June 21, 1955 H. T. CUTLER 2,711,256

LOADER ATTACHMENT FOR TRUCKS

Filed July 21, 1952

3 Sheets-Sheet 1

Fig. 1

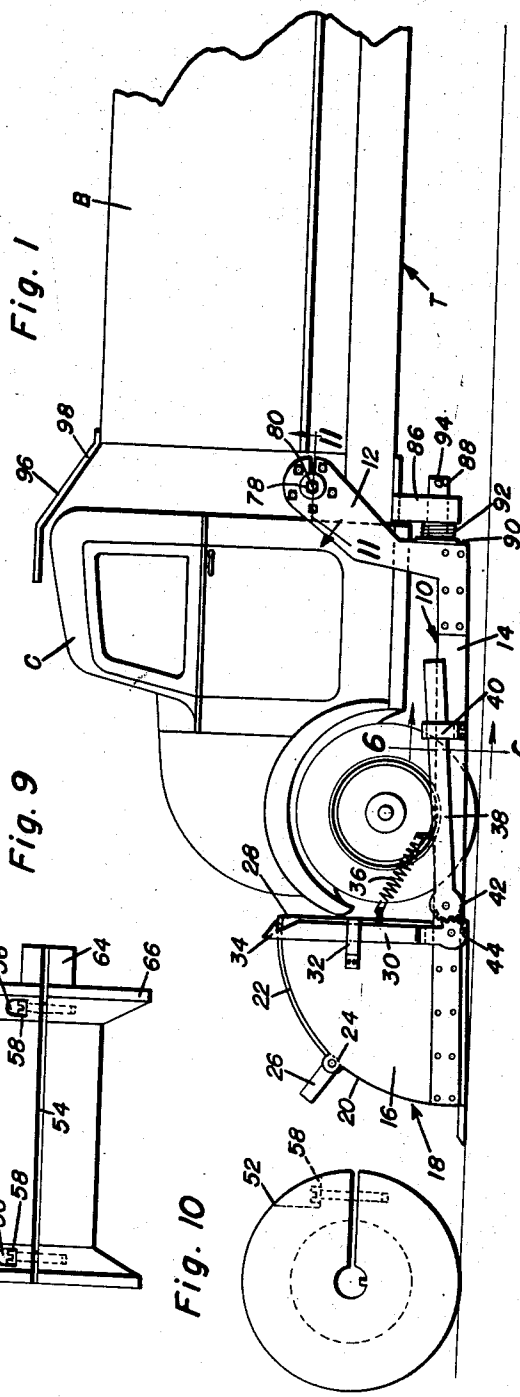


Fig. 5

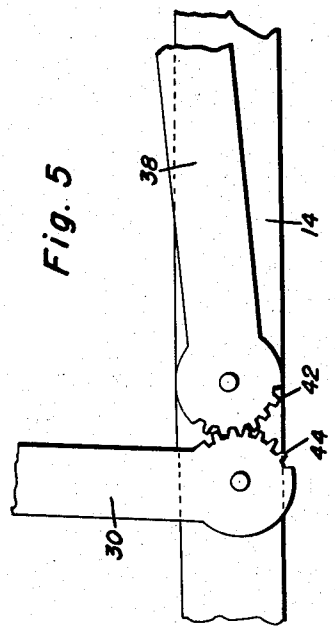
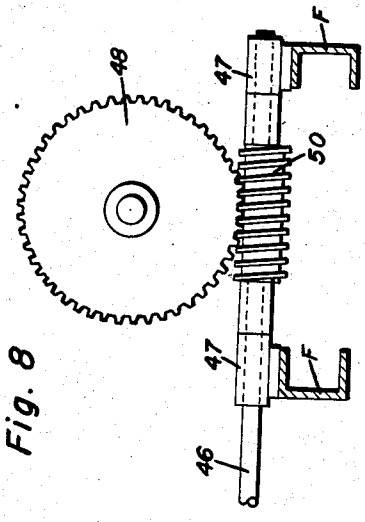


