable manner, upon the side member 42 of the conveyor, at the upper end thereof, and is retained in adjusted position as by a lock nut 78. The rear end of the screw threaded member 74, carries a bearing for the shaft 50 and thereby serves to longitudinally move the same to thus tighten or loosen the chain 44.

In accordance with this invention, means is provided for collecting and supplying the snow or other material to be removed and discharging the same adjacent the inlet means or lip 70 of the casing of the impeller 62. For this purpose, a bracket 80 is secured upon a side member 12 of the frame 10, and this bracket rotatably supports and constitutes a journal bearing for the vertically extending support shaft 82, which at its upper end is provided with an outwardly extending arm 84 extending in parallelism to a laterally extending blade 86 ver-

tically slidable upon the lower end of the shaft 82. Above the arm 84, the shaft 82 is provided with a head portion 88 upon which is mounted a windlass or crank 90 for operating a cable 92 entrained over the arm 84 and connected with the blade 86. By this mechanism, it will be seen that the windlass 90 and cable 92 may be operated to raise or lower the blade 86 upon the lower end of the shaft 82; and that rotation of the blade 86 and arm 84, is effected in unison by rotation of the shaft 82 in its bearing 90 in a manner to be now set forth. At its lower end, the blade 86 is provided with a removable or replaceable knife edge 94 for the purpose of scraping encrustations or deposits of snow or the like from the surface to be cleaned. At its outer extremity, an anti-friction roller 96 is journaled for vertical rotation in laterally projecting lugs 98 of the blade 86. A chain 100 is provided for limiting the amount of movement of the blade 86 about the axis of the shaft 82, and thereby determine the width of the surface from which snow is to be cleared by the device. As so far described, it will be seen that upon forward travel of the device, the scraping edge 94 of the laterally extending arm 86 feeds and guides snow or other material along the blade and into the inlet end or lip 70 of the impeller. The edge 94 of the blade 86 may be raised or lowered by means of the mechanism attached to the cable 92, while the blade may be opened laterally of the frame 10 by suitable manipulation of the chain 100. The roller 96 serves to roll against lateral obstructions such as the curb of a street, and thereby limits the opening of the blade 86 by such contact as well as preventing injury to the edge portion of the blade. In this use of the device, the chain 100 further serves as a means for adjustably regulating the amount of opening movement which it is desired to impart to the blade 86.

Attention is next directed specifically to Figure 6, wherein it will be seen that a signalling system consisting of electric lights 102 of any desired color for the emission of any desired signal or for lighting of the device together with a horn indicated at 104, are mounted upon the pillars 32. These signalling devices are under the control of the operator of the apparatus in order to contribute to the safety of the operators thereof and of other persons using the road.

Attention is next directed to the coupling means for attaching the snow loader to a truck or the like for towing the same. As shown in Figures 1 and 7, the transverse bar 20 has a pair of eye bolts 106 extending through suitable apertures in the bar 20 with spring means 108 and adjusting nuts 110 being provided thereon as shown in Figure 7. The eye bolt portions 112 are adapted to loosely receive and retain a transverse bar or pin 114 upon which is formed and from which forwardly extends a plate 116 terminating in a bar 118, which is provided with a suitable aperture 120 and slot 122. The bar 118 is preferably in the form of a flattened sleeve and slidably receives therein a strap or bar 124, whose forward extremity is provided with a downwardly extending hook 126 adapted for detachable connection with a suitable draw bar connection secured upon the frame of the truck whose body portion is indicated at 38 in Figure 1. The strap 124 is suitably apertured as at 128, and is detachably retained within the sleeve portion 118 as by means of a fastening pin 140 engageable through aligned apertures 120 and 128. By this

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arrangement, the snow loader is detachably coupled to the rear of a towing truck, and the spring means 108 provide a yieldable cushioning means for towing the apparatus. The latch pin 140 constitutes ready means, operable in any suitable manner, for quickly lengthening or shortening the bar 124 by adjusting the bar 124 longitudinally of the sleeve 118 or even disengaging these telescoping members as desired.

In order to permit the operator to release the bar 124 from the drawbar of the towing machine 38 the following mechanism is employed. A flexible linkage or cable 142 has one end secured to an eye-bolt 144 on the sleeve 118 and is entrained over a guide 146 attached to the frame member 34, and thence passes through a protective pipe or tube 148 secured suitably beneath the frame 10, and at its other end is connected to an operating lever 152 pivoted as at 154 to the frame 10. By manipulation of lever 152 the operator may without leaving his post upon the device behind the engine 54, raise the tongue or bar 124 to disengage the hook 126 from its coupled relation to the tractor vehicle.

It is to be distinctly understood that the drawings and accompanying description are to be regarded as purely illustrative of the principles of the invention only, and that any suitable modifications may be employed falling within the scope of the appended claims.

What is claimed as new is:

1. A loading device comprising a wheeled

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frame, a loading elevator supported by said frame, a bed adjustably supported upon said frame, a motor mounted upon said bed, an impeller depending from said bed, means drivingly connecting said motor to said impeller, additional means connecting said impeller to said elevator, discharge guide means for delivering material from said impeller to said elevator, an intake for said impeller disposed below said bed and frame, and adjusting means for elevating said bed relative to said frame for adjusting the elevation of said impeller intake.

2. The combination of claim 1, wherein said bed is pivoted at one end to said frame and at its other end is adjustable by hydraulic elevating means.

3. The combination of claim 1, including a laterally extending pivoted plow blade mounted on said frame for horizontal swinging movement for guiding material to said blower inlet.

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