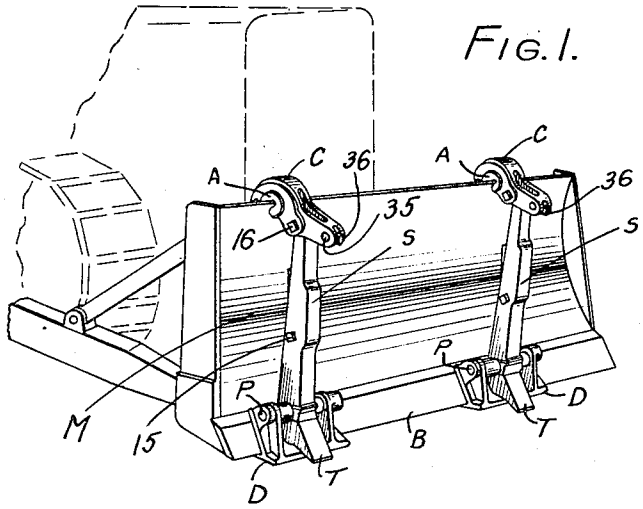
March 5, 1957 C. D. FORTE 2,783,559

ROOTER ATTACHMENT FOR BULLDOZERS

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FIG. 1.



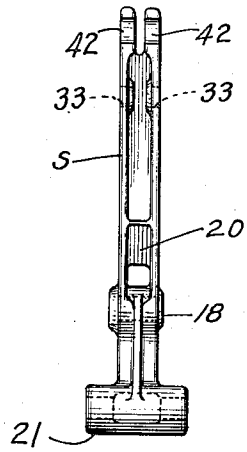


FIG. 8.

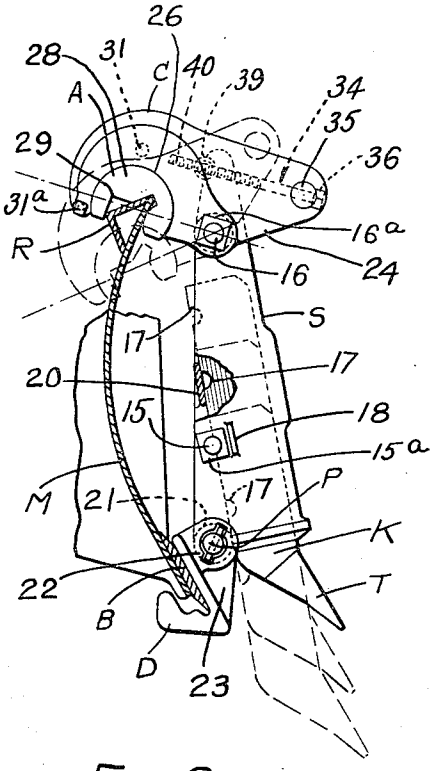
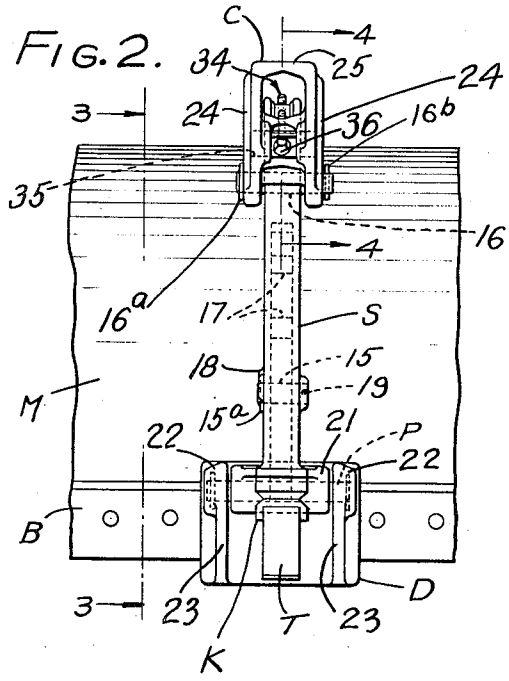


FIG. 3.

FIG. 2.