Fig. 9

Fig. 10

Fig. 8



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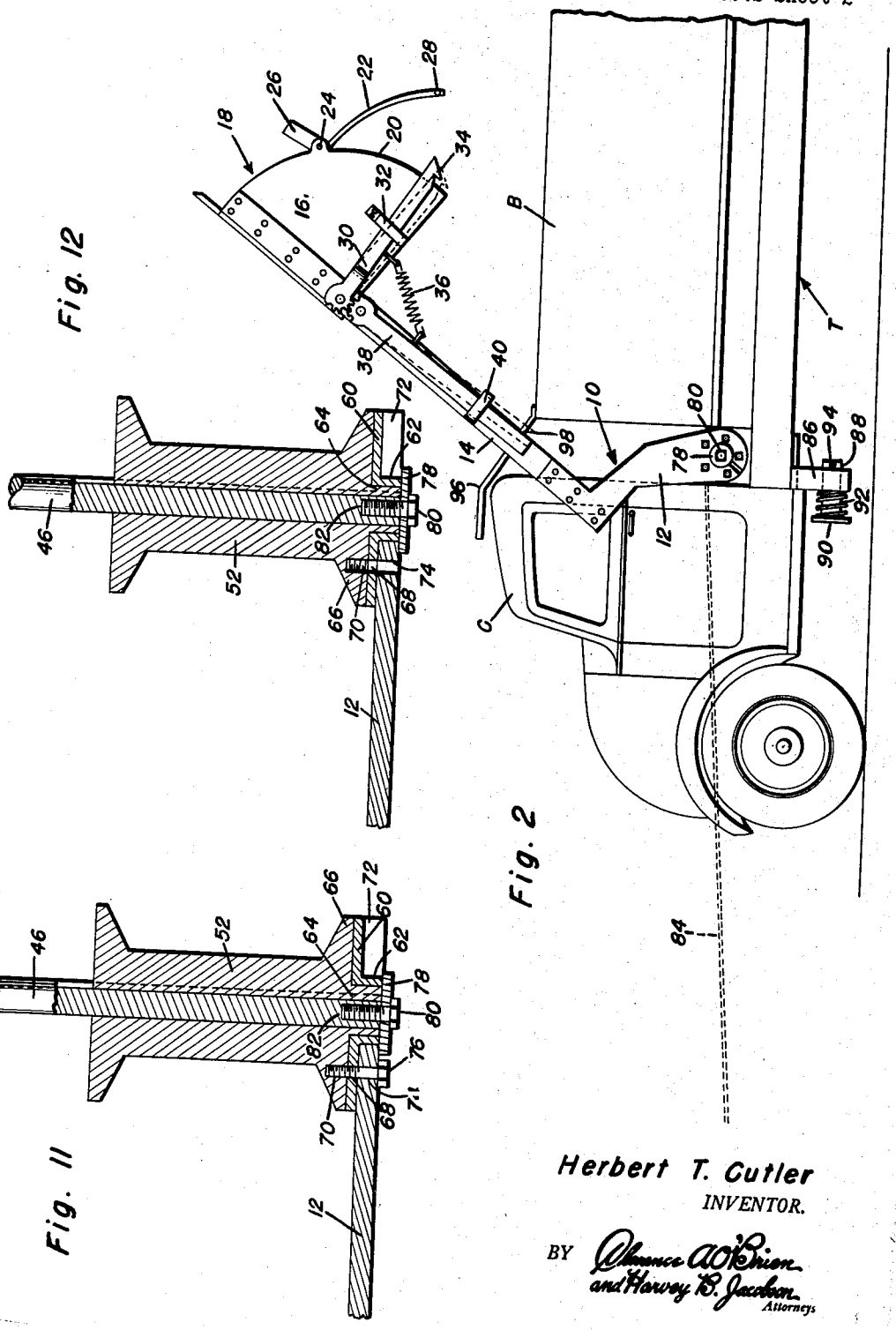


