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(54) **CARRIER FOR POSITIONING EROSION
CONTROL BARRIER SEGMENTS**

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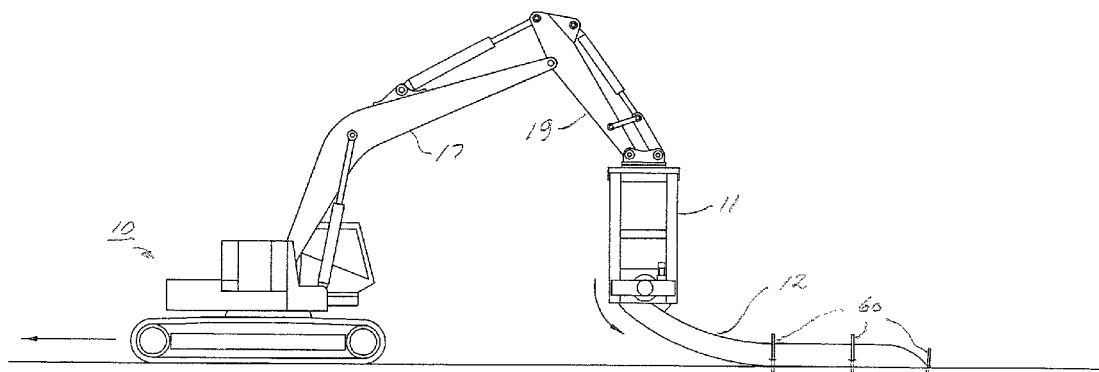
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ABSTRACT

A carrier for an elongated, weighty tubular member, and more particularly to such a carrier suitable for use in loading thereon at a first location, transporting to a second location and dispensing along a boundary line along the ground, a flexible, tubular member intended for use as an erosion barrier.



