May 16, 1967 M. J. BLES, SR 3,319,675

TRACTOR CARRIED LOG SPLITTERS

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FIG. 1.

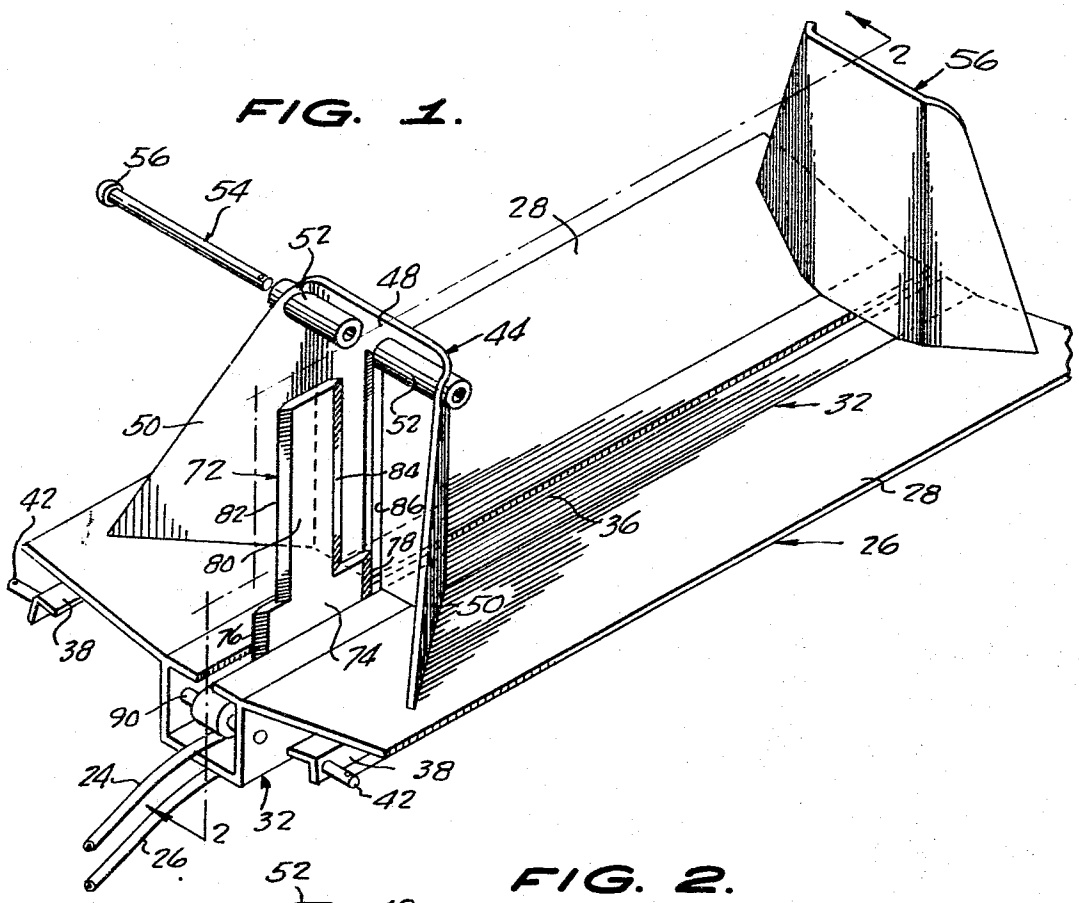
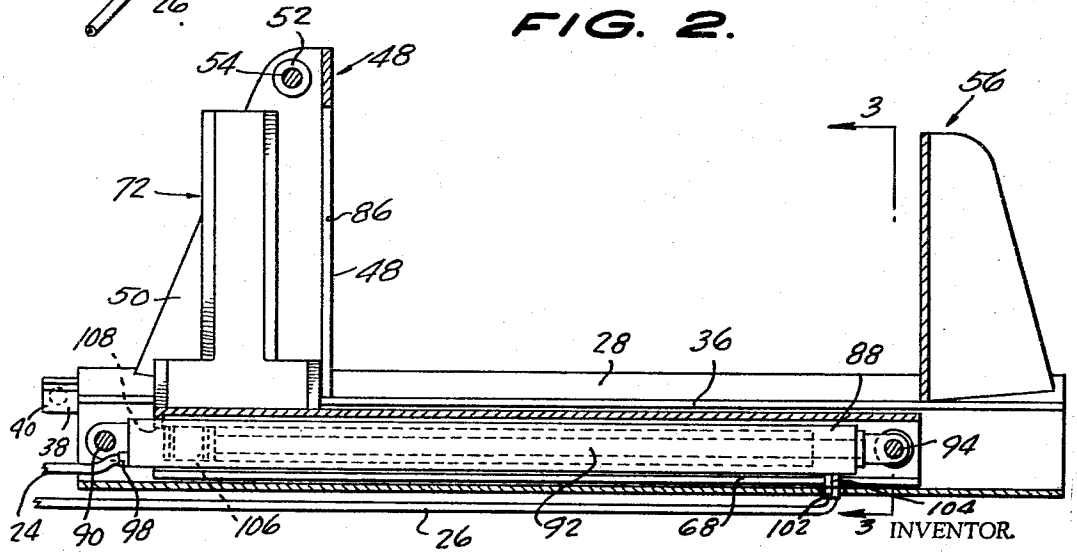


