Jan. 9, 1951 D. R. GARRETSON 2,537,404

BRUSH CHOPPING MACHINE

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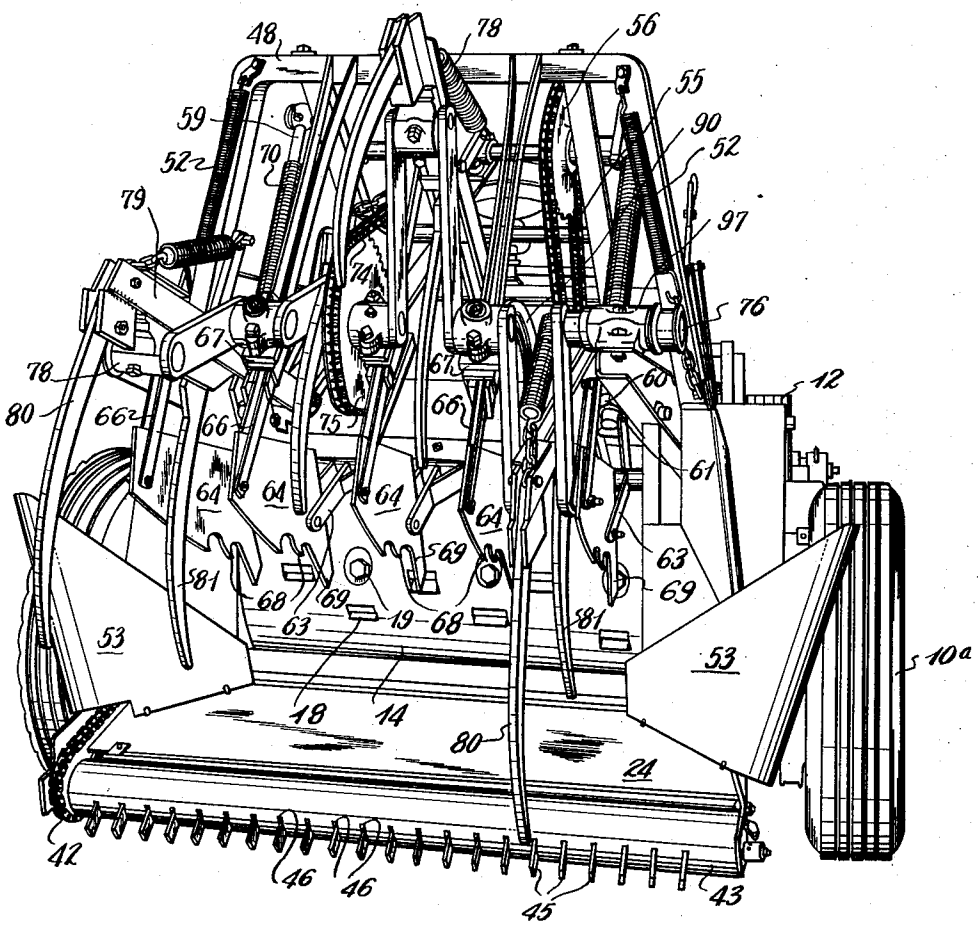


Fig. 1

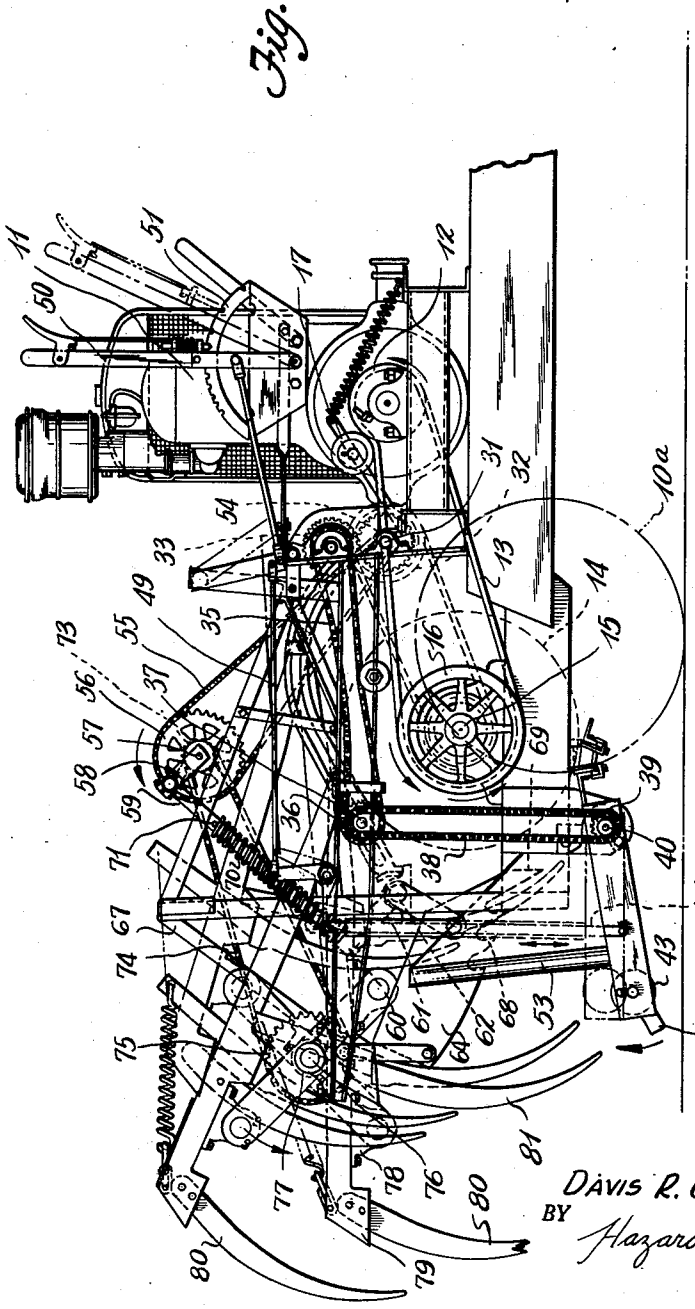
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Fig. 2



