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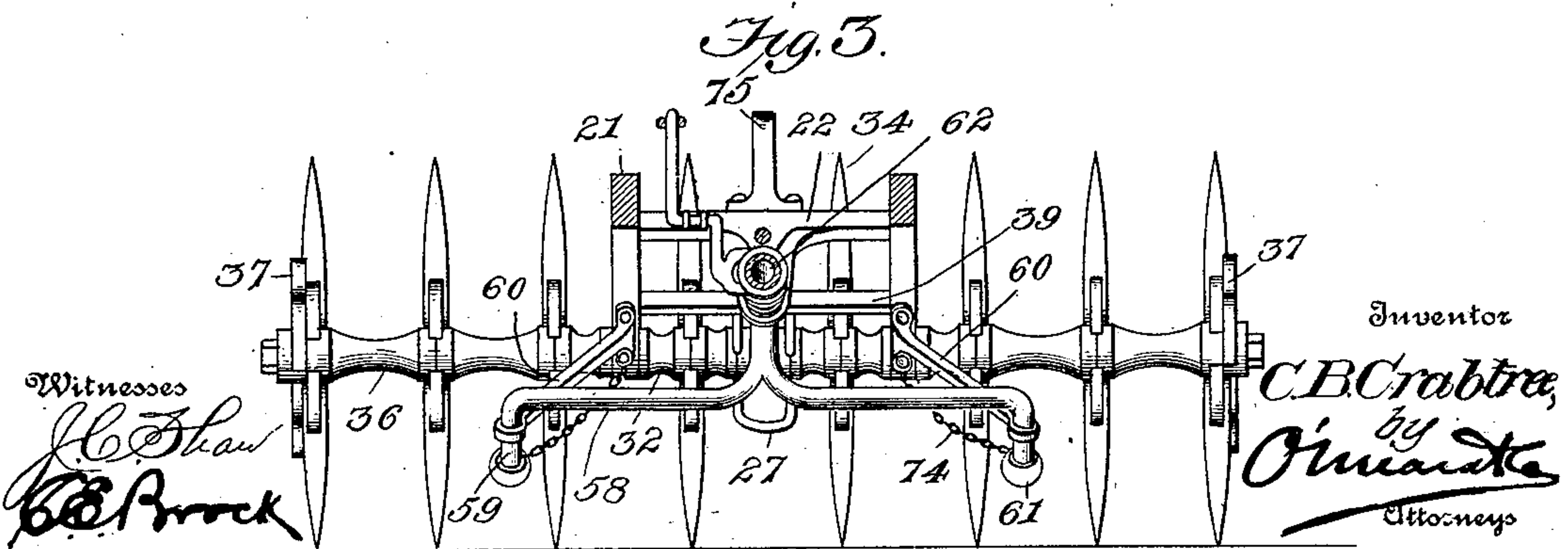
