ABSTRACT OF THE DISCLOSURE

A snow-removing basket for use as a tractor scoop, said basket being formed from a plurality of elongated metal strips of uniform cross-section, said strips being curved intermediate their length to form a horizontal bottom and a vertical back wall of said scoop; a plurality of spaced metal strips crossing the strips of said bottom and secured thereto, each of said strips being vertically upward at each end toward a partially defined side walls; a plurality of spaced metal strips crossing said back wall strips and secured thereto, said strips being bent at each end to extend horizontally to partially define side walls; a plurality of spaced, diagonally extending metal strips in each side wall, each of said strips being secured to the ends of strips of said bottom and of said back wall and each of said strips being secured to the extremities of certain of said bottom cross strips and said back wall cross strips to define triangular side walls, the bends in said bottom and back wall cross strips being sufficiently resilient to permit flexing of said side walls toward and from each other to facilitate the gathering and discharge of snow.

This invention relates to scoop devices, and more particularly to a scoop assembly adapted to be attached to a tractor so that it may be employed for handling loose, compactable material such as snow, or the like.

A main object of the invention is to provide a novel and improved material-handling scoop device for use with a tractor for handling various types of loose materials, the scoop device being simple in construction, being relatively light in weight, and being accurately controllable so that it can be oriented for most efficient operation.

A further object of the invention is to provide an improved scoop or basket device suitable for use with a tractor for handling various types of loose, compactable materials, such as snow, the device being inexpensive to fabricate, being durable in construction, having a large capacity, and being arranged so that materials carried thereby will be freely discharged therefrom and will not adhere to the inside surface thereof.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

FIGURE 1 is a side elevational view showing a portion of a tractor with a basket device according to the present invention attached thereto and in operating position.

FIGURE 2 is a top plan view of the structure shown in FIGURE 1.

FIGURE 3 is an enlarged perspective view with parts broken away of the scoop device of FIGURES 1 and 2.

FIGURE 4 is a side elevational view of the tractor and scoop device of FIGURE 1 showing the scoop device in a downwardly and forwardly-inclined working position and also illustrating the manner in which the scoop device is elevated and tilted for dumping.

Referring to the drawings, 11 designates a conventional tractor provided with a pivoted boom structure 12 including longitudinally-extending rear bars 13 to the forward ends of which are rigidly-connected inclined front bars 14, the rear bars 13 being pivoted on a transverse horizontal axis, as shown at 15, to the rear portion of the tractor, namely, to upstanding post elements 17 rigidly-secured to the tractor frame. Pivoteted hydraulically-operated cylinders 18 are provided, the ends of the piston rods of the pistons 18 being pivotally-connected at 19 to the connecting plates 20 which rigidly-unite the bars 13 with the bars 14. The pistons of the cylinders 18 may be extended to elevate the boom structure 12 to the dotted-view position thereof shown in FIGURE 4.

The inclined bars 14, 18 are rigidly-connected together by a transversely-extending hollow brace structure 21 comprising a transverse relatively slender main box portion 22 merging with triangular box-like end portions 23, 24 which are, in turn, rigidly-connected to the side bars 14, 18 and are unitary therewith.

Designated generally at 24 is a scoop or basket assembly comprising a transversely-extending arcuate corner plate 25 which is forwardly concave and is rigidly-connected to the corner portions of a plurality of generally V-shaped spaced parallel metal strap members 26 having the upstanding arms 27 and the lower arms 28 which are at an angle to each other slightly less than a right angle. At the opposite ends of the transverse corner plate 25 are additional V-shaped metal strap members 26 which have their lower arms 28 inclined forwardly and outwardly, whereby the bottom wall of the basket or scoop 24 is forwardly-flaring in shape, as is clearly shown in FIGURE 2. The bottom arms 28 and 29 are rigidly-connected by spaced transversely-extending bottom straps 29, 30 and 31 comprising flat metal bars, said bottom straps having the upstanding end arms 32, 33 and 34. The upstanding arms 27 of the parallel strap members 26 and the upstanding arms 27 of the end strap members 26 are likewise rigidly-connected together by transversely-extending metal strap bars 35, 36 and 37, as is clearly shown in FIGURES 1 and 3, which are vertically spaced apart, with the strap member 37 being upturned. The horizontally-extending strap bars 35, 36 and 37 are provided with the forwardly-directed end arms shown at 38, 39 and 40.

