Sept. 9, 1969 J. E. HANCOCK 3,465,454

SCRAPER ELEVATOR ADJUSTMENT

Filed April 12, 1967 2 Sheets-Sheet 1

FIG. 1

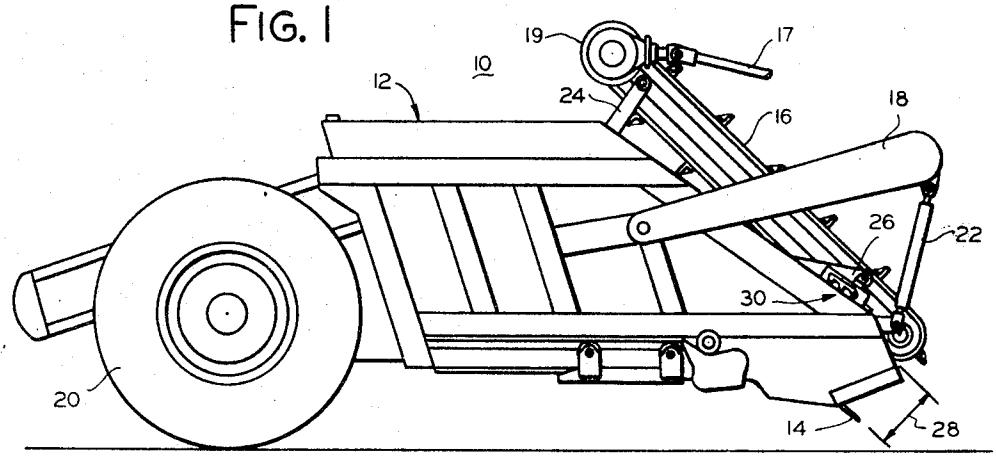


FIG. 2

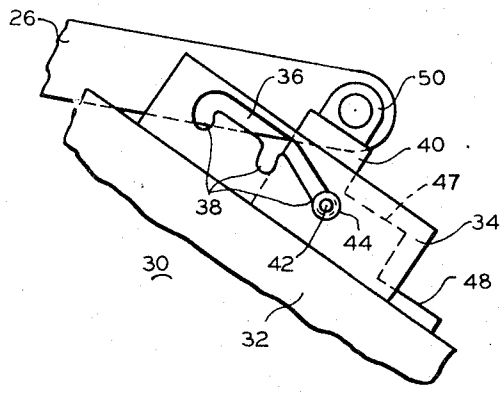


FIG. 3

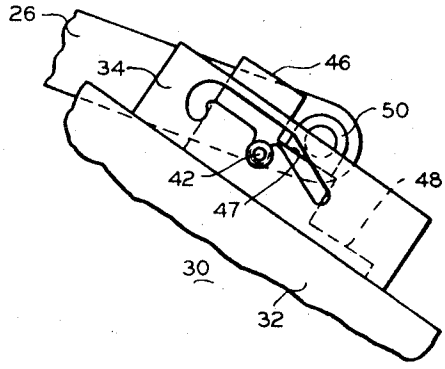
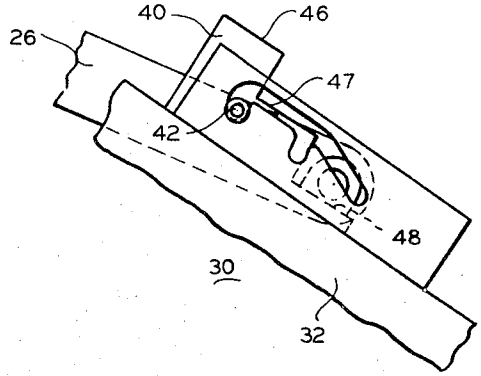


