(No Model.)

J. W. CYPHER.

ATTACHMENT FOR MOWING MACHINES.

No. 590,388. Patented Sept. 21, 1897.

Fig: 1.

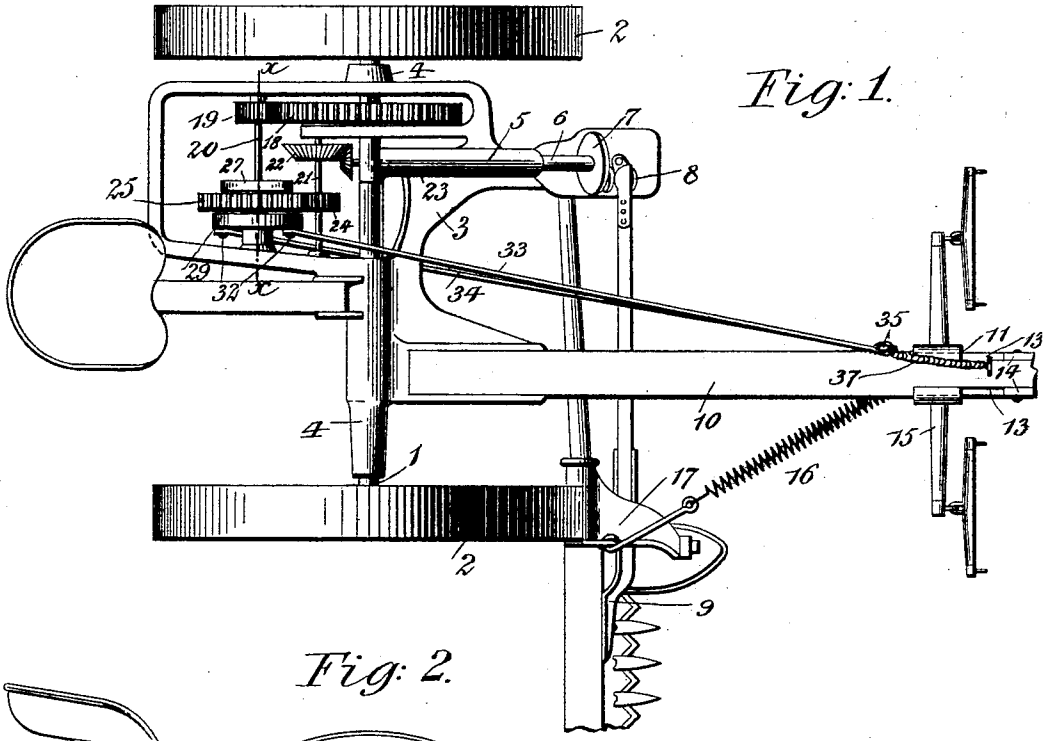


Fig: 2.