The side walls of the scoop structure 24 are defined by spaced parallel inclined strap bars 41, 42 and 43 connecting the end arms of the respective transverse strap bars 29, 30 and 31, and 35, 36 and 37. Thus, the lowermost inclined side strap bars 41 are connected to the inner end portions of the end arms 34, 38, as shown in FIGURE 3. The intermediate inclined side strap bars 42 are connected at their top portions to the inner end portions of the side arms 39 and at their bottom ends to the inner end portions of the side arms 33, whereas at their intermediate portions the side strap bars 42 are connected to the ends of arms 38 and 34, as is clearly shown in FIGURE 3. Similarly, the uppermost side strap bars 43 are connected at their opposite ends to the inner surfaces of the corner portions associated with the side arms 32 and 40 and are connected at their intermediate portions to the ends of the side arms 39 and 33.

The resultant lattice structure defines a rigid basket which is forwardly-divergent in shape and which is of open construction, defining apertures 44 distributed over its main surface and defining side apertures distributed over the generally triangular side walls of the scoop or basket. These apertures allow the basket to drain itself of moisture and of mud or similar material, so that such material will not be retained in the basket. At the same time, the flat surfaces of the strap bars which define the basket are of substantial area so that the loose material with which the basket or scoop is employed will be readily retained therein while it is being handled.
The forward ends of the horizontal arms 28 and 28' terminate substantially flush with the forward edge of the transverse horizontal strap bar 29 so that said forward edge defines a substantially continuous cutting edge or bit which may be employed to scrape material and to facilitate its movement into the basket or scoop when the basket or scoop is moved forward in a manner presently to be described.

Rigidly-secured to the transverse corner plate 25 and to the horizontal strap bars 35 and 36 are respective pairs of vertical upstanding spaced parallel bracket plates 50, 51 which receive therebetween the lower end portions of the side bar members 14, 14 of the tractor boom structure and which are pivotally-connected thereto by transverse pivot pins 53, 53. Respective hydraulic cylinders 54, 54 are pivotally-connected to the boom corner bracket assemblies 20, as shown at 55. The cylinders 54 are provided with pistons having piston rods 56 whose outer ends are received between the pairs of bracket plates 50, 51 and are pivotally-connected thereto by transverse pivot pins 57. As shown in FIGURE 1, the pivot pins 57 are located above and somewhat forwardly of the pivot pins 53 in the position of the mechanism illustrated, namely, with the basket assembly 24 in lowered forwardly-facing position.

The bottom edges of the pairs of plates 50, 51 are rigidly-connected by horizontal cross-plates 58 provided with supporting caster assemblies 59 so that the basket assembly 24 may be supported, in part, on the caster wheels 60 when the basket assembly is in the lowered position illustrated in FIGURES 1 and 4. By operating the cylinders 54, the basket assembly may be adjusted either to the position shown in FIGURE 1 wherein the forwardly-extending lower wall of the basket assembly defined by the strap arms 28 and 28' is substantially horizontal, or to a position such as that illustrated in FIGURE 4 where the basket bottom wall is inclined, for example, downwardly and forwardly, as in FIGURE 4, so that the forward edge of the transverse strap bar 29 may substantially engage the ground. Thus, with the basket assembly 24 oriented in the manner illustrated in FIGURE 4, the material in front of the basket is guided into the interior of the basket when the tractor 12 is moved forward. When the basket has been substantially filled or has received most of the material, the basket may be tilted by operating the hydraulic cylinders 54, 54 sufficiently to retain the material, after which the hydraulic cylinders 18 may be actuated to elevate the basket assembly with its contents. After the tractor has transported the loaded basket to its intended destination, the cylinders 54, 54 may be again operated to rotate the basket to the dotted-view dumping position thereof shown in FIGURE 4, causing the material to be unloaded therefrom.

As will be readily apparent, the scoop or basket assembly above-described may be readily employed for handling various types of loose, compactable material, such as snow, or the like. Such material will be received in the basket and substantially fully retained therein, although excess moisture or small fragments will drain through the apertures 45, or will be allowed to drain from the sides of the basket.

While a specific embodiment of an improved combination material-handling and snow-removing basket assembly for a tractor has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art.

What is claimed is:

1. A snow handling scoop basket for attachment to a tractor having means to raise and lower said scoop and means to tilt said scoop for dumping the contents thereof comprising: a plurality of elongated metal strips of uniform cross-section, said strips being mutually spaced and being curved intermediate their length to form a horizontal bottom and a vertical back wall of said scoop; a plurality of spaced metal cross strips crossing the strips of said bottom and secured thereto, each of said cross strips being bent vertically upward at each end to partly define side walls; a plurality of spaced, metal strips crossing said back wall strips and secured thereto, said back wall cross strips being bent at each end to extend horizontally to further partly define side walls; a plurality of spaced, diagonally extending metal strips in each side wall, each of said diagonal strips being secured to the extremities of certain of said bottom cross strips and to certain of said back wall cross strips to define triangular side walls.

2. The scoop basket of claim 1, including a relatively wide metal plate extending across said bottom and back walls, said plate being transversely curved to conform to the curvature of said first-named strips and being secured to said strips.

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