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(54) **PUSH-PULL ATTACHMENT FOR SKID STEER-TYPE MACHINE OR TRACTOR**

(71) Applicant: **Isaacson, Inc.**, Lafayette, MN (US)

(72) Inventor: **Myron Isaacson**, Lafayette, MN (US)

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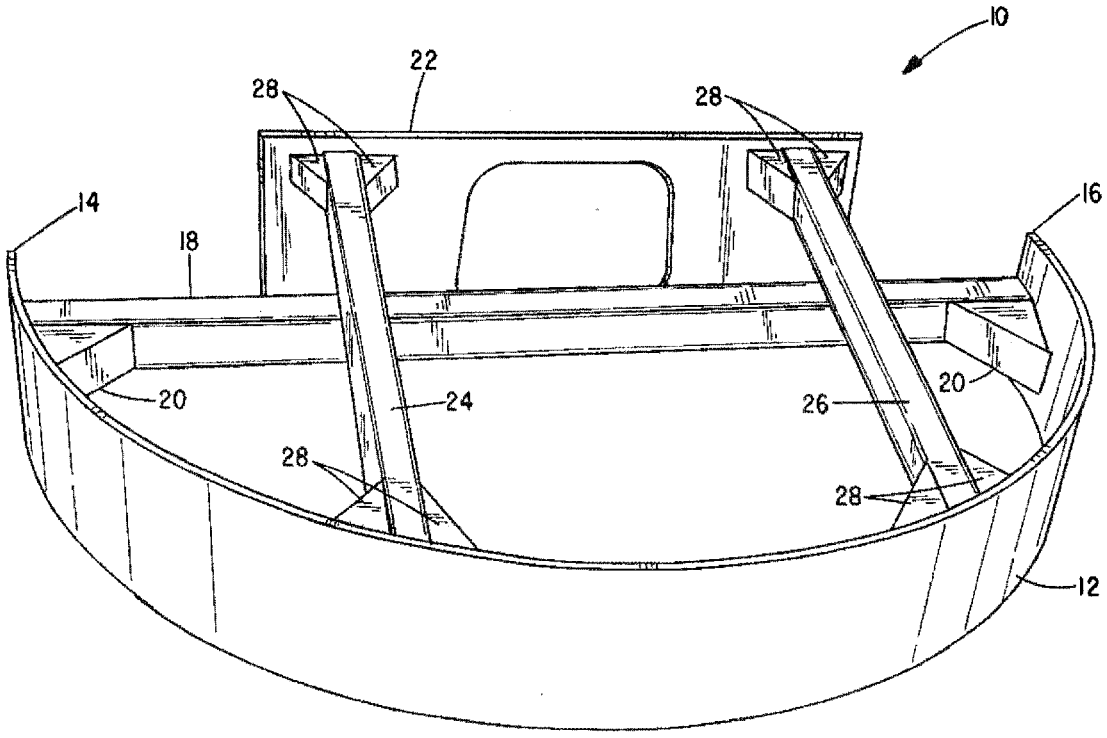
(57) **ABSTRACT**

An attachment for a skid steer, tractor or similar work vehicle especially designed for creating a swale or ditch in the earth has an arcuate, generally semi-circular steel blade of a predetermined height dimension and a diametrically extending support member welded to ends of the blade. Welded centrally on the support member is a conventional quick-attach plate, a pair of elongated braces extend between and are welded to the quick-attach plate and the arcuate blade.