Fig. 12

Fig. 2

Fig. 11

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Fig. 7

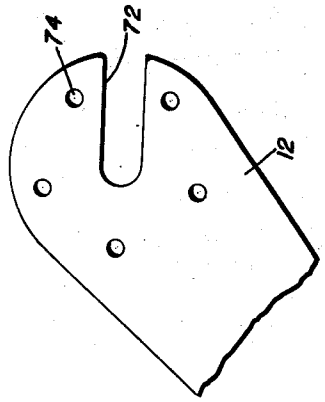


Fig. 6

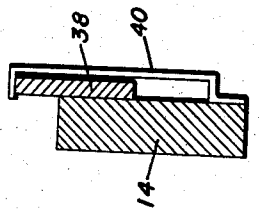


Fig. 3

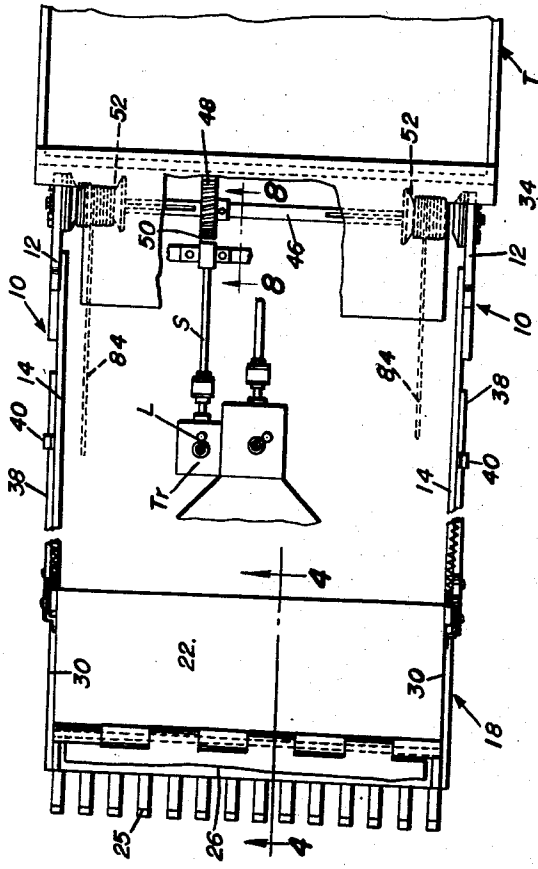
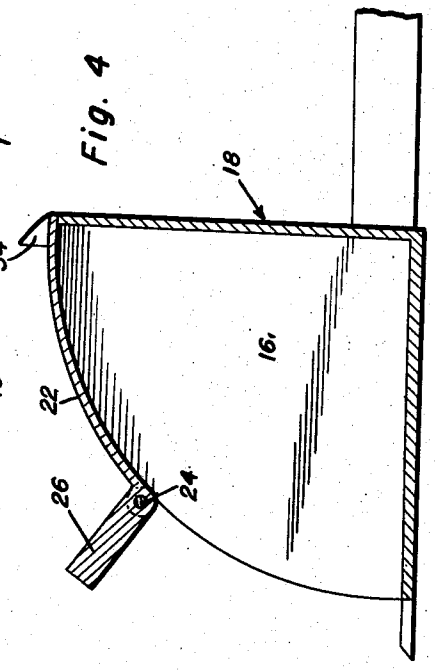


Fig. 4



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LOADER ATTACHMENT FOR TRUCKS

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Application July 21, 1952, Serial No. 300,034

5 Claims. (Cl. 214—78)

This invention relates to new and useful improvements in truck loading apparatus, and the primary object of the present invention is to provide an attachment for hydraulic dump trucks, semi-trailers, lime spreading trucks and the like that will permit loading and unloading with a minimum number of moving parts.

Another important object of the present invention is to provide a loading attachment for trucks and the like that will avoid the necessity of utilizing various types of loading equipment such as conveyors, shovels, draglines, clams, hi-lifts, back hoes, and even manual labor.

Yet another feature of the present invention is to provide a loader attachment that may be quickly and readily applied to or removed from a truck by merely moving the truck relative to the attachment which is supported upon the ground.

