(No Model.) 2 Sheets—Sheet 1.

E. BARTLETT.

MOWING MACHINE.

No. 459,264. Patented Sept. 8, 1891.

Fig. 1.

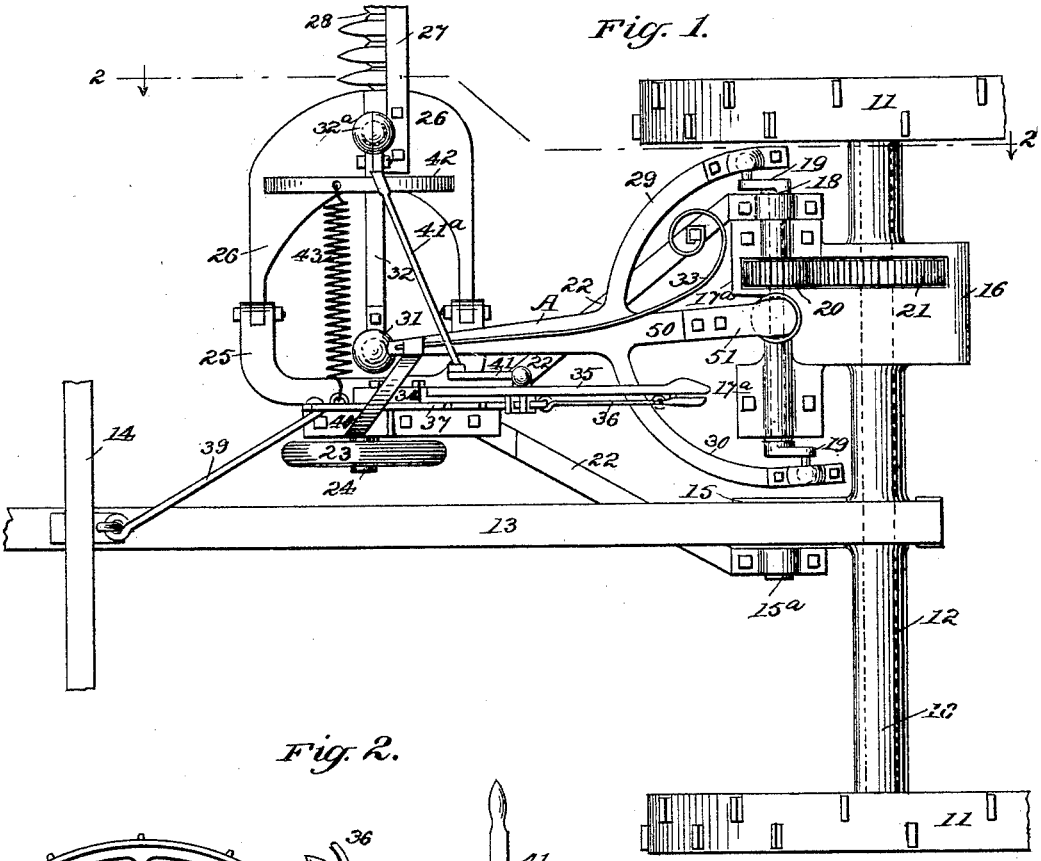
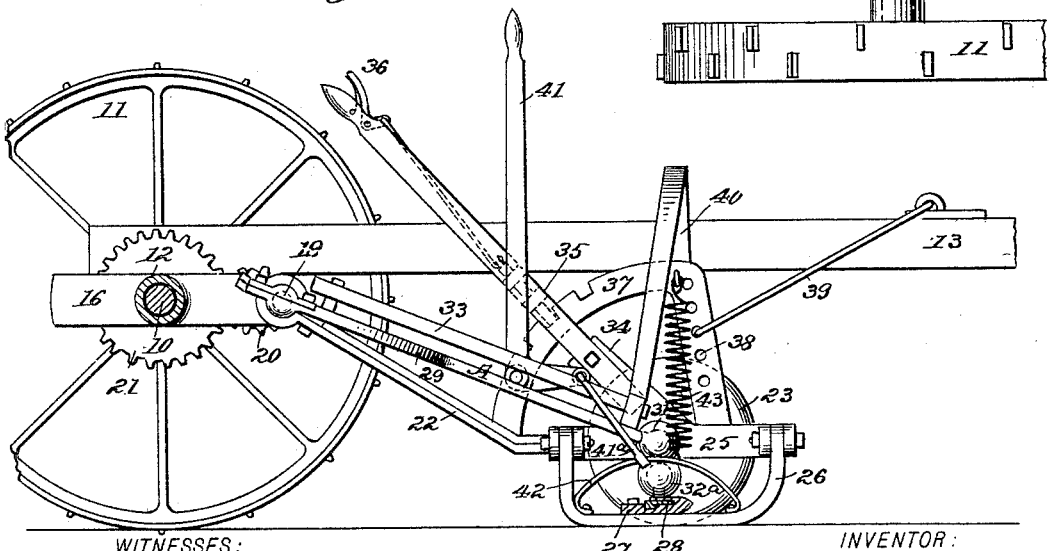


