United States Patent [19]

Mitchell

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[54] **STABILIZING SUPPORT FOR BACK HOE**

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[52] **U.S. Cl.** **280/150.5**
[51] **Int. Cl.** **B60s 9/02**
[58] **Field of Search** ..... 280/150.5, 475; 248/188.9; 214/138 R, 138 C; 212/145

[56] **References Cited**

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Assistant Examiner—Robert R. Song
Attorney—Allen and Chromy

[57] **ABSTRACT**

Foot pads for the stabilizer arms of a back hoe provided with resilient pads of tough wear-resisting material engaging the asphalt or concrete surface of the pavement during use of the back hoe. The tough wear-resistant pads provide support for the stabilizer arms without digging into the pavement surface. The foot pads are pivotally attached to the ends of the stabilizer arms so that the tough resilient pad portions thereof adjust automatically to the contour of the pavement and provide firm footing for the stabilizer arms.

4 Claims, 7 Drawing Figures

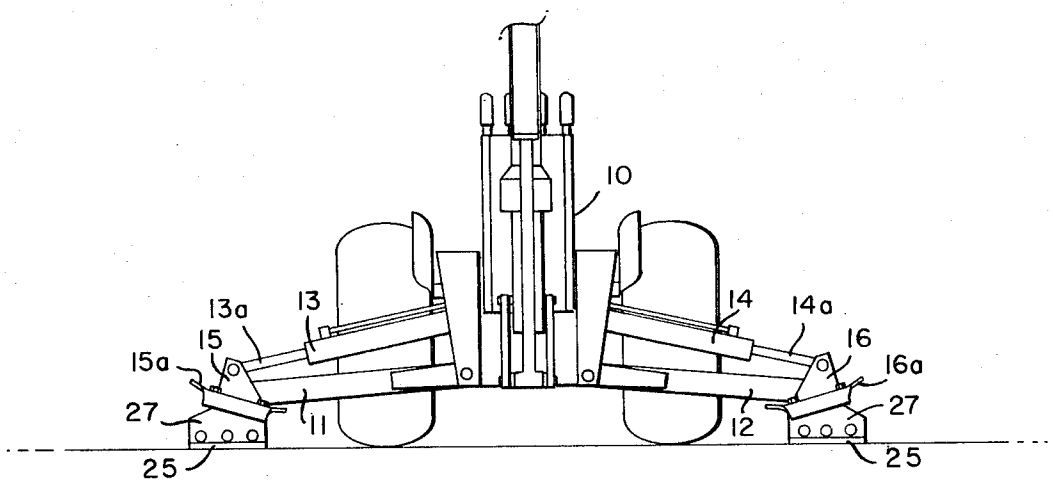
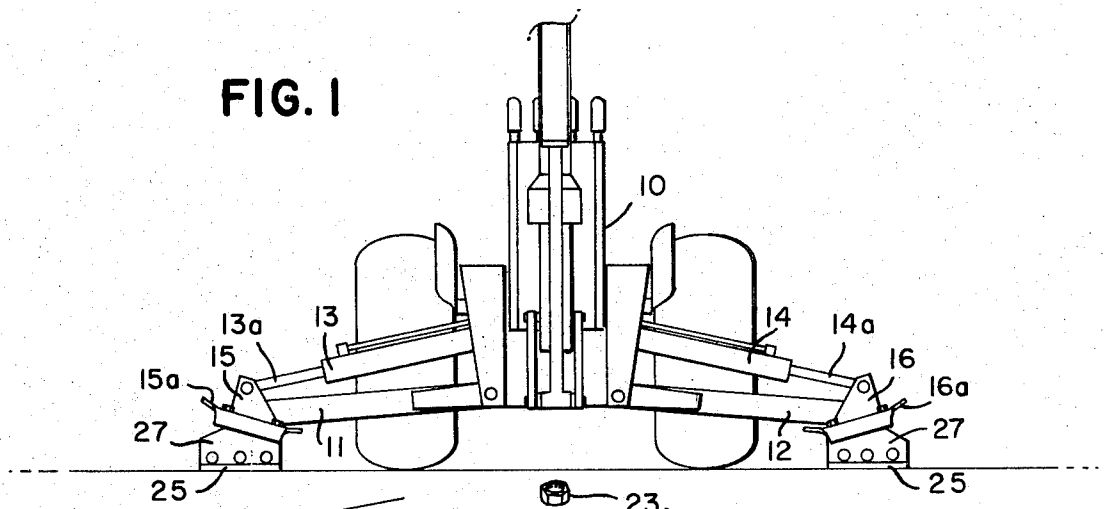