Another object of the present invention is to provide a loader attachment for trucks, semi-trailers and the like that may be utilized to clean and straighten creek and river channels, clean and straighten new irrigation ditches, clean and build small lake and farm ponds, cut through snow drifts, maintain city streets clean of snow and ice by loading and hauling it from the streets, and which attachment is also capable of loading and spreading cinders and sand, loading leaves, garbage and sediment from city sewers, catch basins, and the like.

Another object of the present invention is to provide a loader attachment involving a vertically swingable scoop supporting frame, together with means for releasing a closure over the scoop when the arms are raised in order to permit material in the scoop to be discharged into the bed of a truck.

A further object of the present invention is to provide a loader attachment of the aforementioned character wherein the scoop supporting frame is connected to a driven shaft operatively connected to the power take-off shaft of a truck and wherein the supporting shaft for the scoop arms supports cable drums for attachment to draglines or the like.

A still further aim of the present invention is to provide a loader attachment that is extremely simple and practical in construction, strong and reliable in use, efficient and durable in operation, inexpensive to manufacture, service and maintain, and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a fragmentary perspective view of a truck and showing the present invention mounted therein and disposed in its lowered position for scooping material;

Figure 2 is a view similar to Figure 1 but showing the attachment raised and material being discharged from the scoop;

Figure 3 is an enlarged fragmentary view of Figure 1

and with parts broken away for the convenience of explanation;

Figure 4 is an enlarged vertical sectional view taken substantially through the plane of section line 4—4 of Figure 3;

Figure 5 is an enlarged detail view of Figure 1 showing the manner in which the latch arms are operatively connected to the releasing bars;

Figure 6 is an enlarged detail vertical sectional view taken substantially on the plane of section line 6—6 of Figure 1;

Figure 7 is an enlarged fragmentary view of one of the frame arms to show the manner in which the same may be engaged with the supporting shaft for the attachment;

Figure 8 is an enlarged detail vertical sectional view taken substantially on the plane of section line 8—8 of Figure 3;

Figure 9 is an elevational view of one of the cable drums used in the present invention;

Figure 10 is an end view of Figure 9;

Figure 11 is an enlarged detail horizontal sectional view taken substantially on the plane of section line 11—11 of Figure 1; and

Figure 12 is a view similar to Figure 11 but showing the frame arms released from the cable drums.

Referring now to the drawings in detail, wherein, for the purpose of illustration, there is disclosed a preferred embodiment of the present invention, the numeral 10 represents a pair of L-shaped frame arms or members each of which includes a plate-like shorter leg 12 and a substantially rectangular longer leg 14. The legs 12 and 14 are fixedly secured together by rivets, welding or the like to form the L-shaped frame arms.

The legs 14 extend forwardly from the legs 12 and are fixedly attached to the side walls 16 of a scoop 18 having a forward open portion whose lower wall supports forwardly extending teeth 25. The forward edges 20 of the side walls 16 are downwardly and forwardly convexed to support at their upper portions a concavo-convexed closure 22 that partially closes the open portion of the scoop and, more particularly, the upper part of the open front of the scoop.

A horizontal hinge pin 24 connects the lower portion of the closure 22 to the side walls 16 and is fixed to or forms an integral part of a weight 26 whose function will later be more fully described. Lugs 28 are fixed to the upper portion of the closure 22 and project outwardly from the side walls 16.

The lower ends of a pair of latch-arms 30 are pivoted to the legs 14 and/or the side walls of the scoop for vertical swinging movement. Guides 32 fixed to the side wall 16 guide and limit the swinging movement of the latch-arms 30. The upper ends of the latch-arms 30 terminate in rearwardly facing hooks 34 that are urged rearwardly into engagement with the lugs 28 by coil springs 36 terminally secured to the latch-arms 30 and the legs 14.