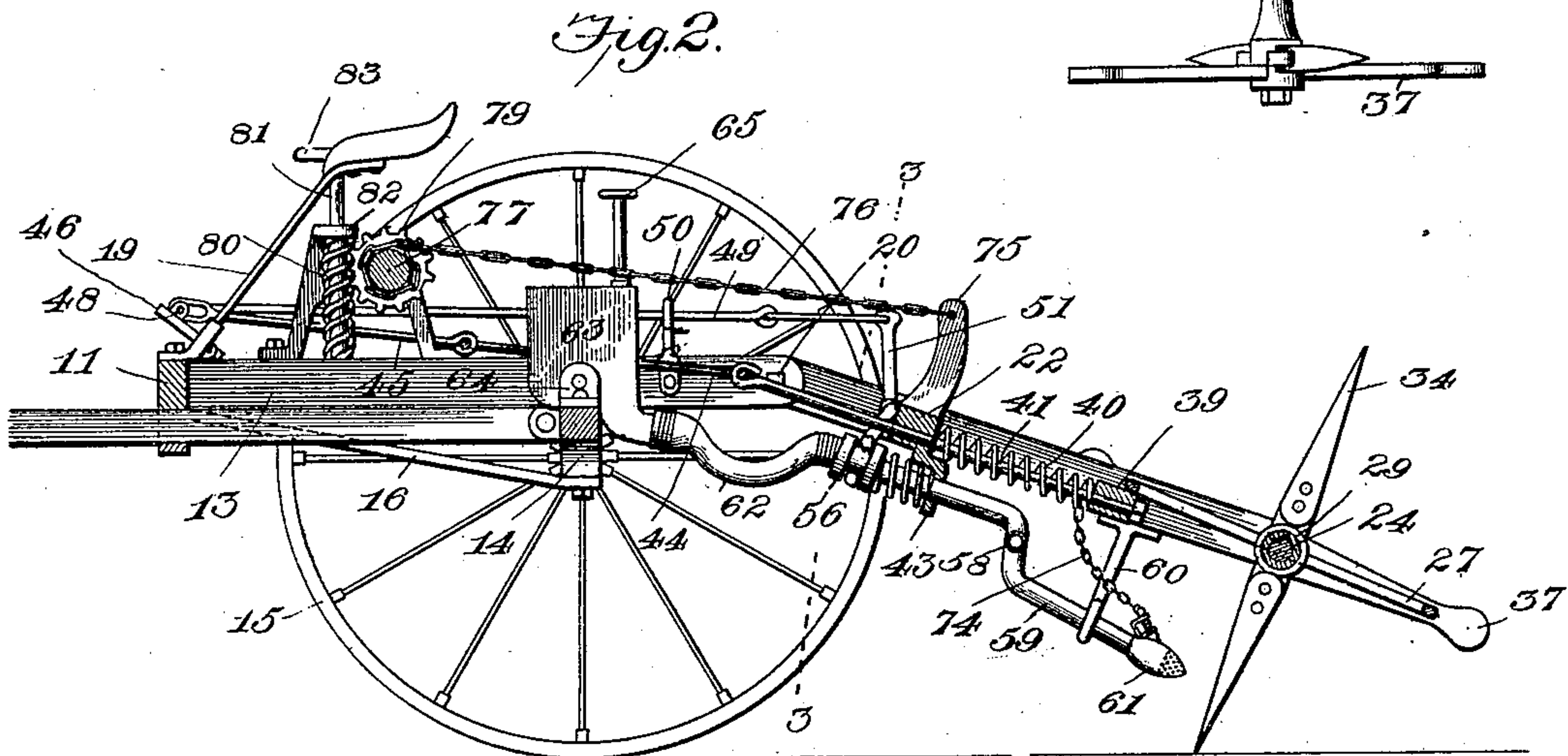
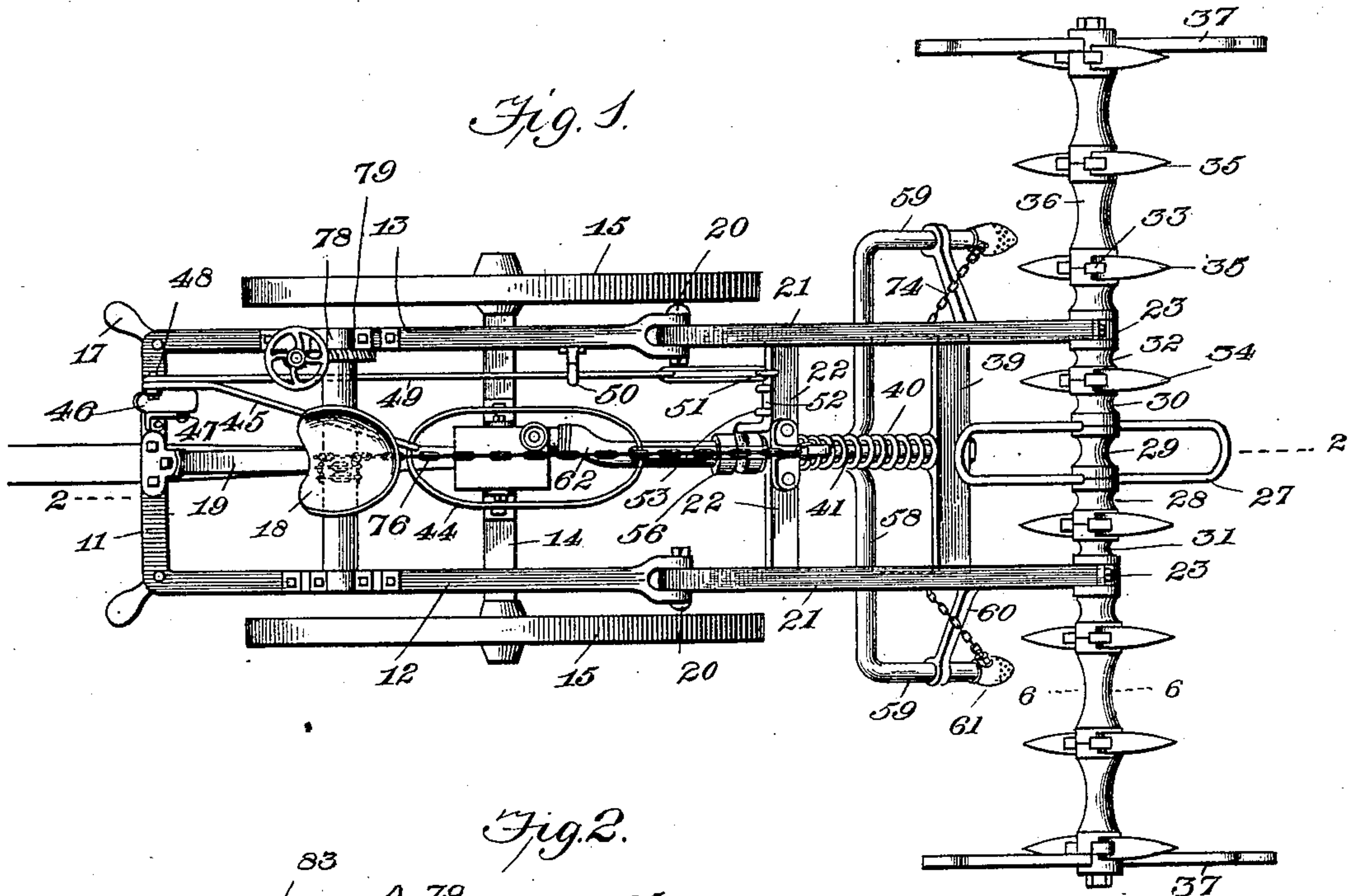
Patented Aug. 29, 1899.