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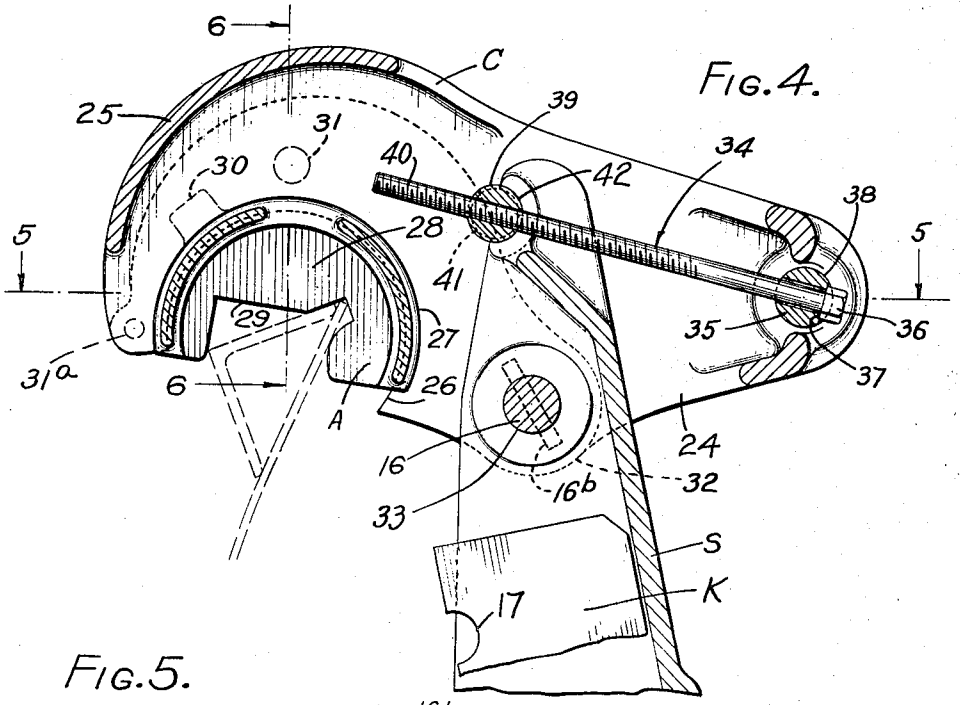


FIG. 4.

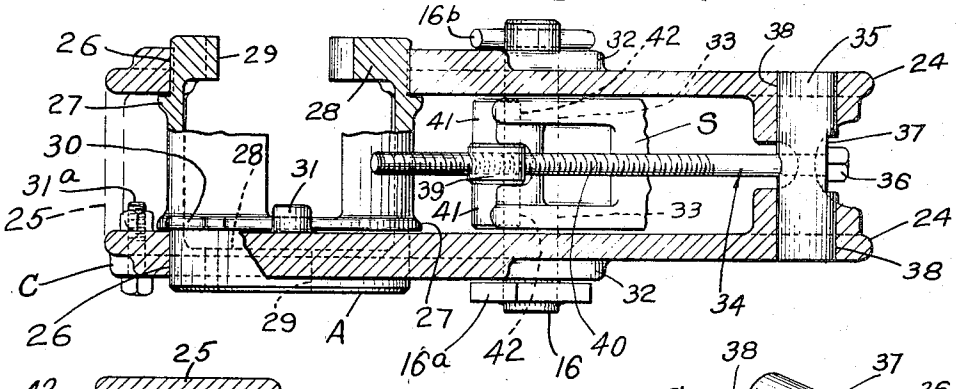


FIG. 5.

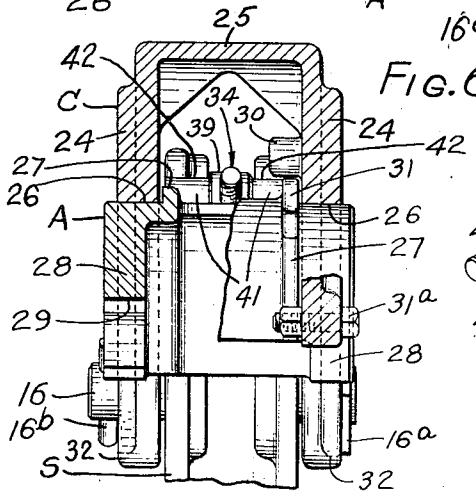


FIG. 6.