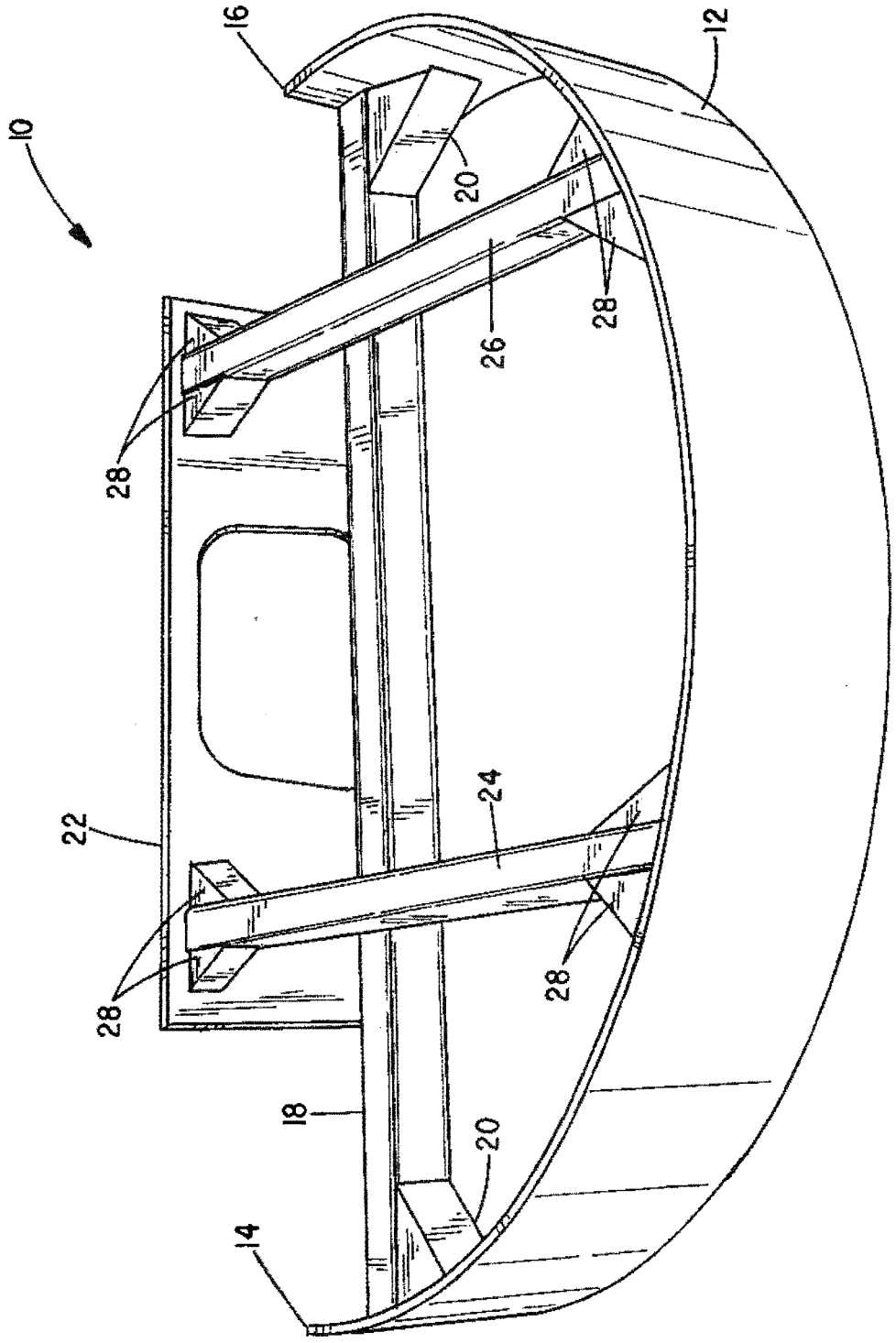


FIG. 1

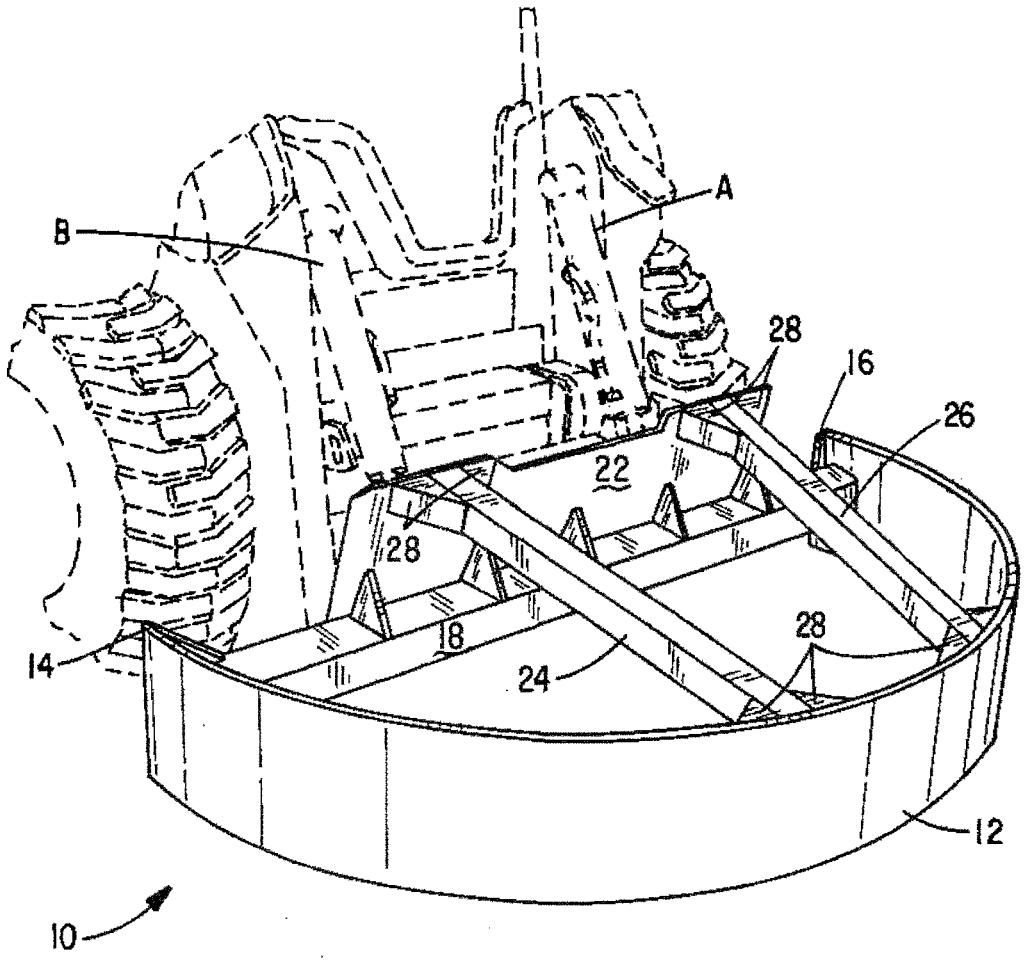


FIG. 2

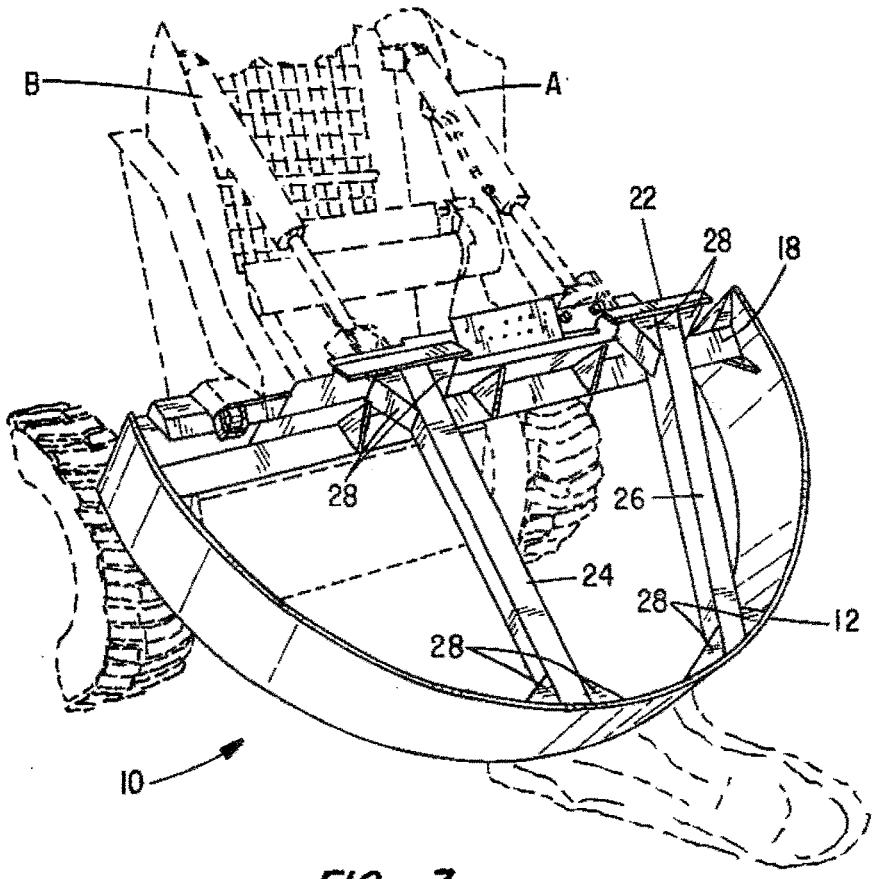


FIG. 3

PUSH-PULL ATTACHMENT FOR SKID STEER-TYPE MACHINE OR TRACTOR

CROSS-REFERENCED TO RELATED APPLICATIONS

[0001] Not applicable

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not applicable

BACKGROUND OF THE INVENTION

I. Field of the Invention

[0003] The present invention relates generally to earth working equipment and, more particularly, to an improved earth scraper attachment for a skid steer, front end loader, tractor or related type work vehicle, especially designed for creating swales or rounded ditches in a ground surface.

II. Discussion of the Prior Art

[0004] Various types of earth scraping attachments for work vehicles are known in the art. U.S. Pat. No. 5,775,438 describes an attachment for a skid steer for grading the ground and that attaches to the hydraulic lift arms of the vehicle. It includes a guide frame operatively disposed between a quick attach plate for mating with the lift arms and a V-shaped cutting blade whose apex points forward of the vehicle. The structure referred to as the "grader portion" that is used to support the V-shaped cutting blade is quite complex. Incorporated rear grader