C. B. CRABTREE.
STALK RAKE AND BURNER.

(Application filed Apr. 5, 1899.)

(No Model.)

2 Sheets--Sheet 1.



Witnesses

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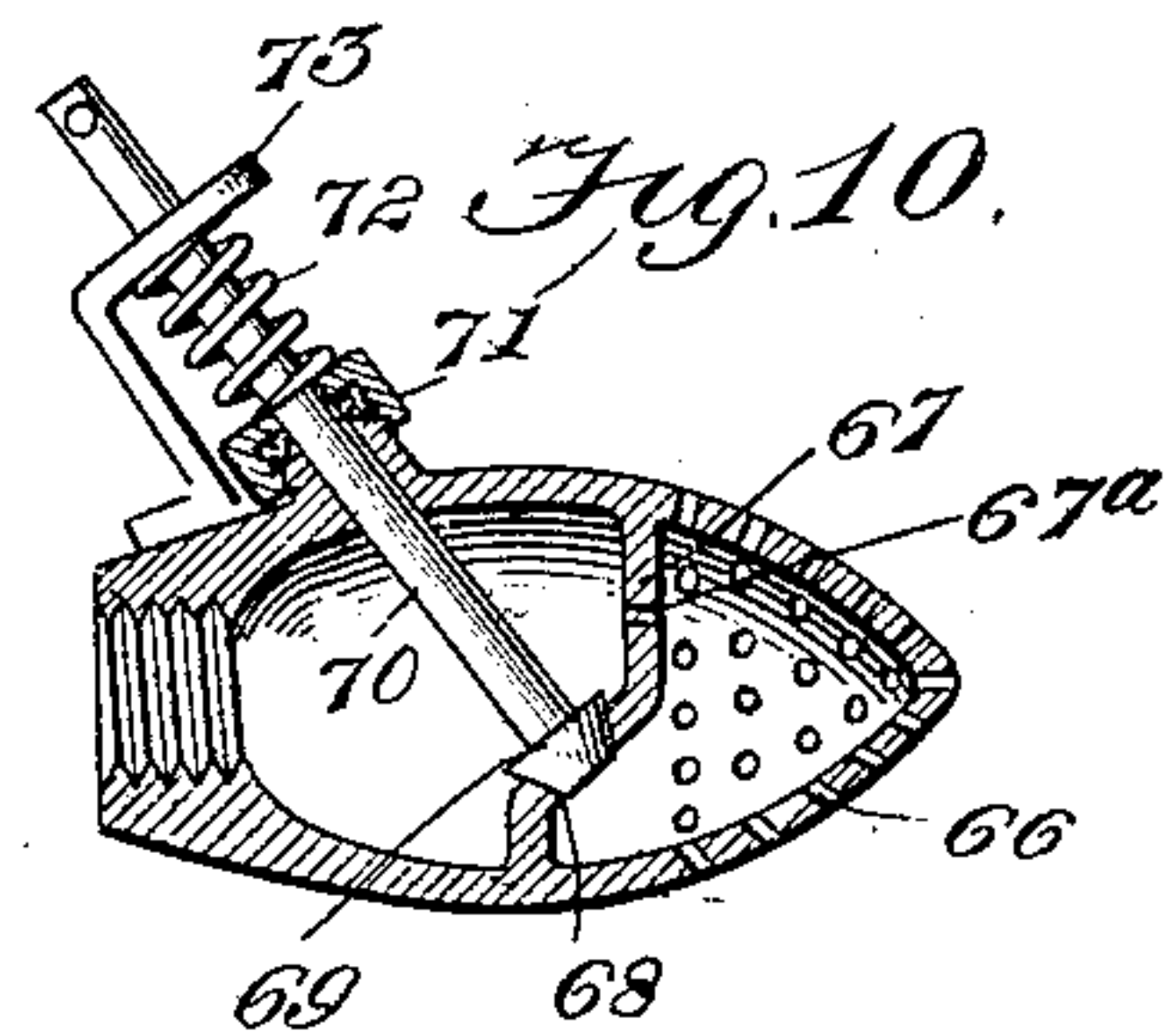
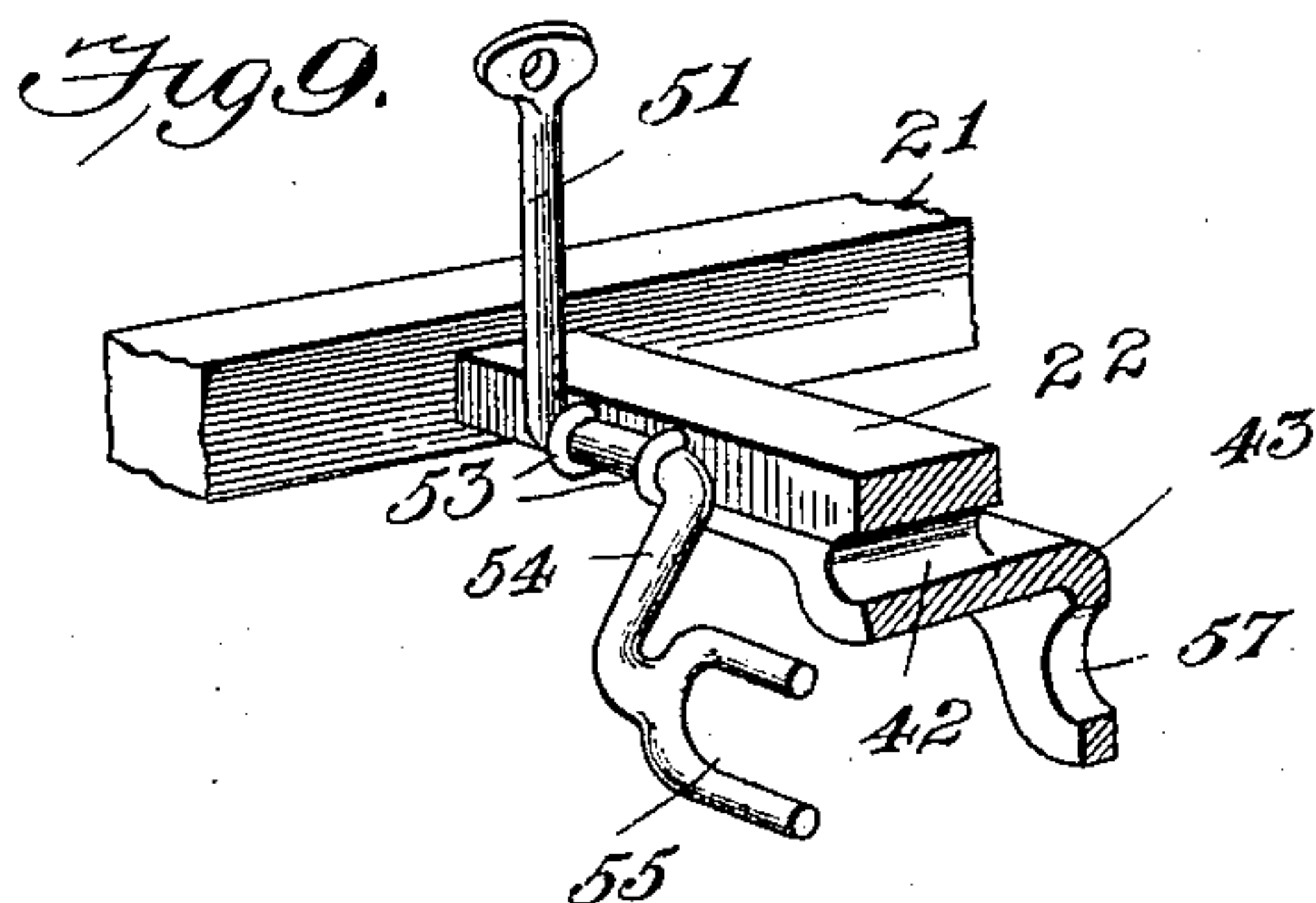