FIG. 2.



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FIG. 4.

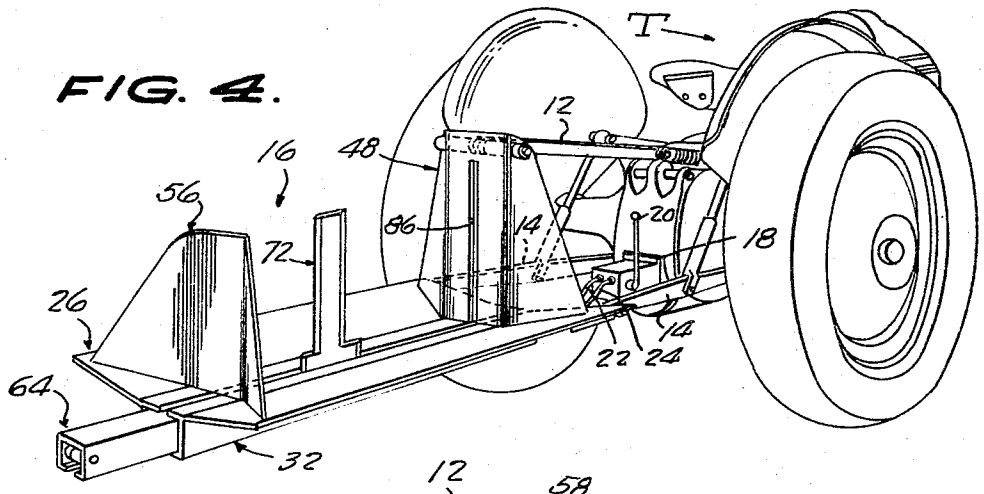


FIG. 3.

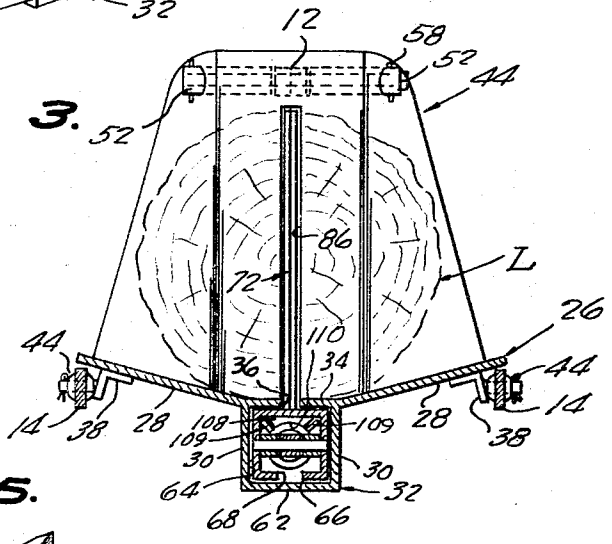
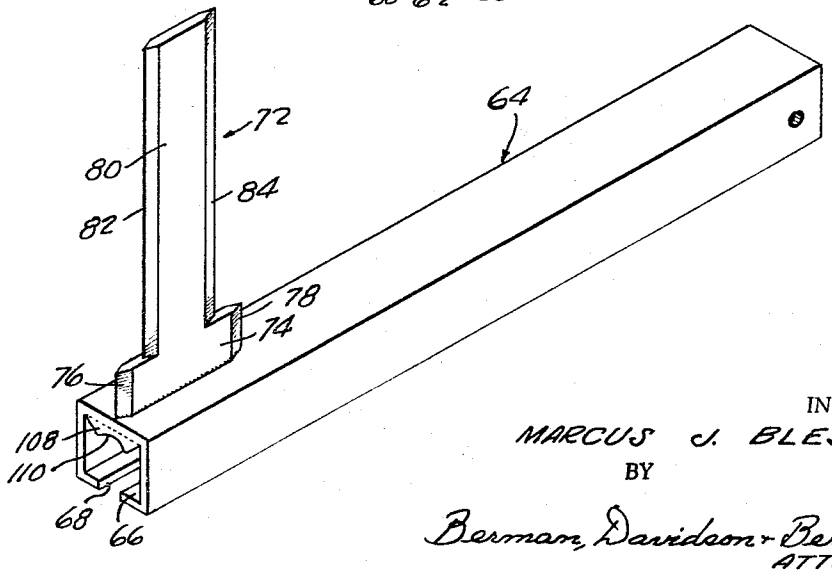


