Sept. 3, 1929. H. C. OHLER 1,726,918

HIGHWAY WEED CUTTER

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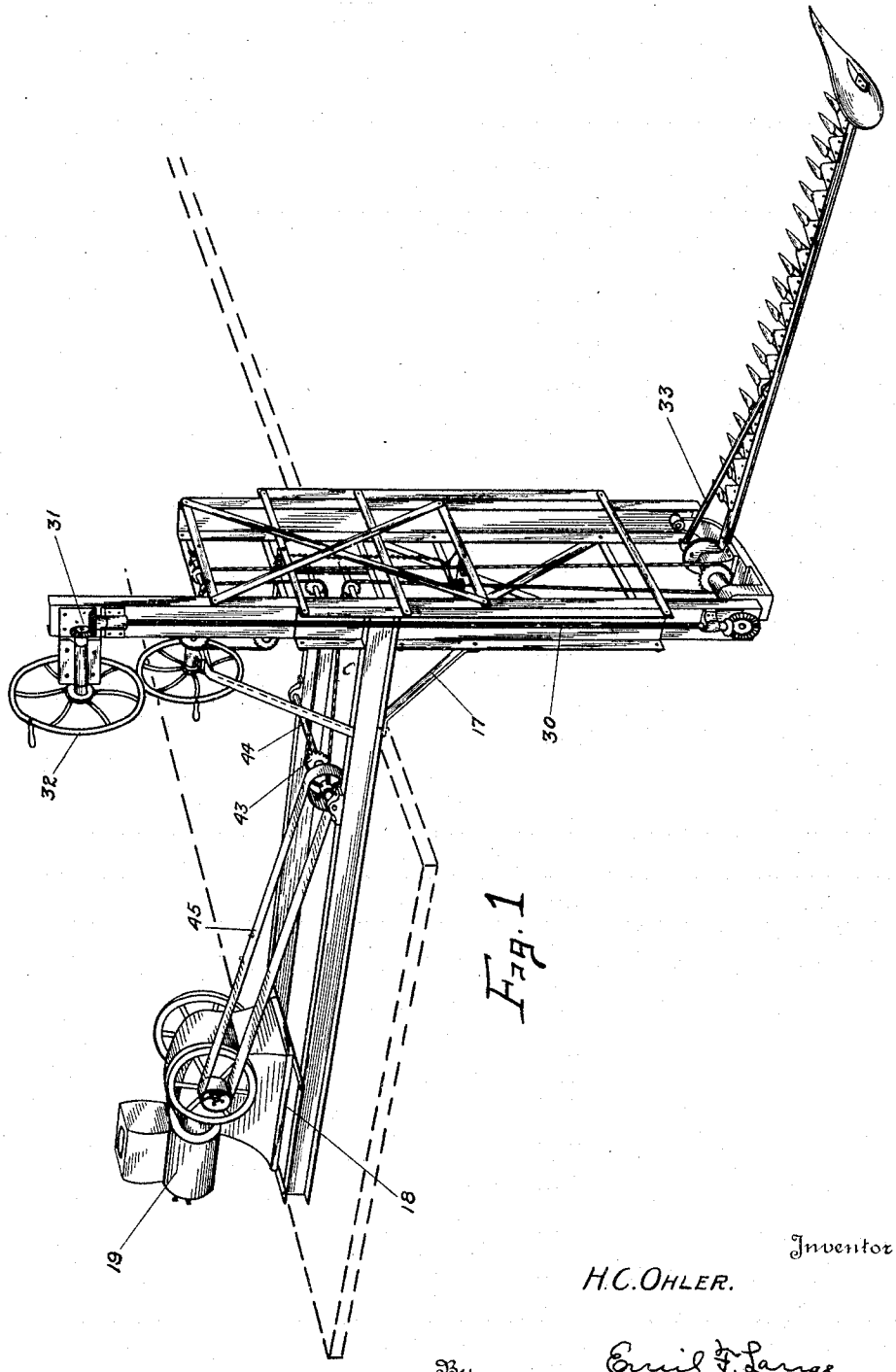


Fig. 1

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Fig. 2.