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BRUSH CHOPPING MACHINE

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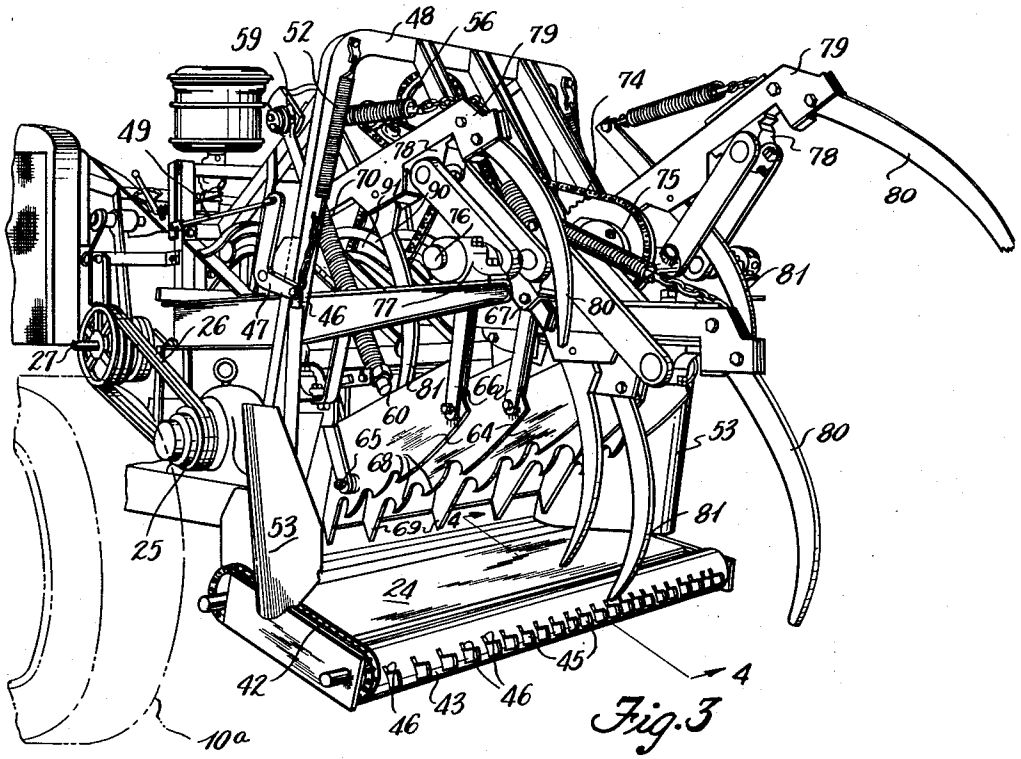


Fig. 3

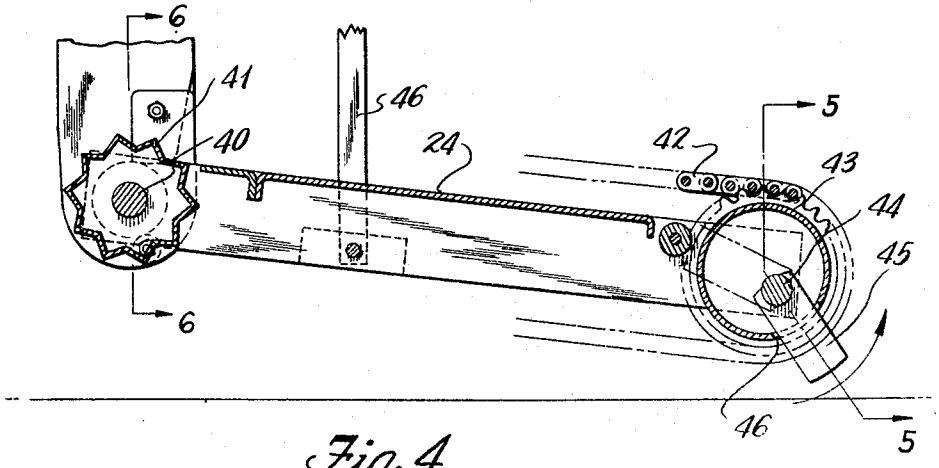


Fig. 4

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BRUSH CHOPPING MACHINE

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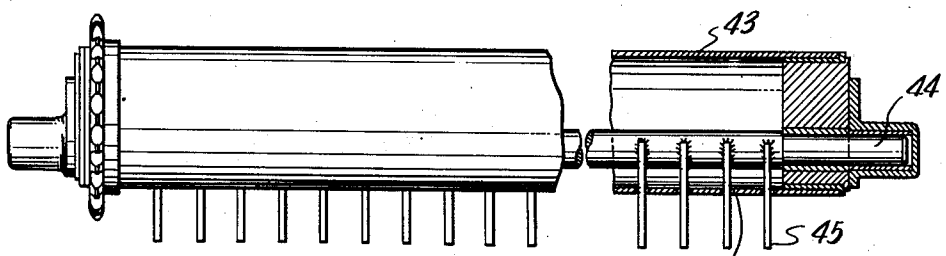
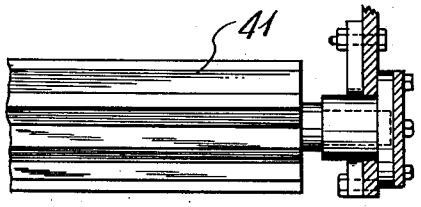