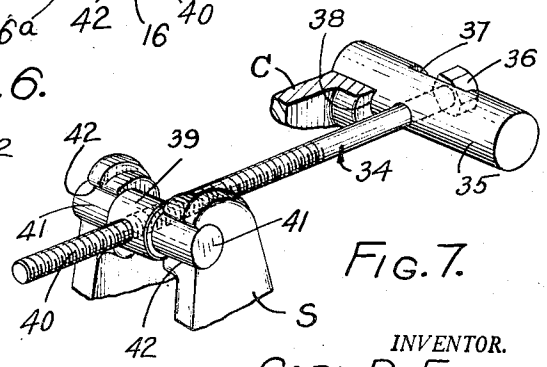


FIG. 7.

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ROOTER ATTACHMENT FOR BULLDOZERS

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Application October 20, 1953, Serial No. 387,100

2 Claims. (Cl. 37—145)

My invention relates to attachments for bulldozers, and more particularly, although not necessarily, to rooter attachments of the character set forth in my United States Patent No. 2,297,677 issued October 6, 1942. Such a rooter attachment comprises a standard having a rooter tooth or point adjustable thereon; a saddle for securing the lower end of the standard to the lower part of the moldboard of a bulldozer; a bracket provided on the upper end of the standard and carrying an adapter engaging the upper part of the moldboard; and means for adjusting the bracket to bring both the adapter and saddle into secure clamping relation to the moldboard so as to fixedly mount the rooter tooth in operable position on the moldboard.

The aforesaid bracket-adjusting means comprises a short bolt of relatively large diameter coursely threaded in the bracket, and engaging a part of the standard so that by turning the bolt in one direction a force is imparted to the bracket to turn the same on its pivot and bring it into clamping engagement with the moldboard. Because of the size of the bolt and its course threads, an unusually large and heavy wrench is required to turn the same, and such a wrench is very difficult to handle. Also because of the location of the bolt with respect to other parts of the attachment, it is subject to damage in the use of the attachment, and is exposed to an accumulation of earth on the threads thereof which render turning of the bolt extremely difficult.

It is the purpose of my present invention to provide a rooter attachment which is characterized by an adjusting means for the clamping bracket that can be actuated with relative ease and through the use of a small wrench, is associated with the bracket so as to be protected against possible damage and the accumulation of dirt thereon to insure easy operation thereof at all times, and affords such a wide angular adjustment of the bracket that the attachment is mountable on moldboards of widely varying widths.

I will describe only one form of rooter attachment embodying my invention in its application to one form of bulldozer moldboard, and will then point out the novel features thereof in claims.

In the accompanying drawings:

Fig. 1 is a view showing in perspective a moldboard of a bulldozer having applied thereto one form of two identical rooter attachments embodying my invention.

Fig. 2 is a front elevational view of one of the rooter attachments as applied to the moldboard.

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is an enlarged fragmentary sectional view taken on the line 4—4 of Fig. 2.

Fig. 5 is a horizontal sectional view taken substantially on the line 5—5 of Fig. 4.

Fig. 6 is a vertical sectional view taken on the line 6—6 of Fig. 4.

Fig. 7 is a fragmentary perspective view of the clamping bracket adjusting means.

Fig. 8 is a rear elevational view of the standard of the attachment.

Referring more particularly to the drawings, my invention in its present embodiment comprises a rooter tooth T fixed on the lower end of a shank K which is longitudinally adjustable in a standard S and securable in various positions of adjustment by means of a pin **15** to cause the tooth T to dig the earth at different depths depending upon the adjustment of the shank.

In Figs. 1, 2 and 3 is shown the moldboard M of a bulldozer, which is of conventional construction in that it is provided along its lower edge with a blade B, and at its upper edge with an angle bar R in this particular instance. For mounting the rooter attachment on the moldboard in the position illustrated, the attachment has a saddle D shaped to receive the blade B and which is pivotally mounted on the lower end of the standard S by means of a pin P.

