

(No Model.)

3 Sheets—Sheet 1.

A. C. ALTHOUSE.
HEDGE TRIMMER.

No. 496,035.

Patented Apr. 25, 1893.

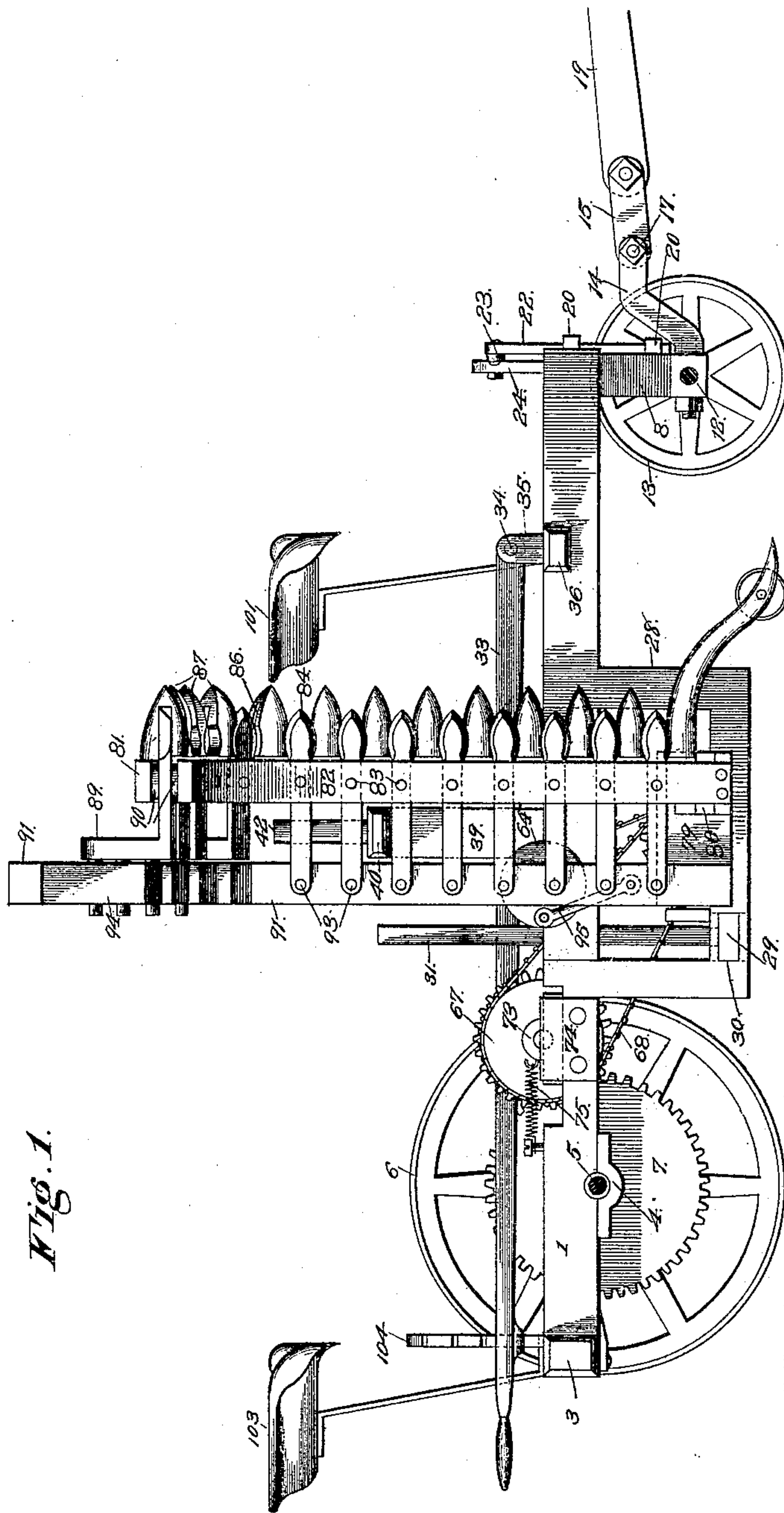


Fig. 1.