Fig. 5

Fig. 6



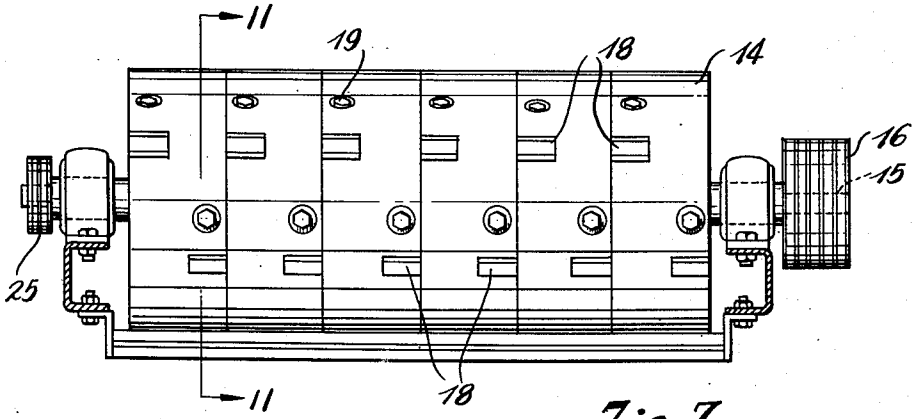


Fig. 7

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BRUSH CHOPPING MACHINE

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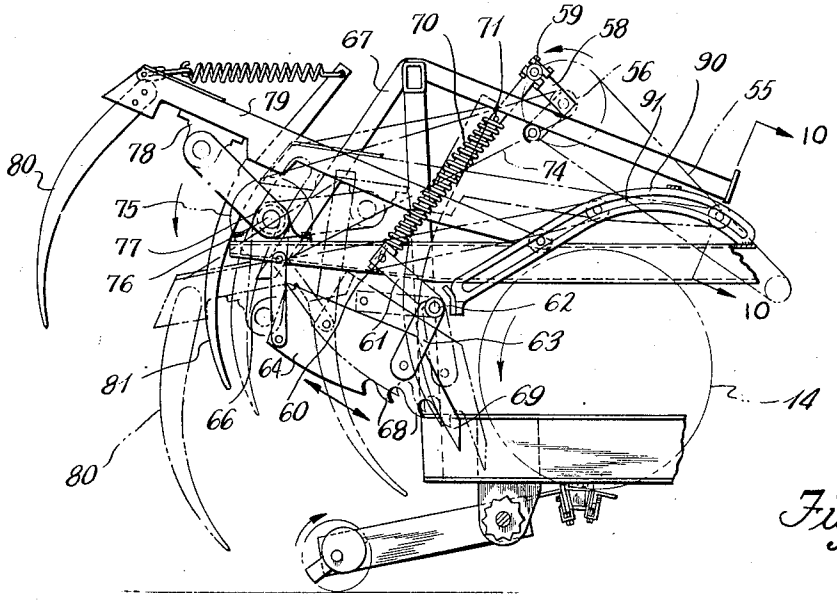


Fig. 8

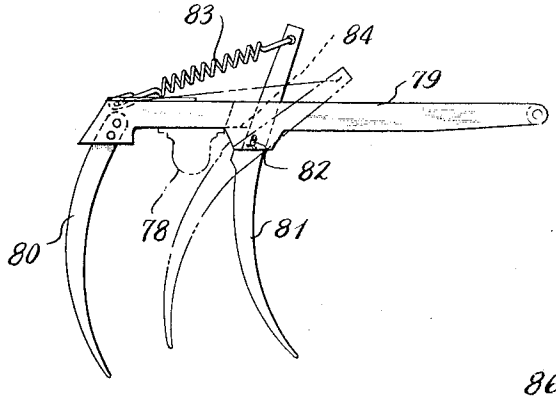


Fig. 9

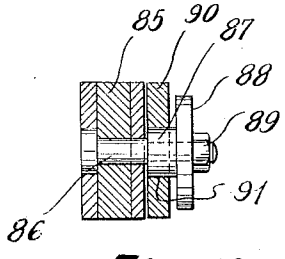


Fig. 10

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BRUSH CHOPPING MACHINE

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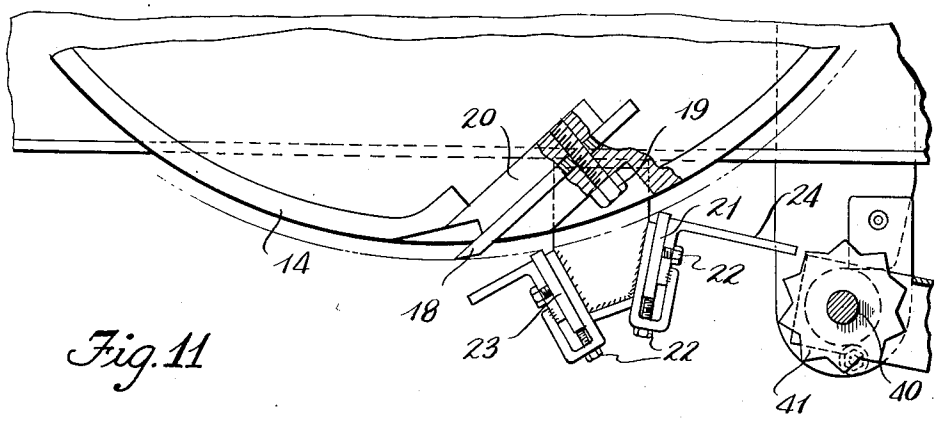


