

No. 764,567.

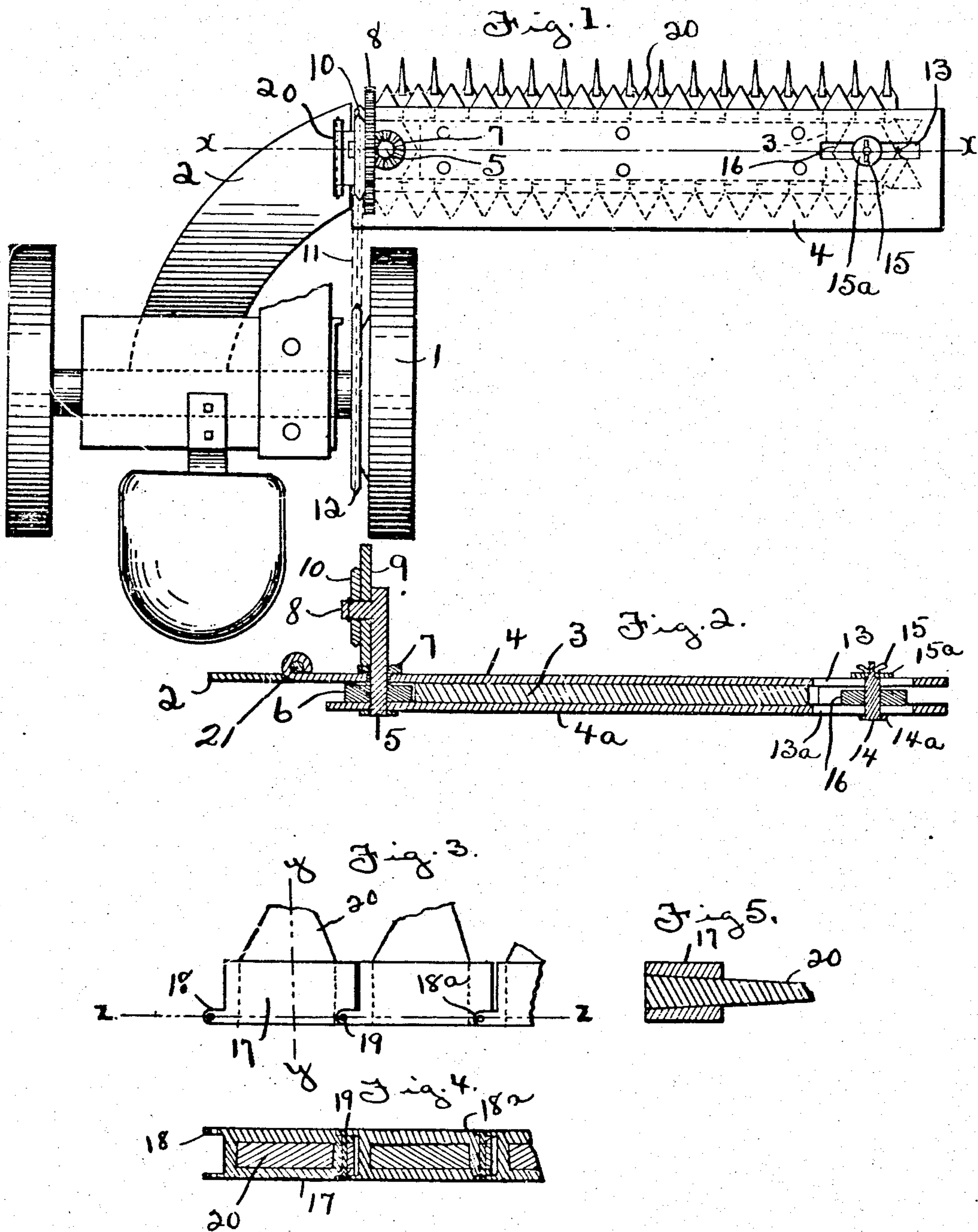
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ENDLESS CHAIN SICKLE FOR HEADERS, MOWERS, &c.

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NO MODEL.



