March 2, 1943. E. R. SMITH 2,312,779

SACK LOADER

Filed Dec. 22, 1941 5 Sheets-Sheet 1

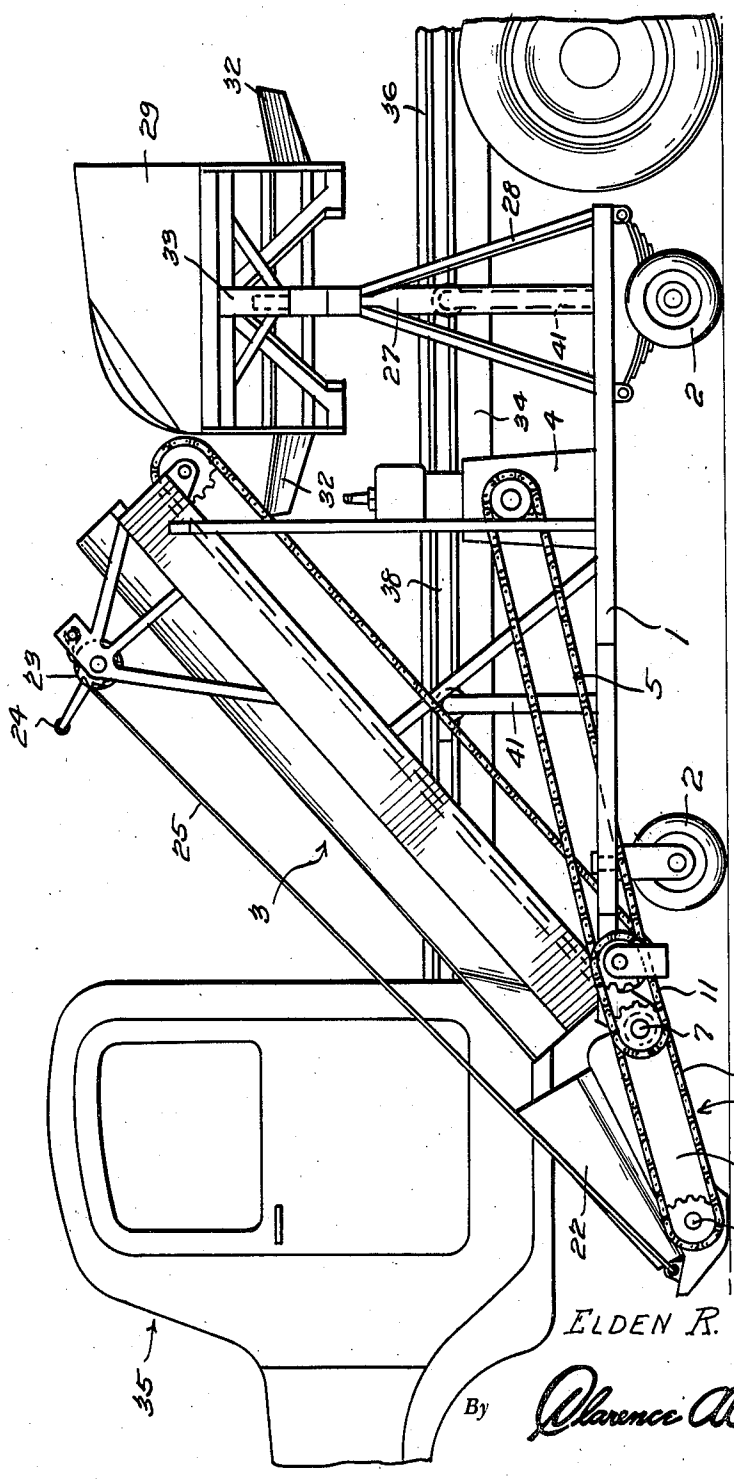


Fig. 1.