Fig. 2.



WITNESSES:

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

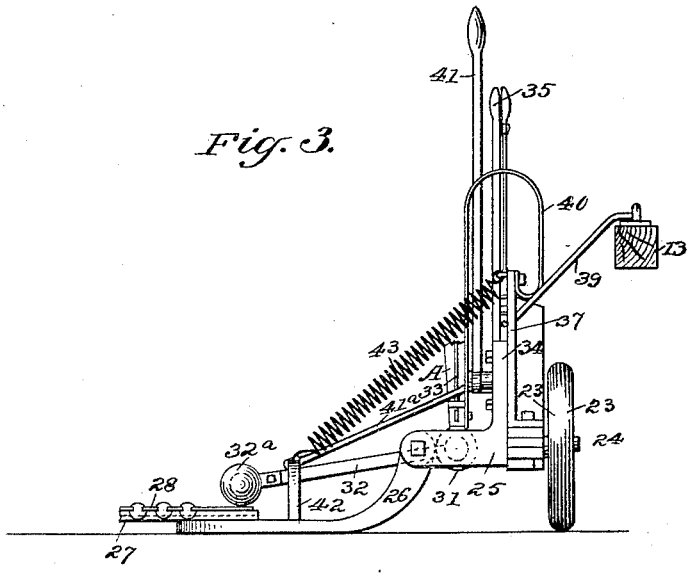


Fig. 4.

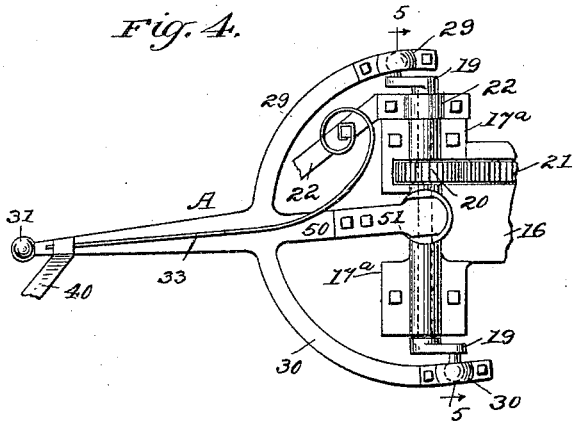
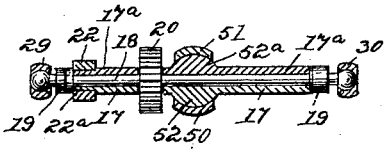


Fig. 5.



WITNESSES:
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UNITED STATES PATENT OFFICE.

EDWARD BARTLETT, OF BELLEVILLE, CANADA.

MOWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 459,264, dated September 8, 1891.

Application filed November 10, 1890. Serial No. 370,893. (No model.)

To all whom it may concern:

Be it known that I, EDWARD BARTLETT, of Belleville, in the county of Hastings, Province of Ontario, and Dominion of Canada, have invented a new and useful Improvement in Mowing-Machines, of which the following is a full, clear, and exact description.