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ENDLESS-CHAIN SICKLE FOR HEADERS, MOWERS, &c.

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To all whom it may concern:

Be it known that I, HENRY S. EKEL, a citizen of the United States, residing at Stockton, in the county of San Joaquin and State of California, have invented certain new and useful Improvements in Endless-Chain Sickles for Headers, Mowers, &c.; and I do declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention has relation to an endless cutting apparatus for headers, mowers, and the like; and the novelty consists in the peculiar combination, arrangement, and adaptation of the various parts for service.

The object of my invention is to produce a cutting device in which are employed a series of movable independent cutters forming when in operation an endless-chain sickle.

The invention further consists in the peculiar construction of said cutters and in the devices for operating and retaining them in the proper position, all of which will be fully understood from the following description and claims when taken in connection with the accompanying drawings.

In order that my invention may be clearly understood and readily carried into effect, I will now proceed, aided by the accompanying drawings, fully to describe the same.

Referring to the drawings, Figure 1 is a plan view of a mowing-machine with my improved endless-chain sickle attached. Fig. 2 is a sectional view shown through a line $x x$ of Fig. 1. Fig. 3 is a top plan view of an enlarged section of my improved endless-chain sickle. Fig. 4 is a sectional view through a line $z z$ of Fig. 3. Fig. 5 is a sectional view through a line $y y$ of Fig. 3.

Similar numerals of reference indicate corresponding parts in the several views.

1 designates the driving-wheel of the machine.

2 designates a coupling-bar adapted to vibrate on the axle of the machine.

3 is a finger-bar hereinafter described. 50

4 and 4^a are plates attached to the top and bottom, respectively, of the finger-bar 3 and extending over the edges thereof enough to inclose hinge-blocks 17, hereinafter described, at the front, the pulley 6, hereinafter described, at the inner end, the pulley 16 at the outer end, and the blocks 17 and knives 19, hereinafter described, at the back. 55

5 is a standard located in and projecting upward through the overhanging ends of the plates 4 and 4^a at the inner end of the finger-bar 3. 60

6 is a pulley rotating around the standard 5 between the plates 4 and 4^a.

7 is a small spur-wheel forming a component part of the pulley 6 and rotating around the standard 5 and resting on the top of the plate 4. 65

8 is a spur or axle composing a component part of the standard 5 and projecting at right angles therefrom. 70

9 is a spur-wheel larger than the spur-wheel 7, rotating on the axle 8 and coacting with the spur-wheel 7.

10 is a small sprocket-wheel forming a component part of the spur-wheel 9 and rotating on the axle 8. 75

11 is a link chain connecting the sprocket-wheel 10 to the sprocket-wheel 12, hereinafter described. 80

12 is a sprocket-wheel securely attached to the driving-wheel 1 and rotating in unison with said driving-wheel.

13 and 13^a are slots in the plates 4 and 4^a, respectively, in the parts overlapping the finger-bar at the outer end. 85

14 is a pin or axle having a flange at the bottom. Said axle extends upward through the slots 13^a and 13.

15 is a set-screw acting on the top of the axle 14. 90

15^a is a washer fitting over the top of the axle 14 and extending across the slot 13. The set-screw 15 screws down against this washer.

16 is a pulley rotating between the plates 4 and 4^a on the axle 14.

17 designates knife-blocks linked together by means of the lips 18 of one block fitting into corresponding sockets 18^a in the other and secured therein by means of pins 19.

20 designates sickle-knives beveled into the knife-blocks, as shown in Fig. 5. The pins 19 also pass through slots in said knives, and this tends to hold them more securely in the blocks.

21 is a hinge by which the cutting-gear is fastened to the coupling-gear.

The mode of operating my improved endless sickle is as follows: The blocks 17 are all linked together, with a sickle-knife fastened in each block. This endless-chain sickle is placed around the pulleys 5 and 16. The chain is then tightened by forcing the pulley 16 outward by means of the slots 13 and 13^a and set-screw 15. Said set-screw is then tightened. The machine is pulled forward by any power desired. The driving-wheel 1 revolves the sprocket-wheel 12, which in turn sets in motion the sprocket-wheel 10 by means of chain 11. This rotates the spur-wheel 9, the teeth of which coact with the teeth of the spur-wheel 7. Said spur-wheel 7 sets in motion the pulley 6, and thus the chain-sickle is pulled continuously around. The pulley 16 is rotated by the pull of the chain.