The forward ends of the latch-arm releasing bars 38 are pivoted to the outer faces of the legs 14 behind the pivots for the latch arms. Guides 40 secured to the legs 14 slidably receive the bars 38 and limit pivotal movement of the bars 38. The forward ends of the bars 38 are provided with circumferentially spaced teeth 42 spaced radially from the pivots for the bars 38. Teeth 42 mesh with circumferentially spaced teeth 44 on the lower ends of the latch arms 30, whereby rocking or pivoting of the bars 38 in one direction will impart swinging motion to the latch arms 30 moving the hooks 34 out of engagement with the lugs 28.

The loader attachment thus described is mountable on a dump truck T or semi-trailer having a power take-off

shaft S extending rearwardly from a transmission Tr. The operating lever L of the transmissoin is located within the cab of the truck. A horizontally disposed transverse shaft **46** is supported in suitable bearings **47** on the truck frame F and supports a worm gear **48** that meshes with a worm **50** on shaft S so that the shafts S and **46** may rotate as a unit.

Cable drums **52** are slidably keyed on the ends of the shaft **46**. The drums **52** are longitudinally split, as at **54**, and their flanges are formed with openings **56** that intersect the slits **54**. The openings **56** receive bolts **58** whose threaded ends are threaded into the inner threaded ends of the openings to partially close the slits in order to retain the drums on the ends of the shaft **46**.

Bearing plates **60** having central hubs **62** are fitted over central sleeves **64** projecting outwardly from the outer flanges **66** of the drums **52**. The plates **60** are provided with circumferentially spaced apertures **68** that register with threaded recesses **70** in the flanges **66**.

The upper rearwardly inclined ends of the legs **12** are formed with slots **72** and circumferentially spaced apertures **74**. The slots **72** will accommodate the hubs **62** and the apertures **74** will register with the apertures **68** and the recesses **70**, whereby bolts **76** may secure the arms **10**, plates **60** and drums **52** together. Washers **78** are secured against the outer faces of the legs **12** by bolts **80** that are threaded in sockets **82** at the outer ends of the shaft **46**.

When the drums **52** are employed with draglines **84**, the arms **10** will be raised and the bolts **76** removed from the arms **10**, plates **60** and drums **52**, whereby the drums will rotate with the shaft **46** without moving the arms **10**, which would effect wear on the drum and/or the arms **10**. However, when the arms **10** are to be raised or lowered, the bolts **76** are used to secure the arms **10**, plates **60** and the drums **52** together.

Blocks **86** are fixed to frame F and slidably support horizontally movable rods **88** whose forward ends fixedly carry contact plates **90**. Coil springs **92** about the rods **88** are biased between the blocks **86** and the plates **90** to yieldingly urge the rods **88** forwardly until stops **94** at the rear ends of the rods engage the blocks. The legs **12** of the frame-arms **10** will engage the plates **90** as the arms **10** are lowered to cushion downward swinging movement of the arms **10**.

Abutment bars **96** are fixed to the forward wall of the dump bed B of the truck T and extend forwardly over the cab C. The bars **96** are provided with outwardly projecting shouldered portions or fingers **98** disposed in the path of the bars **38**.

In practical use of the present invention, it being assumed that the legs **12** are secured to the drums **52** by the fasteners **76** as shown in Figure 11, the truck is moved forwardly with the arms **10** and scoop **18** lowered so that material will pass into the open front of the scoop **18**. Then, the lever L is manipulated to cause rotation of shaft **46** and raising of the arms **10**. As the arms **10** are raised, the shouldered portions **98** will engage the bars **38** to impart swinging motion to the bars **38** relative to the arms **10** and cause swinging movement to be imparted to the latch arms **30** so that the latter will release the lugs **28** and permit the closure to swing to its open position as shown in Figure 2.

As the arms **10** are lowered from the position shown in Figure 2, the weight **26** will urge the closure **22** to its closed position and the lugs **28** will again be engaged with the hooks **34**, it being understood that the hooks **34** are provided with cam surfaces against which the lugs **28** will ride.