Fig. 11

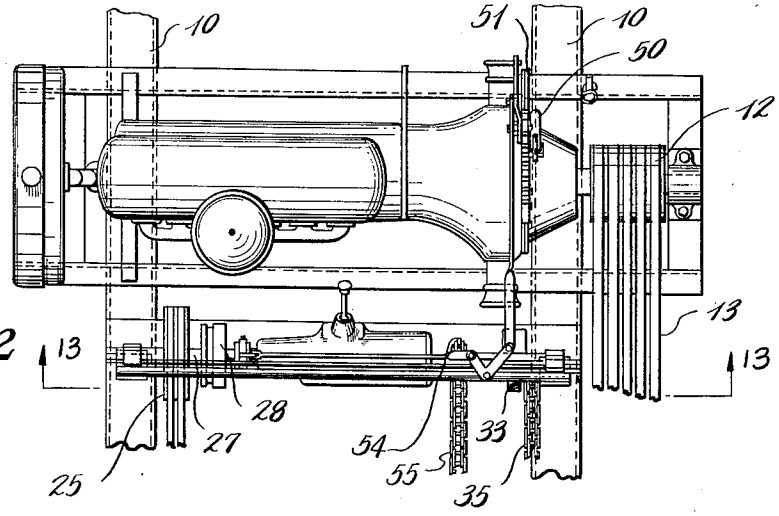


Fig. 12

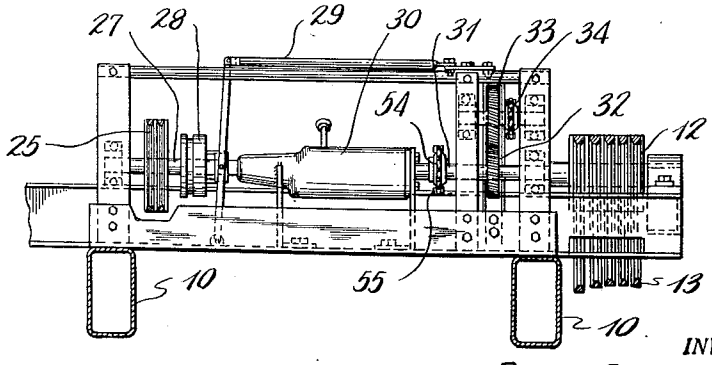


Fig. 13

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Patented Jan. 9, 1951

2,537,404

UNITED STATES PATENT OFFICE

2,537,404

BRUSH CHOPPING MACHINE

Davis R. Garretson, Whittier, Calif.

Application December 1, 1945, Serial No. 632,261

18 Claims. (Cl. 55—118)

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This invention relates to a brush handling machine or brush hog.

A primary object of the invention is to provide a machine in the form of a movable vehicle which has a collared ribbon hogging cylinder or hogging means, and which has power-driven means for picking up or dragging brush and the like and feeding it to the hogging means so as to be cut up into relatively small pieces.

The invention has been primarily devised for handling prunings in citrus groves, and consequently will be described as used therein although it may be employed wherever it is desired to cut up or finely divide brush or other vegetable matter.

In citrus groves, particularly lemon groves, the trees are periodically pruned and the prunings which may be relatively heavy branches have heretofore been dried and ultimately burned as a means of disposing of them. The present invention provides a machine for cutting up such prunings into small fragments and redepositing these fragments on the soil between the trees. This covering layer which is woody in nature provides an excellent mulch when allowed to remain on the surface and if disced under it will shortly rot and contribute humus to the soil. In accordance with the present invention it is proposed to deposit the prunings from the citrus trees in windrows between the rows of trees and thereafter to run the machine down the windrows, pick up the brush, and grind it or cut it into relatively small fragments which are redeposited on the ground.

More specifically, an object of the invention is to provide a brush handling machine consisting of a vehicle on which a hogging means is provided and to provide a novel means for picking up the brush and feeding it to the hogging means. Inasmuch as the prunings or branches are of every conceivable irregular shape, the feeding means must be so designed as to pick up the brush regardless of the limb shapes and urge the brush into engagement with the hogging means.

With the foregoing and other objects in view, which will be made manifest in the following detailed description and specifically pointed out in the appended claims, reference is had to the accompanying drawings for an illustrative embodiment of the invention, wherein:

Figure 1 is a perspective view of the front of the machine embodying the present invention;

Fig. 2 is a view in side elevation of the same;

Fig. 3 is a perspective view of the machine illustrated in Fig. 1, but taken from a different point of view;

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Fig. 4 is a vertical section through the apron forming a part of the machine and taken substantially upon the line 4—4 upon Fig. 3;

Fig. 5 is a view partly in elevation and partly in section, the sectional part thereof being taken substantially upon the line 5—5 upon Fig. 4;

Fig. 6 is a view taken substantially upon the line 6—6 upon Fig. 4;

Fig. 7 is a view in elevation of the hogging cylinder forming a part of the machine embodying the present invention;

Fig. 8 is a longitudinal vertical section through the machine but illustrating only one of the pivoted arms thereof which carries large feeding teeth and illustrating the various positions it assumes in dotted lines;

Fig. 9 is a partial view in side elevation illustrating the details of construction of one of the arms;

Fig. 10 is a sectional view taken substantially upon the line 10—10 upon Fig. 8;

Fig. 11 is an enlarged view in vertical section illustrating the lower portion of the hogging cylinder and associated structure and may be regarded as having been taken substantially upon the line 11—11 upon Fig. 7;

Fig. 12 is a top plan view of the transmission and associated structure forming a part of the machine; and

Fig. 13 is a view taken substantially upon the line 13—13 upon Fig. 12.