FIG. 5.



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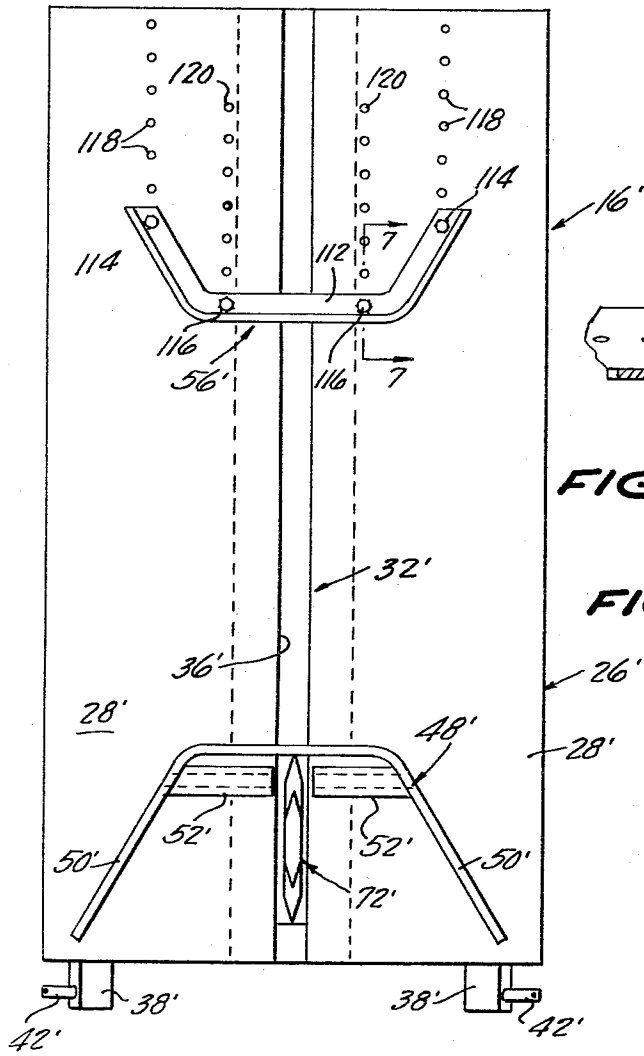


FIG. 6.

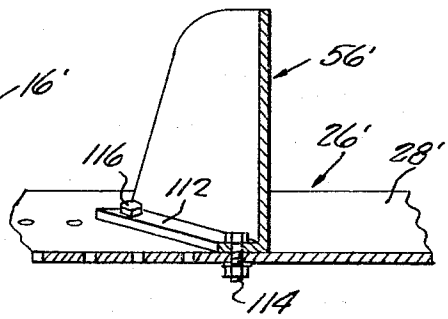


FIG. 7.