Witnesses

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By his Attorneys,

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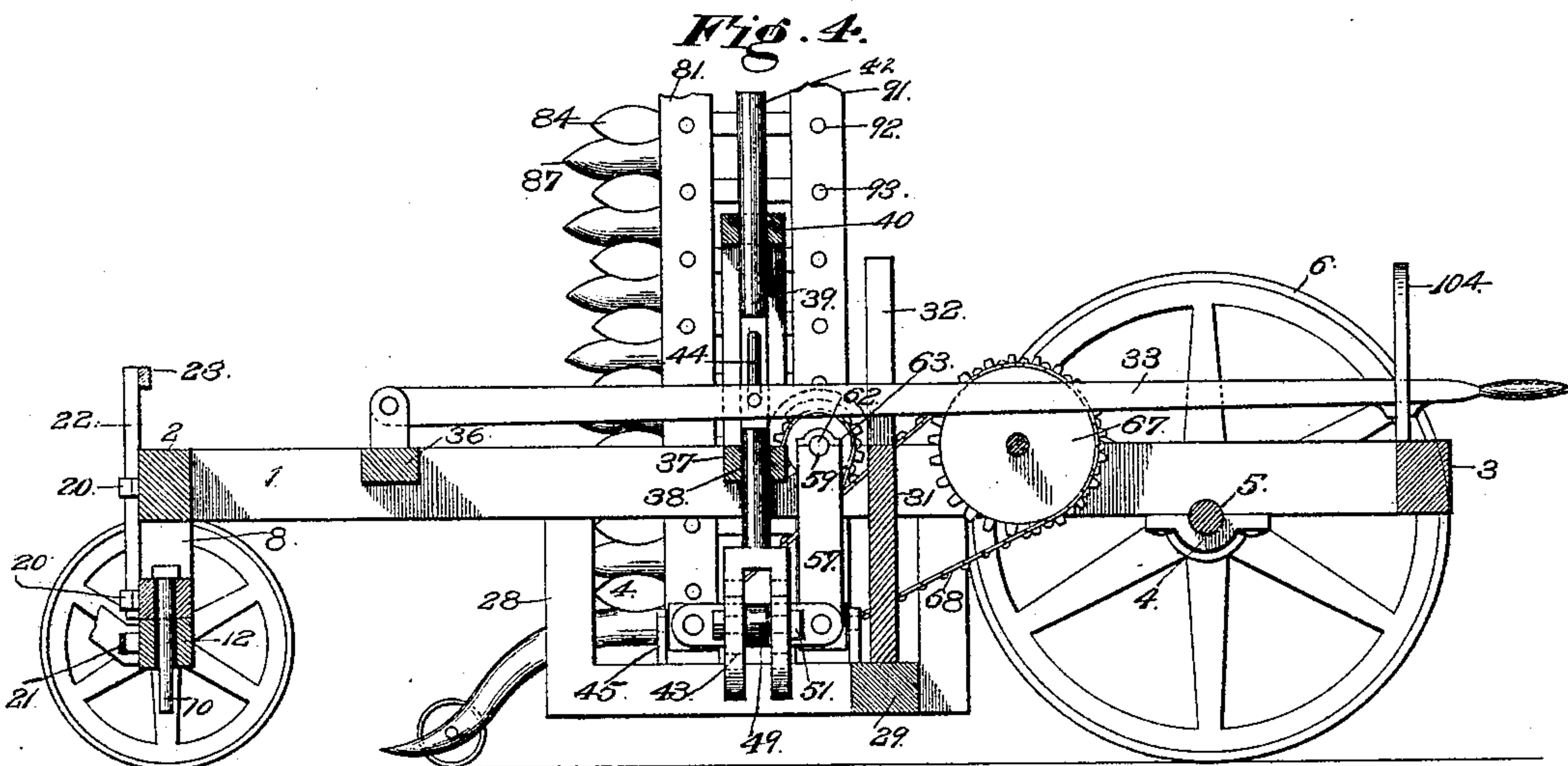
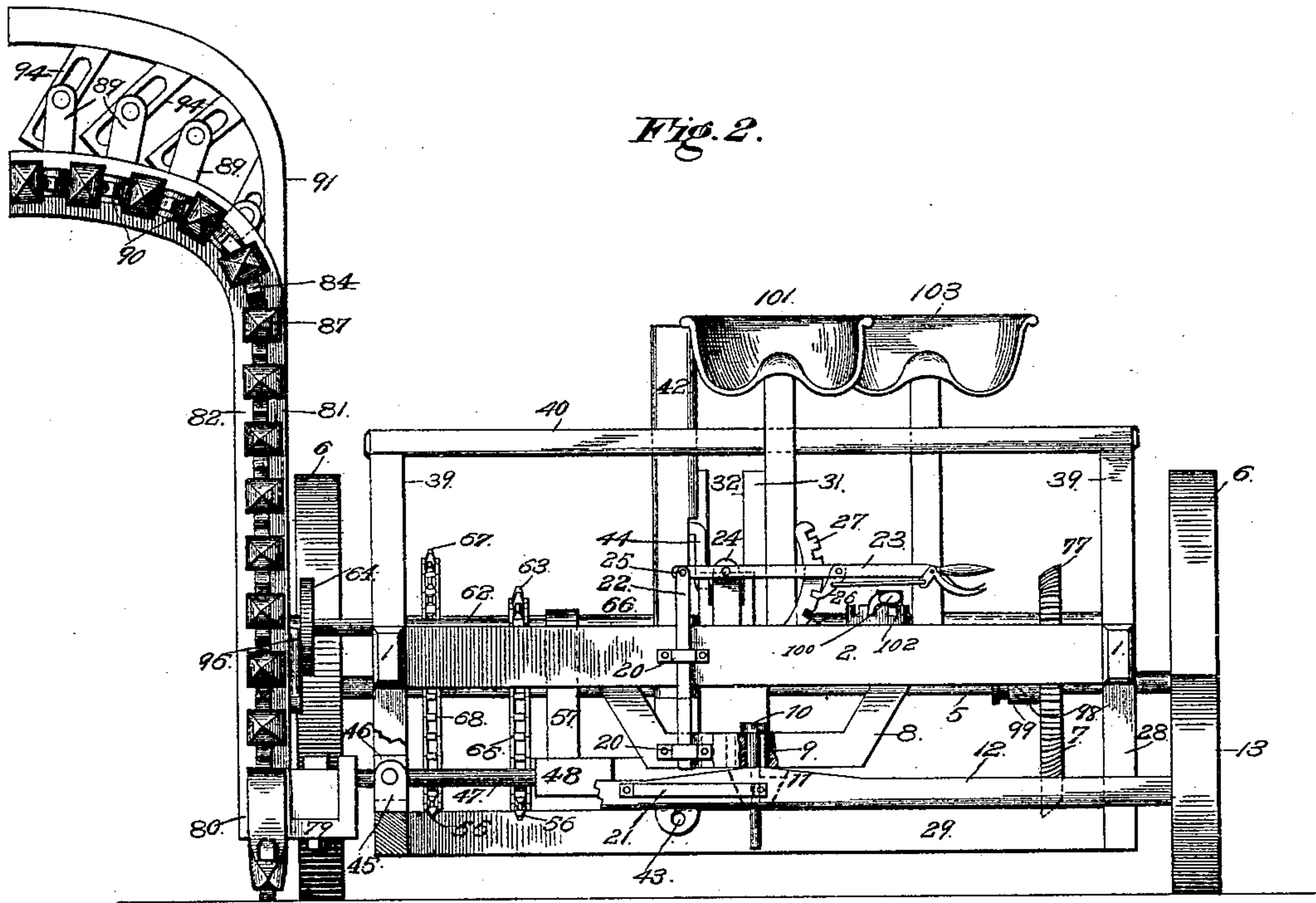
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