Referring to the accompanying drawings wherein similar reference characters designate similar parts throughout, the machine embodying the present invention is carried on a suitable vehicle, such as for example a truck, the chassis of which is indicated at 10 and having rear wheels 10a. The truck may be of any preferred or conventional construction and in the course of operation of the machine it is intended to be driven in reverse between rows of trees in following a windrow of brush or prunings deposited therebetween. As these windrows are usually formed between straight rows of trees the windrows themselves will normally be relatively straight so that there is little occasion to steer the truck in following the straight windrow although steering by the front wheels (not shown) of the truck is of course possible. The truck may be advantageously used to transport the entire machine from place to place in the conventional manner and as the progress of the machine in following the windrow of brush is relatively slow the low gearing of the normal reverse gear in a truck transmission is not objectionable.

On the chassis 10 there is provided a suitable

source of power such as an internal combustion engine indicated at 11. On the drive shaft of the internal combustion engine there are a series of pulleys 12 for V belts or the equivalent indicated at 13 that provide a direct drive between the internal combustion engine 11 and the lumber hogging cylinder 14. This hogging cylinder is mounted on a suitable axle 15 on which there are pulleys 16 over which the belts 13 are trained, a belt tightener being indicated at 17 for keeping these belts suitably tight.

The hogging cylinder extends a substantial distance across the width of the chassis of the truck and is relatively heavy. I find it suitable for my purposes to employ a hogging cylinder weighing approximately 2500 lbs. and rotated at a speed of approximately 775 R. P. M. On the hogging cylinder at spaced intervals there are pockets within which knives or blades 18 are adjustably secured by means of cap screws 19 and blade plates 20. These blades project beyond the cylindrical surface of the body of the cylinder a short distance, see Fig. 11, depending on the degree of fineness to which it is desired to cut up the brush. During the rotation of the hogging cylinder the blades 18 sweep adjacent the stationary blade 21 that is adjustable by means of cap screws 22 and in the preferred form of construction there is a second stationary blade 23 that is likewise adjustable. These blades extend transversely of the truck the entire length of the hogging cylinder and the brush to be cut up is fed in a direction between the rotating cylinder and the stationary blade 21 across the apron that is generally designated at 24. On the opposite end of the hogging cylinder from pulleys 16 there are additional pulleys 25 which are part of a belt transmission 26 to a transversely extending shaft 27. On this shaft there is a clutch 28, see Fig. 12, operable by linkage 29 and a speed-change transmission 30 which delivers power taken off of the hogging cylinder at variable speeds to a shaft 31 having a gear 32 that meshes with a gear 33 on a stub shaft that carries a chain sprocket 34. A chain 35 is trained over this sprocket and over a sprocket 36 on a stub shaft 37 and on this stub shaft there is a second sprocket over which is trained a chain 38 that leads downwardly to a sprocket 39 which is on the end of a shaft 40 extending across the rear or inner end of the apron 24. On this shaft 40 there is mounted a corrugated roller 41 that is located rather close to the stationary blade of the hogging means, see Fig. 11. This corrugated roller is driven in such a manner as to urge material brought in over the apron toward the stationary blade 21 and into the path of the blades 18 on the hogging cylinder. On the opposite end of shaft 40 from sprocket 39 there is a sprocket over which is trained a chain 42 so as to provide a driving connection between the corrugated cylinder 41 and a rotary cylinder 43 that is rotatably mounted at the forward end of the apron. Within the rotary cylinder 43 there is a rotary shaft 44 that is mounted for rotation about an axis that is eccentric with respect to the axis of rotation of the cylinder 43, and this shaft carries a series of radially extending teeth 45 that extend through slots 46 in the cylinder. The arrangement of the shaft with respect to the cylinder 43 is such that when the teeth on the shaft 44 are lowermost and in a position similar to that illustrated in Fig. 4, that the teeth project considerably through the slots 46 in the cylinder. During rotation of the cylinder and shaft the teeth are retracted as indicated by dotted lines on Fig. 4, so that in effect these teeth project from the cylinder on its underside but on its upper side they are retracted therein. These teeth are driven in the direction of the arrow as illustrated on Fig. 4, and tend to pick up brush and twigs lying on the ground and deposit them on the apron 24. Inasmuch as these teeth sweep very closely to the ground the extending and retracting action of the teeth with relation to the cylinder is highly advantageous in that each retraction of the teeth through the slots 46 tends to clean them and at the same time they are caused to be withdrawn and to disengage and thus release the brush deposited on the apron. The apron is adjustable with respect to the ground by means of hangers 46 that are pivotally connected thereto and to cranks 47 that are pivotally mounted on the frame 48. The cranks 47 are, in turn, connected by linkages 49 to an adjustable lever 50 that traverses a quadrant 51. By adjusting lever 50 with relation to the quadrant the apron may be adjusted about the axis of shaft 40 as a center. Tension springs 52 may be secured to the frame 48 and to the tops of the hangers 46 to assist in carrying the load of the apron in any adjusted position. At the sides of the apron there are mounted wings 53 which converge rearwardly or toward the hogging cylinder and tend to guide the brush as it is drawn across the apron toward the center of the apron and in a position to be engaged by hogging cylinder.