FIG. 1



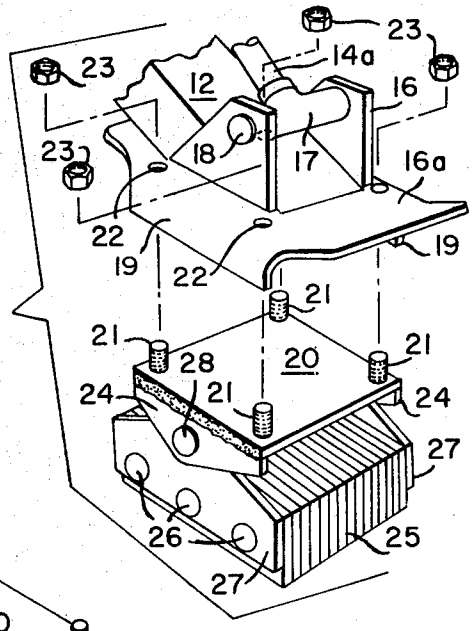


FIG. 2

FIG. 3

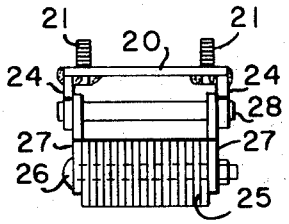
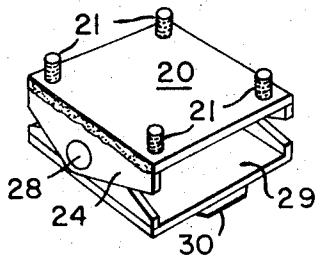


FIG. 4



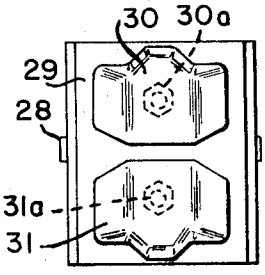


FIG. 6

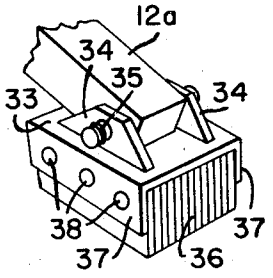


FIG. 7

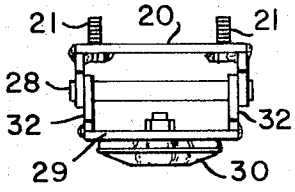


FIG. 5

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STABILIZING SUPPORT FOR BACK HOE

DESCRIPTION OF THE INVENTION

This invention relates to foot pads for the stabilizer arms of back hoes.

An object of this invention is to provide improved foot pads for the stabilizer arms of back hoes, said foot pads being provided with tough resilient pad surfaces for engaging the surface of the ground during the stabilizing of the back hoe.

Another object of this invention is to provide improved foot pads for stabilizer arms of back hoes, said foot pads being provided with tough and resilient pad portions which are pivotally attached at the ends of the stabilizer arms so that the pad portions thereof engage the ground squarely and firmly when the back hoe is in use without digging in or gouging the surface of the ground, particularly when that surface is coated with asphalt, cement or the like.

Other and further objects of this invention will be apparent to those skilled in the art to which it relates from the following specification, claims and drawing.

In accordance with this invention there is provided an improved foot structure for use on the free ends of the stabilizer arms of back hoes when these arms are lowered to stabilize the back hoe during use thereof. Prior to this invention the stabilizer arms of back hoes were provided with iron plates with downwardly turned portions which dug into or gouged the ground when the stabilizer arms were lowered during use of the back hoe. This digging and gouging of the surface was particularly objectionable when said surface was provided with an asphalt or concrete coating which it was not desired to disturb. Also these iron plates did not provide the desired firm stabilizing support for the back hoe. In this invention the foot pads of the stabilizer arms are provided with tough wear-resisting and resilient pad portions which support the free ends of the stabilizer arms and prevent sharp metal members from engaging the ground particularly where the ground surface is provided with asphalt or concrete coating. Furthermore, the foot pads of this invention are attached to the free ends of the stabilizer arms by pivots which are positioned such that the tough resilient pad surfaces of the foot pads are held in horizontal positions so that when the stabilizer arms are lowered these surfaces engage the ground squarely and form firm supports for said arms.

