



US008256692B2

(12) **United States Patent**
Knowles

(10) **Patent No.:** **US 8,256,692 B2**
(45) **Date of Patent:** **Sep. 4, 2012**

(54) **POSITIONING APPARATUS FOR SLUDGE
DISTRIBUTING HOSE**

(75) Inventor: **James T. Knowles**, Washington, IA (US)

(73) Assignee: **Bazooka Farmstar, Inc.**, Washington,
IA (US)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 315 days.

(21) Appl. No.: **12/582,888**

(22) Filed: **Oct. 21, 2009**

(65) **Prior Publication Data**

US 2011/0089269 A1 Apr. 21, 2011

(51) **Int. Cl.**

B05B 3/00 (2006.01)

B05B 3/18 (2006.01)

B65H 75/00 (2006.01)

(52) **U.S. Cl.** **239/195; 239/745**

(58) **Field of Classification Search** 239/195,
239/745; 56/188, 212

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,221,482 A * 12/1965 Cowling 56/15.8
6,116,275 A 9/2000 George, Jr.
6,427,612 B1 8/2002 Huffman
7,509,977 B2 3/2009 Huffman

FOREIGN PATENT DOCUMENTS

DE 2530554 A * 4/1976

OTHER PUBLICATIONS

Bazooka Farmstar Brochure, Mar. 1, 2009, 2 pages.

* cited by examiner

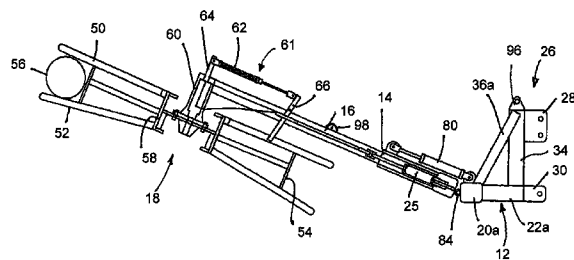
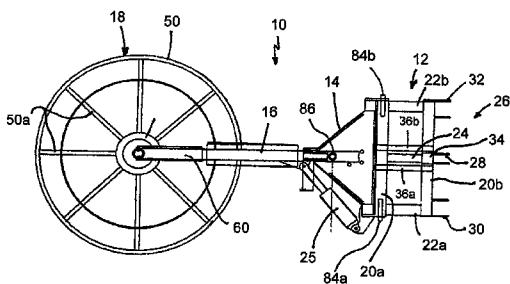
Primary Examiner — Christopher J. Novosad

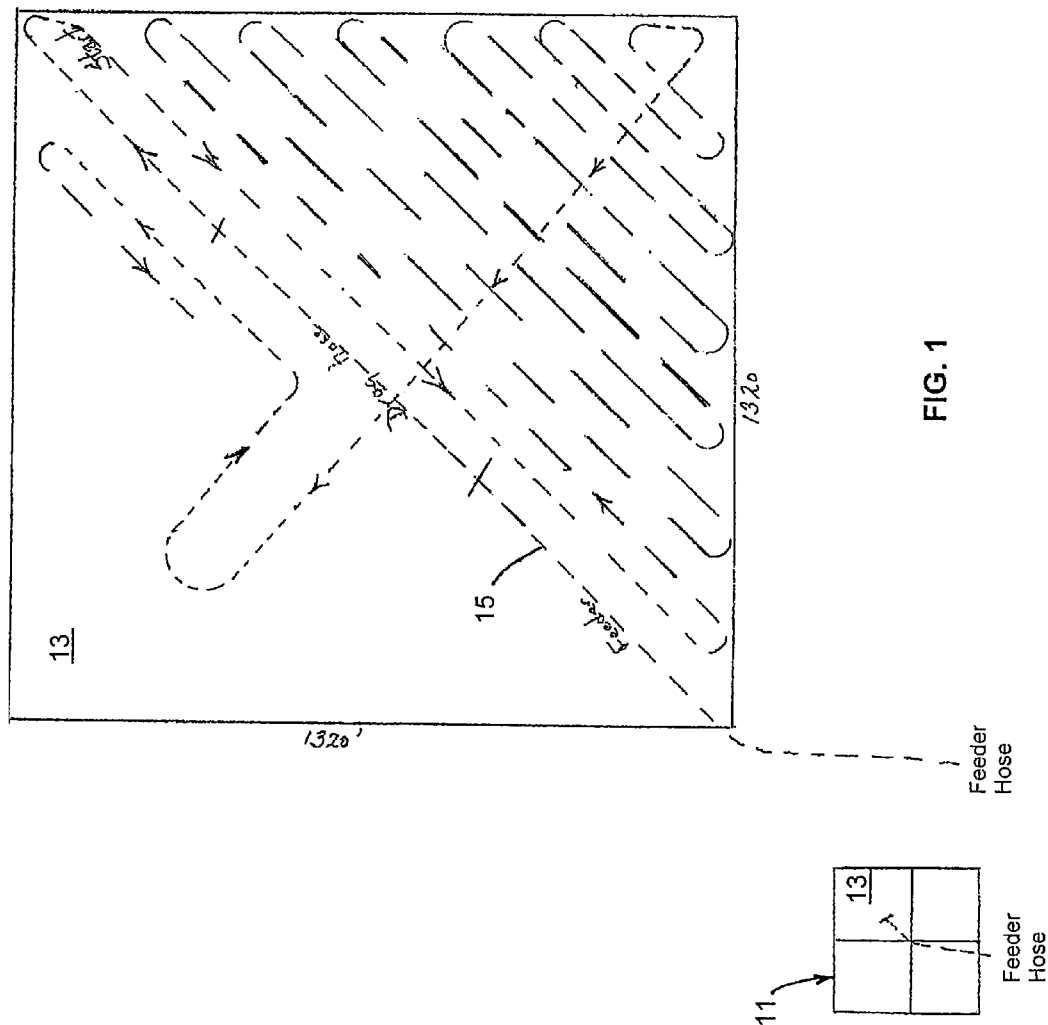
(74) *Attorney, Agent, or Firm* — Greer, Burns & Crain, Ltd.