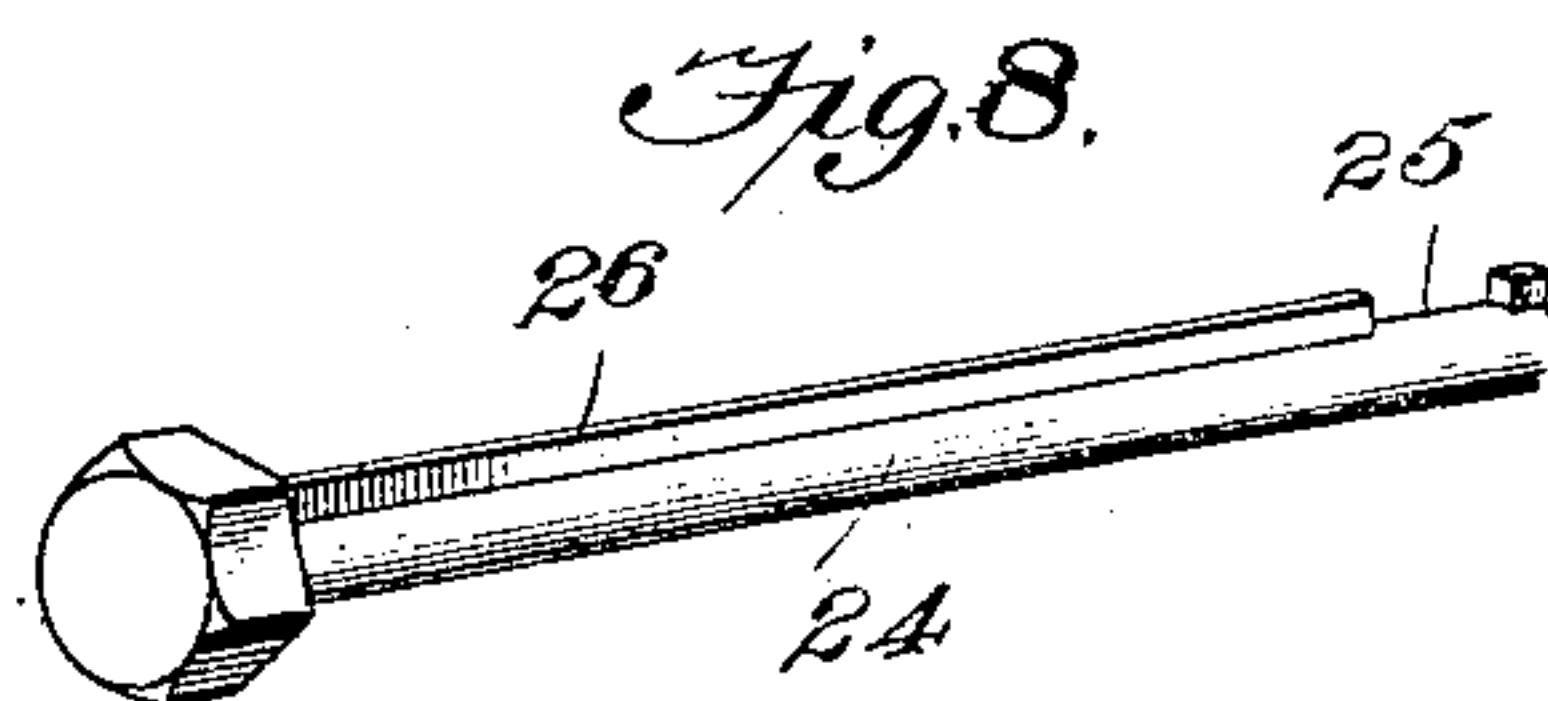
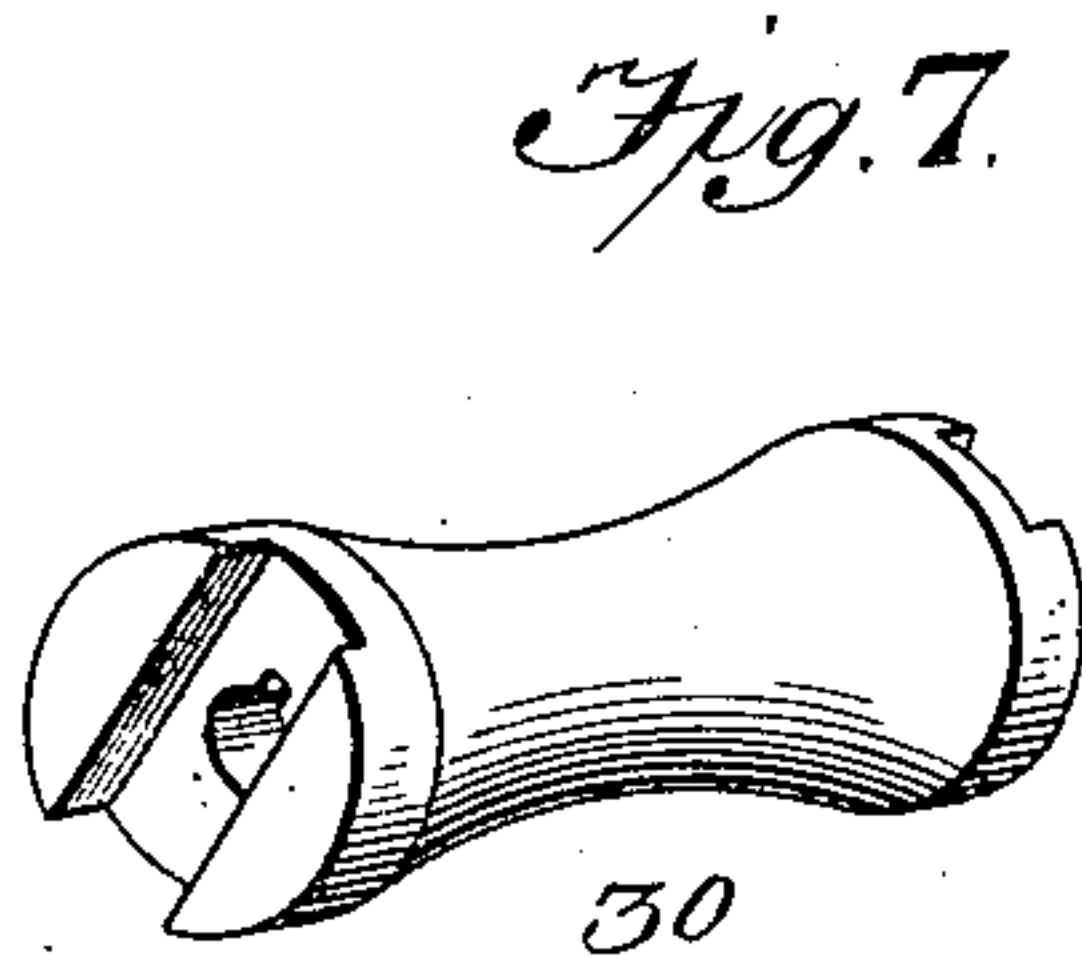
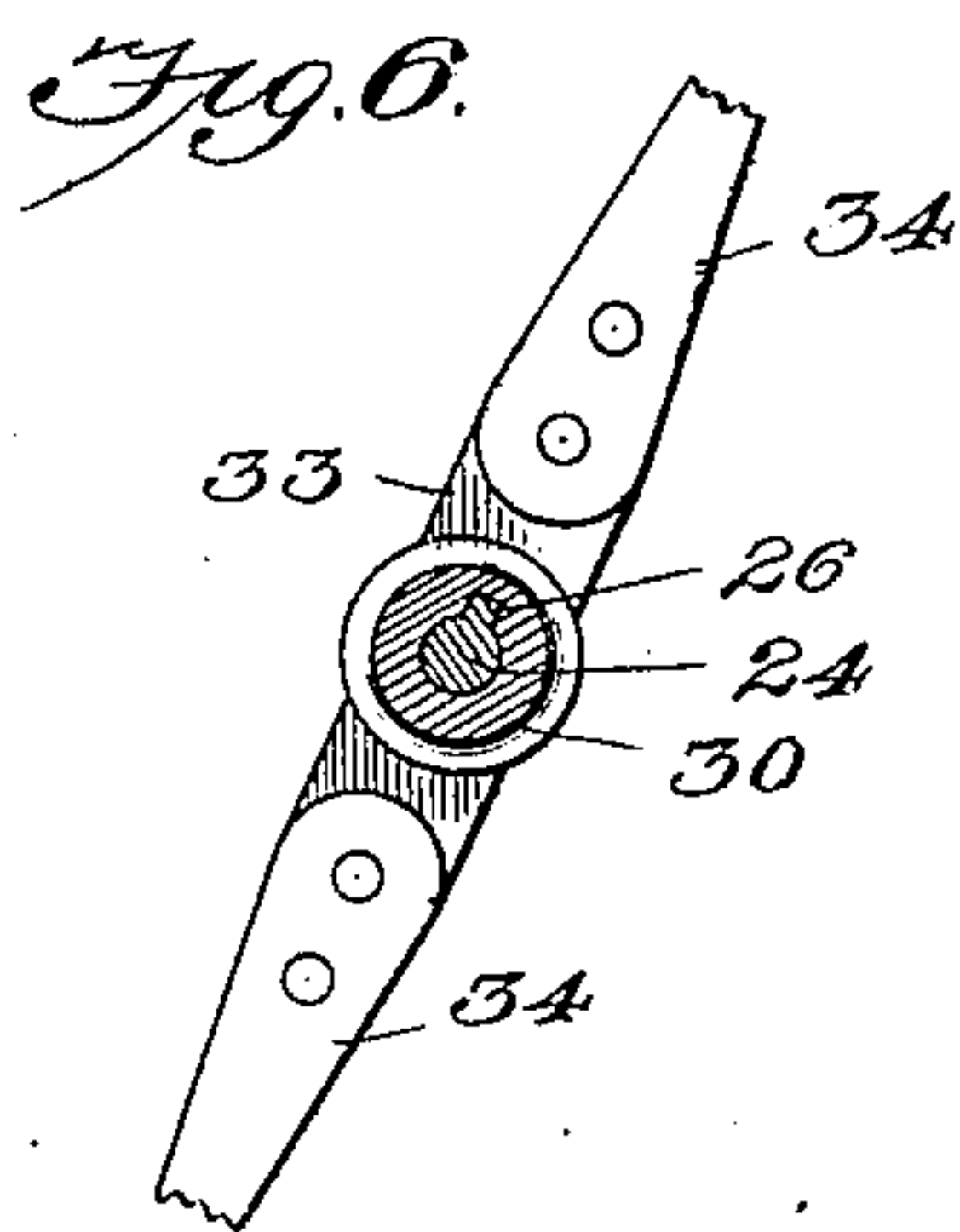