blades and rotary adjustment plates for setting the angle of the rear blades with respect to a central longitudinal axis of the vehicle. By tilting the vehicle's lift arms, the V-shaped cutting blade can be used to cut a V-shaped groove or ditch in the ground.

[0005] The Jenne patent U.S. Pat. No. 6,843,001 shows a somewhat similar attachment for a work vehicle having articulated, planar blades controlled by hydraulic cylinders that can be shifted from a rectilinear configuration to a V-shape and which when dragged across the ground in its V-shape will create a ditch or swale. Again, the mechanism for shifting the blades is somewhat complex involving many structural components.

[0006] The Huehnergard U.S. Published Application 2007/0209240 describes a scraper attachment similar in principle to the arrangement shown in the Jenne '001 reference, using hydraulic cylinders to reorient first and second planar blade members to create a V-shape for scraping a V-shaped swale in a ground surface.

[0007] A need exists for a much lower cost attachment for work vehicles of the type described that can be used to push or pull earth in a scraping operation, but by tilting the hydraulic lift arms of the vehicle, it will create a swale when dragged across the ground. The present invention meets this need.

SUMMARY OF THE INVENTION

[0008] The present invention comprises a push-pull attachment for a skid steer-type vehicle that comprises an arcuate, generally semi-circular blade member having first and second ends and a predetermined height dimension. A steel support member extends between the first and second ends and a conventional quick-attach plate is centered on and welded to the steel support member allowing rapid connection of the attachment to the work vehicle. A pair of support bars are disposed between the quick-attach plate and the arcuate blade member to provide structural rigidity to the assembly.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] The foregoing features, objects and advantages of the invention will become apparent to those skilled in the art from the following detailed description of a preferred embodiment, especially when considered in conjunction with the accompanying drawings in which like numerals in the several views refer to corresponding parts:

[0010] FIG. **1** is a front perspective view of a preferred embodiment of the invention as seen from an upper front location;

[0011] FIG. **2** is a perspective view of the attachment coupled to a work vehicle and positioned for merely scraping the ground; and

