United States Patent [19]

Condra

[11] **3,735,509**

[45] **May 29, 1973**

[54] **ELEVATOR SUPPORT ADJUSTMENT FOR ELEVATING SCRAPER**

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[73] Assignee: **Allis-Chalmers Corporation,** Milwaukee, Wis.

[22] Filed: **Feb. 18, 1972**

[21] Appl. No.: **227,432**

[52] **U.S. Cl.** **37/8,** 74/568, 74/816, 33/DIG. 8, 248/16, 214/83.26

[51] **Int. Cl.**.....**E02f 1/36,** F16h 53/00

[58] **Field of Search**.....37/8, 174 H, DIG. 8; 74/567, 813, 568, 816, 527; 248/16, 59, 201, 274, 291; 198/232; 214/83.26

[56] **References Cited**

UNITED STATES PATENTS

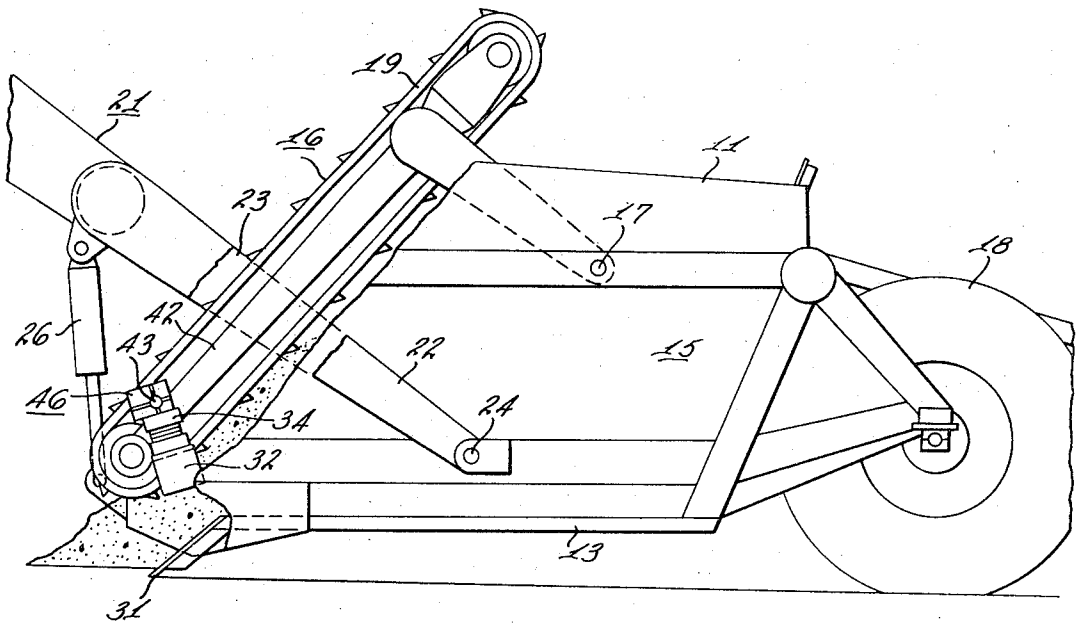
3,492,745	2/1970	Buckstead	37/8
3,693,682	9/1972	Hasfjord	33/DIG. 8 X
3,338,112	8/1967	Holmes	74/568
3,596,383	8/1971	Bispo	37/8
3,479,754	11/1969	Duke et al.	37/8
2,984,022	5/1961	Johnson	37/8
3,465,454	9/1969	Hancock	37/8

Primary Examiner—Robert E. Pulfrey
Assistant Examiner—Eugene H. Eickholt
Attorney—Charles L. Schwab, Robert B. Benson and Kenneth C. McKivett

[57] **ABSTRACT**

The vertically swingable endless belt elevating mechanism disposed in the open front end of a scraper bowl has its lower end held at a selected height above the cutting edge by adjustable support members which may be rotated to effect different elevations for the lower end of the elevating mechanism.