Of course in connection with my improved endless-chain sickle I will use the ordinary guards and other apparatus now in use on grass-cutting machines.

In practice a foot-lever may be suitably attached near the seat of the machine for the purpose of raising and lowering the cutting apparatus by means of the hinge 17.

Although I have shown my invention in connection with a mowing-machine, it can be used in all grass or grain cutting machines.

I have shown the pulleys 6 and 16 as being six-sided in shape. In practice, however, they may be any shape adaptable to the size of the blocks 15.

Any ordinary divider will of course be used where my invention is operated in connection with a mowing-machine. I have not shown this in the drawings, as I wished to simplify my description as much as possible.

In the event of the endless chain becoming worn out to such an extent that it will become loose or sag or when it is found necessary to regulate the tension of the same in any way I have provided the tightening device 13 13^a 14^a 15 15^a.

I have entered into a detailed description of the construction and relative arrangement of parts embraced in the present and preferred embodiment of my invention in order to impart a full, clear, and exact understanding of the same. I do not desire, however, to be

understood as confining myself to such specific construction and arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my claims.

Having thus described my invention, what I claim as new and useful, and desire to secure by Letters Patent, is

1. The combination of an endless-chain sickle constructed as follows: of the blocks 17 provided with the lips 18 at one end and corresponding sockets at the other, the lips of one block being adapted to fit into sockets of the other, beveled slots in said blocks, sickle-knives fitted into said slots, pins 19 passing through said sickle-knives and securing the lips in the sockets and means for rotating said endless-chain sickle in a grass or grain cutting machine, all as set forth.

2. In a grass-cutting or grain-cutting machine the combination with the driving-wheel of a suitable coupling-frame, the finger-bar 3, the plates 4 and 4^a attached to said finger-bar, overlapping it in the manner described, the standard 5 located in and extending upward through the overlapping ends of the plates 4 and 4^a at the inner end of the finger-bar, the projecting axle 8 forming a component part of said standard, the pulley 6 rotating around the standard 5 between the plates 4 and 4^a, the spur-wheel 7 forming a component part of the pulley 6 and rotating around the standard 5 above the plate 4, the spur-wheel 9 rotating on the axle 8 and coacting with the spur-wheel 7, the small sprocket-wheel 10 forming a component part of the spur-wheel 9 and rotating on the axle 8, the large sprocket-wheel 12 forming a component part of and rotating in unison with the driving-wheel, the chain 11 engaging with and connecting the said sprocket-wheels 10 and 12, the slots 13 and 13^a in the outer overlapping ends of the plates 4 and 4^a respectively, the axle 14 acting through said slots, the pulley 16 rotating on said axle, the tightening device 15 and 15^a the hinge 21 joining the plate 4 to the coupling-bar, and an endless-chain sickle adapted to revolve on the pulleys 6 and 16, all as set forth.

3. In a device of the type set forth, a finger-bar having plates attached to its top and bottom, a standard passing through the plates, with a pulley mounted thereon and lying between the plates, said pulley carrying a spur-wheel lying on top of the upper plate, a spur-wheel carried by the standard meshing with the first-named spur-wheel, means for driving the second-named spur-wheel, an adjustable pulley and a chain-sickle operating over said pulleys.

4. In a device of the type set forth, a pair of spaced plates with pulleys mounted therebetween, a standard on which one of said pul-

leys is mounted, a spur-wheel carried by said pulley and resting on the upper plate, a spur-wheel on said standard meshing with the first-named spur-wheel and extending at right angles thereto, means for driving said first-named spur-wheel and a chain-sickle operating over said pulleys.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY S. EKEL.

Witnesses:

PERCY S. WEBSTER,
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