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Moser

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[54] **STINGER BIT FOR LOADER BUCKETS**

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[73] Assignee: **Caterpillar Tractor Co.**, Peoria, Ill.

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[52] **U.S. Cl.** ..... **37/141 R**; 37/117.5; 214/145

[51] **Int. Cl.²** **E02E 3/81**

[58] **Field of Search** ..... 172/802, 777, 778, 664; 214/145; 37/117.5, 141 R, 141 T

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[57] **ABSTRACT**

A loader bucket has a stinger bit movably mounted on a bottom wall thereof for movement between a raised position coplanar with the bottom wall and a lowered, digging position therebelow. Positioning means are provided on the stinger bit and bottom wall of the bucket to selectively hold the stinger bit in either the raised or lowered position during an earthworking operation.

18 Claims, 2 Drawing Figures

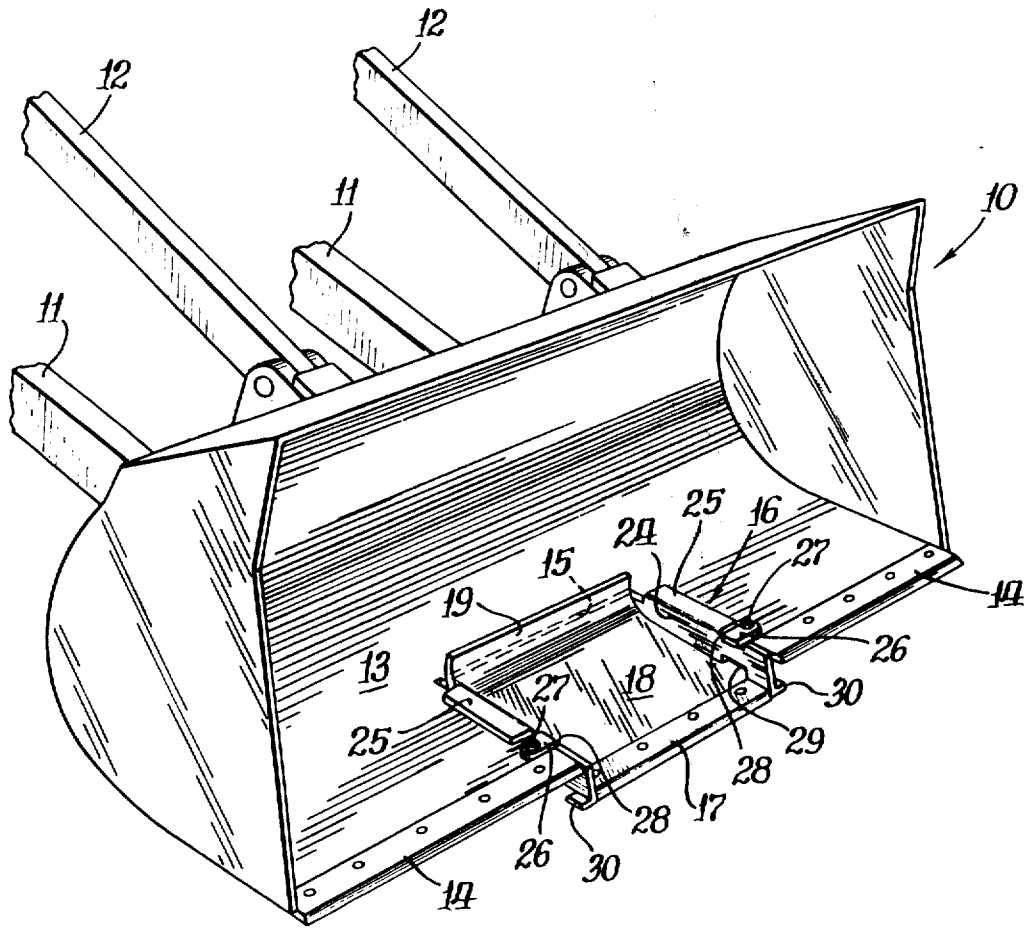

Fig. 1

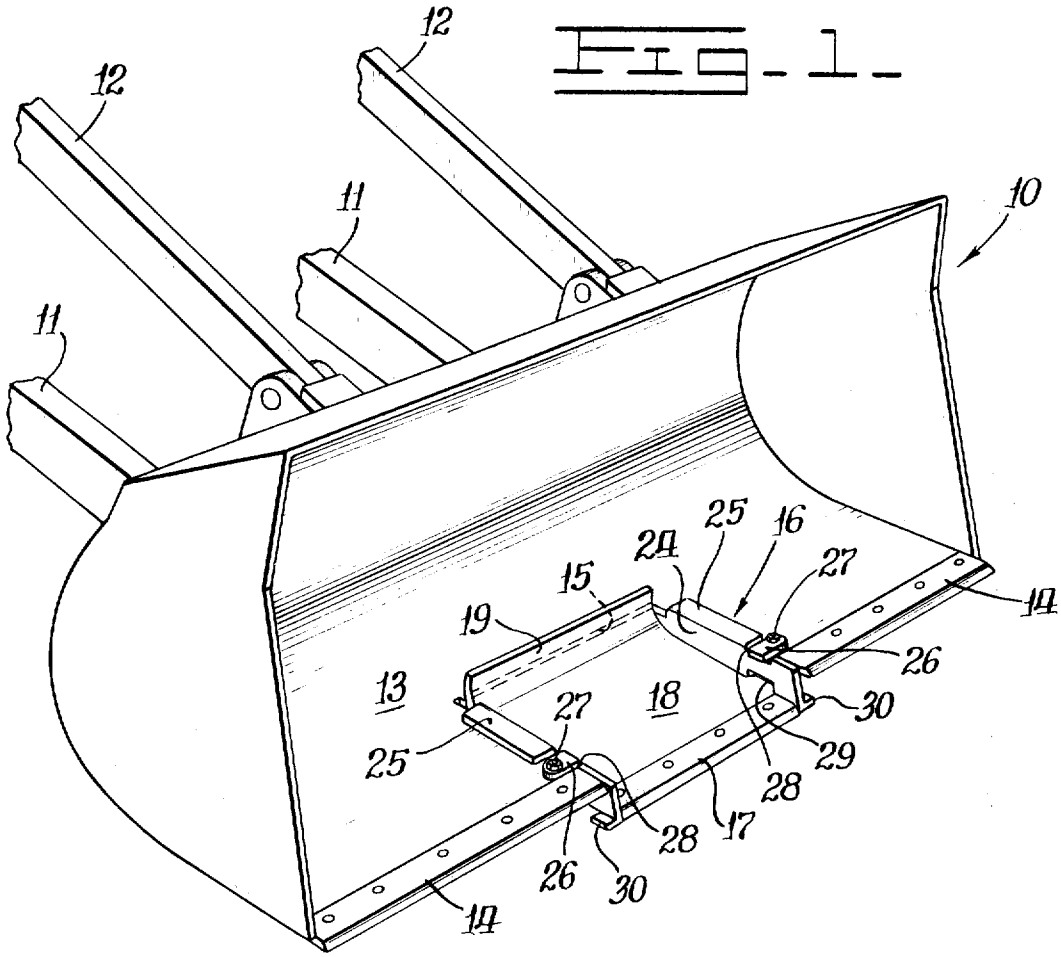
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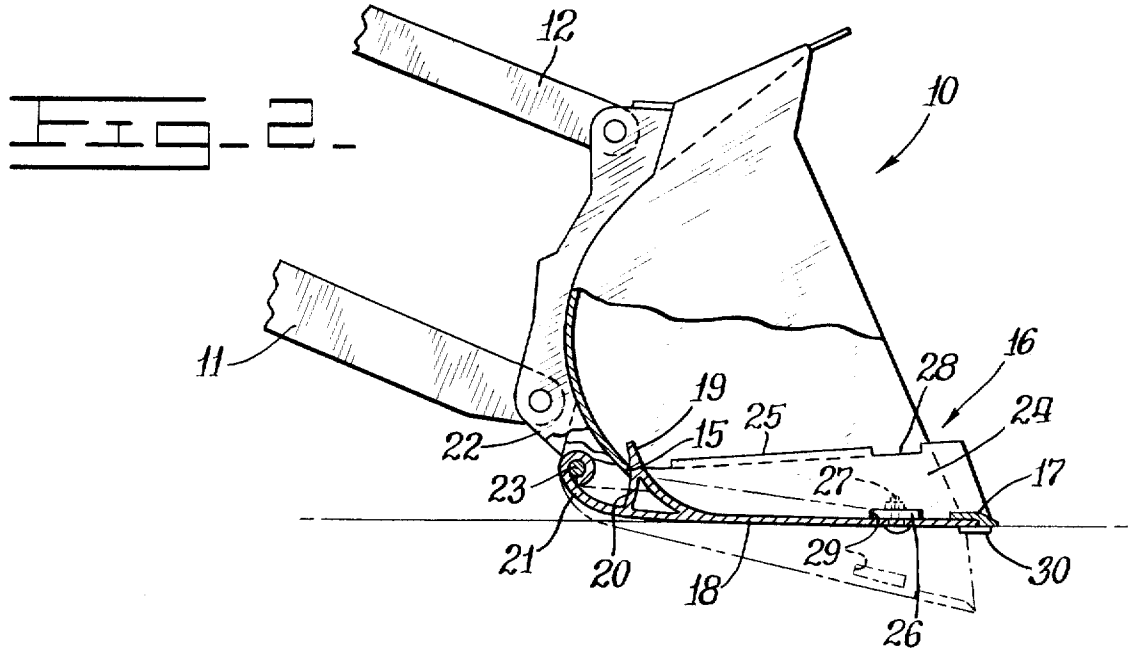
Fig. 2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STINGER BIT FOR LOADER BUCKETS