2 Claims, 5 Drawing Figures



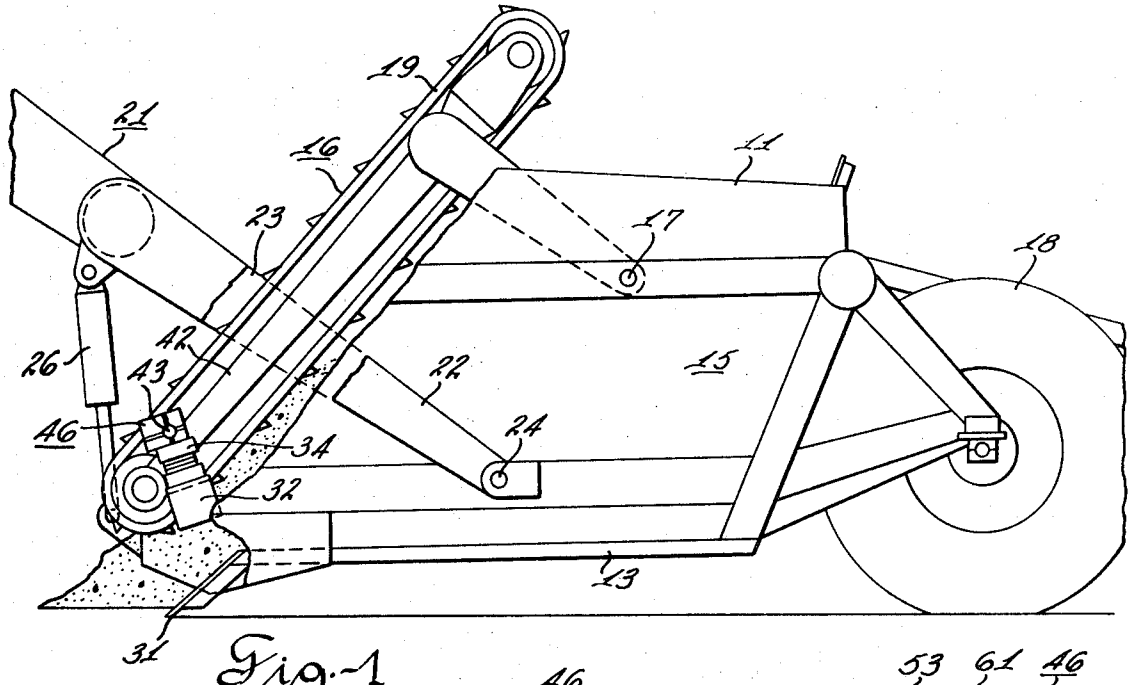


Fig.-1

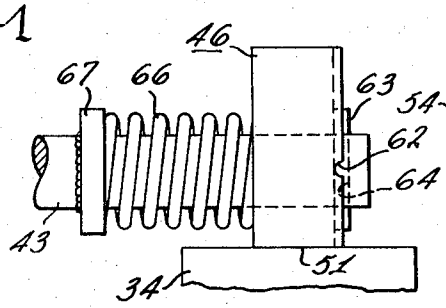


Fig.4

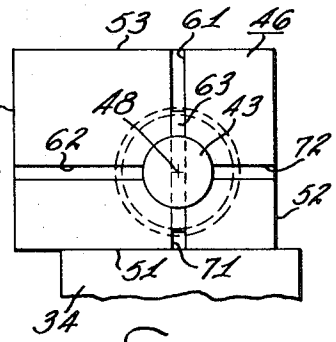


Fig.3

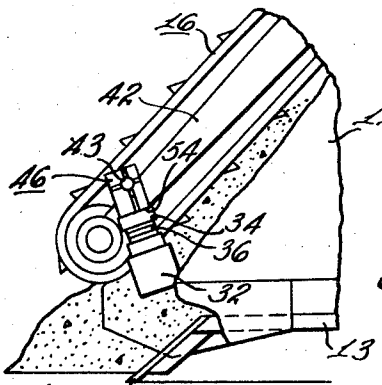


Fig.5

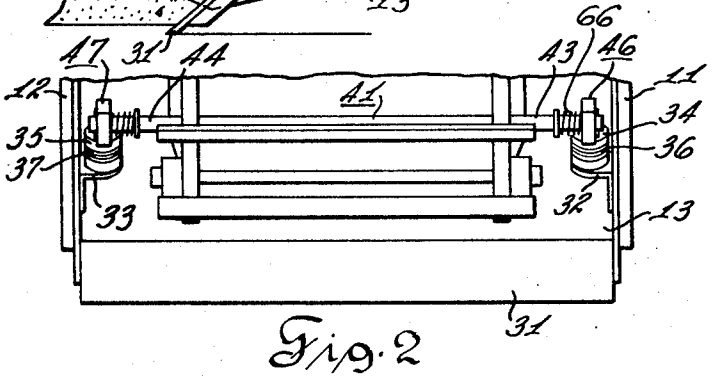


Fig.2

ELEVATOR SUPPORT ADJUSTMENT FOR ELEVATING SCRAPER

BACKGROUND OF THE INVENTION

Various mechanisms for adjusting the operation position of the lower end of the elevating mechanism of an elevating scraper have been proposed and adopted by others with varying degrees of success. Examples of such prior arrangements include those shown in U.S. Pat. Nos. 3,465,454; 2,984,022; 3,479,754; and 3,492,745. In some of these prior art constructions it is difficult and time consuming to change the height of the support for the elevating mechanism. Many require the use of tools and may require a mechanic to make the desired adjustment. This is inconvenient and expensive because changes in the condition of excavated material are frequently encountered which give rise to the need to change the supported height of the elevating mechanism.