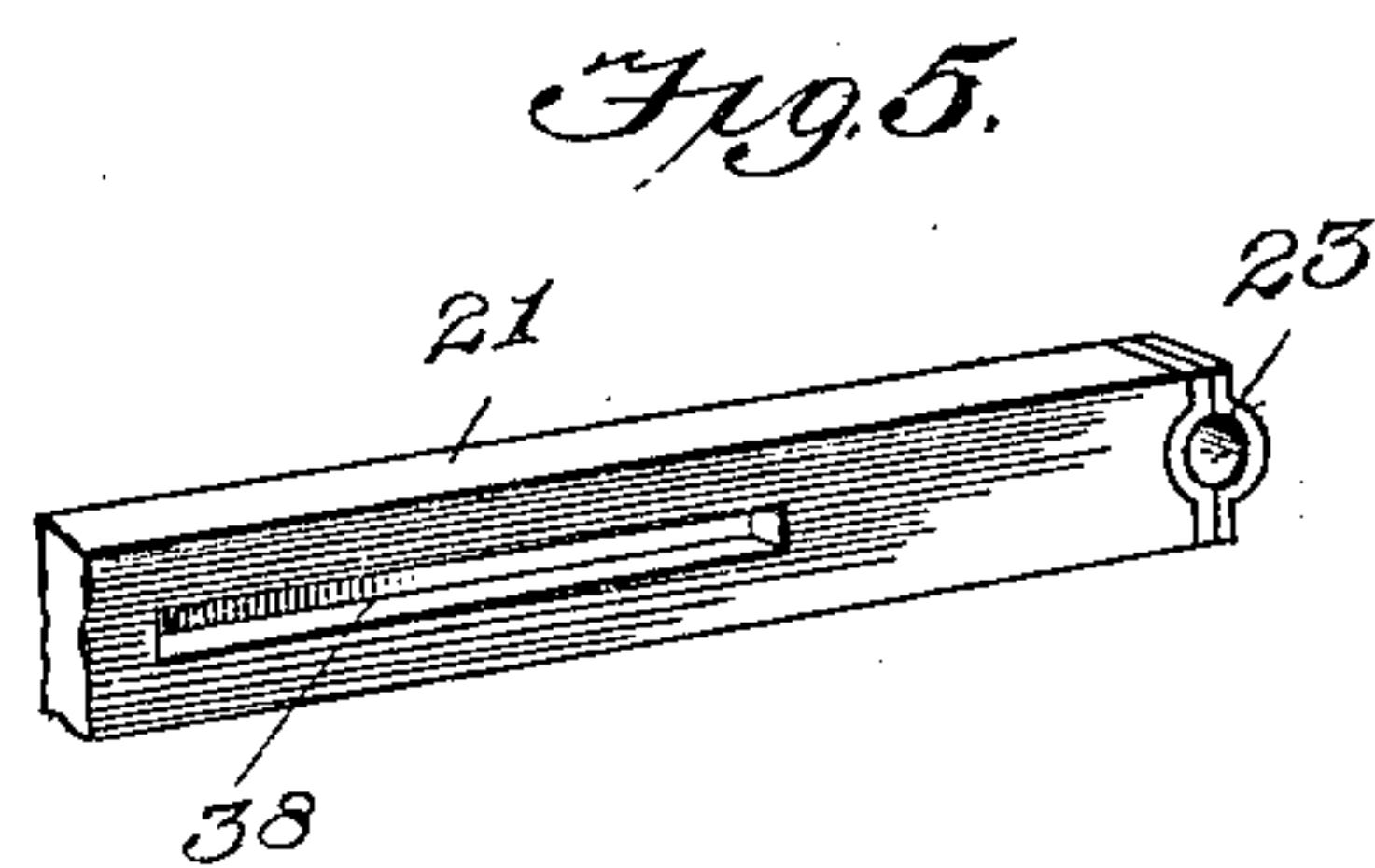
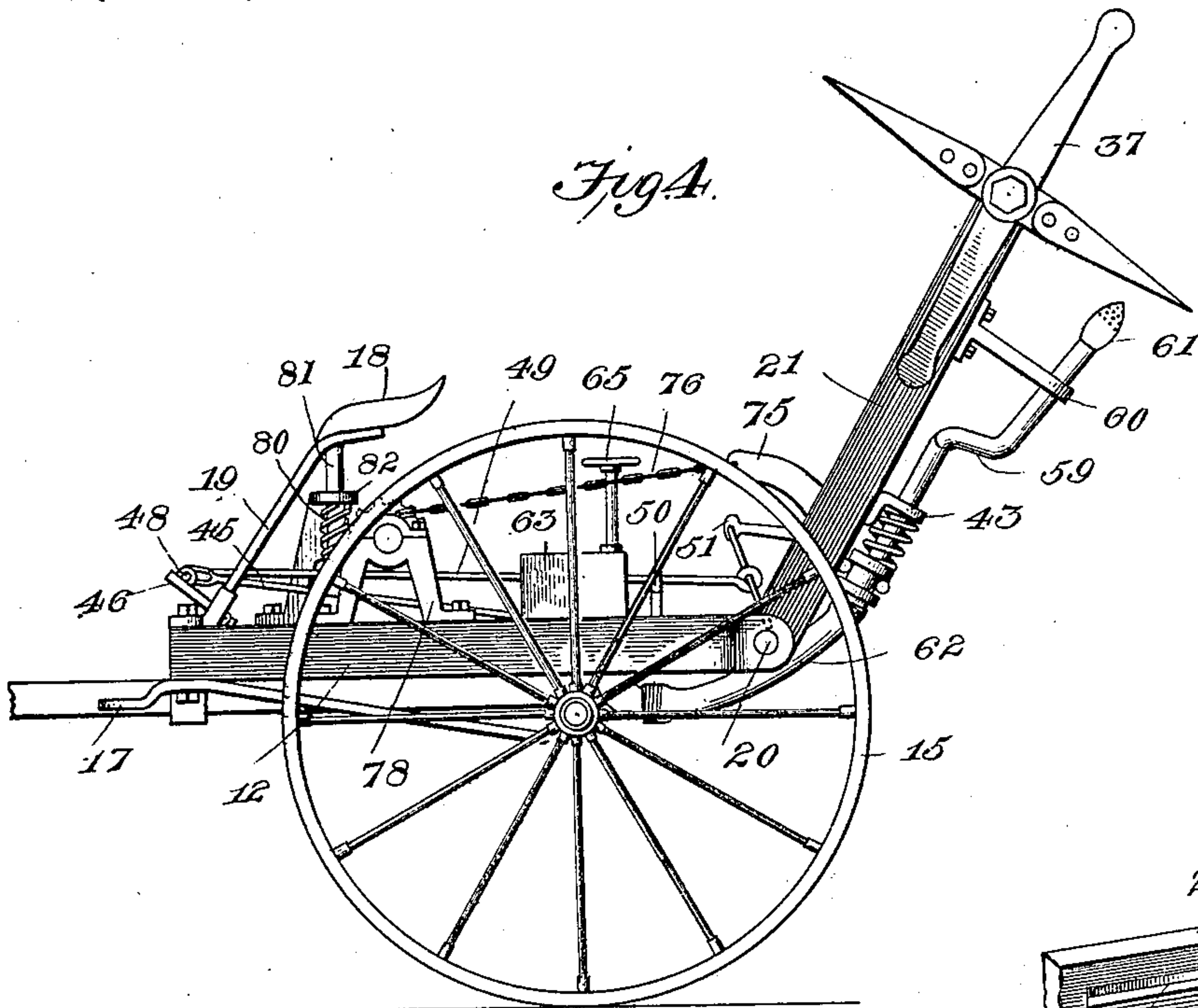
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