My invention relates to an improvement in mowing-machines, and has for its object to simplify the construction of such implements and to provide means whereby the cutter-bar may be raised or lowered, as desired, and tilted to and from the ground in a convenient and expeditious manner.

A further object of the invention is to construct a light, durable, and effective implement at a minimum of cost.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the implement. Fig. 2 is a section on line 2 2 of Fig. 1. Fig. 3 is a partial front elevation of the implement. Fig. 4 is a plan view of the driving-arm, illustrating its connection with the crank-shaft; and Fig. 5 is a section taken on line 5 5 of Fig. 4.

The axle 10, upon which the drive-wheels 11 are mounted, is journaled in a tubular frame 12, to which frame, preferably at one side of its center, the draft-beam 13 is attached, the said draft-beam being provided at its forward end with whiffletrees 14. The tubular frame is provided beneath the draft-beam with a forwardly-extending arm 15, and between the draft-beam and one of the drive-wheels the tubular frame is further provided with a horizontal yoke 16. The forward end of the yoke 16 is provided with lateral extensions 17, in which and the forward end of the yoke is formed a half-bearing for a shaft 18, the other half of said bearing being formed in a cap 17^a, bolted to the extensions 17. The shaft 18 is provided at its ends with crank-arms 19, extending in opposite directions. The crank-shaft 18 has secured thereon to one side of its center a pinion 20, meshing with a spur-wheel 21, fast upon the axle, the said pinion and wheel being located in suitable recesses in the yoke 16 and cap 17^a.

The members of an essentially V-frame 22 are hinged one upon a sleeve 22^a, formed at the outer edges of one extension 17 and the cap 17^a concentric with the shaft 18, and the other upon an aligning stud 15^a, projecting from the arm 15 of the tubular frame, as is also best illustrated in Fig. 1. The V-frame extends downward and forward, the forward end thereof being bent to extend horizontally, as illustrated at *a* in Fig. 2, and in the horizontal lower extremity of the V-frame near the draft-beam 13 a small wheel 23 is journaled, the said wheel being held to revolve upon an axle 24, which axle is fast to the V-frame. The axle extends beyond both sides of the frame, and an essentially U-shaped horizontal bracket 25 is mounted upon one end of the axle 24 in such manner that the said bracket may be tilted upon the said axle. A shoe 26 is hinged to the members of the bracket 25, which shoe extends downward in the direction of one side of the machine, as is illustrated in Fig. 3. Upon the shoe 26 a channel-bar 27 is rigidly secured, and in said channel-bar any approved form of cutting-blade 28 is held to slide.

Motion is communicated to the cutting-blade from the crank-shaft 18, through the medium of an arm A, the rear end of which arm is bifurcated, and the members 29 and 30 of said arm are connected with the crank-arms of the crank-shaft by means of a ball-and-socket coupling. The driving-arm A extends downward and forward and its lower end is connected by a ball-and-socket coupling 31 with one extremity of a pitman 32, the opposite end of the pitman being connected in like manner by a coupling 32^a with the movable cutting-blade. Between the members 29 and 30 of the arm A and in line with the main body of the arm it is provided with a rearwardly-extending member 50, the end of which extends beneath the end of the yoke 16, and a cap-plate 51, bolted to the said arm, extends above the cap 17^a. Circular recesses are formed in the opposing faces of the arm and cap, centrally aligning the shaft 18 to receive spherical bearings 52 and 52^a, formed,

respectively, on the yoke 16 and cap 17ª, said bearings aligning the center of the shaft 18 and forming with the recesses of the arm 50 and cap-plate 51 a ball-and-socket joint on or around which the arm A can vibrate. The arm A is adapted to receive a rotary and laterally-rocking movement from the crank-shaft, and through the medium of the pitman 32 to impart a laterally-reciprocating movement to the movable cutting-blades.