SUMMARY OF THE INVENTION

In the illustrated embodiment of my invention I provide a rotatable support member at each side of the elevating mechanism which has abutment surfaces spaced on the outer periphery thereof at different spacing from its axis of rotation whereby upon rotative adjustment the operator can readily choose the desired height of the lower end of elevating mechanism in relation to the cutting edge. In order to insure that the support member remains in its selected position, I provide a spring biased detent or lock.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view of an elevating scraper in which the present invention is incorporated with portions removed for purposes of illustration;

FIG. 2 is a front view of the lower end of the elevating mechanism shown in FIG. 1;

FIG. 3 is an enlarged side view of my adjustable support member;

FIG. 4 is an end view of the structure shown in FIG. 3; and

FIG. 5 is a side view of a portion of the elevating scraper shown in FIG. 1 wherein the support member has been adjusted to provide a greater distance between the cutting edge and the lower end of the elevating mechanism.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. 1 and 2, I have illustrated my invention in an elevating type wheeled scraper having a pair of vertical sidewalls 11, 12 and a bottom wall 13 which define a bowl 15 with an open front end. An endless belt elevating mechanism 16 is disposed in the open front end for vertical swinging movement about a transverse axis 17 on which downwardly and rearwardly extending arms of the elevating mechanism 16 are connected to the sidewalls 11, 12 of the scraper bowl. The scraper bowl 15 is supported at its rear end by a pair of wheels 18, only one of which is shown. A draft frame 21 has a pair of rearwardly extending legs 22, 23 which are pivotally connected to the bowl sidewalls 11, 12 on a transverse pivot axis 24. The front end of the scraper bowl 15 is raised and lowered by a pair of hydraulic jacks 26 interconnecting the draft frame 21 and the front ends of the sidewalls. Only one jack 26 is illustrated.

When the jacks 26 are expanded a cutting edge 31 at the front end of the bottom 13 is placed in an excavating position, such as is illustrated in FIG. 1. In this condition of adjustment, excavated material will pass into the scraper bowl as the scraper is moved forwardly. During such excavation the endless belt 19 of the elevating mechanism is powered in a counterclockwise direction, as viewed in FIG. 1, to assist in moving the excavated material rearwardly into the bowl. Some materials are loaded most efficiently by having the lower end of the elevating mechanism fairly close to the cutting edge. Other materials are most efficiently loaded with the lower end of the elevating mechanism at some greater distance above the cutting edge 31. In any of the adjusted positions of the elevating mechanism the lower end of the elevating mechanism is free to swing upwardly about the pivot axis 17 upon contact with large boulders or the like. In order to suport the elevating mechanism at its lower end, a pair of brackets 32, 33 are secured to the sidewalls 11, 12 and mount a pair of abutments 34, 35 by appropriate resilient cushions 36, 37. A cylindrical rod 41 is secured, as by welding, to the elevating mechanism frame 42 and presents a pair of oppositely extending arms 43, 44 in overlying relation to the abutments 34, 35. A pair of support members 46, 47 are rotatably supported on the ends of arms 43, 44 and engage the top of abutments 34, 35.

Referring to FIGS. 3 and 4, the support member 46 is shown in its position of rotatable adjustment relative to its associated arm 43 wherein the minimum distance exists between the axis 48 of the arm 43 and the abutment 34. Expressed in another manner, the abutment surface 51 of support member 46 is closer to the arm 43 than abutment surfaces 52, 53 and 54. The support member 46 is held in its selected position of rotatable adjustment by detent means in the form of grooves 61, 62, 71, 72 in support member 46 and a pin 63 press fit in a bore 64 of the arm 43. The support member 46 is resiliently biased toward the detent pin 63 by a coil spring 66 compressed between the shoulder 67 on the arm 43 and the support member 46.

When the operator of the elevating scraper wishes to change the elevation of the lower end of the elevating mechanism 16, he pushes the support member 46 axially to the left slightly, as viewed in FIG. 4, and rotates the support member 46 to one of its four positions of rotative adjustment wherein one of the abutment surfaces 51, 52, 53, 54 is in abutting relation with the top of abutment 34. When the selected position has been achieved, the operator merely releases the support member 46 and allows one of its detent grooves 61, 62 to become engaged again with the detent pin 63.

Referring to FIG. 5, it will be noted that the support member 46 has been adjusted to a position wherein abutment surface 54 of the support member 46 is in abutting engagement with abutment 34, and it will be noted that the elevation of the lower end of the elevating mechanism 16 is substantially higher than that shown in FIG. 1. Although I have described in detail the support member 46, it should be understood that support member 47 is similarly constructed and arranged in relation to its arm 44 and cooperating abutment 35.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. In an elevating type wheeled scraper having a pair of vertical side walls and a bottom wall forming a bowl with an open front end for receiving material excavated by a transverse cutting edge and having an upwardly and rearwardly extending endless belt elevating mechanism disposed in said open front end for assisting in moving material excavated by said cutting edge into said bowl, means for adjustably supporting said elevating mechanism comprising:

a pair of abutments secured to said sidewalls, respectively,

a pair of support arms secured to and extending in transversely opposite directions from said elevating mechanism and disposed above said abutments, respectively,

a pair of adjustable support members rotatably and axially shiftably supported on said arms, respectively, having a plurality of abutment surfaces at different radial distances from the associated arm, each said member being rotatable to selectively position any one of its abutment surfaces in abutable relation with its associated abutment, and

detent portions formed on said arms and support members for releasably maintaining said support members in selected positions of rotation corresponding to said abutment surfaces being in abutable relation to their associated abutments.

2. The structure of claim 1 and further comprising resilient means biasing said support members, respectively, toward said cooperating detent portions of said arms.

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