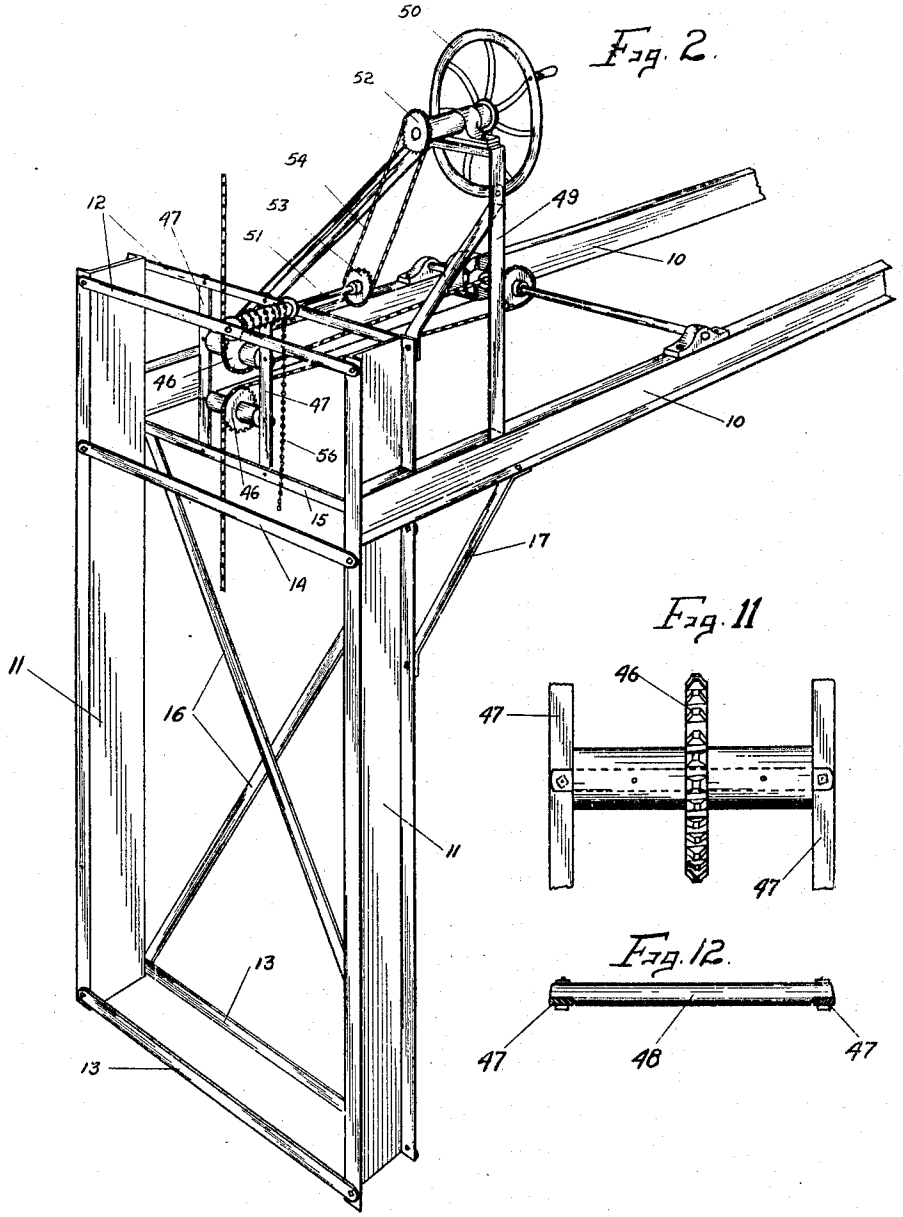


Fig. 11

Fig. 12.

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HIGHWAY WEED CUTTER

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Fig. 3.