Upon one member of the V-frame 22, near its connection with the sleeve 22ª of the yoke 16, one extremity of a spring 33 is rigidly secured by means of a pin or equivalent device. The end of the spring attached to the frame is coiled around the pin and carried outward over the arm A, and the lower end of the spring is rigidly attached to the lower end of the said arm and acts as a cushion for the crank-shaft. The axis of the wheel 23, supporting the lower end of the V-frame, is in a line with the cutter bars or blades, thus permitting the cutter-bars to follow the surface of the ground. It will be observed with reference to the spring 33 that by reason of its attachment to the V-frame and arm A the relative positions of the spring and arm are never changed.

The U-bracket 25 is provided with a rearward and upward extension 34, and upon the said extension the lower end of a lever 35 is attached. The lever 35 is provided with the usual thumb-latch 36, adapted to engage a segmental rack 37, secured to and projecting upward from the lower end of the V-frame. This rack 37, at its forward edge, is provided with a series of apertures 38, and is connected with the whiffletree 14 by a draft-rod 39, the rear end of the rod being adapted to enter any one of the apertures 38 as may be required to support the bracket 25 at any point of adjustment. By means of the lever 35 it is obvious that the shoe and its bracket 25 may be tilted laterally upon the axle of the wheel 23, thereby giving more or less inclination to the cutter bars or blades, which are connected with the shoe, as heretofore stated. The arm A, at its lower end, is given a support auxiliary to the spring 33 by securing one end of a spring 40 to the upper forward edge of the rack 37, which spring is carried upward and thence downward to a connection with the arm. The shoe is lifted upward or carried downward through the medium of a lever 41, preferably of the elbow pattern, pivoted at its lower end upon the rack 37, near the rear lower edge of the latter, the said lever 41 being connected by a rod 41ª with a loop 42, integral with or attached to the shoe, as shown in Figs. 1 and 2, and the lever is assisted in raising the shoe by means of a spring 43, secured at one end to the loop 42 and at its opposite end to the upper portion of the rack 37, the tendency of the said spring being to lift the shoe upward. It will be readily understood that when the shoe is elevated or depressed it moves upon its pivotal connection with the bracket 25, and that when the shoe is elevated it carries with it the channel-bar. The shoe can be raised sufficiently high to carry the channel-bar at an angle of forty-five degrees to the ground.

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

1. In a machine of the character described, the combination, with a drive-shaft having oppositely-extending crank-arms at its ends and a knife or cutter bar, of an arm having a ball-and-socket connection with the crank-arms of the drive-shaft and with the cutter or knife bar, substantially as shown and described.

2. In a machine of the character described, the combination, with a drive-shaft having oppositely-extending crank-arms at its ends and a knife or cutter bar, of an arm having a ball-and-socket connection with the crank-arms of the drive-shaft, with the support of the drive-shaft, and with the cutter or knife bar, substantially as shown and described.

3. The combination, with the main frame, the drive-wheels, and the vertically-swinging frame carrying the cutting apparatus, of the crank-shaft, the cutter-operating arm connected to the main frame and the crank and to the cutter-bar by universal or ball-and-socket connections, and a longitudinally-extending spring connecting the said arm and the swinging frame and acting as a cushion for the crank-shaft, substantially as set forth.

4. The combination, with the main frame, the drive-wheels, and the vertically-swinging frame carrying the cutting apparatus at its lower end, of the crank-shaft, the cutter-operating arm, universal or ball-and-socket connections between said arm and the main frame, the crank, and the cutter-bar, and a spring 40, connected to a part of the lower end of the swinging frame, extending upward and thence downward and connected with the distal end of the said arm, substantially as set forth.

5. In a machine of the character described, the combination, with the axle thereof, a tubular casing surrounding the axle and provided with a yoke, a drive-shaft journaled in the yoke having oppositely-extending crank-arms at each extremity, and a gear connecting the axle and drive-shaft, of a frame hinged to the journal of the drive-shaft and the axle-casing, a cutter or knife bar, an arm having a ball-and-socket connection with the cutter or knife bar and the crank-arms of the drive-shaft, and a spring attached to the frame at one end and secured to the arm at the opposite end, as and for the purpose specified.