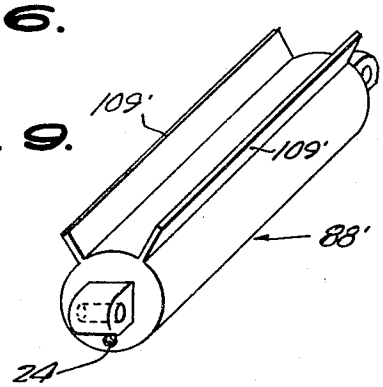


FIG. 9.

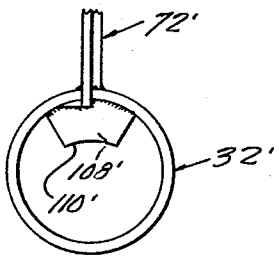


FIG. 10.

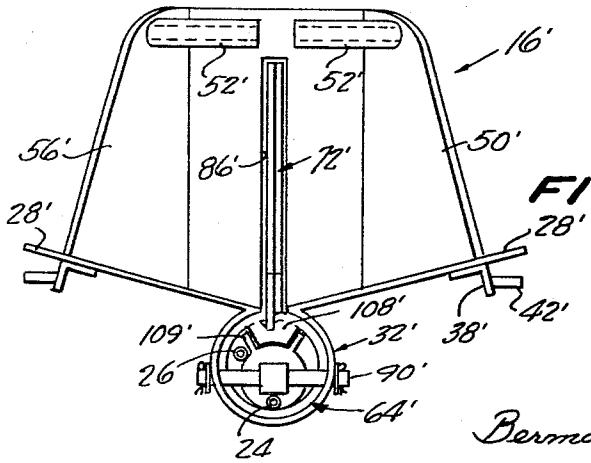


FIG. 8.

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TRACTOR CARRIED LOG SPLITTERS

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Filed Apr. 23, 1965, Ser. No. 450,289
12 Claims. (Cl. 144—193)

This invention relates to tractor carried hydraulically operated log splitters.

The primary object of the invention is the provision of simpler, more efficient, and more practical devices of the character indicated, which are adapted to be supported on conventional tractors, from the implement suspensions of the tractors, at desired elevations and angles, relative to the ground, the devices having in cooperative relationship longitudinally spaced stationary log abutments, and movable log-splitting components, movable towards and away from the stationary abutments, the movable components being operated by means of hydraulic cylinders, supplied with fluid under pressure and controlled from the tractors.

Another object of the invention is the provision, in devices of the character indicated above, of two-way movable log-splitting components, which have similar log splitting wedge portions, and sharpened log splitting blade portions, on opposite ends thereof, so that splitting of logs can be done on both forward and rearward operations of the movable components.

In the drawings:

FIGURE 1 is the front perspective view of a device of the present invention, showing its movable log-splitting component in forward, retracted position;

FIGURE 2 is a vertical longitudinal section, taken on the line 2—2 of FIGURE 1;

FIGURE 3 is a vertical transverse section, taken on the line 3—3 of FIGURE 2, showing in phantom lines, a log supported thereon;

FIGURE 4 is a rear perspective view, showing said device installed on a tractor, with the movable log-splitting component in an intermediate position;

FIGURE 5 is an enlarged perspective view of said movable component, per se;

FIGURE 6 is a top plan view of another device of the invention, showing a stationary log abutment thereof in adjusted position;

FIGURE 7 is a fragmentary vertical longitudinal section, taken on the line 7—7 of FIGURE 6;

FIGURE 8 is a front end elevation of FIGURE 6;

FIGURE 9 is a perspective view of the movable log-splitting component, per se; and,

FIGURE 10 is a fragmentary front end elevation of the tubular support for the movable components of FIGURE 9.

Referring in detail to the drawings, and first to FIGURES 1 through 5 thereof, a conventional tractor T is shown, having, at its rear end, a rearwardly extending upper compression link **12**, and lower tension links **14**, from which a log-splitting device **16** is supported in a generally horizontal, rearwardly extending position. Also mounted at the rear of the tractor T is a hydraulic fluid control assembly **18**, having a control and reversing lever **20**, and rearwardly extending flexible hydraulic lines **22** and **24**.

The log-splitting device **16** comprises an elongated horizontal log-centering trough **26**, which can be made up, as shown in FIGURE 3, of two similar inwardly declining flanges **28**, fixed at their inner edges to upper parts of the side walls **30**, of a tubular rectangular slideway **32**, the upper surfaces of the flanges **28** preferably being flush with the upper surface of the top wall **34** of the slideway. The topwall **34** of the slideway is formed with a centered longitudinal slot **36**, extending to the ends thereof.