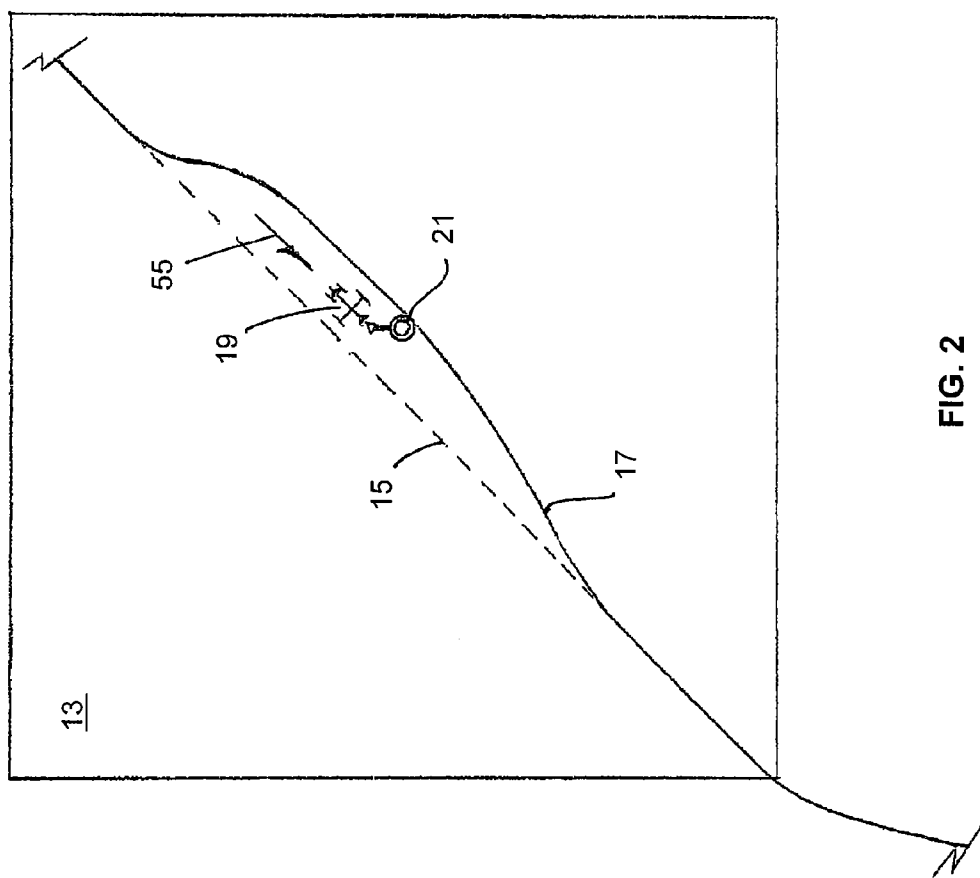
(57) **ABSTRACT**

Apparatus for positioning and maneuvering a sludge, or manure, distributing hose used in fertilizing a field includes a first frame adapted for coupling to a three-point tractor hitch and a second frame pivotally coupled to an aft portion of the first frame. Attached to and disposed aft of the second frame is a horizontally oriented, rotatable wheel assembly adapted to engage, lift and position the hose and to provide for changes in the direction of the hose as it is pulled through a field during fertilizing. The wheel assembly is horizontally and vertically pivotable about the first frame for respectively facilitating maneuvering of the hose in a field and for raising the wheel assembly for transport. A locking mechanism is provided for engaging and preventing rotation of the wheel assembly when desired. Hydraulic cylinders connected to the tractor's hydraulic system allow for changing the configuration of the apparatus.

