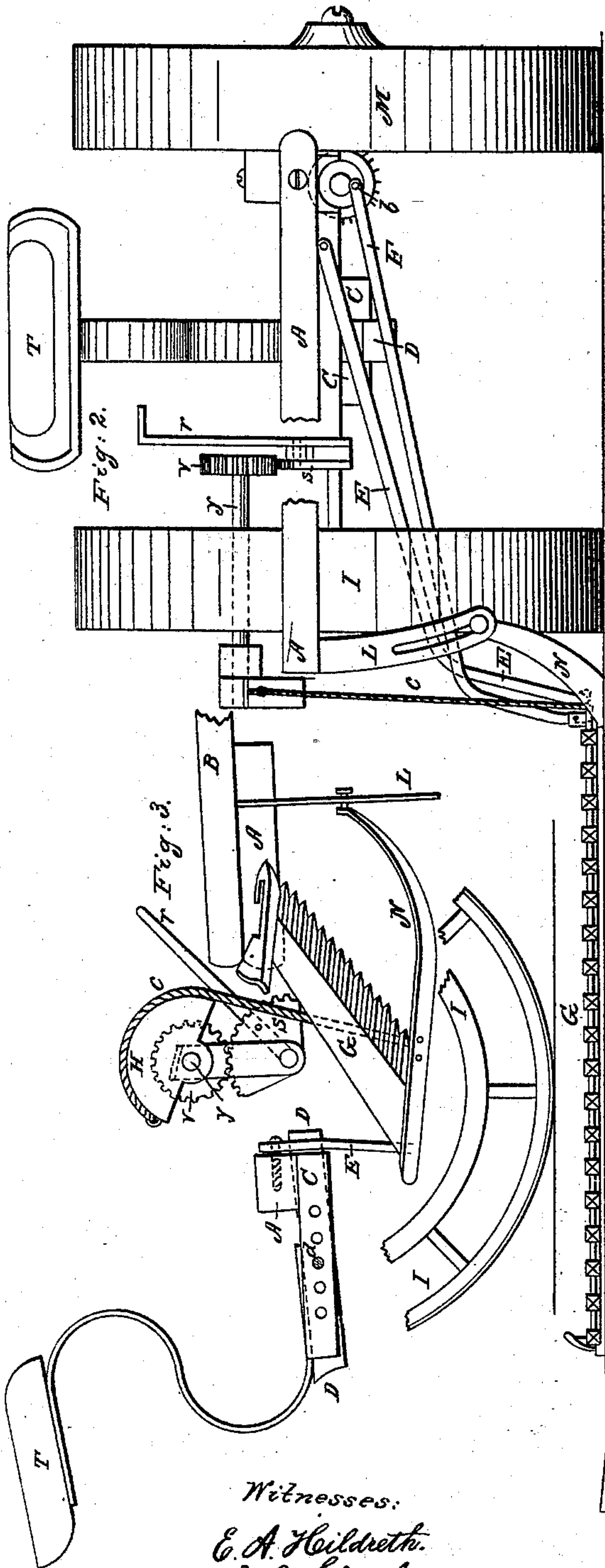


G. E. BURT.
Mowing Machine.

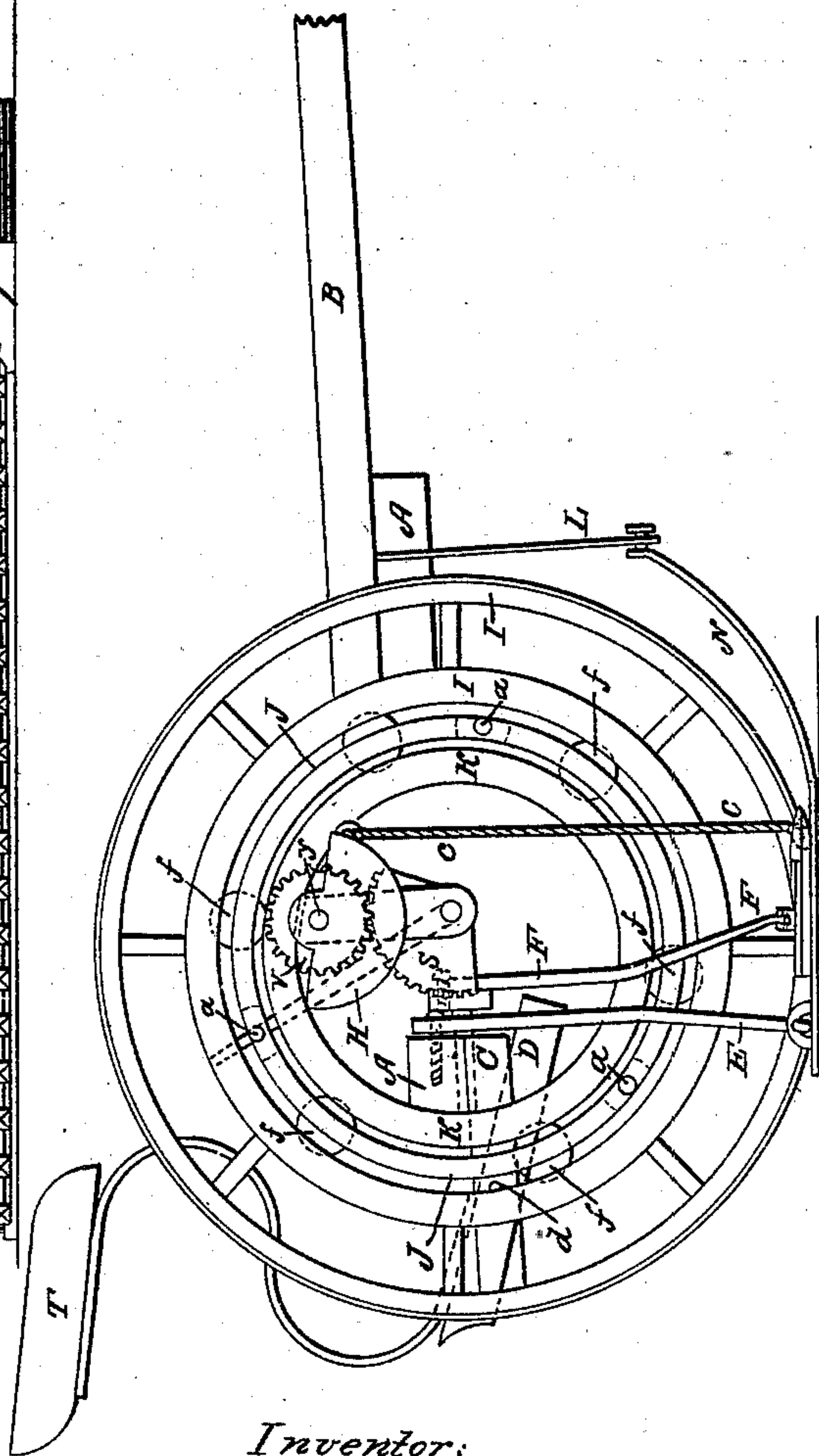
2 Sheets—Sheet 1.

No. 74,986.

Patented March 3, 1868.



Witnesses:
E. A. Heildreth.
J. B. Heildreth.