On the shaft 31 there is provided a sprocket 54 over which is trained an endless chain 55. This chain in turn drives a sprocket 56 on a shaft 57 extending across the chassis of the vehicle and which has cranks 58 at the ends. Pitmans 59 are pivotally connected to these cranks and have their lower ends slidably extending through pivoted collars 60 on crank arms 61 on a transversely extending shaft 62. This shaft, in turn, has pairs of crank arms 63 rigidly secured thereto which extend downwardly against opposite sides of tampers or packers 64 and are pivotally secured thereto as at 65 adjacent their rear ends. The forward ends of these packers or tampers are pivotally suspended by means of links 66 from arms 67 on the frame. The packers or tampers are in the form of steel plate sections that extend downwardly and rearwardly and which present downwardly and rearwardly inclined teeth 68. At their extremities they are provided with extensions 69 that press the brush rather closely against the hogging cylinder. Compression springs 70 surround the pitmans and are compressed between pins 71 and the collars 60, thus forming a yieldable connection between the cranks 58 and the cranks 61.

During rotation of the shaft 31 shaft 57 will be driven at a reduced speed and the cranks 58 will in turn operate the pitmans 59 causing the shaft 62 to be oscillated. The cranks 63 will cause the packers or tampers to be reciprocated in a somewhat oscillatory manner and cause the teeth 68 and extensions 69 to engage the brush and advance it toward the hogging cylinder with a step-by-step motion. The packers or tampers that thus advance the brush toward the hogging cylinder operate in unison and serve to crowd the brush downwardly against the apron and into engagement with the corrugated roll 41 and to cooperate therewith in feeding the brush against the hogging cylinder.

The shaft 57 carries a small sprocket 73 and an endless chain 74 provides a driving connection

between this shaft and a sprocket 75 mounted on a crankshaft 76. This crankshaft preferably has four throws, that is its crank pins are circumferentially spaced 90° apart. The crankshaft is suitably mounted for rotation on bearings 77 on arms secured to the frame. On the crank pins there are provided bearings 78 that are secured to the undersides of arms 79. Each arm is preferably made up of two spaced plates between the outer ends of which there are rigidly secured long downwardly extending teeth 80. Somewhat rearwardly of these teeth there are pivotally secured additional teeth 81 the pivots therefor being provided at 82. Tension springs 83 are secured to the upper ends of these teeth and connect them with the outer or forward ends of the arms on which they are mounted. These tension springs urge the teeth 81 into the full-line position shown in Fig. 9, against stops 84. However, if the brush accumulates excessively behind the teeth 81 these teeth may swing into the dotted line position as shown in Fig. 9. It is ordinarily not necessary to make the teeth 80 yieldable due to the fact that these teeth are so remote from the hogging cylinder. However, as the brush is drawn toward the hogging cylinder it is advisable to have the teeth 81 yieldable and the packers or tampers yieldable as is provided by the springs 70 so that these teeth and packers may give when the brush crowds too heavily against the hogging cylinder. The rear ends of the arms 79 are provided with spacers 85 through which extend bolts 86 on which are mounted rollers 87, these rollers being retained on the bolts by washers 88 and nuts 89. Guides or cams 90 are rigidly secured to the frame and have slots 91 formed therein in which the rollers 87 are disposed. These guides or cams serve to guide the motions of the rearward ends of the arms 79 while the arms are being actuated with the rotary crankshaft 76. It will be noted that these slots 91 are curved as illustrated so as to bring about a rather peculiar motion of the arms 79 and the teeth 80 and 81 thereon. In other words, as the crankshaft rotates each arm will be caused to be lifted by its crank pin on the crankshaft, then carried upwardly and forwardly and during this forward motion the rollers 87 merely roll down the inclined forwardmost portions of the slots 91. As the crank pin continues its rotation the arms are lowered in this extended position causing the teeth 80 and 81 to descend into the brush of the windrow. During the forward motion of the crank pin the teeth are brought forwardly to pass the brush onto the apron and to deliver it into a position to be picked up and advanced by the tampers or packers. The curvature of the slots 91 guide the motion of the rear ends of the arms so that as the arms are lifted by the crankshaft they will be withdrawn clear of the delivered brush. As the crank pins on the crankshaft are circumferentially spaced, the arms may be regarded as operating in sequence. In other words, while one pair of teeth 80 and 81 on one arm is descending into the brush of the windrow, another arm and its teeth may be drawing brush rearwardly onto the apron. A third arm and its teeth may be simultaneously lifted from the delivered brush and a fourth arm and its teeth may be undergoing the operation of being extended forwardly to pick up a new load. In this manner, brush is being constantly picked up and drawn rearwardly by the teeth 80 and 81 on the various arms and drawn onto the apron where its rearward movement is picked up and advanced by the packers or tampers 64, and the corrugated roller 41. At the same time brush lying close to the ground is being picked up by the continuously rotating teeth 45 and lifted onto the apron.

The elevation of these teeth with respect to the ground surface can at all times be adjusted by means of the lever 50. The relative speeds of the various shafts is such that the teeth 45 rotate fairly rapidly and the packers and tampers 64 are reciprocated fairly rapidly. There is a considerable speed reduction between the shaft 31 and the crankshaft 76 so that the teeth 80 and 81 move through their cycles of movement rather slowly in picking up and dragging the brush onto the apron. As the brush is brought in contact with the hogging cylinder the cuttings in the form of chips or slivers are discharged rearwardly underneath the vehicle and will normally be scattered thereby over the surface of the ground. If allowed to remain on the surface they form a moisture-retaining mulch and if disced or plowed under, these chips and cuttings as well as the leaves quickly rot and contribute humus to the soil.