Inventor

ELDEN R. SMITH,

By Clarence A. O'Brien

Attorney

March 2, 1943. E. R. SMITH 2,312,779

SACK LOADER

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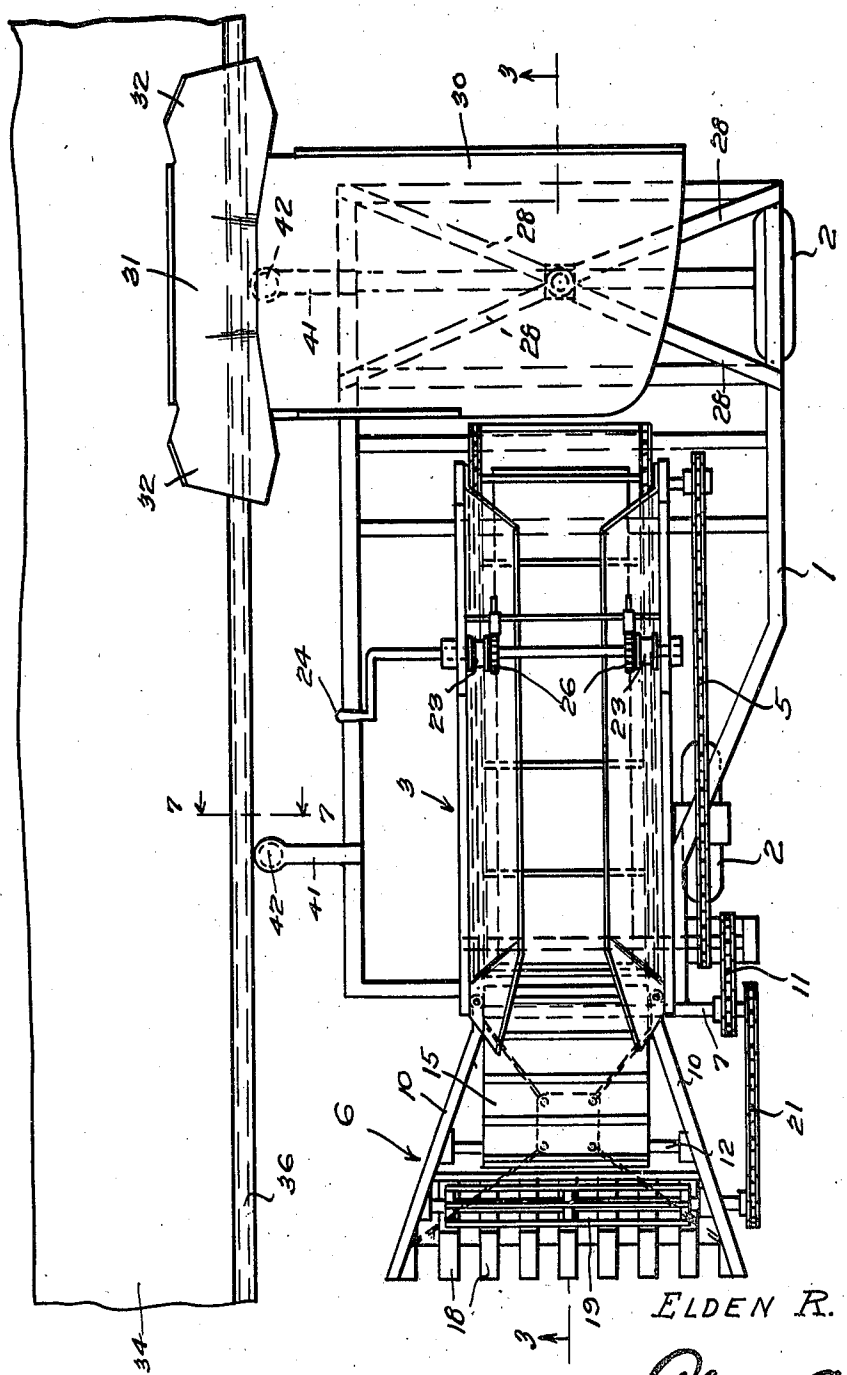


Fig. 2.