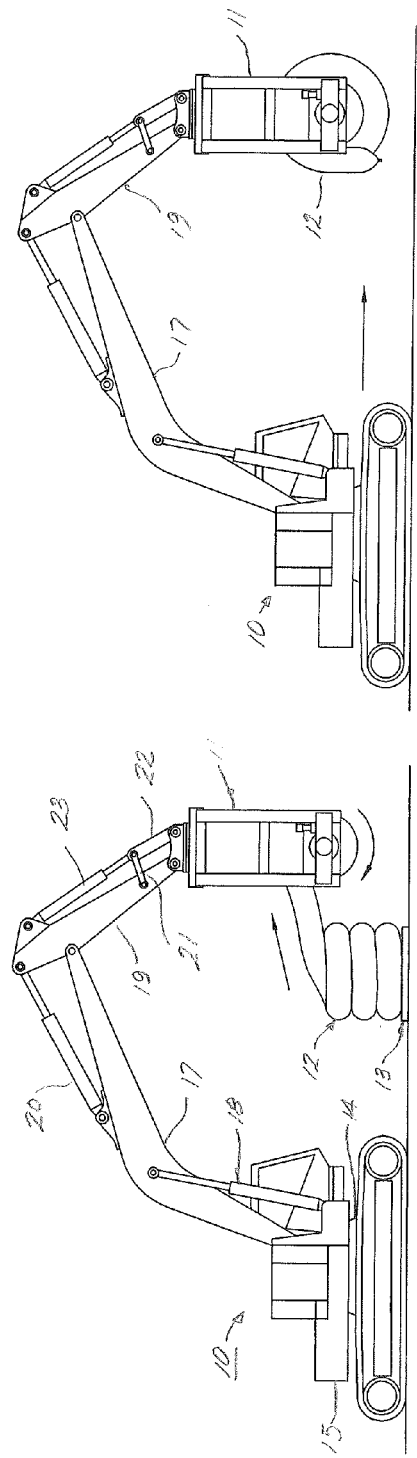


FIG. 1

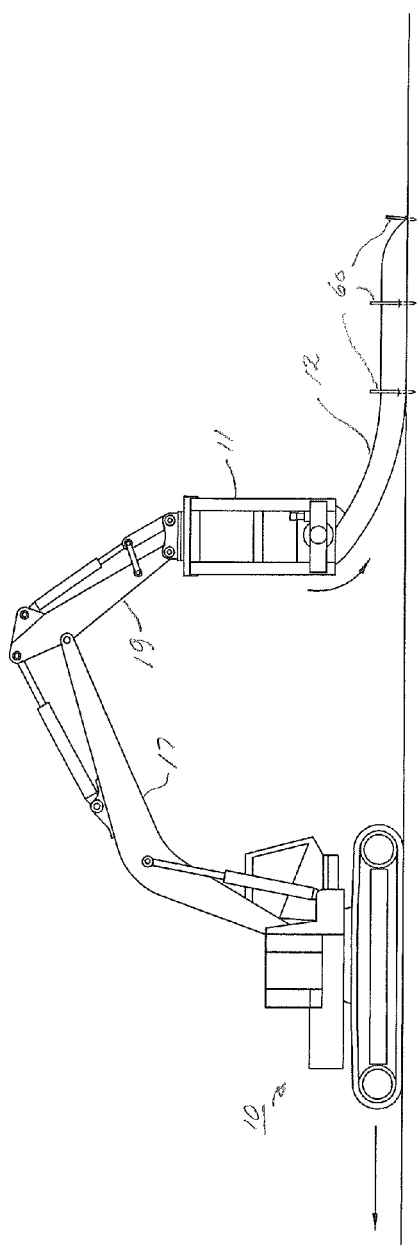


FIG. 2

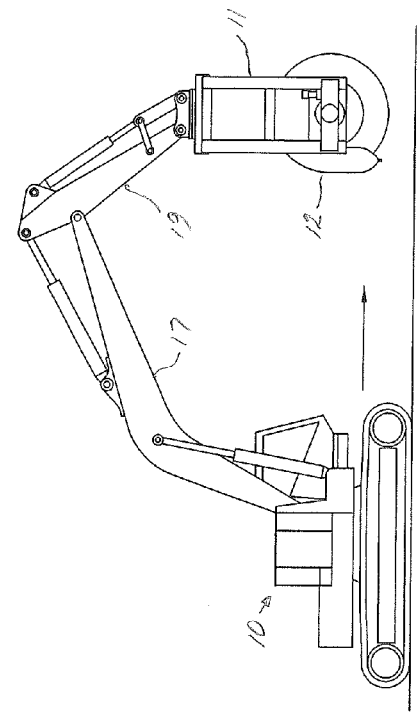
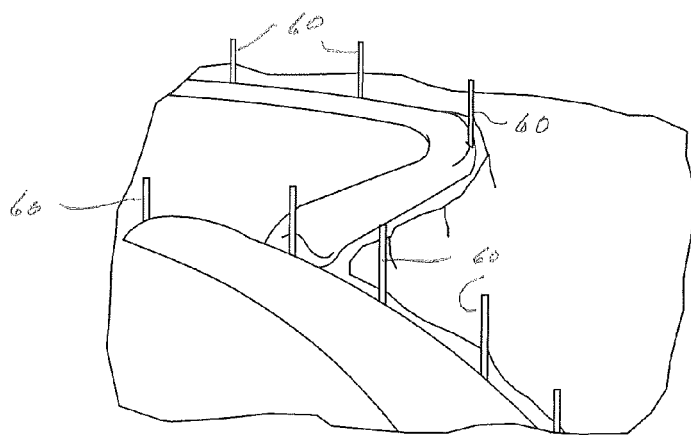
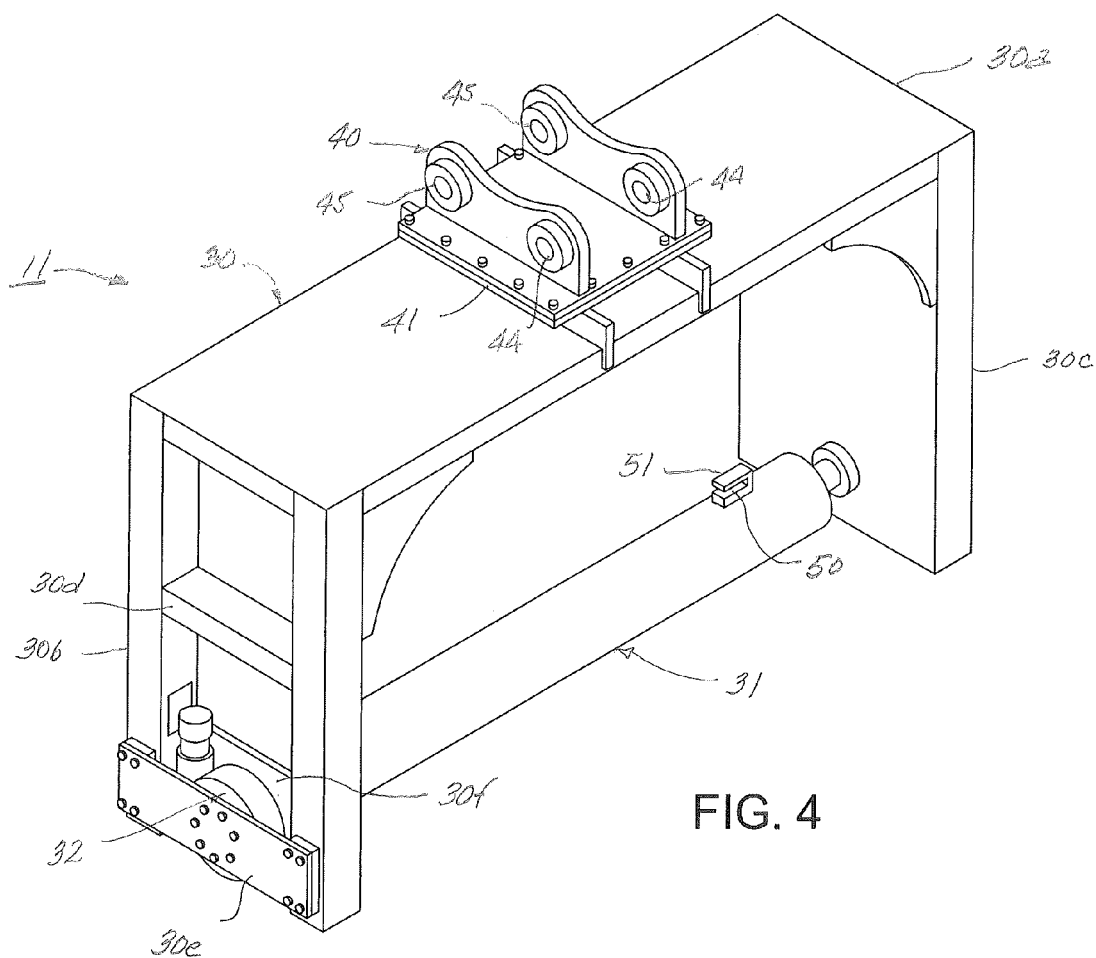