The upper end of the standard S is securable to the upper edge of the moldboard M by means of a clamping bracket C containing an adapter A shaped to receive and embrace the bar R. This bracket is pivotally mounted on the upper part of the standard S by means of a pin **16**, and through the medium of an adjusting means (to be described hereinafter), the clamping bracket is movable about pin **16** as a center to cause the adapter to engage the bar R and clamp it securely thereto, as well as to simultaneously lift the saddle D so that it securely embraces the blade B. The pin **16** has a squared head **16***a* on one end and a cotter pin **16***b* extending through the other end for confining it against accidental removal from the bracket.

The standard S is tapered longitudinally and of U-form in cross-section to provide a pocket in which shank K is slidably received and held against any turning movement, and so that it is capable of being longitudinally adjusted for the purpose previously described herein. It is adapted to be held in various positions of longitudinal adjustment by the pin **15** engaging within any one of several semi-circular recesses **17** in the rear edges of the shank. This pin **15** has a squared head **15***a* which abuts a projection **18** to hold the pin against turning movement, while the other end of the pin is provided with a cotter pin **19** to retain it against accidental removal. As best shown in Figs. 3 and 8 the rear edges of the standard S are connected medially of their ends by a plate **20** against which the rear side of the shank K bears to prevent the standard from swinging rearwardly out of the pocket.

The lower end of the standard S is formed with a bearing sleeve **21** in which the pin P is received, the ends of the pin extending into ears **22** formed on flanges **23** cast integral with the saddle D, and whereby the saddle is pivotally mounted on the lower end of the standard to adjust itself to the particular angle of the blade B which it embraces.

The clamping bracket C comprises a pair of parallel spaced arms **24** generally tapered from end to end, with their wide ends rounded on their upper edges and connected to each other by a correspondingly curved wall **25**. Opposite this wall the lower edges of the arms **24** are formed with arcuate and alined recesses **26** in which the ends of the adapter A are rotatably mounted and held against axial displacement by flanges **27** (see Fig. 5).

The adapter A is of generally cylindrical form and has end walls **28** recessed to provide jaws **29** for gripping the bar R to hold the bracket C on the latter and yet allow turning movement of the bracket with relation

to the adapter in order that the bracket may be brought into clamping relation to the moldboard.

Rotational movement of the adapter A in the bracket C must of necessity be limited, to prevent it from falling from the bracket, and for this purpose a lug 30 is formed on the periphery of the adapter which in one extreme of the adapter abuts a lug 31 on the inner wall of one of the arms 24, and in the other extreme position abuts a bolt 31a applied to one of the arms 24 after the adapter has been inserted into the recesses 26.

The pin 16 employed for pivotally mounting the clamping bracket C on the standard S, extends through bearing ears 32 formed on the arms 24 at the lower edges thereof, and through alined openings 33 in the side portions of the standard S adjacent the upper end thereof. Thus the bracket is mounted for angular adjustment on the standard to bring the adapter A into gripping relation to the bar B, and thereby securely clamp the rooter attachment as a whole in fixed position on the moldboard.

The means of my invention for angularly adjusting the clamping bracket may be broadly described as a device which is so associated with the standard S and the bracket C, that by manual manipulation thereof it produces a linear force which as transmitted to the bracket changes in angle so as to effect angular adjustment of the bracket, and secures the bracket in any position of adjustment. Consequently, the device can be operated with ease to adjust the bracket either to clamp or release the moldboard.

The adjusting device in its present embodiment comprises a bolt 34 located between the bracket arms 24 and having the head end thereof extending through and freely rotatable in a swivel 35, with the bolt head 36 positioned to the outer side of the swivel for application of a wrench thereto, and the swivel formed with a recess 37 to allow unobstructed turning of the wrench. The swivel is in the form of a pivot pin with its ends rotatable in bearings 38 in the narrow ends of the arms 24.

The adjusting device also includes a nut 39 through which the screw-threaded portion 40 of the bolt extends and in which it is threaded. This nut 39 is also swivelly mounted by having trunnions 41 formed thereon and rotatably fitted in bearings 42 on the rear edges of the sides of the standard S at the upper ends thereof. These bearings 42 may be of semi-circular form as shown in order to facilitate mounting of the trunnions 41 therein.

