Oct. 3, 1961 B. F. TURBYFILL 3,002,300

BULLDOZER WITH LATERALLY ADJUSTABLE BLADE

Filed April 28, 1959 2 Sheets-Sheet 1

Fig. 1.

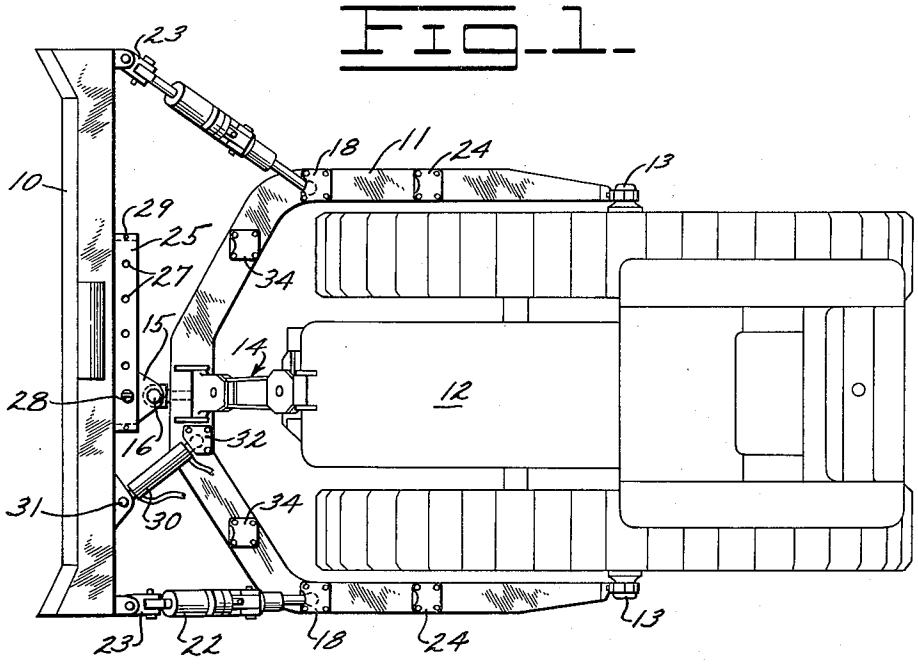
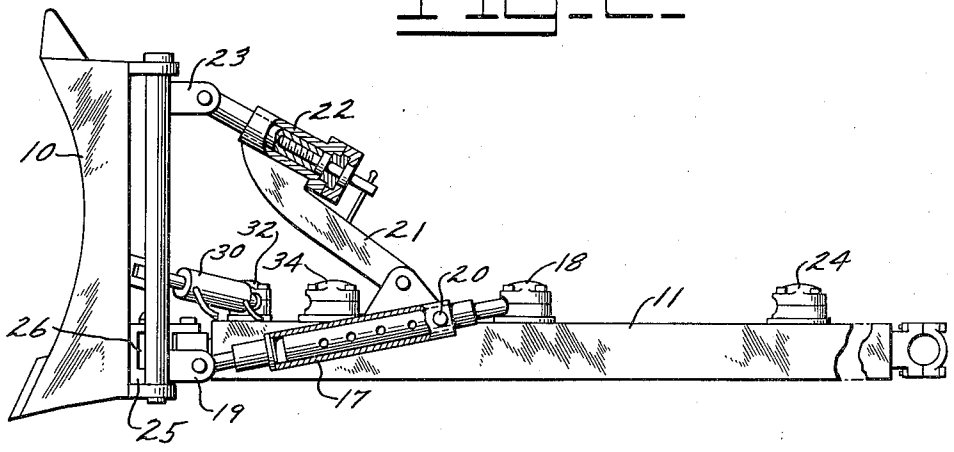



Fig. 2.




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Filed April 28, 1959 2 Sheets-Sheet 2

Fig. 3.