Inventor

ELDEN R. SMITH,

By Clarence A. O'Brien

Attorney

March 2, 1943. E. R. SMITH 2,312,779

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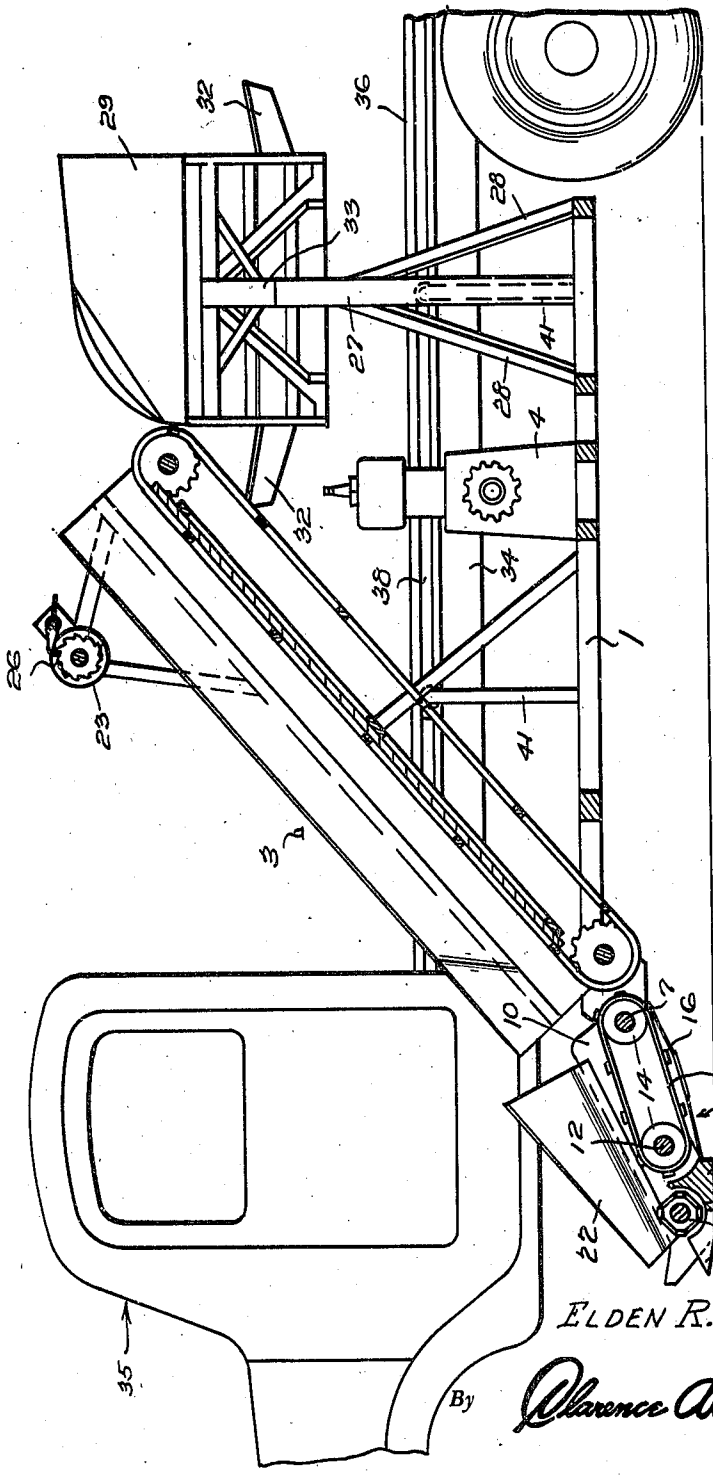


Fig. 3.

Inventor

ELDEN R. SMITH,

By Clarence A. O'Brien

Attorney

March 2, 1943. E. R. SMITH 2,312,779

SACK LOADER

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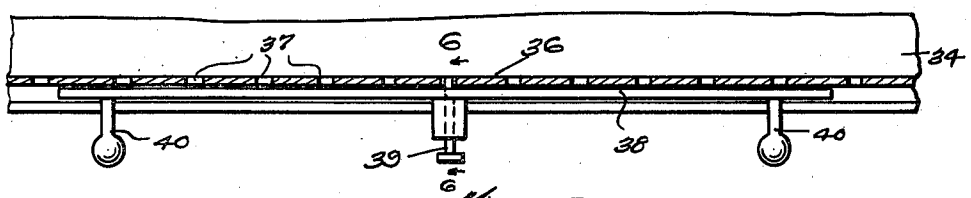


Fig. 5.

