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, clamps, 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 12 extend outwardly from the legs 14 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-arms 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 transmission is located within the cab of the truck. A horizontally disposed transmission shaft 26 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, with the halves 56 being assembled 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.

The operating lever L of the transmission 4 is located within the cab of the truck. A horizontally disposed transmission shaft 26 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, with the halves 56 being assembled 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.

The operating lever L of the transmission 4 is located within the cab of the truck. A horizontally disposed transmission shaft 26 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.

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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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