Further features and details of this invention will be set forth in the following specification, claims and drawing.

Referring to the drawing briefly:

FIG. **1** is a back view of a back hoe provided with stabilizer arms that are equipped with the foot pads of this invention;

FIG. **2** is an exploded view of one of the foot pads provided to the back hoe shown in FIG. **1**;

FIG. **3** is a front view of one of the foot pads;

FIG. **4** is a perspective view of a modified form of foot pad;

FIG. **5** is a front view of the foot pad shown in FIG. **4**;

FIG. **6** is a bottom view of the foot pad shown in FIGS. **4** and **5**; and

FIG. **7** is a view of another modified form of foot pad made in accordance with this invention.

Referring to the drawing in detail reference numeral **10** designates the tractor-type back hoe of conventional construction which is provided with stabilizer arms **11** and **12**. Arms **11** and **12** are attached to the frame of the back hoe by suitable pivotal means and they are adjustable by hydraulic devices **13** and **14**, respectively. These hydraulic devices are provided with piston rods **13***a* and **14***a* and the outer ends of these rods are pivotally attached to the upright members **15** and **16**, respectively. Two such upright members are welded to each of the plates **15***a* and **16***a* as shown in FIG. **2**. The ends of the piston rods **13***a* and **14***a* are each provided with a fitting such as the fitting **17** shown in FIG. **2**. Fitting **17** is positioned between the upright members **16** and it is pivotally attached thereto by the pivot pin **18**.

Each of the foot pads shown in FIG. **1** is assembled as shown in FIG. **2**. Plate **16***a* is attached by welding or the like to the outer end of the arm **12** and this plate is provided with downwardly extending side members **19**. The foot pad is equipped with a plate **20** which is provided with bolts **21** that are attached by welding or the like to corner portions of this plate. These bolts are spaced such as to be received by the four holes **22** provided to the plate **16***a*. Suitable nuts **23** are provided to the bolts **21** to hold the plate **20** assembled with the plate **16***a*.

Side plates **24** are attached by welding or the like to the sides of the plate **20**. The foot pad is provided with a resilient pad portion **25** which is made of a plurality of pieces or strips of rubber having cord embedded therein. The rubber and cord in each of these strips is vulcanized together by a vulcanizing process such as is used in the manufacture of tires provided to trucks. Other tough and resilient material such as urethane elastomer may be used in place of the strips of rubber if desired. These strips are held assembled in substantially parallel relation by three bolts **26** which penetrate the strips and which hold the strips clamped between the side plates **27**.

Pivot pin **28** pivotally supports the rubber strips **25** and side plates **27** between the plates **24** which are attached to the sides of the plate **20**. The rubber strips **25** extend well below the side plates **27** so that only these strips engage the pavement such as concrete or asphalt when the back hoe stabilizing arms are lowered to stabilize the back hoe. Thus, the side plates **27** are held away from the pavement and do not come in contact therewith so that these metal plates do not dig into the pavement and gouge holes into it during the use operation of the back hoe.

A modified form of foot pad is shown in FIGS. **4**, **5** and **6** which is attached to the back hoe arm plate **16***a* by a similar arrangement of four bolts **21** shown in FIG. **2**. Corresponding parts of the foot pad shown in FIGS. **4**, **5** and **6** are referred to by the same reference numerals used in FIG. **2**. The modification shown in FIGS. **4**, **5** and **6** is provided with a plate **29** that is equipped with two pads **30** and **31** which are made of resilient material such as rubber, urethane elastomer, plastic or the like. These pads are attached to the plate **29** by bolts **30***a* and **31***a*, respectively, which have portions thereof embedded in the pads and which are provided with suitable nuts to hold them assembled with the plate.

Side plates 32 are attached by welding or the like to the sides of the plate 29 and these plates are adapted to be positioned inside and adjacent to the plates 24 which are attached by welding or the like to the sides of the plate 20. The side plates 32 are pivotally attached to the side plates 24 by the pivot pin 28. Thus, the plate 29 may assume various angles with respect to the plate 20 when the stabilizing arm of the back hoe is moved toward the pavement so that both pads 30 and 31 firmly engage the pavement.