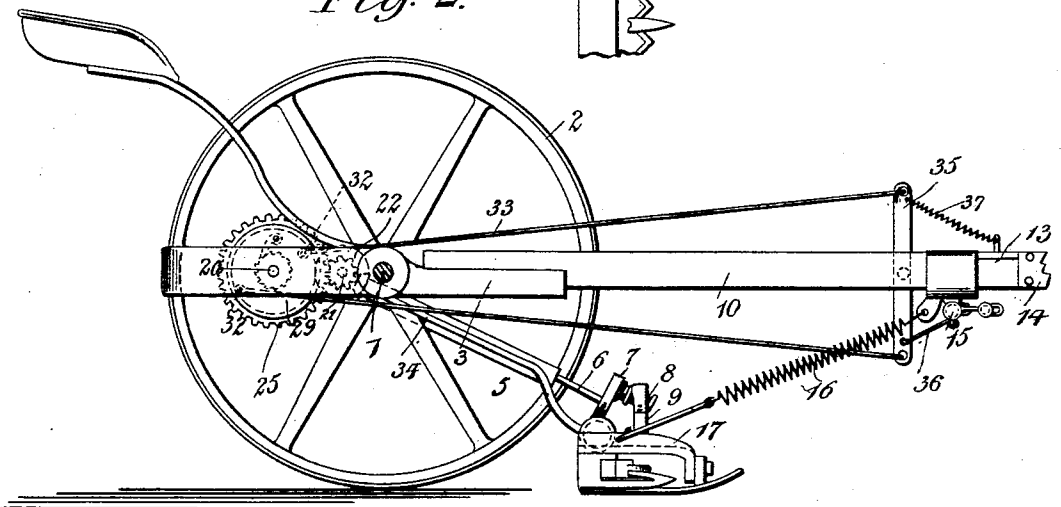


Fig: 3.

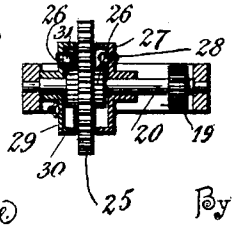
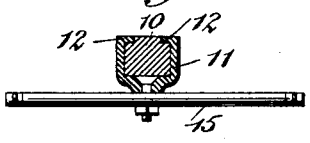


Fig: 4.



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UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR MOWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 590,388, dated September 21, 1897.

Application filed November 28, 1896. Serial No. 613,845. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. CYPHER, a citizen of the United States, residing at Benton, in the county of Franklin and State of Illinois, have invented a new and useful Attachment for Mowing-Machines, of which the following is a specification.

This invention relates to improvements in mowing-machines whereby the cutter is put in motion before the drive-wheels are turned; and the objects of the invention are, first, to take up the slack in the gearing and get the cutter in motion before the drive-wheel is put in motion; second, to avoid backing the team when in heavy or tangled grass when starting up, and, third, to save the strain on the gearing caused by the choking of the machine when it is started in motion.

With these objects in view the invention consists of the several details of construction and combination of parts hereinafter fully described and particularly pointed out in the claim.

In the drawings, Figure 1 is a plan view of a mowing-machine embodying my invention. Fig. 2 is a side elevation with one of the drive-wheels removed. Fig. 3 is a vertical transverse section on the line *x x* of Fig. 1. Fig. 4 is a sectional view of the tongue and the sliding plate to which the doubletree is attached.

Similar reference-numerals indicate similar parts in the several figures.

1 indicates the axle, and 2 the drive-wheels, which are connected to the axle to turn it when moving forwardly and to turn on it when moving rearwardly.

3 indicates a frame which is provided with sleeves 4 at opposite sides thereof, which sleeves fit loosely on the axle.

5 indicates a tubular bearing which is integral with the frame 3 and supports the shaft 6, which is provided at its lower end with a disk 7, to which a wrist-pin 8 is secured, and which wrist-pin is connected to the cutter-bar 9 to operate the latter in the usual manner.

10 indicates the tongue, which is secured at its rear end to the frame 3.

11 indicates a plate which is bent to fit under the bottom of the tongue and up its opposite sides, and is then bent over to form lips 12, which are supported in grooves 13, formed in the upper face of the tongue.

14 indicates wear-plates at each end of each of the grooves 13 to protect the tongue from unnecessary wear caused by the sliding plate.

15 indicates the doubletree, which is pivotally connected to the plate 11 below the tongue, and from the doubletree the side-draft spring 16 extends and is connected to the cutter-bar brace 17.

18 indicates a gear-wheel fast on the axle 1, and this gear-wheel meshes with a pinion 19, which is fast on the shaft 20, journaled in the frame 3.

21 indicates a shaft which is loosely mounted in the frame 3 and carries a beveled gear 22, which meshes with a beveled pinion 23 on the upper end of the shaft 6. The shaft 21 also carries a pinion 24, which meshes with a gear 25, loosely mounted on the shaft 20. The hub of this gear 25, on each side of the gear, is provided with ratchet-teeth 26, and on the side of the gear 25 nearest to the pinion 19 a flanged disk 27 is secured on the shaft 20 and provided with one or more spring-actuated dogs 28, which engage the ratchet-teeth on the hub.