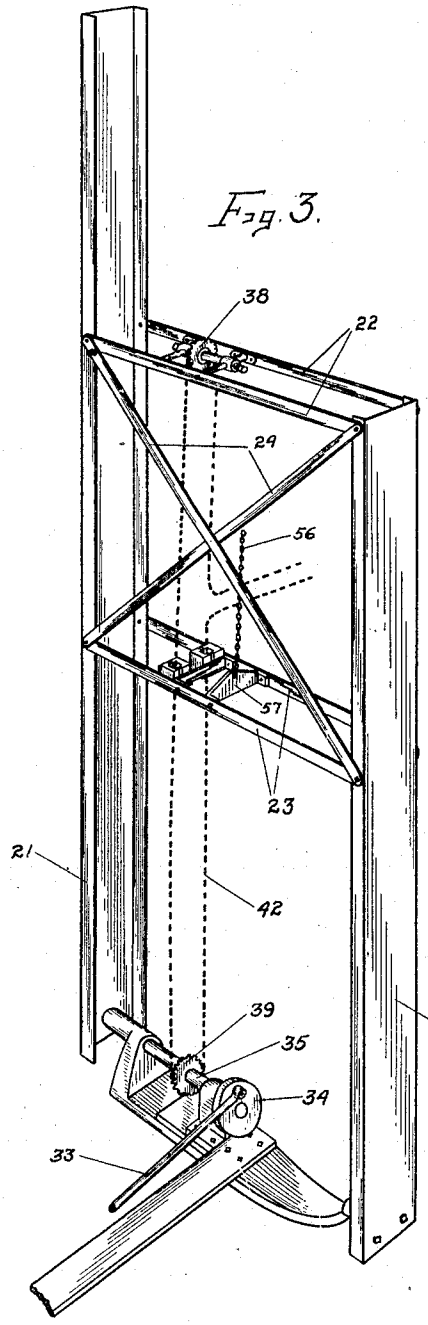


Fig. 9.

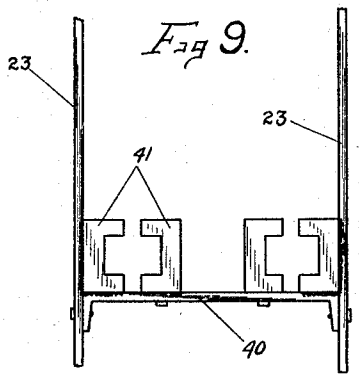
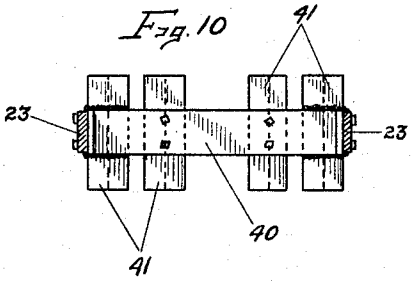


Fig. 10



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HIGHWAY WEED CUTTER

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Fig. 5.

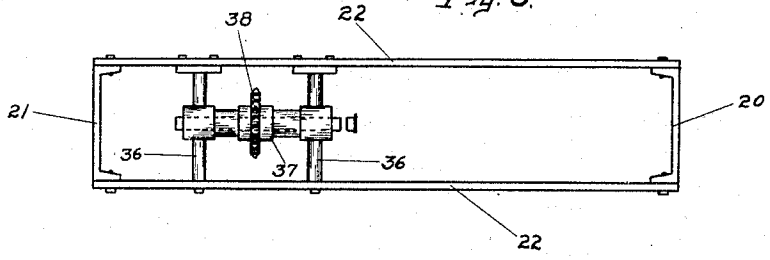


Fig. 6.

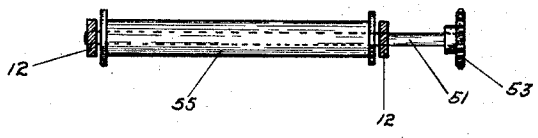


Fig. 8.

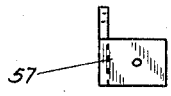


Fig. 7.

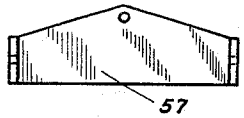
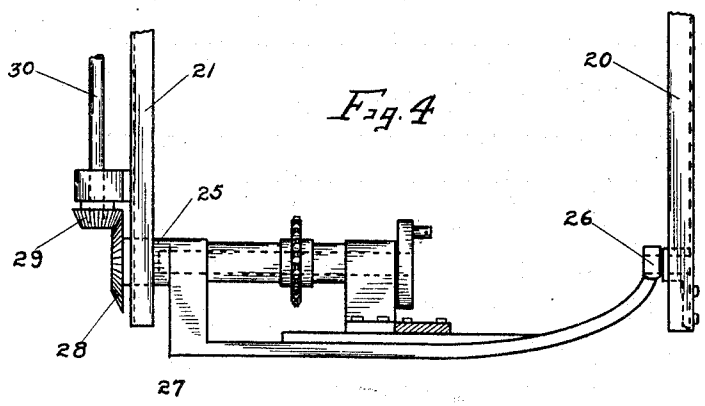


Fig. 4



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UNITED STATES PATENT OFFICE.

HARRY C. OHLER, OF LINCOLN, NEBRASKA, ASSIGNOR TO PATRIOT MANUFACTURING COMPANY, OF HAVELOCK, NEBRASKA, A CORPORATION OF NEBRASKA.

HIGHWAY WEED CUTTER.