In FIG. 7 there is shown a modified form of this invention in which the foot pad which is provided with a plate 33 and upright members 34 is pivotally attached to the outer end of the tractor stabilizing arm 12*a* by the pivot pin 35. In this case the stabilizing arm 12*a* corresponds to the arm 12 shown in FIG. 1 and a similar arrangement may be used on the arm 11 on the other side of the tractor. This foot pad is provided with a plurality of strips of resilient material, the same as the material 25 shown in FIGS. 2 and 3. The strips 36 are held clamped between the side plates 37 which are attached by welding or the like to the sides of the plate 33 and suitable rods 38 which penetrate the strips 36 and the side plates 37 are provided for this purpose.

While I have shown and described a preferred form of the invention it will be apparent to those skilled in the art to which it relates that the invention is capable of variation and modification from the form shown so that the scope thereof should be limited only by the proper scope of the claims appended hereto.

What I claim is:

1. In stabilizing supports for back hoes and the like which include arms that are pivotally attached to sides of the back hoe and are adapted to extend from said sides, said back hoe having means for lowering said arms to engage the ground and provide side bracing to the back hoe, the improvement comprising foot pads for each of said arms, means separately pivotally attaching said foot pads to the bottoms of said arms, each of said foot pads comprising resilient members having relatively large substantially flat areas for squarely and firmly engaging the pavement to provide firm support to the back hoe without digging into and damaging said pavement on which said foot pads rest during operation of the back hoe, said attaching means of each of said foot pads including a pair of vertical members, means attaching said vertical members to said resilient members comprising members at least partially embedded in said resilient members, each of said first mentioned attaching means comprising a rod extending between said vertical members pivotally supporting said vertical members of said foot pads on the free ends of said arms.

2. In stabilizing supports for back hoes and the like which include arms that are pivotally attached to sides of the back hoe and are adapted to extend from said sides, said back hoe having means for lowering said arms to engage the ground and provide side bracing to the back hoe, the improvement comprising foot pads for each of said arms, means separately pivotally attaching said foot pads to the bottoms of said arms, said means separately attaching said foot pads including a plate, each of said foot pads comprising resilient members having relatively large substantially flat areas for squarely and firmly engaging the pavement to provide firm support to the back hoe without digging into and damaging said pavement on which said foot pads rest during operation of the back hoe, said attaching means of each of said foot pads including a pair of vertical members, means attaching said vertical members to said plate, means including said last mentioned members for attaching said resilient members to said plate, each of said first mentioned attaching means comprising a rod extending between said vertical members pivotally supporting said vertical members of said foot pads on the free ends of said arms.

3. In stabilizing supports for back hoes and the like which include arms that are pivotally attached to sides of the back hoe and are adapted to extend from said sides, said back hoe having means for lowering said arms to engage the ground and provide side bracing to the back hoe, the improvement comprising foot pads for each of said arms, means separately pivotally attaching said foot pads to the bottoms of said arms, said means separately attaching said foot pads including a plate, means attaching said plate to the back hoe arm, each of said foot pads comprising resilient members having relatively large substantially flat areas for squarely and firmly engaging the pavement to provide firm support to the back hoe without digging into and damaging said pavements on which said foot pads rest during operation of the back hoe, said attaching means of each of said foot pads including a pair of vertical members, said plate having downwardly extending members adjacent to said vertical members, means pivotally attaching said vertical members to said downwardly extending members, and means attaching said vertical members to said resilient members, each of said first mentioned attaching means comprising a rod extending between said vertical members pivotally supporting said vertical members of said foot pads on the free ends of said arms.

4. In stabilizing supports for back hoes and the like which include arms that are pivotally attached to sides of the back hoe and are adapted to extend from said sides, said back hoe having means for lowering said arms to engage the ground and provide side bracing to the back hoe, the improvement comprising foot pads for said arms, a plurality of plates, each of said arms having one of said plates fixedly attached thereto at the outer end thereof, means detachably attaching said foot pads to the bottoms of said plates so that each of said plates has a different one of said foot pads attached thereto, each of said foot pads comprising resilient means having relatively large substantially flat areas for squarely and firmly engaging the pavement to provide firm support to the back hoe without digging into and damaging said pavement on which said foot pads rest during operation of the back hoe, said detachable attaching means of each of said foot pads including a plurality of auxiliary plates, means detachably attaching selected ones of said auxiliary plates to the bottoms of selected ones of said first mentioned plates, and means pivotally attaching said resilient means to said auxiliary plates to support said first mentioned plates away from said pavement.

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