BACKGROUND OF THE INVENTION

The draw-bar pull required by a loader working in hard-packed material oftentimes reaches a sufficiently high magnitude to inhibit the earthworking operation. It is therefore necessary to resort to a loader having a substantially higher draw-bar horsepower to complete the work. In many such work applications, a contractor is unable to procure such a loader, thus resulting in undue economic losses.

SUMMARY OF THIS INVENTION

An object of this invention is to overcome the above briefly described problem by providing an economical and noncomplex stinger bit for an earthworking implement, particularly a loader bucket, which is adapted to increase the operational efficiency and versatility thereof. The loader bucket comprises a bottom wall having a cutting edge disposed forwardly thereon and an opening formed through the bottom wall which movably mounts the stinger bit therein. Positioning means on the stinger bit and bottom wall cooperate to selectively hold the stinger bit in either a raised position substantially coplanar with the bottom wall or in a lowered, working position.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects of this invention will become apparent from the following description and accompanying drawing wherein:

FIG. 1 is a front perspective view of a loader bucket having a stinger bit of this invention mounted thereon; and

FIG. 2 is a side elevational view of the loader bucket with portions thereof broken away to more clearly disclose the stinger bit.

DETAILED DESCRIPTION

FIG. 1 illustrates a loader bucket **10** adapted to be attached on a loader in a conventional manner by a pair of laterally spaced lift arms **11** and a tilt linkage comprising a pair of links **12.** The loader bucket comprises a bottom wall **13,** normally disposed horizontally during an earthworking operation, having an interrupted two-part cutting edge **14** disposed forwardly thereon. A rectangular opening **15** is formed through the bottom wall and has a stinger bit **16** mounted therein.

Referring to FIG. **2,** the stinger bit is adapted to be moved manually between a raised position, generally coplanar with respect to bottom wall **13,** and a lowered phantom-lined position below the bottom wall. FIG. **1** also discloses the stinger bit in its lowered position whereby it is adapted to substantially lower the draw-bar horsepower required during an earthworking operation. In its raised position, a cutting edge **17,** disposed forwardly on the stinger bit, is disposed in substantial linear relationship with respect to two-part cutting edge **14.**

The stinger bit further comprises a substantially flat bottom plate **18,** also disposed in coplanar relationship with respect to bottom wall **13** of the bucket when the stinger bit is raised, and an upwardly curved deflector portion **19** extending rearwardly from the bottom plate. A downwardly curved plate or cross-brace **20** extends downwardly from the rearward end of deflector portion **19** and is secured to the bottom plate. The bottom plate terminates at its rearward end at an upwardly curved portion **21** which is pivotally mounted on a pair of laterally spaced brackets **22** by a pivot pin **23.**

Deflector portion **20** is preferably concentric with respect to the pivot axis of pin **23** as well as a rearward edge of the bottom wall, defining opening **15.** The height of deflector portion **19** and such concentric relationship insures a substantially close fit between bottom wall **13** of the bucket and the stinger bit to prevent the egress of loaded material therebetween. Pivot pin support brackets **22** are disposed laterally inwardly of lift arms **11** to prevent interference therebetween upon tilting of the bucket on the lift arms by links **12.**

The stinger bit further comprises a pair of laterally spaced and vertically disposed side plates **24** (one shown), each having a horizontally disposed first flange **25** secured thereon to extend outwardly from a respective side plate. The flanges comprise positioning means for holding the stinger bit in its lowered position of operation when engaged with a top surface of bottom wall **13.** The positioning means further comprises a pair of lugs **26,** each releasably attached to bottom wall **13** of the bucket by a bolt **27.**

The inner end of each lug engages a like-shaped first notch **28** formed on an upper edge of side plate **24.** When it is desired to raise the stinger bit to its FIG. **2** position, bolts **27** are removed along with lugs **26,** the stinger bit is raised and the lugs are inserted into a second set of second notches **29,** each formed between a lower edge of a side plate and bottom plate **18.** In such position, second flanges **30** engage a bottom surface of cutting edge **14.**

It should be understood that the above-described loader bucket and its attached stinger bit may be suitably modified without departing from the spirit of this invention. For example, the stinger bit could be set back into bottom wall **13** of the bucket from the position shown in FIG. **1** and cutting edge **14** could thus comprise a single continuous member. Also, the raising and lowering of the stinger bit could be accomplished by a suitably attached and remotely controlled hydraulic actuator, for example. In addition, reinforcements could be welded or otherwise suitably secured to bottom wall **13** on either lateral side of the stinger bit to increase the overall structural integrity of the loader bucket.