Having described the invention, what is claimed as new is:

1. In a truck including a driven shaft and a dump bed, a loader attachment comprising a pair of spaced parallel vertically swinging frame arms disposed at opposite sides of the truck and extending forwardly of the truck, said arms having upwardly offset rear end portions, means operatively connecting said shaft to the rear end portions of said arms for selective raising or lowering of the arms, a scoop secured to and extending between the forward ends of the arms, said scoop having a forward portion with an opening therein, a swingable closure adapted to cover the upper part of the opening, latch means carried by the scoop engaging the closure to releasably retain the closure in its closed position, means carried by the arms engaging the latch means to release the latter, and means supported on the bed of the truck for engaging and actuating said latch releasing means when the arms are raised to position the scoop over the bed, whereupon the closure may swing to its open position to permit material in the scoop to be discharged therefrom into the bed, and compressible spring cushioning means supported on the truck below the rear end portions of said arms engageable with the rear end portions of said arms during lowering of the latter to cushion downward swinging movement of the arms.

2. The combination of claim 1 wherein said cushioning means includes a pair of rigid blocks, a horizontally slidable bar carried by each block and movable forwardly and rearwardly relative to the truck, contact plates secured to the forward ends of said bars, and coil springs embracing the bars and biased between the plates and the blocks to yieldingly urge the bars forwardly.

3. A loader attachment for trucks and the like comprising a pair of vertically swingable frame arms, a scoop supported by the frame arms, said scoop having an open front including an upper portion, a vertically swingable closure having a lower end pivoted to the scoop, said closure covering the upper portion of the open front, said scoop having spaced side walls, lugs on the upper end of the closure projecting outwardly from the side walls, a pair of latch arms having lower ends pivoted to the side walls of the scoop and upper rearwardly facing hook ends engaging the lugs to hold the closure in closed position, spring means engaging the latch arms and urging the same rearwardly into engagement with the lugs, said latch arms having circumferentially spaced teeth about their pivots, a pair of latch-releasing bars pivoted to the frame arms and having circumferentially spaced teeth about their pivots meshing with the teeth of the latch arms, and means mountable on the bed of the truck for engaging the latch-releasing bars to actuate the same to a position for moving the latch arms out of engagement with the lugs.

4. A loader attachment for trucks and the like comprising a pair of vertically swingable frame arms, a scoop supported by the frame arms, said scoop having an open front including an upper portion, a vertically swingable closure having a lower end pivoted to the scoop, said closure covering the upper portion of the open front, said scoop having spaced side walls, lugs on the upper end of the closure projecting outwardly from the side walls, a pair of latch arms having lower ends engaging the lugs to hold the closure in its closed position, spring means engaging the latch arms to yieldingly retain the same engaged with the lugs, a pair of swingable latch-arm releasing bars having forward ends pivoted to the frame arms and including circumferentially spaced teeth, said latch-arms having circumferentially spaced teeth at their lower ends meshing with the teeth of said releasing bars, means mountable on the bed of a truck for engaging and imparting swinging movement to the releasing bars relative to the frame arms and thereby swinging the latch arms to release the lugs, and a weight attached to the lower end of the closure to urge the closure to its closed position and the lugs engaged with the hooks as the arms are lowered after material in the scoop has been discharged.

5. In a truck including a driven shaft and a dump bed, a loader attachment comprising a pair of spaced parallel vertically swinging frame arms disposed at opposite sides

of the truck and extending forwardly of the truck, means operatively connecting said shaft to said arms for selective raising or lowering of the arms, a scoop secured to and extending between the forward ends of the arms, said scoop having a forward portion with an opening therein, a swingable closure adapted to cover the upper part of the opening, latch means carried by the scoop engaging the closure to releasably retain the closure in its closed position, means carried by the arms engaging the latch means to release the latter, and means supported on the bed of the truck for engaging and actuating said latch releasing means when the arms are raised to position the scoop over the bed, whereupon the closure may swing to its open position to permit material in the scoop to be discharged therefrom into the bed, said means operatively connecting said driven shaft to said arms including a horizontal shaft rotatably supporting said arms, and a pair of cable drums fixedly mounted on said horizontal shaft and adapted to be operatively connected to draglines, and means removably fixing said arms to said drums whereby said arms may rotate with said drums.

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