Inverted angle irons combined stiffening and mounting

bars **38** are fixed to the undersides of the trough flanges **28**, and extend forwardly therefrom, as indicated at **40**, and are provided with fixed laterally outwardly extending pintles **42**, on which are adapted to be journalled, and secured, as indicated at **44**, the forward ends of the trailer tension links **14**.

A front log abutment **46** is fixed upon the trough **26**, at its forward end, and comprises a perpendicular transverse central plate portion **48** having forwardly and outwardly angled log-guiding wings **50**, on its ends. The wings **50** are transversed, at their upper ends, adjacent tot the front side of the central plate portion **48**, by fixed, transversely aligned bearing sleeves **52**, whose inner ends are spaced from each other. A shaft **54** extends rotatably through the sleeves **52**, and has a head **56**, on one end thereof, engageable with the outer end of one of the sleeves, and a cotter pin **58**, on its other end, engaged with the outer end of the other sleeve. The tractor compression link **12** is journalled, at its rear end, on the shaft **54**, between the sleeves **52**. This arrangement mounts the device **16**, on the tractor T, in adjusted positions of elevation and angle relative to the ground.

A fixed rear log abutment **56**, similar in shape to the front abutment **46**, but shorter in height, is similarly fixed upon the trough **26**, at the rear end thereof.

The slideway **32** comprises, besides the mentioned top wall **34**, perpendicular side walls **30**, a horizontal bottom wall **62**. A tubular rectangular cross section slide **64**, shorter than the slideway **32**, is slidably engaged therein, and is formed, on its bottom wall **66**, with a centered longitudinal slot **68**, to provide clearance for a hydraulic line, as hereinafter set forth.

Fixed centrally upon the top wall **70** of the slide **64**, at a location adjacent to the forward end thereof, is a dual purpose, reversible action log-splitting blade **72**, which works in the slot **36** in the top wall of the slideway **32**. The blade **72** comprises a flat vertically elongated plate-like form, having a longitudinally elongated lower portion **74**, having bevelled, sharpened front and rear log-wedging ends **70**, **72**; and a narrower, centered vertically elongated portion **80**, having parallel, bevelled front and rear log-splitting edges **82**, **84**. The ends **76**, **78** of the lower blade portion **74**, serve, at different times, to engage the end of a log L, disposed in the trough **26**. The central portion **48** of the front log abutment **46** is formed with a vertically elongated slot **86**, through which the blade **72** works.

A two-way hydraulic cylinder **88**, having an overall length substantially that of the slide **64**, is journalled, at its forward end, on a fixed pin **90**, extending between the side walls of the slide **64**. The piston rod **92** of the cylinder is journalled, at its rear end, on a fixed pin **94**, which extends between the side walls of the slide, at the rear end of the latter. A first hydraulic line **24**, leading from the tractor control assembly **18**, is connected, as shown at **98**, in FIGURE 2, to the front end of the cylinder **88**, and a second hydraulic line **26**, leads rearwardly beneath the slideway **32**, passes upwardly through an opening **102**, provided in the slideway **32**, and through the slot **68** of the slide **64**, and is connected, as indicated at **104**, to the rear end of the cylinder **88**, behind the piston **106**, on the piston rod **92**.

A V-shaped cleaner blade or scraper **108** is fixed to the underside of the top wall **70** of the slide **64**, which works between conformably angled flanges **109**, fixed to the top of the hydraulic cylinder **88**, and has a concave lower edge **110**, which conformably engages the top of the hydraulic cylinder **88**, and serves to clear log chips and debris, which may accumulate on the cylinder.

In use and operation, a log L having been placed endwise in the trough **26**, between the abutments **44**, **56**, with

the blade **72** in a forwardly retractive position, shown in FIGURES 1 and 2, the control lever **20** of the hydraulic control assembly **18**, on the tractor T, is moved so as to actuate the hydraulic cylinder **88** to move the slide **64**, and hence the blade **72**, in a rearward direction. As this takes place, the rear wedge end **78** of the lower part of the blade **72**, engages and wedges into the lower part of the forward end of the log L, thereby initiating a log-splitting action, followed by full log-splitting action, produced by the cutting action of the rear edge **84** of the upper blade portion, in line with the wedging action. The wedging and cutting actions of the blade **72**, continue, substantially as far as the rear abutment **56**, so that the log L is split along its vertical centerline.