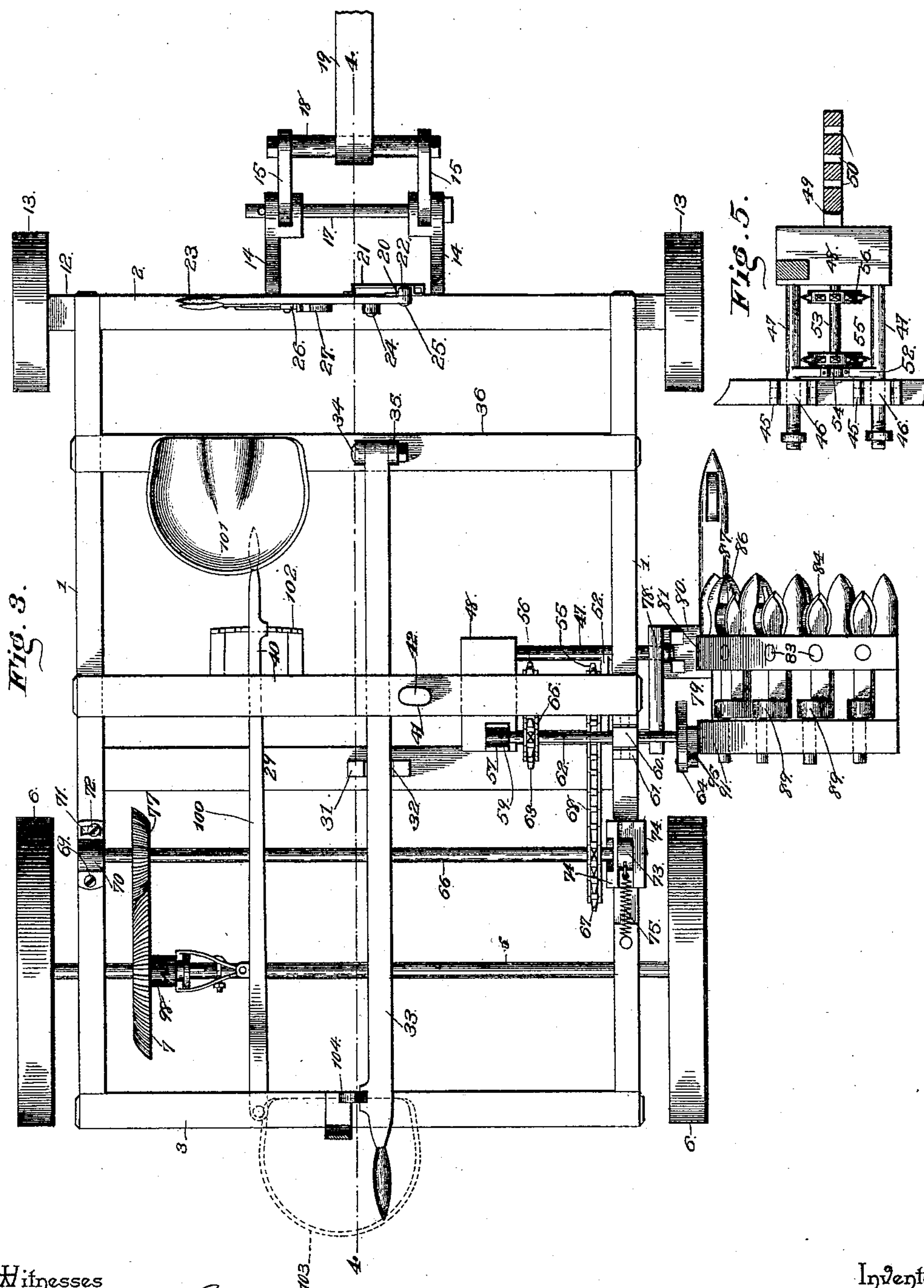
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UNITED STATES PATENT OFFICE.