I claim:

1. A loader bucket comprising

a bottom wall having a cutting edge disposed forwardly thereon,

means forming an opening through said bottom wall,

a stinger bit movably mounted on said bottom wall for movement in said opening between a raised position at least generally coplanar with respect to said bottom wall and a lowered position below said bottom wall, and

positioning means for selectively holding said stinger bit in said raised or lowered position, said positioning means comprising a pair of laterally spaced side plates secured to a bottom plate of said stinger bit and a first flange secured to an upper edge of each of said side plates to extend laterally outwardly therefrom to engage a top surface of said bottom wall.

2. The loader bucket of claim **1** wherein said stinger bit comprises a substantially flat bottom plate at least generally disposed in coplanar relationship with respect

to said bottom wall when said stinger bit is in its raised position and a pair of laterally spaced and upstanding side plates secured to opposite lateral sides of said bottom plate.

3. The loader bucket of claim **2** wherein said stinger bit further comprises a cutting edge disposed forwardly on said bottom plate and further disposed in substantial linear relationship with respect to the cutting edge disposed forwardly on the bottom wall of said loader bucket when said stinger bit is in its raised position.

4. The loader bucket of claim **2** wherein said stinger bit is pivotally mounted at a rearward end thereof beneath said loader bucket.

5. The loader bucket of claim **4** wherein said stinger bit further comprises a deflecting plate extending upwardly and rearwardly from said bottom plate.

6. The loader bucket of claim **5** wherein said stinger bit further comprises a reinforcing plate having its upper end secured to said deflecting plate and its lower end secured to said bottom plate.

7. The loader bucket of claim **6** wherein said reinforcement plate is curved and is substantially concentric with respect to a pivot axis of pivot means pivotally mounting said stinger bit on said bottom wall.

8. The loader bucket of claim **1** wherein said positioning means further comprises a second flange secured to a bottom edge of each of said side plates to extend laterally outwardly therefrom to engage a bottom surface of said cutting edge when said stinger bit is in its raised position.

9. The loader bucket of claim **8** wherein said positioning means further comprises at least one lug releasably attached on said bottom wall and at least one first notch formed through at least one of said side plates, said lug disposed in said notch.

10. The loader bucket of claim **9** wherein a second notch is formed in at least one of said side plates in vertically spaced relationship with respect to said first notch, said lug adapted to be inserted into either said first notch or said second notch.

11. The loader bucket of claim **10** wherein a pair of said lugs are releasably attached to said bottom wall and a pair of each of said first and second notches are formed through each of said side plates.

12. An earthworking implement comprising

a support member,

means forming an opening through said support member,

a stinger bit movably mounted on said support member for movement in said opening between a raised position at least generally coplanar with respect to said support member and a lowered position below said support member and

positioning means for holding said stinger bit in said raised or lowered position comprising

first stop means secured on said stinger bit to extend laterally outwardly therefrom to engage a top surface of said support member when said stinger bit is in its lowered position and

second stop means on said stinger bit and disposed vertically downwardly from said first stop means to engage a bottom surface of said support member when said stinger bit is in its raised position.

13. The earthworking implement of claim **12** wherein said positioning means further comprises at least one lug releasably attached to said support member and a pair of vertically spaced notches formed in said stinger bit and adapted to be alternately engaged by said lug.

14. The earthworking implement of claim **12** wherein said stinger bit comprises a substantially flat bottom plate at least generally disposed in coplanar relationship with respect to said support member when said stinger bit is in its raised position and a cutting edge disposed forwardly on said bottom plate and further disposed in substantial linear relationship with respect to a cutting edge disposed forwardly on said support member when said stinger bit is in its raised position.

15. The earthworking implement of claim **12** wherein said stinger bit is pivotally mounted at a rearward end thereof on said support member.

16. The earthworking implement of claim **15** wherein said stinger bit further comprises a deflecting plate extending upwardly and rearwardly from said bottom plate.

17. The earthworking implement of claim **16** wherein said stinger bit further comprises a reinforcing plate having its upper end secured to said deflecting plate and its lower end secured to said bottom plate.

18. The earthworking implement of claim **17** wherein said reinforcement plate is curved and is substantially concentric with respect to a pivot axis of pivot means pivotally mounting said stinger bit on said support member.

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