CHARLES B. CRABTREE, OF MANCHESTER, ILLINOIS.

STALK RAKE AND BURNER.

SPECIFICATION forming part of Letters Patent No. 632,045, dated August 29, 1899.

Application filed April 5, 1899. Serial No. 711,864. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. CRABTREE, a citizen of the United States, residing at Manchester, in the county of Scott and State of Illinois, have invented a certain new and useful Stalk Rake and Burner, of which the following is a specification.

My invention is in the nature of a machine for raking up corn or other stalks and setting fire to them; and the object of the invention is to provide a machine of this class of a generally simplified and improved construction.

With this object in view my invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described and afterward specifically pointed out in the appended claims.

In order to enable others skilled in the art to which my invention most nearly appertains to make and use the same, I will now proceed to describe its construction and operation, reference being had to the accompanying drawings, forming part hereof, in which—

Figure 1 is a top plan view of a machine constructed in accordance with my invention. Fig. 2 is a longitudinal vertical sectional view taken on the plane of the broken line 2 2 of Fig. 1. Fig. 3 is a transverse vertical sectional view taken on the plane of the broken line 3 3 of Fig. 2. Fig. 4 is a view in elevation of the left-hand side of the machine. Fig. 5 is a detail perspective view of rear portion of one of the bars to which the bearings of the revolving rake-shaft are secured, looking at the inner side of the bar. Fig. 6 is a detail transverse sectional view on the plane of the broken line 6 6 of Fig. 1. Fig. 7 is a detail perspective view of one of the rake-separating sleeves detached. Fig. 8 is a detail perspective view of one-half of the revolving rake-shaft. Fig. 9 is a similar view illustrating the forked lever forming part of the mechanism for thrusting the burners into the pile of stalks and turning on the oil. Fig. 10 is a detail sectional view of one of the burners.

Like numerals of reference mark the same parts in all of the figures of the drawings.

Referring to the drawings by numerals, 11 indicates the front cross-beam and 12 and 13 the side beams of the cart-body or main frame of the machine, which is supported on the axle 14 and wheels 15 and is braced by bars

16, extending from the axle to and beyond the front cross-beam, the extensions forming steps 17 to assist the driver in mounting to the seat 18, which is supported on a bar 19, secured to the center of the front cross-beam. All of these parts may be of any usual or well-known construction.

The rear ends of the side beams 12 and 13 are forked, and in these forks are pivoted on bolts 20 the side beams 21 of an extension-frame, connected near their forward ends by a cross-beam 22. On the rear ends of beams 21 are bearings 23 to receive a shaft 24, those portions of said shaft in the bearings being plain, as at 25, Fig. 8, while the rest of its length between and outside of the bearings is provided with a feather or rib, as at 26.

Centrally on shaft 24 is mounted a stop-frame 27, the bars of which are U-shaped and mounted in diametric grooves in sleeves 28, 29, and 30, splined on the shaft, similar sleeves 31 and 32 being splined on the shaft between sleeves 28 and 30 and similarly supporting diametric bars 33, on which are secured teeth 34, the detailed arrangement being shown in Fig. 6. The teeth 34, like similar teeth 35, mounted on shaft 24 outside of bearings 23, between similar splined sleeves 36, are at right angles to stop-frame 27, and at the ends of the shaft arms 37 are mounted in the same plane as the stop-frame and at right angles to the teeth.

The beams 21 are grooved in their inner sides, as shown at 38 in Fig. 5 and in dotted lines in Fig. 1, and in these grooves is slidably mounted a bar 39, normally pressed rearwardly in the path of stop-frame 27 by a spring 40, coiled around a rod 41, which is secured to the bar 39 and passes forward through a socket 42 in a casting 43, secured to the bottom of beam 22, as shown in Fig. 9. At its forward end rod 41 is connected by a link 44 to a rod 45, pivotally connected at its forward end to the forward end of a treadle 46, pivoted at its rear end to a bracket-arm 47, secured to the front cross-beam 11, a bolt 48 passing through a bracket mounted on treadle and through a slot in the forward end of rod 45. On the same bolt 48 is pivotally connected the forward end of a rod 49, which extends back through a bracket 50, secured to the side beam 13 and is connected at its

rear end to the upper end of the arm 51 of a rock-shaft 52, journaled in staples or eye-bolts 53, secured in beam 22. (See Fig. 9.) Another arm 54 extends downward and laterally from the shaft 52 and is forked at 55 to embrace a sleeve on the oil-pipe 56, said pipe being mounted to slide in a socket 57 in casting 43. (Best shown in Figs. 2 and 9.) The pipe 56 at its rear end branches laterally and downward, as at 58 and 59, the parts 59 passing loosely through supporting bracket-arms 60, depending from beams 21 and being provided with burners 61 at their ends. The pipe 56 is connected by a flexible hose 62 with the spout of an oil-can 63, mounted centrally on the axle 14 between brackets 64 and provided with a cut-off valve (not shown) operable by hand-wheel 65.