ALBERT C. ALTHOUSE, OF HAGERSVILLE, PENNSYLVANIA.

HEDGE-TRIMMER.

SPECIFICATION forming part of Letters Patent No. 496,035, dated April 25, 1893.

Application filed July 9, 1892. Serial No. 439,480. (No model.)

To all whom it may concern:

Be it known that I, ALBERT C. ALTHOUSE, a citizen of the United States, residing at Hagersville, in the county of Bucks and State of Pennsylvania, have invented a new and useful Hedge-Trimmer, of which the following is a specification.

My invention relates to improvements in hedge trimmers, the objects in view being to provide a cheap and simple machine adapted to be moved along the sides of hedges for the purpose of simultaneously, accurately and uniformly trimming the tops and sides thereof.

Various other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a side elevation of a hedge-trimming machine embodying my invention. Fig. 2 is a front elevation of the same. Fig. 3 is a plan view. Fig. 4 is a vertical longitudinal section. Fig. 5 is a horizontal sectional view through the frame 28.

Like numerals of reference indicate like parts in all the figures of the drawings.

In practicing my invention I employ opposite side beams 1, which are connected at their front ends by front transverse beams 2, and at their rear ends by rear transverse beams 3. The side beams 1 near their rear ends are provided upon their undersides with journal boxes 4, and in the same is mounted a transverse cylindrical shaft 5, which carries ground wheels 6. At the left of the machine upon the axle 5 there is mounted loosely a gear wheel 7 which is the master gear of the machine and for a purpose hereinafter obvious, has its toothed periphery rounded at one side, or in other words the gear is somewhat beveled.

From the front cross beam 2 depends a stirrup 8, and the same is provided upon its transverse portion with a series of perforations or bolt holes 9, in any one of which may be inserted the king bolt 10. This king bolt passes downwardly through an elongated opening 11 formed at the center of the front transverse axle 12, whose extremities like those of the rear axle are reduced to form bearings and loosely receive ground wheels

13. It will be obvious that the adjustment given the bolt 10 will permit of the line of draft being thrown or directed to one side of the longitudinal center of the machine and such is necessary and of advantage by reason of the fact that as will hereinafter appear, the cutting mechanism is carried at that side, and hence the greatest amount of draft is required. From the front of the axle extends a pair of hounds 14, whose front ends are bifurcated and loosely receive the rear reduced ends of a pair of draft links 15 through whose rear ends and the front bifurcated ends of the hounds a coupling-pin 17 is passed. A cross bar 18 connects the front ends of the links 15 and to the same is secured the rear end of a draft pole or beam 19. A keeper 20 is secured to the front cross-bar 2 and to the lower transverse portion of the stirrup 8 depending therefrom and a third keeper 21 is located upon the front side of the axle 12 of the machine. A pin 22 is mounted for vertical movement in the keepers 20 and may be depressed or lowered so as to engage with the keeper 21, such pin at one side of the king bolt of the machine and hence when its lower end is in engagement with the keeper 21 the front axle is locked rigidly against any horizontal pivotal movement though by reason of the bolt hole 11 in the axle it will be seen that at all times the axle is capable of vertical oscillation. A lever 23 is fulcrumed upon a post 24 which rises from the cross-beam 2 at the front end of the machine one end of the lever being pivoted at 25 to the upper end of the pin 22 while the outer end of the lever terminates in a handle and is provided with a spring-actuated bolt or pawl 26 designed to engage automatically with the teeth of a locking standard 27 that also rises from the cross beam 2.

Depending from the opposite side beams 1, near their centers, is a pair of U-shaped frames 28 which are connected near their rear ends by a cross piece or bar 29, whose extremities are reduced and fixed in bearing-openings 30 formed for their reception in the lower horizontal portions of the frames 28. A standard 31 rises from the center of the cross-bar 29 and has its upper end bifurcated as indicated at 32 and receives a longitudinally disposed lever 33 whose front end is pivoted at 34 upon a swiveled bearing bracket 35 located at the

center of a transverse bar 36 whose ends rest upon the opposite side bars 1 a short distance in rear of the bar 2. The beams 1 are connected above the centers of the frames 28 by a transverse bar 37, which is provided between its ends with an opening 38. Standards 39 rise from the beams 1 opposite the ends of the bar 37 and they in turn are connected at their upper ends by a transverse bar 40, which vertically above the opening 38 is provided with a similar opening 41. Through these openings 41 and 38 formed in the bars 40 and 37 respectively, is formed a vertical reciprocating upright bar 42 the lower end of which is bifurcated and provided with a series of adjusting holes 43. The lever 33 is connected loosely intermediate its ends, as at 44, to upright bar 42.

Upon the horizontal portion of the frame 28 located at the right of the machine a pair of bearing boxes 45 is swiveled and in each of which there is loosely mounted a bearing box 46, through whose openings are passed the outer extremities of a pair of rods or arms 47, which project from a transverse head or block 48. A shank 49 extends inward from the block or head 48 and is provided with a series of adjusting holes 50 and through the medium of a pin 51 is adjustably connected to the bifurcated lower end of the shaft 42. A transverse connecting bar 52 connects the arms or rods 47, and a shaft 53 is journaled at its ends in bearings 54 which are formed upon the upper sides of the block or head 48 and connecting bar 52. This shaft accommodates and is rigidly secured to a pair of sprocket wheels 55 and 56, whose function will hereinafter appear.