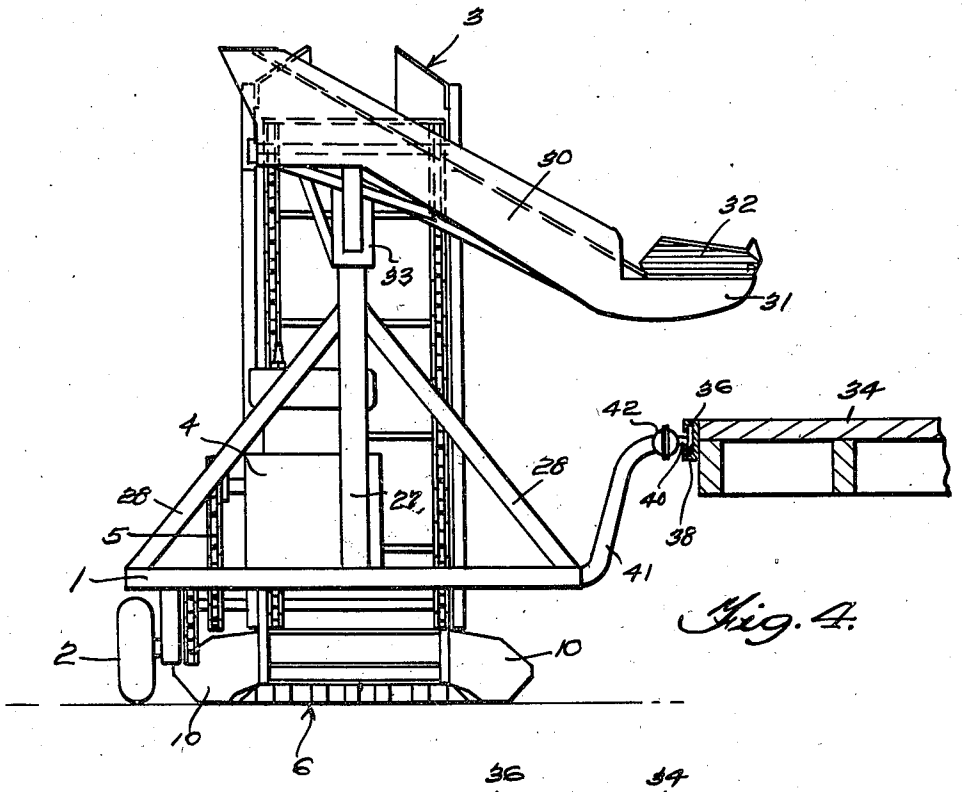


Fig. 4.

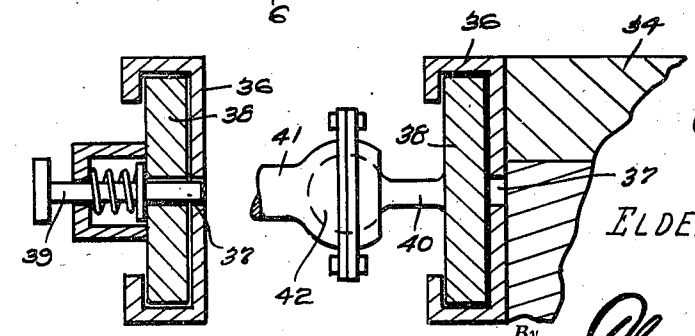


Fig. 7.

Fig. 6.

Inventor

ELDEN R. SMITH,

By Clarence A. O'Brien

Attorney

March 2, 1943. E. R. SMITH 2,312,779

SACK LOADER

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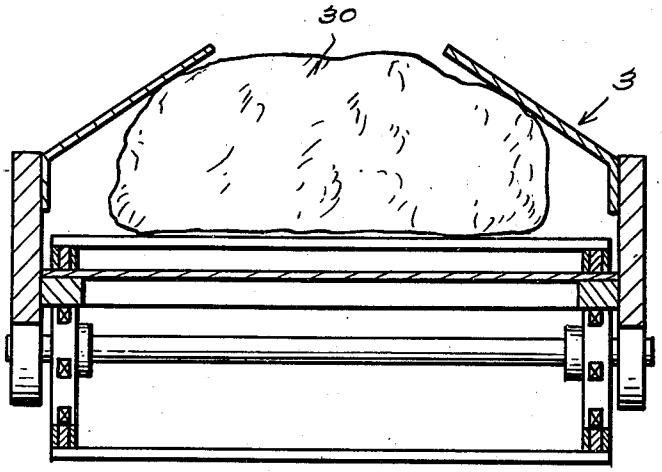


Fig. 8.

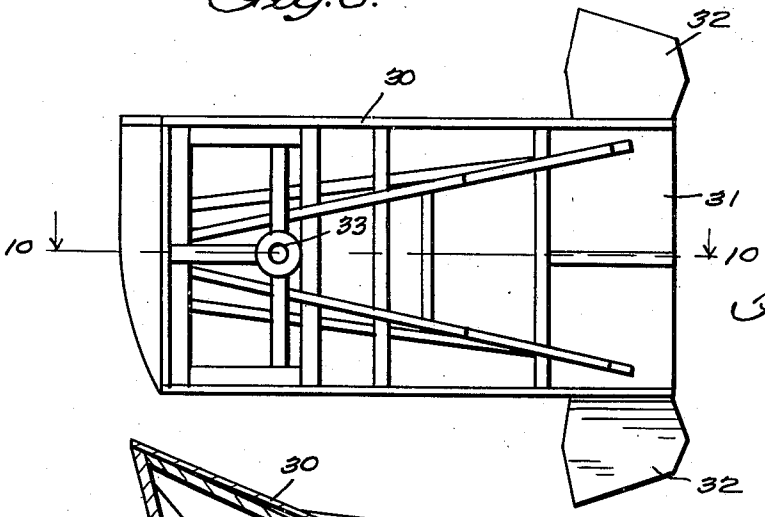


Fig. 9.