17 Claims, 11 Drawing Sheets







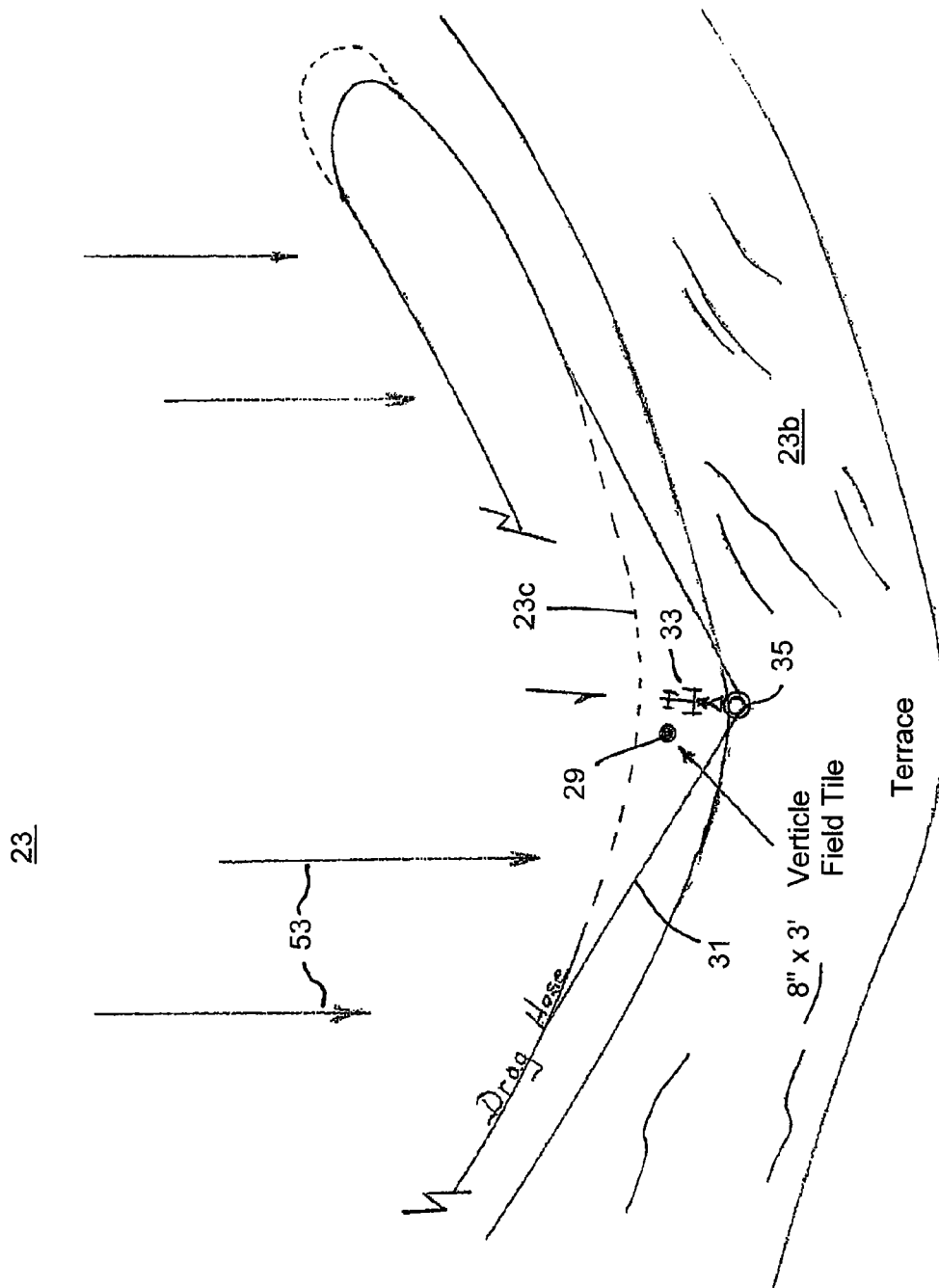


FIG. 3