One of the burners is shown in detail in Fig. 10, it being provided with jet-holes 66 and a partition or diaphragm 67, in which are a small hole 67^a and a valve-seat 68. A valve 69, fitted to the seat 68, is secured at the inner end of a stem 70, which passes through the shell of the burner and a suitable stuffing-box 71 and has a spring 72 coiled around and secured to it, said spring having its outer bearing against a bracket 73, through which the stem also passes with a normal tendency to press the valve into its seat. The outer end of the stem is connected to the beam 21 by a chain 74 slightly longer than the distance between its point of attachment to the beam and the end of the stem.

To the cross-beam 22 is rigidly secured an arm or bracket 75, from the upper end of which extends a chain 76, secured at its forward end to a windlass-beam 77, journaled in bearings 78, secured to the side beams 12 and 13 and carrying a worm-wheel 79, which engages a worm 80 on a vertical shaft 81, journaled in an extension 82 of one of the bearings and operable by a hand-wheel 83 within easy reach of the driver when on his seat.

The construction of the invention will be readily understood from the foregoing description, and its operation may be described as follows: The machine, with the parts in the positions illustrated in Fig. 2, may be drawn along by horses, and the cut and down stalks will be raked into a pile by the teeth, as usual with horse-rakes. Before starting the machine the outlet-valve at the oil-can is set to pass a sufficient quantity of oil to fully supply the burners, which oil will pass into and fill the pipes to the valve-seat in the burner and a small quantity will pass through the hole 67^a in the diaphragm to permit the burner to be lighted. As soon as a sufficient quantity of stalks are piled up by the rake the driver presses his foot upon the treadle 46 until the bolt 48 passes to the forward end of the slot in the rod 45. During this action the treadle draws rod 49 forward, rocking the shaft 52 and causing its forked arms to slide the oil pipe and burners backward, forcing the burners into the pile of

stalks. This movement draws the chains 74 taut and withdraws the valves 69 of the burners from their seats, permitting of a full supply of oil to the burners, so that they will blaze fiercely and ignite the stalks. The further pressure upon the treadle draws the rod 45 forward, which through the medium of link 44 and rod 41 draws bar 39 forward out of the path of the stop-frame 27 of the rake and tips the rake a half-revolution, leaving the ignited stalks behind and bringing the opposite rakes into play to gather another pile. Upon the release of the treadle the burner-flame will be reduced by the closing of the valves and the bar 39 sprung back to position to engage the opposite end of the stop-frame.

When it is desired to transport the machine from one place to another, the swinging frame carrying the rake, burners, &c., can be raised on the bolts 20 as pivots to a position such as illustrated in Fig. 4 by operating hand-wheel 83 to turn the worm-shaft 81 and wind the chain 76 on beam 77, drawing bracket 75 forward and raising the rear frame, the worm and worm-wheel arrangement holding it in any position to which it may be raised, it being possible to unwind the chain only by reversing the rotation of the hand-wheel.

It will be apparent that a driver mounted on this machine can gather piles of stalks as fast as they are raked up, thereby saving the time and expense of the additional labor necessary to fire the piles when gathered by an ordinary rake.

While I have illustrated and described what I consider to be the best means now known to me for carrying out my invention, I do not wish to be understood as restricting myself to the exact forms and constructions shown, as many slight changes therein or variations therefrom might suggest themselves to the ordinary mechanic, all of which would be clearly included within the limit and scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination in a machine for raking and burning stalks, of a rake, a slidable oil-pipe mounted in front thereof, and carrying a burner, a valve in the burner held normally closed by a spring, and means whereby the valve is opened when the pipe and burner are moved rearward toward the pile of stalks, substantially as described.

2. The combination in a machine for raking and burning stalks, of a rake, a slidable oil-pipe mounted in front thereof, a burner at the rear end of the pipe, a valve in the burner normally held closed and having a stem projecting forward, and a chain connecting the valve-stem with the frame of a length to withdraw the valve from its seat when the burner is moved rearward, substantially as described.

3. The burner herein described provided with jet-holes and a diaphragm with valve-seat and small vent, in combination with the

valve, its stem, the spring coiled around it, the frame of the machine, the chain connecting the stem with the frame and means for moving the burner rearwardly substantially as described.

4. In a machine for raking and burning stalks, the combination with the revolving rake, its tripping mechanism, the slidable oil pipe and burners and the treadle, of connections between the treadle and the rake-tripping mechanism, and burners respectively, constructed to permit the rake to remain locked during the first portion of rearward movement of the burner and afterward by the continuation of the same movement of the treadle, to release said tripping mechanism, substantially as described.

5. In a machine for raking and burning stalks, the combination with the revolving rake, its tripping mechanism, the slidable burner, a treadle and a bracket on the treadle, of connections between the treadle and the tripping mechanism ending with a rod having a slot in its forward end, connections between the burner and treadle, ending with a rod having a round hole in its forward end, and a bolt passing through the treadle-bracket and the round hole and slot of the two rods, substantially as described.

6. In a machine for raking and burning stalks, the combination with the main frame, a rearwardly-extended frame pivoted thereto and a rake carried by said extension-frame, of an oil-can carried on the main frame, an oil pipe and burners carried on the extension-

frame and a flexible pipe or hose connecting the oil can and pipe, substantially as described.

7. In a machine for raking and burning stalks, the combination with the main frame, a rearwardly-extended frame pivoted thereto and a rake carried by said extension-frame, of an oil-can carried on the main frame, an oil pipe and burners carried on the extension-frame, a bracket projecting above the extension-frame, a windlass-beam journaled on the main frame, worm-gear for turning the beam, a chain connecting the beam with the bracket, substantially as described.

8. In a machine for raking and burning stalks, the combination with the main frame, and rearwardly-extending frame pivoted thereto, of means for tilting the extension-frame carried by the main frame, and an oil-can on the main frame, an oil pipe and burners slidably mounted on the extension-frame, a flexible pipe connecting the oil can and pipe, a rock-shaft, journaled on a cross-beam, of the extension-frame, a downward-projecting arm thereon having forks embracing the oil-pipe, an upward-projecting arm on said rock-shaft, a treadle pivoted at its rear end to the main frame and rod connections between the upper end of the upper arm of the rock-shaft and the forward end of the treadle, substantially as described.

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Witnesses:

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