Application filed March 25, 1927. Serial No. 178,462.

My invention relates to highway weed cutters and its object is the provision of a device which may be placed on the platform of a truck with the cutter projecting at one side of the truck, the cutter and its connections being adjustable to any desired height and to any desired angle, so that the weeds may be cut on both sloping walls of a ditch as well as on the horizontal. Other objects will be pointed out in the following description.

Referring now to the drawings,

Figure 1 is a view in perspective of the assembled weed cutter.

Figure 2 is a view in perspective of the supporting frame.

Figure 3 is a perspective view of the cutter frame.

Figure 4 is a view in side elevation of the lower end portion of the cutter frame.

Figure 5 is a plan view of the top of the cutter frame.

Figure 6 is a view in side elevation of the winding drum for adjusting the height of the cutter.

Figure 7 is a plan view of the brace to which the winding chain is anchored.

Figure 8 is an edge view of the brace shown in Figure 7.

Figure 9 is a plan view of the channel members for guiding the movements of the cutter actuating chain.

Figure 10 is a view in elevation of the parts shown in Figure 9.

Figure 11 is a view in elevation of the idle sprocket for guiding the cutter actuating chain.

Figure 12 is a view showing the spindle which supports the sprocket wheel shown in Figure 11 and showing also the connections between the spindle and the braces.

The supporting frame, as best shown in Figures 1 and 2, includes a pair of horizontal beams 10 to which a pair of vertical beams 11 is secured. The beams 10 and 11 are formed from channel steel and the beams 11 are secured to the beams 10 at the ends of the beams 10 in such a manner that the major portion of the beams 11 is below the connection. In both the beams 10 and 11 the walls of the channel are outwardly projecting. The beams 11 are braced by means of transverse braces 12 at the top, by braces 13 at the bottom and by braces 14 and 15 at an intermediate point. In addition there is a pair of crossed braces 16. The beams 10 are further braced to the beams 11 by means of the braces 17. At their inner ends the beams 10 are connected to each other by means of a platform 18 which supports an engine 19. The engine 19 has two functions. It drives the cutter bar of the sickle and it serves as a counterbalance in maintaining the implement in stable condition on the truck. It is understood, of course, that the entire device is placed on a truck with the cutter bar and its connections projecting to one side of the truck. The entire device may be slidably moved so as to increase or decrease the distance at which the cutter bar projects laterally from the truck. In most cases the truck may be guided sufficiently close to the edge of the road so that the cutter bar will reach all of the weeds which are to be cut but it occasionally happens that the cutter bar must be given a longer reach and the supporting frame is therefore slidably mounted on the truck.

The cutter frame (see Fig. 3) has a pair of vertical channeled beams 20 and 21 which are united by means of braces, the braces 22 connecting the upper extremity of the beam 20 to the beam 21 and the braces 23 connecting the two beams at an intermediate point. The two beams are further braced by means of crossed braces 24. It should be noted that the walls of the channeled members 20 and 21 project inwardly and that the breadth of the channeled members is such that the cutter frame may be positioned in the supporting frame in the manner shown in Figure 1. The shoe of the cutter bar, as shown in Fig. 4, is pivotally secured at 25 and 26 to the beams 21 and 20 respectively The shaft 27 to which the shoe is rigidly secured is provided at its outer end with bevel pinion 28 which meshes with a bevel pinion 29 on the vertical shaft 30. At its upper end the shaft 30, see Fig. 1, is provided with a bevel pinion connection at 31 which may be actuated by a handwheel 32. The vertical shaft 30 is journalled in bearings on the outer side of the beam 21. It is obvious that when the wheel 32 is actuated the cutter bar will be swung about the pivot 25—26 so that it may be made to assume any desired angular position.

The sickle bar, Figures 1, 2, 3 and 4, is actuated through the pitman 33 which is eccentrically connected to the wheel 34 on the end of the shaft 35. The shaft 35 is rotat-