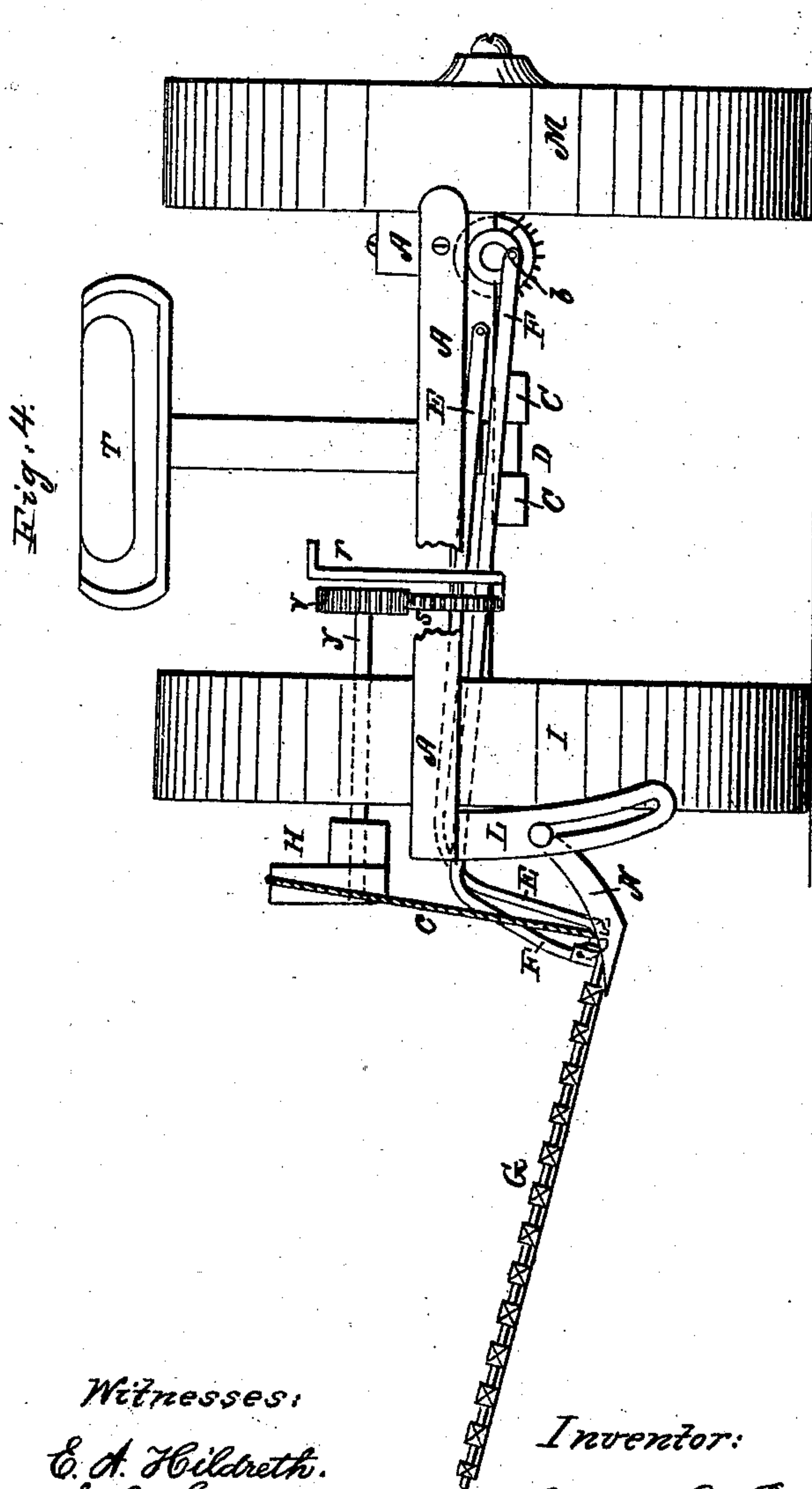


Inventor:
George E. Burt.

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George E. Burt.

United States Patent Office.

GEORGE E. BURT, OF HARVARD, MASSACHUSETTS.

Letters Patent No. 74,986, dated March 3, 1868.

IMPROVEMENT IN MOWING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, GEORGE E. BURT, of Harvard, in the county of Worcester, in the State of Massachusetts, have invented new and useful Improvements in Mowing-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figure 1 is a side elevation of the mower, with the cutter-bar down in its working position.

Figure 2 is a front elevation with cutter down.

Figure 3 is a side elevation with the cutter-bar raised, showing the parts used in raising the cutter-bar, while the other parts are removed.

Figure 4 is a front elevation, showing the position of the cutter-bar when raised, and the parts connected with it.

Like letters represent like parts in all the figures.

The nature of my invention consists in arranging and hanging the seat to mowing-machines in such a manner that the driver's weight, when he is in the seat, shall operate, partially, to lift the cutter-bar, proportionally lessening the draught of the machine; also, in constructing and attaching mechanism, arranged in such a manner as to act in conjunction with the operator's weight, and enable him very quickly and easily to raise the cutter-bar to pass obstacles, or hold it elevated with his foot, thus giving him the use of both hands to arrange his team when turning, or passing obstructions; also, in arranging and combining periphery-rolls with mowing-machine wheels that are constructed with large, stationary, central hollow rings, thus avoiding the friction of stationary rolls, or the still greater friction of the large tube forming the bearing, and entirely avoiding the necessity of lubricating the same. In the accompanying drawings—

A is the frame; B is the pole; C C are the supporting-boxes, to which the lever D is pivoted; E is the brace which holds the cutter-bar in position; F is the pitman passing through the centre of the wheel I, which pitman drives the knives; G is the cutter-bar; H is the segment on which the chain *c* is wound to raise the cutter-bar; I I is the outer ring of the hollow wheel; J is a ring which holds the periphery-rolls in their places, one ring, J, being on either side of the wheel, both being kept together, and in place, by the connecting-braces *a a*. K is the hollow, central, stationary ring on which the rolls and outer ring I turn, and is fastened solidly on to the framework A of the mower. L is a projection from the frame to support the forward end of the shoe N; M is the wheel on the side of the mower away from the cutter-bar; T is the driver's seat; *d* is a pivot upon which the lever D turns; *ff* are the periphery-rolls; *r* is the foot-lever, attached firmly to the segment *s*, which is connected, by teeth or a chain, to the wheel *v*; *y* is a shaft, which connects the wheel *v* to the segment H; *b* is the crank that operates the cutter-knives.

This invention may be applied to most of the mowing-machines now in use, but the device for lessening the friction is designed for such mowing-machines as are constructed with wheels turning on large hollow rings, through which the brace and the pitman that operate the cutters pass.