[0012] FIG. **3** is a perspective view of the preferred embodiment shown attached to a work vehicle and angled so as to create an arcuate groove or swell when either being pushed or pulled by the vehicle.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0013] This description of the preferred embodiments is intended to be read in connection with the accompanying drawings, which are to be considered part of the entire written description of this invention. In the description, relative terms such as "lower", "upper", "horizontal", "vertical", "above", "below", "up", "down", "top" and "bottom" as well as derivatives thereof (e.g., "horizontally", "downwardly", "upwardly", etc.) should be construed to refer to the orientation as then described or as shown in the drawings under discussion. These relative terms are for convenience of description and do not require that the apparatus be constructed or operated in a particular orientation. Terms such as "connected", "connecting", "attached", "attaching", "join" and "joining" are used interchangeably and refer to one structure or surface being secured to another structure or surface or integrally fabricated in one piece, unless expressively described otherwise.

[0014] Referring first to FIG. **1**, the attachment of the present invention is indicated generally by numeral **10** and is seen to comprise an elongated arcuate plate **12** which is preferably semi-circular having first and second ends **14** and **16**. Depending on the type of vehicle involved, the diameter of the semi-circle blade will be in a range of from 5 feet to 8 feet wide for use with skid loaders, 2 feet to 5 feet wide for backhoes and smaller skid loaders, 8 feet to 12 feet wide for larger pay-loader and tractors. Its height dimension may be in a range of from 10 inches to 36 inches.

[0015] Spanning the distance between the ends **14** and **16** is a support bar **18** which is welded to the inner surface of the arcuate plate **12**. Gussets, as at **20**, provide increased rigidity to the welded joint. Centered on and welded to the support member **18** is a quick-attach plate **22** of standard design and commonly used with work vehicles such as skid steers, frontend loaders and tractors for securing attachments of one type or another to the hydraulic lift arms of the vehicle. For those desiring more detailed information on the

shape and dimensions for the quick-attach plate **22**, they are referred to internet address http://blog.quickattach.com. Again, to provide further support and rigidity to the blade **12**, a pair of support bars **24** and **26** are welded between the quick attach plate **22** and the inner surface of the arcuate blade **12**. Again, gussets, as at **28**, strengthen the weldments. The blade **12** is preferably made of a high strength, abrasion-resistant steel, such as AR200 steel.

[0016] In use, to level or smooth the earth, the scraper assembly **10** is positioned as shown in FIG. **2** and, when pushed or pulled by the skid steer vehicle, the blade **12** being vertical with respect to the ground, will drag over the ground surface to smooth out irregularities.

[0017] When it is desired to dig a trench or swale, the vehicle's lift arms are raised to elevate the support bar **18**, as seen in FIG. **3**, thus tipping the blade **12** at an angle to the ground. A downward force on the attachment **10** will be provided by the hydraulic cylinders A and B shown in FIG. **3**. Now, when the vehicle is driven across a soil ground surface, the blade **12** will dig down while scraping to remove earth so as to create a rounded ditch or swale.

[0018] This invention has been described herein in considerable detail in order to comply with the patent statutes and to provide those skilled in the art with the information needed to apply the novel principles and to construct and use embodiments of the example as required. However, it is to be understood that the invention can be carried out by specifically different devices and that various modifications can be accomplished without departing from the scope of the invention itself.

What is claimed is:

1. A push-pull attachment for a skid steer vehicle comprising:

a) an arcuate blade member having first and second ends and a predetermined height dimension;

b) a steel support member extending between the first and second ends;

c) a quick attach plate centered on and welded to the steel support member; and

d) first and second support bars disposed between the quick attach plate and the arcuate blade member.

2. The push-pull attachment as in claim **1** wherein the blade member is semi-circular.

3. The push-pull attachment as in claim **1** wherein the predetermined height dimension is in a range between 10 inches and 36 inches.

4. The push-pull attachment as in claim **2** wherein the blade member has a diameter in a range of from 48 inches to 108 inches.

5. The push-pull attachment as in claim **2** wherein the blade is an abrasion-resistant steel.

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