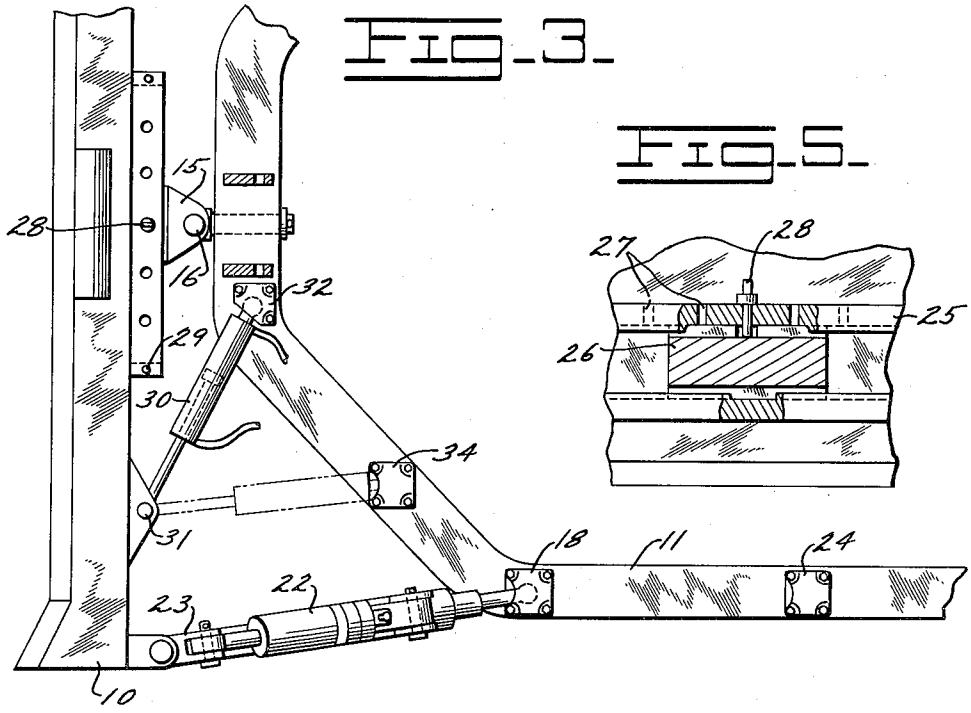
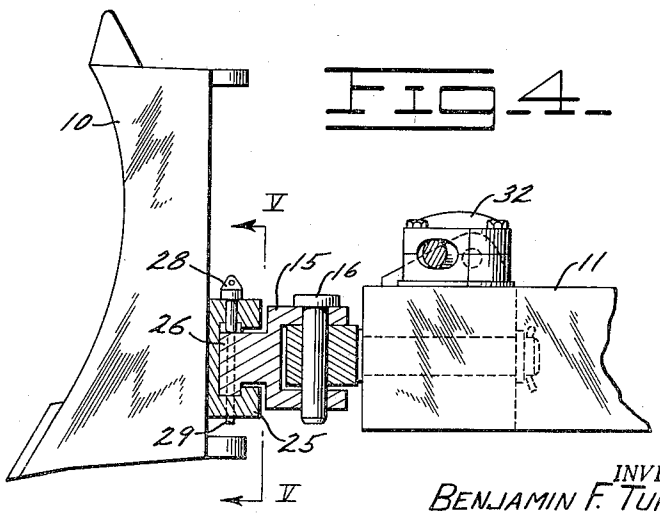



Fig. 5.




Fig. 4.




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# BULLDOZER WITH LATERALLY ADJUSTABLE BLADE

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1 Claim. (Cl. 37—144)

This invention relates to bulldozers and particularly to an improved bulldozer which includes means to shift or adjust the blade laterally with respect to the tractor upon which it is mounted so that upon making a side or bank cut, the tendency of the tractor to skew is reduced.

Conventional bulldozer blades are considerably wider than the tractors upon which they are mounted. As a result, a side cut into a bank where most of the load is imposed at one end of the blade results in twisting or skewing of the tractor out of its intended path of travel. This necessitates frequent correction through steering which is difficult for the operator and results in an uneven cut rather than the constant smooth cut desired.

It is the object of the present invention to provide a bulldozer with a blade that may be shifted laterally to bring either end thereof as nearly into line with the side of the tractor as possible to reduce the leverage which tends to turn or skew the tractor while a side cut is being made.

Another object of the invention is to provide a simple power actuated means for shifting the blade.

A still further object is to provide the means described in combination with a bulldozer wherein the blade may be adjusted angularly and tilted vertically all through the same braces which are adjustable to accommodate lateral shifting.

Further objects and advantages of the invention and the manner in which it is carried into practice are made apparent in the following specification wherein reference is made to the accompanying drawings.

In the drawings:

FIG. 1 is a plan view of a laterally adjustable bulldozer shown in place on a tractor which is illustrated schematically;

FIG. 2 is an enlarged view in side elevation of the bulldozer with parts shown in section;

FIG. 3 is an enlarged fragmentary plan view showing the parts in different positions from those illustrated in FIG. 1;

FIG. 4 is an enlarged fragmentary side elevation with parts shown in section; and

FIG. 5 is a fragmentary detail with parts in section taken on the line V—V of FIG. 4.