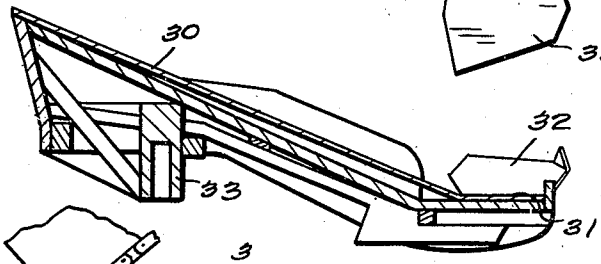


Fig. 10.

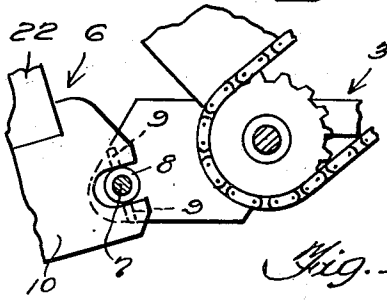


Fig. 11.

Inventor

ELDEN R. SMITH,

By Clarence A. O'Brien

Attorney

Patented Mar. 2, 1943

2,312,779

UNITED STATES PATENT OFFICE

2,312,779

SACK LOADER

Elden R. Smith, Salinas, Calif.

Application December 22, 1941, Serial No. 424,062

1 Claim. (Cl. 198—7)

The present invention relates to new and useful improvements in sack loaders and has for its primary object to provide, in a manner as hereinafter set forth, a machine of this character which is adapted to pick up bags of beans, wheat, barley, etc., which have been left on the ground by a harvester and convey them onto a motor truck or other vehicle.

Another very important object of the invention is to provide novel means for shiftably or adjustably hitching the sack loader to the vehicle on one side thereof and in a manner to be moved thereby.

Other objects of the invention are to provide a sack loading machine of the character described which will be comparatively simple in construction, strong, durable, highly efficient and reliable in use, compact, light in weight and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:

Figure 1 is a view in side elevation of a sack loading machine constructed in accordance with the present invention, showing the device attached to a motor truck.

Figure 2 is a top plan view thereof.

Figure 3 is a view in vertical longitudinal section through the machine, taken substantially on the line 3—3 of Figure 2.

Figure 4 is a view in rear elevation of the machine, showing a portion of the truck bed in cross section.

Figure 5 is a view in horizontal section through the hitch.

Figure 6 is a cross sectional view through the hitch, taken substantially on line 6—6 of Figure 5.

Figure 7 is a cross sectional view, taken substantially on the line 7—7 of Figure 2.

Figure 8 is a cross sectional view through the endless inclined elevator, showing a full sack in position thereon.

Figure 9 is a bottom plan view of the chute which receives the sacks from the discharge end of the elevator.

Figure 10 is a view in vertical longitudinal section through the chute, taken substantially on the line 10—10 of Figure 9.

Figure 11 is a view in vertical longitudinal section, showing the pivotal connection of the pick-up to the lower end of the conveyor.

Referring now to the drawings in detail, it will be seen that the embodiment of the invention which has been illustrated comprises a horizontal frame structure 1 which is provided with a suitable arrangement of supporting wheels 2. Extending upwardly from the forward end portion of the frame 1 is an inclined, endless elevating conveyor which is designated generally by the reference numeral 3. Also mounted on the frame 1 is a suitable power plant 4. The forward end of the elevating conveyor 3 is driven from the power plant 4 through a chain and sprocket connection 5.