A post 57 rises from the rear side of the head or block 58 and is provided with a transverse bearing opening 59 which is transversely opposite a loosely supported pivotal bearing block 60 located in a pair of brackets 61 rising from the side bar 1 at the right of the machine. A countershaft 62 is transversely disposed and mounted in the bearings 59 and 60. This shaft between its bearings is provided with a small fixed sprocket wheel 63, and beyond its outer bearing there is a crank disk 64. The small sprocket wheel 63 is connected to the sprocket wheel 56 through the medium of an endless sprocket chain 65.

In rear of the shaft 62 a transverse shaft 66 is mounted in bearings, and upon the same there is fixed a large sprocket wheel 67 which by means of a sprocket chain or belt 68 communicates motion therefrom to the sprocket wheel 55 upon the shaft 53. The left beam 1 has pivoted at 69 a journal box 70, whose front end is adapted for slight oscillation by reason of a curved slot 71 formed therein and through which is passed a vertical bolt 72. Transversely opposite this pivotal box the right beam 1 is provided with a channel in which is mounted for movement a bearing box 73 divided longitudinally and retained in po-

sition through the medium of a pair of inverted L-shaped plates 74 and bolted to the sides of the opening or channel and overlapping the opposite sides and upper edges of the bearing box whereby the same is prevented from vertical displacement. Thus it will be seen that the shaft 66 having one end journaled in the pivotal box and its opposite end mounted in the movable box is capable of a slight swinging or oscillation, the purpose of which is to maintain the chain 68 taut when the upright bar 42 is raised and lowered and with it the shaft 53 carrying the sprocket wheels 55 and 56. A coiled spring 75 serves to normally draw the shaft 60 to the rear so that the endless chain is always maintained taut. Upon the shaft 66 at the left side of the machine there is mounted a gear 77 which is designed to engage with the master-gear 7, and has its periphery beveled or rounded whereby when the shaft 66 is moved engagement will still be maintained between the gears 7 and 77. The arms 47 beyond their outer bearings are reduced and enter openings 78 which are formed in the vertical portion of an L-shaped bracket or platform 79 beyond which nuts are applied to the ends of the arms 47. A block 80 is mounted upon the bracket 79, and from the same there rises a vertical standard 81 whose upper end is laterally curved or disposed as shown. At the outside of the block there is secured a companion standard 82 which is outside of the standard 81 spaced a slight distance therefrom and conforms to the shape thereof, inasmuch as it extends parallel thereto its entire length. A series of bearing pins 83 are passed transversely through the standards 81 and 82 and upon the same there is journaled a series of vibratory cutters 84. The outer ends of these cutters have their opposite sides convex and the same work in slots 86 formed in ordinary fingers 87, which are located between the cutters 84. These finger-bars are of the ordinary construction, with the exception that their opposite sides are concaved in contradistinction to the convexed opposite edges of the cutters and the lower finger-bar is provided with a caster. Those cutters that are embraced by the vertical or straight portions of the standards 81 extend rearward and are straight while those cutters interposed between the curved upper portions of the standards are provided at their rear ends with upwardly and rearwardly disposed crank portions 89. These latter cutters are also provided upon their upper and lower sides with metal washers 90, the under sides of the lower washers being concaved, while the upper sides of the upper washers are convexed.

91 designates a pitman rod, which partakes somewhat of the shape of the standards 81 and 82 and is located in rear of the same though it is longer and extends above said standards. This pitman rod 91 has its vertical portion provided with perforations 92 and

pivot pins 93 serve to loosely connect the rear ends of the cutters 84 with the pitman. The upper or curved portion of the pitman rod 91 is provided with a series of downwardly inclined and longitudinally slotted arms 94, which slots receive the upper cranked rear portions of the oscillating cutters. The lower end of the pitman rod 91 is loosely connected by a connecting bar 95 to the crank disk 64, from which it receives its vertical reciprocal motion.

The master-gear 7 is provided at one side with a toothed hub 98 and splined upon the axle 5 at one side of the same is an ordinary clutch sleeve 99 which is operated by a lever 100, whose rear extremity is fulcrumed on the under side of the rear bar of the framework, whose front end terminates within reaching distance of the driver when mounted upon the seat 101 provided for his accommodation at the front of the machine and rising from the cross bar 36. A locking standard 102 is located at the side of the free end of the lever whereby such lever may be locked, and thus the mechanism be thrown into operative position. A second seat 103 is located at the rear end of the machine, and a locking standard 104 rises from the rear cross bar of the framework; and in it may be engaged the free end of the lever 33.