FIG. 4



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FIG. 5

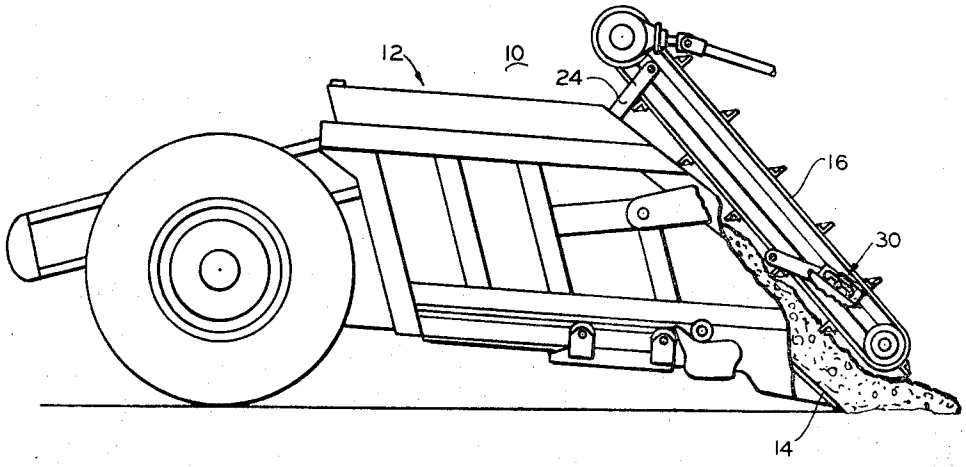
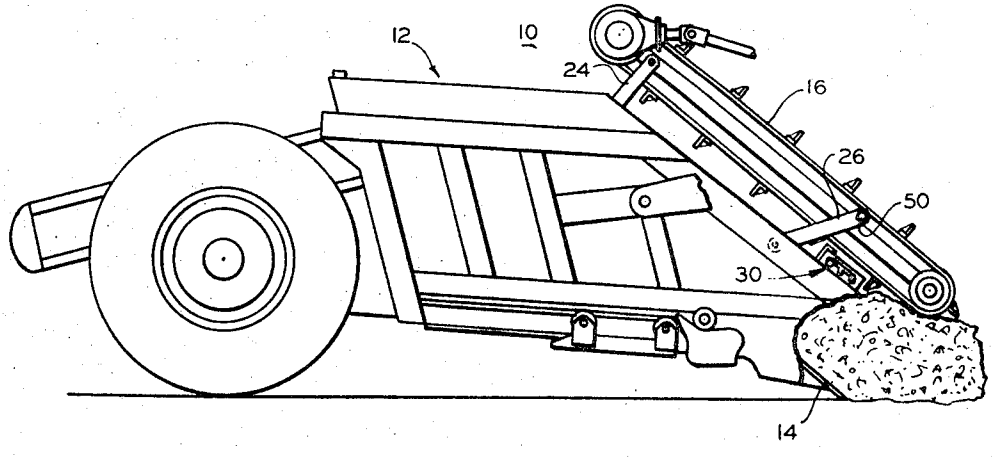


FIG. 6



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3,465,454

Patented Sept. 9, 1969

3,465,454

SCRAPER ELEVATOR ADJUSTMENT

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Filed Apr. 12, 1967, Ser. No. 630,274
Int. Cl. E02f 3/14, 3/08
U.S. Cl. 37—8 3 Claims

ABSTRACT OF THE DISCLOSURE

An adjusting mechanism for changing the normal operating position of the lower end of the elevator of an elevating scraper. Releasable latching means are included for holding and adjusting block in a selected location, which determines the normal operating position, while the location of the adjusting block can be readily changed by operating the scraper in dirt to cause the elevator to move away from the adjusting block.

Background of the invention

The ability readily to adjust the normal operating position of the lower end of the elevator of an elevating scraper is important, in order to be able to adapt the elevating scraper readily to the loading of various types of dirt and other materials. In order to achieve maximum efficiency and effectiveness in the loading of various types of materials it is important to be able readily to change the normal spacing between the elevator and the cutting edge of the scraper because different types of materials require different spacing for best performance.