To fixedly mount the rooter attachment on the moldboard M as illustrated in Figs. 1 and 2, the operator manipulates the tractor to cause the blade B to place the attachment in an upright position, and then runs the blade into the saddle D whereupon, the clamping bracket C is adjusted by means of the bolt 34 to bring the adapter A into engagement with the bar R. By such bracket adjustment the standard S is lifted to cause the saddle D to securely embrace the blade B, and the bracket to clamp and lock the adapter to the bar. Thus the entire attachment is fixedly secured on the moldboard with the tooth T at the forward side of the blade ready for use.

The bracket C is brought into clamping position by applying a wrench to the bolt head 36, and turning the bolt in a direction to feed it forwardly through the nut. By so doing the bolt produces an axial force in the direction of the nut which, by virtue of the swivels 35 and 41 and their locations with respect to the bracket pivot 16, is converted into a varying angular force which operates to turn the clamping bracket C through that angle necessary to cause the adapter A to securely clamp the bar R. Additionally, and because of the length of the bolt and the relatively fine threads thereof, an easy and increased range of angular adjustment of the clamping bracket is rendered possible to mount the attachment on moldboards of widely varying widths.

Since the bolt 34 is mounted between the arms 24 of the bracket C, it is shielded against possible damage

by objects in the path of the attachment when in use, and also against accumulation of dirt thereon to lodge between the threads of the bolt and the nut, and interfere with easy adjustment of the bolt in moving the bracket into or out of clamping position with respect to the moldboard.

In Figure 1, I have shown two rooter attachments applied to the moldboard, to illustrate that one or more attachments can be applied and secured in any position lengthwise of the moldboard to suit the character of rooting required on a particular job.

Although I have herein shown and described only one form of rooter attachment embodying my invention, it is to be understood that various changes and modifications may be made herein without departing from my invention and the spirit and scope of the appended claims.

What I claim is:

1. A rooter attachment for the moldboard of a bulldozer, including: a tooth-carrying standard having at its upper end a pair of horizontally spaced and fixed arms formed on their rear edges with horizontally alined and spaced bearings; a clamping bracket having a pair of elongated members fixed to each other; means pivotally mounting said members between their ends on said standard below and parallel to said bearings so that they extend forward and rearwardly of said standard; an adapter carried by the rear ends of said members; a trunnion journalled in said bearings; a swivel journalled in the forward ends of said members in parallelism with the trunnion; and a bolt having its threaded end portion extending diametrically through and threaded in the trunnion between said bearings, the head end portion of the bolt extending through and freely rotatable in the swivel, and the head of the bolt at the forward side of the swivel to render it accessible for turning the bolt in one direction whereby the latter can be fed rearwardly through the trunnion to exert a force which operates to move said bracket about the pivotal mounting of said members and in a direction to elevate the forward end of the bracket and lower the rear end thereof for moving the adapter into engagement with the top of a moldboard.

2. A rooter attachment for the moldboard of a bulldozer, including: a tooth-carrying standard having at its upper end a pair of horizontally spaced and fixed arms formed on their rear edges with horizontally alined and spaced bearings opening to the rear side of said standard; a clamping bracket having a pair of elongated members fixed to each other; means pivotally mounting said members between their ends on said standard below and parallel to said bearings so that they extend forward and rearwardly of said standard; an adapter carried by the rear ends of said members; a trunnion journalled in said bearings; a swivel journalled in the forward ends of said members in parallelism with the trunnion; and a bolt having its threaded end portion extending diametrically through and threaded in the trunnion between said bearings, the head end portion of the bolt extending through and freely rotatable in the swivel, and the head of the bolt at the forward side of the swivel to render it accessible for turning the bolt in one direction whereby the latter can be fed rearwardly through the trunnion to exert a force which operates to move said bracket about the pivotal mounting of said members and in a direction to elevate the forward end of the bracket and lower the rear end thereof for moving the adapter into engagement with the top of a moldboard.

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