FIG. 3



CARRIER FOR POSITIONING EROSION CONTROL BARRIER SEGMENTS

[0001] This invention relates to a carrier for an elongated, weighty tubular member, and more particularly to such a carrier suitable for use in loading thereon at a first location, transporting to a second location and dispensing along a boundary line along the ground, a flexible, tubular member intended for use as an erosion barrier.

BACKGROUND OF THE INVENTION

[0002] On various sites in which vegetation has been removed and perhaps where building construction or a similar activity is contemplated, it has been a common practice to position elongated tubular members formed of a flexible, mesh material containing mulch and perhaps other filler materials, about the periphery of such a particular site, to serve as a barrier to eroded soil and other disturbed materials and objects. Typically, in use, such elongated tubular members are produced at a distant site, loaded on pallets and delivered to a designated site and then manually removed from such drop-off area, manually carried to a perimeter segment of the site, set on the ground along the site perimeter and then staked to the ground. Such segments of tubular members thus form a barrier to eroding soil within the perimeter of the particular site.

[0003] Such tubular barrier members typically are 18 inches in diameter, 100 feet in length and weigh approximately 3,250 pounds. Often, 8 to 10 men are required to lift, haul and position such members, resulting in substantial handling costs.

[0004] In view of the foregoing, it is the principal object of the present invention to provide an improved means and/or method of handling such barrier members at various sites which would reduce the amount of labor required thereby decreasing labor costs, freeing personnel for other assignments and expediting the formation of a barrier about the perimeter of a construction or other site.