As an example of arrangements which have been used previously for this purpose reference is made to U.S. Patent 2,984,022 Johnson in which stop elements **88** (one on each side) are bolted to the interior of the sidewalls, such stop elements **88** being provided with several series of bolt-receiving holes **90** so that they can be adjustably positioned on the sidewalls to vary the distance between the conveyor and the blade. It will be appreciated, however, that to change the position of such a stop requires the use of tools. Moreover, under some circumstances the operator of a vehicle of this type is not permitted to perform any adjustments or repairs on the vehicle which require the use of tools, but must get another person to make such adjustments or repairs, which entails further delay and difficulty.

Summary of the invention

In carrying out this invention in one form thereof, I provide an adjustment block which is arranged to be moved along the upper surface of a frame member of the elevating scraper. Releasable latching means are provided between the adjusting block and the frame member so that when the elevator is moved away from the latching block by operating the elevator into dirt or other material the adjusting block can be readily moved to a different location to provide a different normal operating position for the elevator.

Brief description of the drawing

FIG. 1 is a side elevational view of an elevating scraper embodying the present invention in a preferred form thereof, in the carrying position;

FIG. 2 is an enlarged view of the adjusting mechanism in one position thereof;

FIG. 3 is an enlarged view of the adjusting mechanism in another position thereof;

FIG. 4 is an enlarged view of the adjusting mechanism in the third position thereof;

FIG. 5 is a side elevational view of the elevating scraper of FIG. 1 in the digging position, with a portion of it broken away; and

FIG. 6 is a side elevational view of the same elevating scraper in another operating position; this figure also has a portion of the elevating scraper broken away.

Description of the preferred embodiment

The numeral **10** in FIG. 1, and in FIGS. 5 and 6, designates generally an elevating scraper which is illustrated in the form of the trailer portion of an articulated vehicle, the tractor portion of which is not shown. The elevating scraper is for loading, transporting and unloading earth and other material, and includes a main bowl or box portion **12** having a cutting edge **14** at the lower front, and endless chain elevator **16** for moving material upwardly and rearwardly into the box portion. The elevator **16** is operated clockwise as viewed on the drawing, and in the particular elevating scraper illustrated it is driven by means of a power takeoff from the engine of the tractor, which through other interconnecting shafts drives shaft **17** which drives the elevator through gear reduction box **19**. Other parts include a yoke **18** (only a portion of which is visible) for connecting the elevating scraper to the tractor, and a pair of rubber-tired wheels **20** (only one of which is visible) mounted at the outer ends of a rear axle; these are the rear wheels and in conjunction with front wheels on the tractor portion provide for movement of the vehicle.

In FIG. 1 the elevating scraper **10** is shown in the carrying condition, that is, the condition in which it is put for transport after a load has been obtained in the box. To operate the elevating scraper **10** to load dirt into the box thereof the elevating scraper is put in the condition illustrated in FIG. 5 by extension of the actuators **22** (see FIG. 1) to engage the cutting edge with the ground. This is done in a known manner by the operator located on the tractor portion of the vehicle. Then the elevating scraper is drawn forwardly, that is, toward the right in FIGS. 1 and 5 of the drawing, which forces dirt upon the cutting blade **14** whereupon the forward motion of the vehicle and the action of elevator **16** turning clockwise combine to move the dirt upwardly and rearwardly into the box **12**. The elevator or conveyor **16** has a floating type connection to the box, that is, it is connected at the upper end by pivotable links or arms **24**, one at each side of the machine, and at the bottom by pivotable links or arms **26**, one at each side of the machine. This provides a floating connection which makes it possible for the elevator to rise up over rocks and other obstructions encountered during operation of the elevating scraper. For a more detailed explanation of the operation of the elevator reference is made to Patent 2,791,041, Hancock, wherein such an elevator mechanism is disclosed in detail and claimed. It will be understood that after the elevator has been raised by a rock or other obstruction it returns by gravity to its normal operating position. It will also be understood that the present invention is not limited to a scraper having an elevator with the particular floating type connection described and illustrated herein but may be used as well on other elevating scrapers in which the lower end of the elevator is arranged to rise to clear rocks and other obstructions.