In the course of operation of the machine I find it advantageous to disengage the clutch 28 and to hold the same disengaged until the heavy hogging cylinder has been brought up to speed so that a heavy starting load is not placed on the internal combustion engine 11. After the hogging cylinder has been brought up to speed it functions not only as a hogging cylinder but as a heavy flywheel at the time that the clutch is engaged to start the various mechanism driven off of shaft 31. The speed of operation of the various elements of the machine that contribute to feeding the brush to the hogging cylinder may be varied by the speed-change transmission 30 in accordance with how heavy the brush may be in the windrow.

While it is preferable to arrange the brush or prunings in a windrow in an orchard or grove it will readily be appreciated that the present machine may be utilized with brush in other conditions. It may be employed where the brush is merely scattered or where brush is piled in a single large pile or a plurality of scattered piles. When the brush is arranged in a windrow the vehicle can ordinarily be moved continuously and slowly down the length of the windrow and the chips or cuttings evenly scattered as the vehicle proceeds.

Various changes may be made in the details of construction without departing from the spirit and scope of the invention as defined by the appended claims.

I claim:

1. A device of the class described comprising a vehicle having a hogging cylinder rotatably mounted thereon, a stationary blade adjacent the cylinder, means for rotating the cylinder, an apron adjacent the stationary blade, means for drawing brush and the like onto the apron so as to be hogged by the hogging cylinder including arms having downwardly extending teeth thereon, at least some of the teeth being pivoted to the arms and movable from an outer to an inner position, means urging the pivoted teeth into their inward position, and means for causing said arms to be lifted, extended outwardly beyond the apron, lowered, and then be drawn inwardly over the apron.

2. A device of the class described comprising a vehicle having a hogging cylinder rotatably mounted thereon, a stationary blade adjacent the

bottom of the cylinder, means for rotating the cylinder, an apron adjacent the stationary blade, means for drawing brush and the like onto the apron so as to be hogged by the hogging cylinder including arms having downwardly extending teeth thereon, a crankshaft on the vehicle on which the arms are pivotally mounted, means for rotating the crankshaft, and guide means on the vehicle for the inner ends of the arms constraining the arms to move in a predetermined path of travel irrespective of the upward force on the arms whereby the arms on rotation of the crankshaft will be lifted, extended outwardly from the hogging cylinder, lowered, and drawn inwardly toward the hogging cylinder.

3. A device of the class described comprising a vehicle, hogging means thereon, a crankshaft on the vehicle having a plurality of throws, arms pivotally mounted thereon adjacent their outer ends, guide means on the vehicle for the inner ends of the arms, means for rotating the crankshaft, and downwardly extending teeth on the outer ends of the arms adapted to be lifted thereby, extended, lowered, and drawn inwardly toward the hogging means.

4. A device of the class described comprising a vehicle, hogging means thereon, a crankshaft on the vehicle having a plurality of throws, arms pivotally mounted thereon adjacent their outer ends, guide means for the inner ends of the arms, means for rotating the crankshaft, and downwardly extending teeth on the outer ends of the arms adapted to be lifted thereby, extended, lowered, and drawn inwardly toward the hogging means, and an apron extending forwardly from the hogging means over which the teeth are drawn.

5. A device of the class described comprising a vehicle, hogging means thereon, a crankshaft on the vehicle, arms pivotally mounted thereon adjacent their outer ends, guiding means on the vehicle, means on the inner ends of the arms guided by the guiding means, means for rotating the crankshaft, and downwardly extending teeth on the outer ends of the arms adapted to be lifted thereby, extended, lowered, and drawn inwardly toward the hogging means, an apron extending forwardly from the hogging means over which the teeth are drawn, and means for adjusting the inclination of the apron.

6. A device of the class described comprising a vehicle, hogging means thereon, a crankshaft on the vehicle, arms pivotally mounted thereon, guide means on the vehicle for the inner ends of the arms, means for rotating the crankshaft, and downwardly extending teeth on the outer ends of the arms adapted to be lifted thereby, extended, lowered, and drawn inwardly toward the hogging means, an apron extending forwardly from the hogging means over which the teeth are drawn, said apron having a corrugated cylinder adjacent the hogging means positioned so that the longitudinal axis of the cylinder is below the top surface of the apron, and means for rotating said corrugated cylinder in a direction to cooperate with the teeth in feeding material to the hogging means.

7. A device of the class described comprising a vehicle, hogging means thereon, a crankshaft on the vehicle, arms pivotally mounted thereon, guide means on the vehicle for the inner ends of the arms, means for rotating the crankshaft, and downwardly extending teeth on the outer ends of the arms adapted to be lifted thereby, extended, lowered, and drawn inwardly toward

the hogging means, an apron extending forwardly from the hogging means over which the teeth are drawn, said apron having at the outer end thereof a rotary cylinder, and teeth rotatable within and with said cylinder about an axis eccentric thereto so that the teeth will be drawn into the cylinder when disposed uppermost and project therefrom when disposed lowermost, and means for rotating said cylinder and teeth in a direction to cooperate with the first-mentioned teeth in feeding material across the apron to the hogging means.

8. A device of the class described comprising a vehicle, hogging means thereon, a crankshaft on the vehicle, arms pivotally mounted thereon, guide means on the vehicle for the inner ends of the arms, means for rotating the crankshaft, and downwardly extending teeth on the outer ends of the arms adapted to be lifted thereby, extended, lowered, and drawn inwardly toward the hogging means, and packers mounted for oscillation between the teeth and adjacent said hogging means, and means for oscillating said packers to cause them to pick up material brought toward the hogging means by said teeth and pack it toward the hogging means.