ed by the engine 19 through a sprocket chain and belt connection as best shown in Figure 1. The braces 22 are connected as shown in Figure 5 by means of cross bars 36 having a shaft 37 journalled therein. The shaft 37 carries a sprocket wheel 38 immediately above the sprocket wheel 39 on the shaft 35. Between the braces 23, Figures 3, 9 and 10 is secured a cross bar 40 to which channeled members 41 are secured in spaced apart relation to form channels for both runs of the sprocket chain 42, the channels being directly in alignment with the vertical tangents of the sprocket wheels 38 and 39. The sprocket chain 42, see Figures 1 and 2, is driven from a sprocket wheel 43 on the shaft 44 which is journalled in the beams 10 of the supporting frame. The shaft 44 is also provided with a belt pulley for connection through the belt 45 with the drive shaft of the engine. The chain 42 passes over the idlers 46, the shafts of which are journalled as shown in Figures 11 and 12. The inner brace 12 is connected to the brace 15 by means of two vertical braces 47, having axles 48 bolted thereto and serving as supports for the idlers 46 with their sleeves. Power from the shaft 44 may thus be applied through the endless chain 42 to drive the sickle regardless of the position of adjustment of the sickle, the parts being so arranged that the tension of the chain is constant for all adjustments.

The cutter frame is slidably mounted in the supporting frame so that it may be vertically adjusted. Secured to the beams 10 and braced to the beams 11 is a vertical support 49 in which the shaft of a handwheel 50 is journalled. Journalled in the braces 12 is a shaft 51 which is parallel to the shaft of the handwheel 50. The end of the shaft of the handwheel 50 is provided with a sprocket wheel 52 immediately above the sprocket wheel 53 on the end of the shaft 51. The sprocket wheels 52 and 53 are connected by means of a sprocket chain 54. The shaft 51 is also provided with a drum 55 between the braces 12 as best shown in Figure 6, the drum being adapted to wind the chain 56. At its lower end the chain 56 is secured to the plate 57, the plate being best shown in Figures 7 and 8 and being shown in its relation to the chain in Figure 3. The plate 57 is bolted or riveted to the two braces 23 and it serves not only as an anchor for the chain 56 but it serves to strengthen and brace the implement frame. It is obvious that the turning of the handwheel 50 causes the shaft 51 to turn and either wind or unwind the chain 56 to lift or lower the cutter frame. By this means it is possible to adjust the inner end of the cutter to any desired level.

The implement as above described is designed particularly for cutting the weeds along highways. Such work is now done manually whenever it is done at all. The cutting of the weeds with a scythe is slow work and the labor cost is very high with the result that the work is usually neglected because of the excessive cost. Sometimes where the conditions are favorable the ordinary mowing machine such as is used on farms may be employed for cutting weeds along the highway. The mowing machine as a rule is, however, not very well adapted for cutting coarse weeds and the irregular contour of the roadsides makes the operation of a farm mowing machine very difficult in work of this kind. Even when all of the conditions are favorable for the operation of a farm mowing machine drawn by horses, the costs will be found to be still excessive. With my highway weed cutter the weeds may be cut regardless of the varying conditions of the contour of the roadside and regardless of the character of the weeds, the cutter itself being rugged enough to sever the coarsest weeds and even twigs and shrubs. The machine is propelled as rapidly as desired by the motor of the truck and the cutter is actuated by the motor 19. None of the power of the engine of the truck is thus used for actuating the sickle bar so that the truck may be driven as desired since it is carrying only its usual load.

The implement is positioned on the floor of the truck as shown in Figure 1, the outline of the truck floor being shown in dotted lines in that figure. The engine counterbalances the weight of the cutter and its connections but if desired additional holding means may be provided. The implement as a whole is adjustable inwardly and outwardly on the truck floor so as to give the cutter either a greater or less reach. The elevation of the cutter may be adjusted by manipulating the handwheel 50 while the inclination of the cutter is adjusted through the manipulation of the handwheel 32. Roadsides vary greatly depending on whether the road passes over a level stretch or over a fill or through a cut. In some cases the roadside is level and in others it is sometimes inclined upwardly and sometimes downwardly. The adjustment of the inner end of the cutter by means of the handwheel 50 is more or less fixed and need be disturbed only at infrequent intervals because the truck wheels determine the height of the platform and therefore of the inner end of the cutter for any given adjustment. The inclination of the roadside is, however, subject to such great variations that it is necessary to frequently alter the angle of the cutter through the handwheel 32. The cutter is adapted to be swung through an angle of considerably more than half a revolution so that when an almost vertical wall in a cut at the roadside is encountered the cutter may be adjusted for that condition.

Likewise an almost vertical drop may be encountered when the road is built on an embankment and the implement may be adjusted to cut the weeds with equal facility in either of these two conditions. Sometimes large ditches are formed for drainage purposes at the sides of the road and these ditches may be easily cleaned of weeds by the use of my implement by first cutting one slope of the ditch and then cutting the other slope, making necessary adjustments through the handwheel 32 for the two cuttings.