As the blade **72** attains its rearmost position, the control lever **20** of the tractor's hydraulic control assembly **18** is positioned so that the movement of the blade is halted. The log halves, produced, as described above, can then be positioned, in the trough **26**, at 90° to the original position of the log, and the blade **72** operated forwardly, so as to split the halves into quarters. The blade action and the repositionings of the log sections can be repeated, so as to split the same into eighths.

The modified device **16'** shown in FIGURES 6 to 10, is designed to be lighter in weight and more economical to produce. The device **16'** is substantially similar to the device **16**, of FIGURES 1 to 5, except that its slideway **32'** and its slide **64'**, are cylindrical, rather than of rectangular tubular cross-section, and the rear log abutment **56'** is adjustable along the trough **26'**.

The rear log abutment **56** has a rearwardly extending lateral flange **112**, along its lower edge, which conforms in shape to the top of the slideway **32'** and the trough flanges **28'**, and is traversed by end bolts **114**, and by middle bolts **116**, which extend through selected ones of the end and middle rows of bolt holes **118** and **120**, provided in the flanges **28'**.

What is claimed is:

1. In combination, a tractor having upper and lower movable link means extending rearwardly therefrom and a hydraulic control assembly having first and second hydraulic lines extending rearwardly therefrom, a log centering trough supportably secured, at its forward end, to said links, a log splitting blade mounted on and extending above the trough to move along the trough in opposite directions, a two-way hydraulic cylinder connected at opposite ends thereof to said hydraulic lines, upstanding stationary longitudinally spaced front and rear log abutments mounted on the trough, said hydraulic cylinder being secured at opposite ends to the blade and to the trough.

2. The combination of claim **1**, wherein said front log abutment is formed with a vertical slot through which said blade can pass.

3. The combination of claim **1**, wherein said front log abutment is formed with a vertical slot through which said blade can pass, said trough comprising a longitudinal tubular slideway, upwardly divergent log-centering flanges fixed to opposite sides of the slideway, a tubular slide working in the slideway and carrying said blade, one end of the hydraulic cylinder being operatively connected to the slideway.

4. The combination of claim **1**, wherein said front log abutment is formed with a vertical slot through which said blade can pass, said blade having front and rear log-splitting edges.

5. A log splitter comprising a log-centering trough, a fixed longitudinal slideway underlying the trough, upstanding longitudinally spaced front and rear log abutments fixed upon the trough, said slideway being formed in its top with a centered longitudinal slot, a tubular slide sliding within said slideway, an upstanding two-way log splitting blade fixed on the slide and extending above the slideway through said slot, a two-way hydraulic cylinder disposed longitudinally within the slide and having one end thereof secured to the slideway and its other end secured to the slide, and means for extending and contracting said cylinder.

6. A log splitter according to claim **5**, wherein said front log abutment is formed with a vertical slot through which said blade can pass.

7. A log splitter according to claim **5**, wherein said log abutments have flat transverse vertical central portions and outwardly angled lug-guiding wings on the ends of the central portion, the wings of the two abutments being oppositely angled.

8. A log splitter according to claim **5**, wherein the slideway and the slide are of rectangular cross-section.

9. A log splitter according to claim **5**, wherein said slideway and said slide are of cylindrical cross-section.

10. A log splitter according to claim **5**, wherein said hydraulic cylinder is formed with upwardly divergent flanges, and the slide is formed with a downwardly extending V-shaped scraper engaged between the divergent flanges, said scraper having a lower edge conforming in shape with an engager with the top of the hydraulic cylinder.

11. A log splitter according to claim **5**, wherein said log abutments are permanently fixed upon the trough.

12. A log splitter according to claim **5**, wherein the rear log abutment is formed with a lateral flange on its lower end, said lateral flange bearing upon the trough, the trough and said vertical flange being traversed by bolts, the trough being formed with longitudinal rows of adjustment holes, through which the bolts are selectively engageable.

No references cited.

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