6. In a machine of the character described, the combination, with the axle thereof, a tubular casing surrounding the axle and provided with a yoke, a drive-shaft journaled in the yoke, having oppositely-extending crank-arms at each extremity, and a gear connecting the axle and drive-shaft, of a frame hinged

to the journal of the drive-shaft and the axle-casing, a cutter or knife bar, an arm having a ball-and-socket connection with the yoke at the center of the drive-shaft and having a ball-and-socket connection with the cutter or knife bar and the crank-arms of the drive-shaft, a spring attached to the frame at one end, secured to the arm at the opposite end, and a vertically-extending spring connecting the outer ends of the said frame and arm, as and for the purpose specified.

7. The combination, with the main frame, the drive-wheels, their connecting-axle provided with a pinion, and the drive-shaft parallel with said axle, provided at its ends with oppositely-projecting cranks and an intermediate gear meshing with said pinion, and a stationary ball between the ends of the crank-shaft and concentric therewith, of an arm having a trifurcated inner end, the central member of which has a socket receiving said ball and the outer members of which have a ball-and-socket connection with the cranks, and a ball-and-socket connection between the distal end of the arm and the cutter-bar, substantially as set forth.

8. The combination, with the main frame having a yoke 16, provided with extensions 17, in which and the forward end of the yoke are formed half-bearings, a shaft therein having oppositely-projecting cranks at its ends, a cap 17^a, bolted to the extensions and formed with the opposite half-bearings, and spherical bearings 52 52^a, formed, respectively, on the yoke and cap and forming a ball through the center of which the crank-shaft passes, of the cutter-operating arm having a trifurcated inner end, the central arm of which has a spherical socket embracing said ball, ball-and-socket connections between the two outer members of the arm and the said cranks, and the frame carrying the cutting mechanism, substantially as set forth.

9. The combination, with the main frame and its drive-wheels, of the vertically-swinging frame having a lateral axle at its lower end, a wheel journaled on one end of said axle, a bracket journaled on its opposite end, a vertically-swinging shoe mounted on the bracket and carrying the cutting mechanism, a lever for adjusting the bracket on its axle, and a second lever for raising and lowering the shoe, substantially as set forth.

10. The combination, with the frame, the drive-wheels, and the draft-bar 13, of the vertically-swinging frame 22, provided at its lower end with a lateral axle, and a vertical longitudinal rack 37, provided with a series of apertures 38, a rod 39, connected to the draft-bar and any one of said apertures, a wheel 23 on one end of said axle, a bracket 25 on the opposite end of said axle and having an adjusting-lever 35, provided with a catch engaging said rack, a shoe 26, pivoted on the bracket and carrying the cutting mechanism, and a lever 41 for raising and lowering the shoe, substantially as set forth.

11. In a machine of the character described, the combination, with a frame, an axle located in the lower end of the frame, and a wheel loosely mounted upon the axle, of a bracket loosely mounted upon the axle, a vertically-swinging shoe pivoted to the bracket, a spring connecting the shoe and frame, a lever attached to the frame, a channel-bar secured to the shoe, and a link connection between the lever and shoe, as and for the purpose specified.

12. In a machine of the character described, the combination, with the main axle having the drive-wheels attached, a casing surrounding the axle and provided with an integral yoke, a drive-shaft journaled in the yoke, provided with oppositely-extending crank-arms at its extremities, a gear connection between the axle and drive-shaft, and a V-frame hinged to the journal of the drive-shaft and the axle-casing and provided with a supporting-wheel at its lower end, of a bracket mounted to turn upon the axle of the supporting-wheel, a shoe hinged to the bracket and adapted to carry a channel-bar, an arm trifurcated at one end and connected at said end by ball-and-socket joints with the crank-arms of the drive-shaft and its support, a pitman having a ball-and-socket connection with the other end of the arm and also with the cutter-bar of the machine, a spring attached to the frame and to the arm, a lever secured to the bracket and adapted to engage a rack upon the frame, a lever fulcrumed upon the frame and connected with the shoe, and a spring connection between the frame and the shoe, substantially as and for the purpose specified.

EDWARD BARTLETT.

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