The invention has been described with particular reference to its use with a truck but it is obvious that any other portable platform may be substituted for the truck. In some instances it may be desirable to employ a horse-drawn vehicle. The implement described has, however, peculiar advantages when used as a railroad weed cutter. It may readily be mounted on a handcar of either the manually propelled type or the automobile type and it may be adjusted to conform to all of the varying conditions at the sides of the railroad equally as well as when used on the highways. The implement is, moreover, ideally adapted for trimming hedges. By elevating the cutter in a horizontal position to the height at which it is desired to trim the hedge, the top of the hedge may then be trimmed so that it will be perfectly smooth. The inclination of the cutter may then be changed to the vertical in order to trim both sides of the hedge. The resulting appearance of the hedge will be far superior to that of a hedge trimmed by hand since the sides and top are perfectly smooth.

Having thus described my invention in such full, clear, and exact terms that its construction and operation will be readily understood by others skilled in the art to which it pertains, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In combination, a supporting frame which is adapted to rest on a truck and having its outer end portion projecting laterally beyond the side of the truck, a vertical guiding member secured to said supporting frame at its outer extremity, a cutter carrying frame slidably secured in said guiding member, a reciprocating cutter pivotally secured to said cutter carrying frame, means for angularly adjusting said cutter, means including a motor and connections for reciprocating said cutter, and manually operable means for vertically adjusting said cutter carrying frame in said guiding member, said connections being automatically adjustable when said cutter carrying frame is adjusted in said guiding member.

2. In combination, a supporting frame which is adapted to rest in horizontal position on a movable support and extend laterally to one side thereof, a guiding member secured to said supporting frame at the outer extremity thereof and projecting both above and below the level of said supporting frame, a cutter carrying member slidably secured in said guiding member, and means for vertically adjusting said cutter carrying member in said guiding member, said means including a winding drum journalled in the upper portion of said guiding member, a flexible connection between said drum and said cutter carrying member, and a hand wheel for actuating said drum.

3. In a highway weed cutter, a supporting frame which is adapted to be positioned on a movable support with one end portion projecting beyond the side of the support, a guiding member secured to the projecting end portion of said supporting frame, a cutter supporting member slidably secured in said guiding member so as to be vertically adjustable therein, a cutter on said cutter supporting member at the lower extremity thereof, and means for actuating said cutter, said actuating means including a sprocket wheel adjacent said cutter, a second sprocket wheel at the upper extremity of said cutter supporting member, a driven shaft having a sprocket wheel thereon and positioned on said supporting frame remote from said cutter carrying member, an endless sprocket chain engaging all of said sprocket wheels, and idlers on said guiding member for guiding said sprocket chain, the arrangement permitting the vertical adjustment of said cutter carrying member without altering the tension of said sprocket chain.

4. In a highway weed cutter, a supporting frame adapted to be mounted crosswise on a vehicle with one end projecting beyond the side of the vehicle, a power unit on the inner end of the supporting frame to hold the latter on the vehicle, a vertical guide member secured on said projecting end of the supporting frame, a supporting member slidably mounted in the guide member, means for raising and lowering the supporting member in the guide member, a cutter bar pivoted in the lower end of the supporting member, means for angularly adjusting the cutter bar on the supporting member, and an adaptable driving connection between the cutter bar and said power unit for operating the cutter bar at all adjustments of the latter and the supporting member.

5. In a highway weed cutter, a supporting frame adapted to be mounted across a vehicle, a guide member secured vertically on one end of the supporting frame for positioning at the side of the vehicle, a supporting member mounted for sliding adjustment in the guide member, a cutter bar pivoted in the lower end of the supporting

member, adjusting means for the cutter bar mounted on the supporting member, adjusting means between the guide member and the supporting member for raising and lowering the latter, an endless drive chain mounted vertically in the supporting member and connected to the cutter bar, means for looping a run of said drive chains inwardly to the platform, and means on the supporting frame engaging the looped portion of the drive chain for actuating the same to drive the cutter bar at all adjustments of the same and of the supporting member.

6. In a device as specified, a support, a guide member mounted on the support at substantially right angles thereto, a frame slidably mounted in the guide member for movement in a path at right angles to the support, a cutter bar adjustably mounted in the frame, means for adjusting the frame in the guide member, and a driving connection from the support and extending through the frame to the cutter bar for operating the same.

In testimony whereof I affix my signature.

HARRY C. OHLER.