Referring to the drawings in detail, a bulldozer blade **10** is shown as supported forwardly of a C-frame **11** which is pivoted to the truck frame, not shown, of a tractor illustrated at **12** through the medium of trunnions **13** which permit raising and lowering of the C-frame and blade. The vertical adjustment of the C-frame may be accomplished through any suitable means herein shown as a cable and sheaves, generally indicated at **14**, actuated by a power drive from the tractor engine by means, not shown, in a conventional manner.

The blade **10** is supported with respect to the C-frame **11** for angular adjustment by means of a clevis **15** and clevis pin **16** most clearly shown in FIG. 4 and it is stabilized in any position of adjustment by triangular braces which, as shown in FIG. 2, include a telescoping link **17**. This link is connected at one end by a ball and socket joint **18** with the C-frame and at its opposite end by a universal fitting **19** with the lower portion of the blade **10**. The telescoping link **17** may be fixed in any position of adjustment by means of a pin **20** extending through suitable perforations in its inner and outer telescoping parts. The link **17** carries an upwardly and forwardly extending arm **21** having an adjustable jack screw connection **22** with the upper portion of the blade **10** through another universal connection shown at **23**. Additional sockets **24** are provided on the C-frame **11** for reception of the ball end of the link **17** for acute angular adjustments. Tilting of the blade forwardly or rearwardly with respect to a vertical plane may be accomplished by adjustment of the jack screw **22** in a conventional manner.



In accordance with the present invention, a slidable connection is provided between the blade **10** and the C-frame **11** to permit lateral adjustment of the blade and this connection comprises a C-shaped rail **25** secured to the back of the blade to slidably receive an interlocking block **26** formed integrally with the clevis **15**. The rail **25** is provided with a plurality of spaced holes **27** for the reception of a locking pin **28** adapted to pass through a hole in the rail **25** for securing it in a position of adjustment against sliding movement on block **26**. The sliding block may be confined in its movement to the length of the rail **25** by the use of pins **29** in suitable holes adjacent the ends of the rail.

A double acting jack **30** adapted to be actuated by hydraulic fluid under pressure or the like has its piston rod pivotally connected as at **31** to the blade and its head end connected as by a ball and socket joint **32** to the C-frame in such a position that extension or retraction of the jack will tend to impart lateral movement to the blade with respect to the C-frame and tractor. The jack may be connected to any source of fluid under pressure as is conventional practice in connection with the adjustment of tractor mounted implements of various kinds and will preferably be controlled by a suitable valve located in a convenient position for actuation by the tractor operator.

In FIG. 1 of the drawings, the blade **10** is illustrated in its extreme right hand position of adjustment in readiness for making a left bank cut and in this position, the left end of the blade is substantially in alignment with the left side of the C-frame **11** which limits the approach of the tractor toward the cut. Thus the moment arm or leverage tending to turn the tractor in reaction to the load imposed by reducing the cut is as short as possible.

Lateral adjustment of the blade is accomplished by first removing one of the pins **20** from an adjustable link **17** and the pin **28** from the rail **25**. With these two pins removed, the jack **30** is actuated to effect movement of the blade **10** in the desired direction and when the extent of movement is attained the pin **28** is replaced. This leaves the blade in a position of angular adjustment and the angularity may be further adjusted or the blade brought to its normal transverse position by removing the other of the pins **20** from the opposite link **17** and then again actuating the jack **30** to swing the blade about the clevis pin **16** until the desired angularity is obtained. At this time, both of the pins **20** are replaced and the bulldozer is ready for operation.

Additional sockets **34** like the sockets **24** are provided forwardly of the sockets **18** on the C-frame and may be used for the triangular braces in some positions of adjustment. One of these sockets is also available as an alternate connection for the inner end of the jack **30** as illustrated in broken lines in FIG. 3 when it is desired to make acute adjustments of the blade.

I claim:

In a bulldozer which includes a blade supported forwardly of a tractor by a C-frame or the like, a clevis pivoted to the central forward portion of the C-frame, a guide rail on the back of the blade, a perforate portion on the clevis slidable in said guide rail, said guide rail having spaced perforations for a locking pin adapted to pass through the perforation in the clevis, an extensible

brace between each side of the C-frame and the adjacent end of the blade, and jack means connecting the C-frame and blade whereby the blade may be shifted laterally by removing the locking pin, adjusting said extensible braces one at a time and imparting angling movement to the blade with the jack means.

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