SUMMARY OF THE INVENTION

[0005] The principal object of the present invention is achieved by means of a carrier attachable to an arm member of a prime mover, which includes an inverted, U-shaped frame member provided with an upper component and a pair of spaced, depending components, a roller spaced parallel to the upper component and journaled in the lower ends of the spaced depending components; means provided on such roller for detachably securing an end portion of such tubular member thereto; means for rotating the roller for winding such attached tubular member thereon and means for attaching such frame member to the arm of such prime mover. Preferably, the space formed by the frame components is sufficiently large to accommodate the size of the contemplated barrier member, the roller is provided with a suitably positioned means for attaching an end portion of the member to be wound on the roller, and the motor driving the roller includes a slew drive functional to hold radial and axial loads and transmit torque for rotating the roller.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] FIG. 1 is a side view of a carrier incorporating the present invention, attached to an arm member of a prime mover, and positioned adjacent a pallet on which there is

mounted a coiled tubular member to be loaded upon the carrier and transported to a perimeter site by the prime mover;

[0007] FIG. 2 is a side view similar to the view of FIG. 1, illustrating the tubular member loaded on the carrier;

[0008] FIG. 3 another side view similar to the view of FIG. 1 illustrating the loaded prime mover having been transported to a perimeter site and the wound barrier member being unwound from the carrier and deposited along a perimeter segment;

[0009] FIG. 4 is an enlarged perspective view of the carrier shown in FIG. 1 through 3; and

[0010] FIG. 5 is a partial view of a land site, illustrating a number of transported members tubular barrier having been positioned along segments of a site perimeter.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT OF THE INVENTION

[0011] Referring to FIG. 1 through 3 of the drawings, there is illustrated a prime mover 10 consisting of a tractor utilized to lift, transport and position a carrier 11 functional to attach haul and detach a tubular barrier member 12 supported on a pallet 13. Tractor 10 includes a base structure 14 supported on a set of crawler tracks 15, an upper structure 16 provided with an operator's station, supported on the base structure for pivotal movement about a vertical axis, and a front end assembly including a boom 17 pivotally connected to upper structure 16, a cylinder assembly 18 operatively interconnecting upper structure 16 and boom 17 for pivotal movement of the boom about a horizontal axis, an arm member 19 pivotally connected between the ends thereof to the free end of boom 17, a cylinder assembly 20 operatively interconnecting a portion of boom 17 and an end of arm member 19, a set of transversely spaced arm members 21, 21 pivotally mounted at one set of ends thereto to arm member 19 and a second set of ends thereof to a rod connected to a set of member links 22, 22 and a cylinder assembly 23 operatively interconnecting an end of arm member 19 and the connecting pin of members 22, 22.

[0012] Carrier 11 generally includes a housing frame 30, a roller assembly 31 and a motor assembly 32. Frame 30 has an inverted U-shaped configuration including an upper wall component 30a and a pair of spaced, depending end wall components 30b and 30c. Component 30b further consists of a pair of spaced leg members interconnected by a cross member 30d disposed intermediate such leg members and a pair of plate members 30e and 30f interconnecting the outer and inner sides of the lower ends of the leg members. Roller assembly 31 is spaced parallel to frame component 30a and consists of a roller 31a provided with a pair of shaft portions at the ends thereof journaled in aligned bearings mounted on the lower inner side of frame component 30c and the inner side of inner plate member 30f. Such roller is rotatable in forward and reverse directions by slew drive motor 32 mounted on plate member 30e, having a drive shaft coupled to an end shaft of the roller assembly. Operation of such motor may be provided by means provided on the carrier or remote means as may be provided in the operator's station on the prime mover of the carrier.

[0013] The size of the space defined by the carrier frame members 30a, 30b and 30c is determined by the length and diameter of each tubular segment 12 intended to be wound on roller assembly 31. In the use of tubular segments of 18

inches in diameter and 100 feet in length, such space has been found to be 4 to 5 feet in depth and 8 feet in width. Each of such tubular members as described consists of a length of tubular mesh material, filled with a material such as mulch and closed in either one or both of the ends. Filled with mulch, a member of such diameter and length can weigh in the amount of 3,500 pounds.

[0014] Carrier 11 is connectable to arm member 23 and links 22,22 by means of attachment member 40 secured to the center of upper wall component 30a. Such member includes a support platform 41 secured to component 30a and a pair of laterally spaced plates 42 and 43 provided with two pairs of transversely aligned pin holes 44, 44 and 45, 45. The carrier is detachably connectable to the free ends of arm member 19 and links 22, 22 by a set of pins to connect the carrier to the front end assembly of tractor 10 as shown in FIG. 1 through 3.