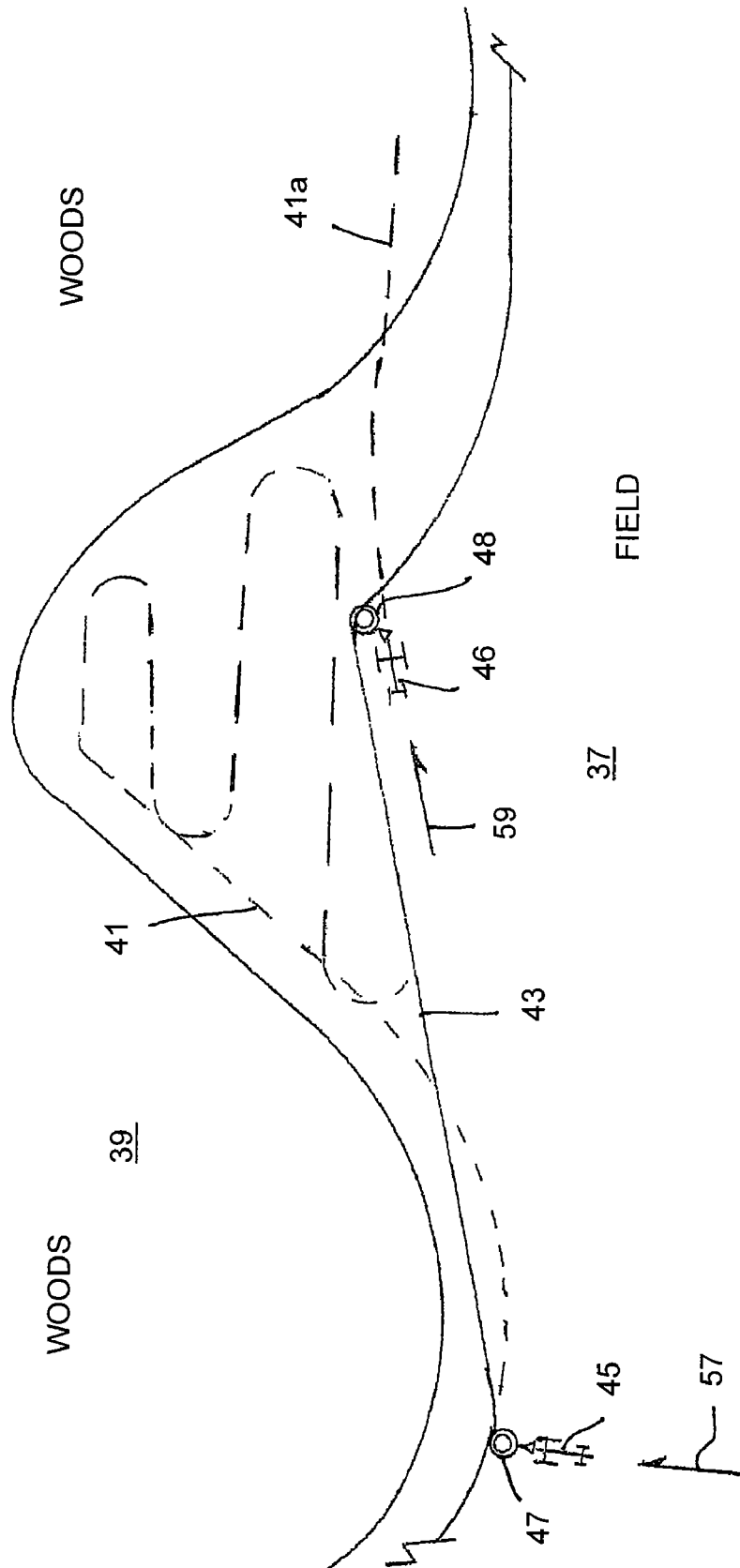


FIG. 4

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.