It will be obvious from the foregoing description that I have provided a machine embodying simplicity, whose cutters are operated positively by the axle of the machine, which mechanism may be thrown into and out of operation by the driver, and with a proper manipulation of the lever 33 the shaft 42 may be vertically raised and lowered, and hence the cutting mechanism tilted to a desired angle, or permitted to remain in a vertical position, so as to simultaneously trim the side and top of the hedge. As the machine moves along one side of the hedge and finishes that side it is then carried to the opposite side and trims that side while returning to the starting point.

By the manner of pivoting the axle to the framework the front wheels pass over any unlevel places or obstructions and said axle will have an oscillatory movement independent of the frame, and hence the trimming will be uniform and not effected thereby.

Having described my invention, what I claim is—

1. In a hedge trimmer the combination with the framework, of the pair of inverted substantially L-shaped parallel standards connected to the side of the same, a series of cutters pivoted between the standards the rear ends of which are provided with crank portions a substantially L-shaped pitman rod the vertical portion of which is pivoted to the rear ends of the vertical series of cutters, and the upper horizontal portion being provided with inclined slotted arms for engaging the crank portions of the upper horizontal series of cut-

ters, and means for reciprocating the pitman, substantially as specified.

2. In a hedge trimmer the combination with the rectangular framework the axle journaled therein, the master gear and ground wheels of the axle, the intermediate shaft 66 having a gear engaging that of the master gear and provided near its opposite end with a sprocket wheel, of depending frames at the sides of the framework, a transverse bar above the same having an opening, a vertical bar mounted in the bar and adapted to vertically reciprocate, a lever fulcrumed on the frame and connected to the bar, swiveled brackets mounted on one of the depending frames, a pair of bars journaled therein, an inner block from which the bars extend, cutting mechanism carried by the arms, pivotal connections between the blocks and vertical bar, a standard rising from the block, a counter-shaft mounted in the standard, a crank wheel on the outer end of the counter-shaft and connected with the cutting mechanism, a transverse shaft mounted on the block a pair of sprockets mounted on the transverse shaft, a sprocket chain connecting the outer sprocket wheel and that of the transverse shaft, a small sprocket wheel in the countershaft, an endless sprocket chain connecting it with the inner sprocket wheel of the transverse shaft, substantially as specified.

3. In a hedge trimmer the combination with the rectangular framework, the depending frames 28, the cross bar connecting the same, the slotted standard rising therefrom, the cross bars 37 and 40 having openings vertically opposite each other, the standards 39 for supporting bar 40, the vertical bar 42 mounted in the openings 38 and 41 and having its lower end bifurcated and provided with adjusting holes, the swiveled boxes 45 mounted in one of the depending frames, the arms 47 mounted in the boxes, the block from which the arms project, the perforated shank extending from the inner end of the block and pivotally and adjustably connected to the bifurcated shaft, the cutting mechanism supported by the outer ends of the arms 47, of the post rising from the block the pivotal supporting boxes mounted on the side bar of the machine opposite a bearing in the post, a counter shaft mounted in these bearings, a sprocket wheel on the shaft between its bearing and a crank wheel and the cutting mechanism, a transverse shaft supported by the block 48 and having sprocket wheels 55 and 56, a rear movable shaft 66, a spring for drawing the same to the rear, a sprocket wheel thereon, a sprocket chain engaging the wheel and the wheel 55, a chain between the sprocket wheel of the countershaft and the wheel 56, the rear axle, ground wheels mounted thereon, a loose master gear, means for throwing the same into connection with the axle, said gear wheel having a beveled face, a gear wheel 77 mounted on the shaft 66 and also having a beveled face for

engaging with that of the master gear, and a
lever loosely fulcrumed at its front end on a
fixed portion of the framework and having
its rear portion loosely connected with the
5 vertically reciprocating shaft and mounted in
the bifurcated standard 31 rising from the
cross bar 29, substantially as specified.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in
the presence of two witnesses.

ALBERT C. ALTHOUSE.

Witnesses:

NATHAN C. JAMES,
FRANK N. BOOZ.