[0015] In the use of carrier 11 to load, transport and unload a segment of tubular barrier member 12 as shown in FIGS. 1 through 3, the carrier is first mounted on the front end assembly of the prime mover utilizing attachment 40, and then the tractor and the front end assembly thereof are maneuvered to position the roller assembly thereof in proximity to barrier segment 12 coiled atop pallet 13. With the carrier thus postured, an end of the segment is manually gripped, inserted into the opening in the carrier and manipulated to insert and jam a loose portion of the member into a slot 50 of a connector 51 rigidly secured on the cylindrical surface of the roller assembly adjacent depending frame member 30c to position and attach an end of member 12 as shown in FIG. 1. With an end of member 12 thus secured to an end of the roller, motor 32 is operated to draw and wind member 12 onto the roller to a condition as shown in FIG. 2 with an end of member 12 simply suspended as shown. With the barrier member thus loaded and the carrier elevated, the tractor then maneuvers to transport the loaded barrier segment to a perimeter area as shown in FIG. 5 and then proceeds to simultaneously operate motor 32 in reverse to cause the loaded segment to unwind and fall long a perimeter path as the tractor guides the carrier. As the barrier segment is thus unwound and allowed to fall along or adjacent to the perimeter line, one or two workmen attend to any required repositioning of the segment along the perimeter line and then securing the segment therealong with a set of spikes 60. As the carrier transports the wound segment to the perimeter site, the slew drive provides resistance to any reverse torque that would cause the mound segment to unroll and prematurely be deposited on the ground.

[0016] The carrier and method of use thereof as described, not only require less attending personnel but significantly reduces the amount of time required to transport and maneuver multiple segments of barrier segments about the perimeter of a land site.

[0017] From the foregoing detailed description, it will be evident that there are a number of changes, adaptations and modifications of the present invention, which come within the province of those persons having ordinary skill in the art to which the aforementioned invention pertains. However, it is intended that all such variations not departing from the spirit of the invention be considered as within the scope thereof as limited solely by the appended claims.

I claim:

1. A carrier for an elongated tubular member formed of a flexible, mesh material and containing a filler material, comprising:

an inverted, U-shaped frame member including an upper component and a pair of spaced, depending components;

a roller spaced parallel to said upper component and journaled at the ends thereof to the lower ends of said spaced depending components;

means provided on said roller for detachably connecting an end portion of said tubular member;

means for rotating said roller for winding thereon an elongated, tubular member having an end portion thereof detachably secured to said connecting means; and

means for attaching said frame member to means for displacing said frame member.

2. The carrier according to claim 1 wherein the space within said frame components defined axially and radially relative to the axis of rotation of said roller, is sufficient to accommodate a winding on said roller of a tubular member of a selected diameter and length.

3. The carrier of claim 2 wherein said filler material of said tubular member comprises mulch.

4. The carrier of claim 2 wherein said axial length is 8 feet and said radial length is 5 feet.

5. The carrier of claim 2 wherein said space within said frame components is sufficient to accommodate the winding on said roller of a tubular member provided with a diameter of 18 inches and a length of 100 feet.

6. The carrier of claim 1 wherein said means for detachably connecting an end portion of said tubular member to said roller comprises a member mounted on said roller provided with a slot disposed substantially transversely relative to the rotational orbit of said member, into which an end portion of said tubular member may be press fitted.

7. The carrier of claim 6 wherein said attachment member is disposed adjacent an end portion of said roller.

8. The carrier of claim 1 wherein said means for rotating said roller comprises a drive motor mounted on one of said frame components, drivingly connected to said roller and operated and driven by one of means provided on one or more of said frame components and remote means.

9. The carrier of claim 8 wherein said drive motor includes a slew drive functional to hold radial and axial loads and transmit torque for rotating said roller.

10. The carrier of claim 1 including means disposed on said upper frame component for detachably connecting said carrier to a means for transporting said carrier between locations.

11. The carrier of claim 10 wherein said attachment means disposed on said upper frame component is attachable to an arm member pivotally connected to a boom member, and pivotal thereto by means of at least one operable cylinder assembly, which boom member is pivotally connected to the chassis of a transportable machine and pivotal thereto by means of at least one operable cylinder assembly.

12. The carrier of claim 1 wherein the adjoining portions of said upper and spaced components includes brackets provided with arcuate configurations accommodating the curvature of segments of a tubular member wound on said roller, adjacent said upper component.

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