9. A device of the class described comprising a vehicle, hogging means thereon, a crankshaft on the vehicle, arms pivotally mounted thereon, guide means for the inner ends of the arms, means for rotating the crankshaft, and downwardly extending teeth on the outer ends of the arms adapted to be lifted thereby, extended, lowered, and drawn inwardly toward the hogging means, and packers mounted for oscillation between the teeth and adjacent said hogging means, and means for oscillating said packers to cause them to pick up material brought toward the hogging means by said teeth and pack it toward the hogging means, said last named means being yieldable.

10. A device of the class described comprising a vehicle having a hogging cylinder, means for rotating the hogging cylinder, an apron adjacent the hogging cylinder, a stationary blade adjacent which the hogging cylinder rotates, a corrugated roller on the apron adjacent the stationary blade, rotary means at the outer end of the apron for beating material onto the apron, means for rotating said corrugated cylinder, and said rotary means, arms carrying teeth above the apron, means for lifting said arms, extending them, lowering them, and drawing them inwardly toward the apron, and packers arranged above the apron, and means for reciprocating said packers.

11. In a brush hog or the like, hogging means, and means for feeding brush and the like toward the hogging means including a crankshaft having a plurality of throws, arms pivotally mounted on the crankshaft, teeth on the outer ends of said arms, means for guiding the inner ends of said arms, means for rotating the crankshaft, at least some of the teeth being pivoted to the arms and movable from an outer to an inner position, and means for urging the pivoted teeth into their inward position.

12. In a brush log or the like, a vehicle, a hogging cylinder mounted for rotation thereon, a stationary blade adjacent the hogging cylinder, means for rotating the hogging cylinder, a plurality of packers adjacent the hogging cylinder, links suspending the outer ends of the packers, a rockshaft adjacent the inner ends of the packers, means connecting the inner ends of the pack-

ers to the rockshaft, and means for oscillating the rockshaft.

13. In a brush hog or the like, a vehicle, a hogging cylinder mounted for rotation thereon, a stationary blade adjacent the hogging cylinder, means for rotating the hogging cylinder, a plurality of packers adjacent the hogging cylinder, links suspending the outer ends of the packers, a rockshaft adjacent the inner ends of the packers, means connecting the inner ends of the packers to the rockshaft, and means for oscillating the rockshaft, said packers having teeth directed toward the hogging cylinder on the lower edges thereof.

14. A device of the class described comprising a vehicle having a hogging cylinder rotatably mounted thereon, a stationary blade adjacent the cylinder, means for rotating the cylinder, an apron adjacent the stationary blade, means for drawing brush and the like onto the apron so as to be hogged by the hogging cylinder including arms having downwardly extending teeth thereon, a crankshaft on which the arms are pivotally mounted, means for rotating the crankshaft, and guide means for the inner ends of the arms, particular portions of the ends of said arms being constrained to ride continuously within the guide means whereby on rotation of the crankshaft the teeth will be lifted, extended outwardly from the hogging cylinder, lowered, and drawn inwardly toward the hogging cylinder.

15. A device of the class described comprising a vehicle, hogging means thereon, a crankshaft on the vehicle having a plurality of throws, arms pivotally mounted thereon adjacent their outer ends, guide means on the vehicle for the inner ends of the arms, means for rotating the crankshaft, downwardly extending teeth on the outer ends of the arms adapted to be lifted thereby, extended, lowered, and drawn inwardly toward the hogging means, at least some of the teeth being pivoted to the arms and movable from an outer to an inner position, and means urging the pivoted teeth into their inward position.

16. A device of the class described comprising a vehicle, hogging means thereon, a crankshaft on the vehicle having a plurality of throws, arms pivotally mounted thereon adjacent their outer ends, guide means on the vehicle for the inner ends of the arms, means for rotating the crankshaft, and downwardly extending teeth on the outer ends of the arms adapted to be lifted thereby, extended, lowered, and drawn inwardly toward the hogging means, at least some of the teeth being pivoted to the arms and movable from an outer to an inner position, means urging the pivoted teeth into their inner position, and an apron extending forwardly from the hogging means over which the teeth are drawn.

17. A device of the class described comprising a vehicle having a hogging cylinder rotatably mounted thereon, a stationary blade adjacent the bottom of the cylinder, means for rotating the cylinder, an apron adjacent the stationary blade, means for drawing brush and the like onto the apron so as to be hogged by the hogging cylinder, including arms, a crankshaft on which the arms are pivotally mounted, means for rotating the crankshaft, downwardly extending teeth on the arms, at least some of the teeth being pivoted to the arms and movable from an outer to an inner position, means urging the pivoted teeth into their inner position, and guide means for the inner ends of the arms constraining the arms to move in a predetermined path of travel irrespective of upward forces on the arms whereby the teeth on rotation of the crankshaft will be lifted, extended outwardly from the hogging cylinder, lowered and drawn inwardly toward the hogging cylinder.

18. A device of the class described comprising a vehicle, cutters for cutting brush or the like, a crankshaft rotatably mounted on the vehicle, arms pivotally mounted on the crankshaft adjacent their outer ends, guides on the vehicle operatively connected to the inner ends of the arms for guiding the inner ends of the arms, downwardly extending teeth on the outer ends of the arms, a motor operatively connected to the cutters and the crankshaft for operating the cutters and for rotating the crankshaft to thereby lift the teeth, extend the teeth outwardly, lower the teeth and draw the teeth inwardly toward the cutters, an apron on the vehicle extending forwardly from the cutters over which the teeth are drawn, and packers mounted for oscillating movement on the vehicle above the apron and adjacent the cutters, the packers being operatively connected to the motor to be oscillated thereby to pack material toward the cutters.

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