To apply my invention for lifting the dead weight of the cutter-bar to a machine of common construction, I provide the lever D, made of any suitable material, and attach it, by means of the pivot *d* and boxes C C, to any convenient part of the machine, and arrange the lever in such a manner that the forward end shall come under the cutter-bar or brace. To the rear end of the said lever I firmly fix the driver's seat T, at such a point of the lever that the weight of the driver, when in his seat, shall act to lift such a portion of the weight of the cutter-bar as may be desirable. The lever D and boxes C C are provided with several holes (seen in fig. 3) for the purpose of adjusting the leverage for the various weights of men that operate the machine, in such a manner that heavy or light persons, when in the seat, will exert the same lifting force on the cutter-bar.

I construct the foot-lever *r* with a section of a gear on one side, and a projection on the opposite side for the operator's foot to rest against. Instead of the gear, a chain may be used, connecting the segment *s* to the lifting-apparatus. This foot-lever is attached to the machine in such a position that the operator can reach it with

his foot when sitting in the seat, and is connected to the lifting-device usually employed for raising the cutter-bar, shown in figs. 2 and 3.

In mowing-machines constructed with the brace and cutter-bar pitman passing through the wheel, the stationary hollow ring may be constructed of any desirable diameter to admit free play to such parts, and may be firmly attached to the frame. I construct the stationary ring with flanges or lips, between which the periphery-rolls run, as seen in fig. 1. The outer rim, or revolving portion of the wheel, I also construct with like flanges. I provide periphery-rolls, *ff*, three or more, of such length and diameter as will fit the space between the stationary ring-flanges, and between the revolving wheel or rim and the hollow centre. These rolls *ff* are held in their relative positions to each other by the rings *J J*, having holes in them, in which the pivots on the rolls *ff* turn. The rings *J J* are held firmly together by braces, *d d d*, with screws or bolts, shown in fig. 1.

Operation.

When the operator is in the seat *T*, his weight rests on the rear end of the lever *D*, and the forward end, being under the cutter-bar brace *E*, lifts the dead weight of the whole cutter-bar, and also the downward pressure of the grass upon the guards caused by the forward motion of the cutter-bar when in operation, just in proportion to the leverage given by adjusting the pivot or pin *d*. By this device, any amount of lifting-force desirable may be obtained, just sufficient to cause the cutter-bar *G* to follow the irregular surface of the ground, thus avoiding, in a great measure, the heavy draught of the cutter-bar, without any exertion of the operator. It will also be seen that, by this device, the weight of the operator assists him to elevate the cutter-bar to pass obstacles, which is effected by the operator pushing the foot-lever *r* forward; this exerts a force that acts to turn the shaft *y* and the segment *H*, on which the chain *c* is wound; and winds up the chain *c*, thus lifting the bar at a point forward of the cutters. The operator being in the seat, it will readily be seen that this force also acts upon the seat, which, being elevated considerably above the pivot *d*, is forced backward, and the whole leverage of the seat acts, in conjunction with the force exerted by the foot-lever, to elevate the cutter-bar *G* very quickly and with great ease, dispensing with the hand-lever.

Thus the cutter-bar may be elevated to pass obstacles, or it may be held in an elevated position to turn corners, by a slight effort of the foot, giving the operator the entire use of both hands to manage his team when mowing in bad places, or when turning the corners.

When the periphery-rolls are employed, they are placed between the stationary hollow centre and the outer revolving rim that forms the wheel. Thus all the weight on this side of the machine rests on the periphery-rolls, causing them, when the machine is in operation, to roll round between the two rings with only the friction of the pivots which keep them in position in the ring *J*, and the friction of the rolls rolling between the two surfaces is very small, as the rolls revolve only half as fast as stationary rolls would.

The whole weight resting on the peripheries, no oil is necessary on these rolls, thus the care and expense of lubricating are saved, and the machine moves as easily as it would if both wheels turned on commonly constructed central axles. This gives the advantage of having the necessary parts pass through the wheel without increasing the draught of the machine.

What I claim as my invention, and wish to secure by Letters Patent, is—

1. The seat *T*, supported by mechanism constructed and arranged in such a manner that the weight of the operator shall act to lift the cutter-bar, substantially as described for the purpose set forth.

2. The foot-lever *r*, when constructed with mechanism so arranged that, when operated upon, it shall act, in conjunction with the operator's weight in the seat, to elevate the cutter-bar, substantially as described and set forth.

3. The segment *s*, the gear *v*, the lever *r*, in combination with the segment *H*, and elevating-chain *c*, substantially as described for the purpose set forth.

4. The hanging boxes *C C*, the lever *D*, and pivot *d*, in combination with the seat *T*, constructed and arranged substantially as described for the purpose set forth.

5. The combination of the periphery-rolls *ff*, the rings *J J*, the revolving rim *I*, and the stationary hollow ring *K*, with the frame *A*, constructed and arranged substantially as described for the purpose set forth.

GEORGE E. BURT.

Witnesses:

E. A. HILDRETH,

S. B. HILDRETH.