29 indicates a disk which is loosely mounted on the shaft 20 and provided with a cap or hood 30, which extends over the hub of the gear 25 and is provided with one or more spring-actuated dogs 31, which engage the ratchet-teeth 26 in the hub of the gear 25. The disk 29 is provided with oppositely-disposed wrist-pins 32. From these wrist-pins rods 33 and 34 lead, respectively, to the opposite ends of a vertical bar 35, which is pivoted midway its length to the tongue 10. The rods 33 and 34 are pivotally connected to the vertical bar 35.

36 indicates a rod connected at one end to the lower end of the bar 35 and at its opposite end to the doubletree 15.

37 indicates a spring connected at one end to the upper end of the vertical bar 35 and at its opposite end to the tongue 15.

The operation of the machine is as follows: When draft is applied to the doubletree 15, the sliding plate 11 will move forward on the tongue 10, and consequently the doubletree will also move forward without applying any draft to the tongue until the plate engages the

ends of the grooves 13. This sliding movement of the doubletree will cause the vertical bar 35 to rock on its pivot, and the rod 34 will be drawn forward, while the rod 33 will be moved in the opposite direction, and this will cause the disk 29 to turn on the shaft 20, and by means of its ratchet-and pawl connection to the gear 25 will turn the latter and thus transmit movement to the cutter through the medium of the pinion 24, beveled gears 22 and 23, shaft 6, and wrist-pin 8. The cutter will thus be given several movements before the drive-wheels 2 begin to turn, and any grass that may be projecting up between the cutter-blades will be cut off before the machine begins to move forward and no choking will occur. As soon as the plate 11 reaches the limit of its movement, the machine will begin to move forward, and movement will then be given to the cutter through the medium of the gear 18, the pinion 19, gear 25, which latter will now be turned by the pawl carried by the flanged disk 27, pinion 24, and beveled gears 22 and 23. When the gear 25 is turned by the pawl carried by the flanged disk 27, the ratchet-teeth on the opposite hub will move over the pawl carried by the cap or hood 30 on the disk 29, and the latter will therefore remain stationary on the shaft 20, and when the gear 25 is turned by the pawl carried by the cap 30 the teeth on the opposite hub will move over the pawl carried by the flanged disk 27. It is of course to be understood that the sliding movement of the doubletree will be so limited that the forward movement of the machine will begin before the rod 34 has been moved forward to its extreme limit, and thereby avoid any strain on the rod 34 and the disk 29. As soon as the horses are stopped, the side-draft spring 16 will return the doubletree and the sliding plate 11 to the rear end of the grooves 13, and this movement, aided by the spring 37, will cause the rod 35 to again assume its vertical position and turn the disk back to be in position to again operate on the gear 25 when the horses start again.

It will be understood that changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit of sacrificing any of the advantages of this invention.

Having thus described the invention, what I claim is—

In a mowing-machine, the combination with the axle and the cutter-bar, of a shaft 20 supported to rotate in the rear of the axle, a gear loosely mounted on the shaft, a second shaft 21 supported to rotate between the axle and the shaft 20, a pinion fast on the shaft 21 and meshing with said gear, a bevel-gear on the shaft 21, suitable connections between the bevel-gear and the cutter-bar whereby the latter is reciprocated when the former is turned, a disk loosely mounted on the shaft 20 adjacent to the gear, a ratchet-and-pawl mechanism between the disk and gear, oppositely-disposed wrist-pins on the disk, a vertically-extending bar pivoted to the tongue of the machine, rods connecting the respective wrist-pins with the upper and lower ends of said bar, a doubletree supported to have a limited movement longitudinally of the machine, a suitable connection between the doubletree and the lower end of the pivoted vertical bar, and springs to return the doubletree and rods to their normal positions, substantially as described.

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