Adjustably mounted on the forward end portion of the frame 1 and projecting forwardly and downwardly therefrom is a pick-up unit or scoop which is designated generally by reference numeral 6. The unit 6 includes a transverse shaft 7 which is journaled in the forward end portion of the frame 1. Referring to Figure 11 of the drawings, it will be observed that collars 8 are journaled on the shaft 7. Projecting from the collars 8 are pins or trunnions 9. Mounted for lateral swinging movement on the trunnions 9 is a pair of forwardly diverging side members 10. It will thus be seen that the side members 10 are capable of vertical and lateral swinging movement on the shaft 7. A chain and sprocket connection 11 drives the shaft 7 from the lower end of the elevating conveyor 3.

The pick-up unit or scoop 6 further includes a transverse shaft 12 which is journaled between the side members 10. Rolls 14 are fixed on the shafts 7 and 12 and trained over said rolls is an endless apron 15. A suitable bracing structure 16 is provided beneath the unit 6.

Extending between the forward portions of the side members 10 is a bar 17. Teeth 18 project forwardly from the bar 17. Rotatably mounted between the side members 10 above the bar 17 and the teeth 18 is a square lifting reel 19. As best seen in Figure 3 of the drawings, the bar 17 and teeth 18 are recessed, as at 20, to accommodate the lifting reel 19. A chain and sprocket connection 21 drives the reel 19 from the shaft 7. Guards 22 extend upwardly and inwardly from the side members 10 of the unit 6.

Mounted transversely on the upper portion of the elevating conveyor 3 are drums 23 which are provided with a hand crank 24. Suitable ropes or cables 25 have one end connected to the free end portion of the pick-up 6 and their other ends secured to the drums 23 for winding thereon. Thus, the unit 6 may be conveniently raised to any desired position. A pawl and ratchet de-

vice 26 (see Figure 3) is provided for releasably securing each drum 23 against retrograde rotation.

Rising from the rear end portion of the frame 1 is a post 27 which is provided with braces 28. Journaled for swinging movement in a horizontal plane on the upper end portion of the post 27 is a chute 29 for receiving the sacks from the upper end of the elevating conveyor 3. In Figure 8 of the drawings a full bag on the elevating conveyor 3 is indicated at 30. The chute 29 terminates, at its lower end, in a tray 31 which is provided with wings or extensions 32 projecting laterally beyond said chute. A vertical socket member 33 beneath the upper end portion of the chute 30 receives the upper end portion of the post 27.

The machine is adapted to be connected to one side of the flat body or bed 34 of a motor truck 35. Toward this end a metallic track or guide 36 is secured longitudinally on one side of the truck bed 34. The track 36 is substantially C-shaped in cross section and has formed therein a series of spaced openings 37. Mounted for sliding adjustment in the track 36 is a metallic bar 38 of suitable length. Mounted on the bar 38 and slidable therethrough is a spring projected bolt or latch 39 (see Figure 6) which is selectively engageable in the openings 37 for releasably securing the bar 38 in adjusted position in the track 36. Projecting from the bar 38 is a pair of arms 40. Projecting laterally from the inner side of the frame 1 is a pair of arms 41. The arms 40 and 41 are connected through the medium of universal joints 42.

It is thought that the operation of the machine will be readily apparent from a consideration of the foregoing. Briefly, as the loader is moved over the ground by the truck 35 the bags which have been left by the harvester are picked up off the ground by the unit 6 and deposited on the elevating conveyor 3. The reel 19 lifts these bags onto the apron 15 which, in turn, deposits them on the elevating conveyor 3. The elevating conveyor 3 discharges the sacks onto the chute 29 down which they slide onto the tray 31. The sacks are then conveniently removed and placed on the truck bed 34. The hand crank 24 for raising and lowering the pick-up unit 6 is operable from the truck bed 34. By retracting the spring projected latch 39 the bar 38 may be slidably adjusted to any desired position in the track 36. Thus, the sack loader may be conveniently adjusted longitudinally to any desired position alongside the truck bed 34.

It is believed that the many advantages of a sack loader constructed in accordance with the present invention will be readily understood and although a preferred embodiment of the machine is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:

A sack loader of the character described comprising a wheel supported frame, a pick-up unit pivotally mounted for swinging adjustment on the forward end portion of said frame, said pick-up unit including a pair of forwardly diverging side members, an endless apron operatively mounted between said side members, a bar extending between the side members forwardly of said apron, teeth projecting forwardly from said bar, a lifting reel of polygonal cross section rotatably mounted between the side members above the bar and the teeth, said bar and teeth having recesses therein accommodating the reel, an elevating conveyor mounted on the frame for receiving sacks from the pick-up, and means for actuating the apron, the reel and the elevating conveyor.

ELDEN R. SMITH.