It will be understood by those skilled in the art that it is desirable to vary the spacing between the elevator **16** and the cutting edge **14** depending upon the type of dirt or other material being loaded, and this spacing has been indicated by the numeral **28** in FIG. 1. The present invention provides a mechanism and method for readily adjusting this spacing without requiring the use of any

tools. The adjusting mechanism which makes this possible is indicated generally by the numeral **30** in FIG. 1, and is shown in greater detatil in FIGS. 2, 3 and 4.

The adjusting mechanism **30** includes a portion of one of the frame members of the elevating scraper, that is, a slanting frame member which is located at the front of the box portion **12**, and such portion of the frame member is indicated by the numeral **32** in FIGS. 2, 3 and 4. It will be understood that while the following detailed description of the adjusting mechanism refers only to the right side of the vehicle, that there is preferably another allochirally related adjusting mechanism on the opposite side of the box.

Along the outer edge of member **32** and extending upwardly therefrom is a flange-like projection **34**. This may be a flat piece of metal welded to frame member portion **32**. Projection **34** has therein a cutout portion **36** which includes three downwardly extending notch portions **38**.

An adjusting block **40** is located just inside of projection **34** and rests on the upper surface of frame member **32**. A detent member **42** projects outwardly from adjusting block **40** and projects through one of the said notches **38**. A retainer **44** is provided at the outer end of detent member **42** to retain adjusting block **40** in position on the upper surface of frame member **32**. Adjusting block **40** as illustrated provides three steps which are indicated respectively by the numerals **46**, **47** and **48**. It would be possible, of course, to have more steps, if desired.

The normal operating position of the elevator **16** is determined by the position of adjusting block **40**, by virtue of a foot member **50** which is connected to the pivot shaft for link **26** and arranged to rest on one of the aforementioned step portions. As shown in FIG. 1 and FIG. 2, foot member **50** is resting on upper step **46**, and in this situation the normal spacing **28** between the elevator and the cutting edge is the maximum. In FIG. 3 the foot member **50** is resting on the intermediate step **47** and in this condition the spacing **28** is of intermediate scope. In FIG. 4 the foot member **50** is resting on the third step **48** and in this case the spacing **28** is the minimum.

To adjust the normal operating position of adjusting block **40** from one position to another, it is necessary only to operate the elevating scraper in the manner illustrated in FIG. 6, that is, to cause such a large accumulation of dirt between the cutting edge **14** and the elevator that the elevator is raised away from adjusting block **40**. Then it is possible to change the position of adjusting block **40** merely by raising it by hand sufficiently to raise it out of whatever notch **38** in which it may be positioned and change it to another notch. Thereafter, the elevating scraper is operated to restore the elevator to its normal lowered position, as by retracting the actuators **22** to raise the cutting edge **14** out of the ground and discharge at least a portion of the dirt in the space between the cutting edge and the elevator. Then the elevating scraper may be operated in the normal manner with the lower end of the elevator in the newly adjusted position suitable for the material to be handled.

I claim:

1. An adjusting mechanism for adjusting the normal operating position of the lower end of the elevator of an elevating scraper, the adjusting mechanism comprising a frame member having a planar upper surface, an adjusting block located on the said upper surface and supporting the lower part of the elevator, means for raising the elevator off the said adjusting block, releasable latching means holding the said adjusting block in a selected position on the said frame member, the said releasable means comprising a notched member having a plurality of notches therein and carried by the said frame member, the said releasable latching means permitting movement of the said adjusting block to another position when the elevator is raised off the said adjusting block, and a detent carried by the said adjusting block and engageable selectively in the said notches.

2. An adjusting mechanism as specified in claim **1** in which the said adjusting block is provided with steps at varying heights from the planar surface of the said frame member.

3. An adjusting mechanism as specified in claim **2** in which all of the elements except the elevator are located on one side of the elevating scraper and similar elements except the elevator are located in allochiral relation on the other side of the scraper.

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U.S. Cl. X.R.

248—16