No. 784,396. PATENTED MAR. 7, 1905.

J. H. HALL.

LAWN MOWER.

APPLICATION FILED NOV. 10, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

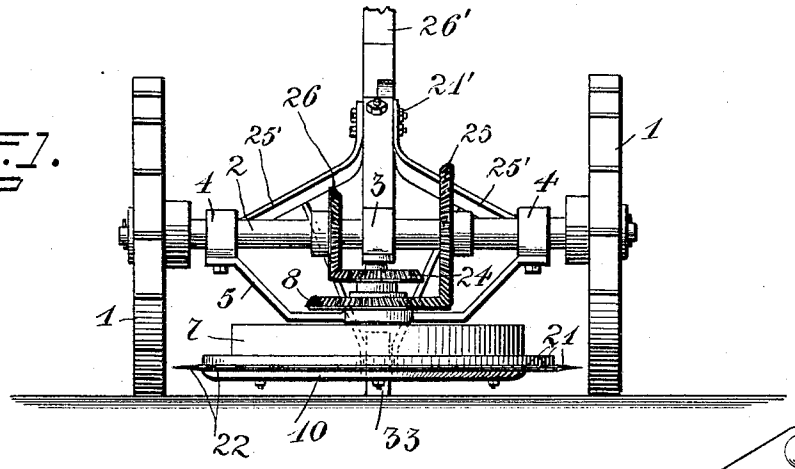


Fig. 2.

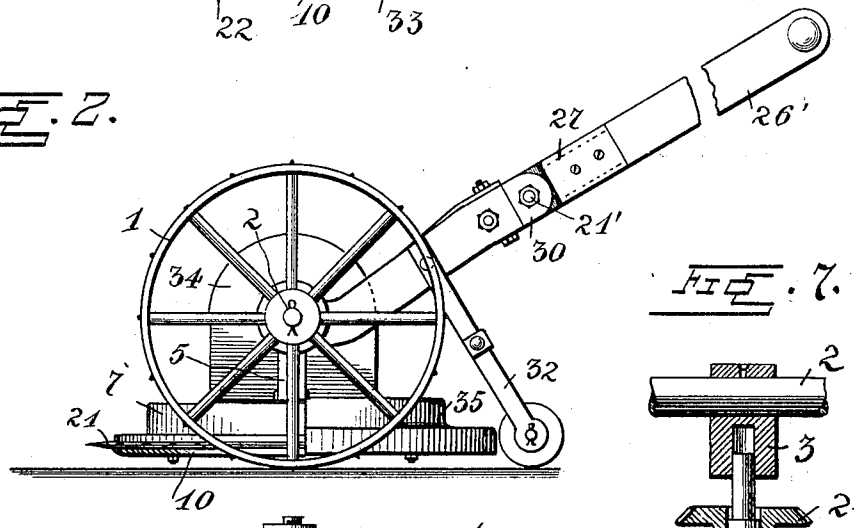


Fig. 7.

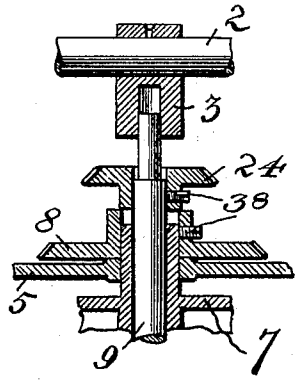
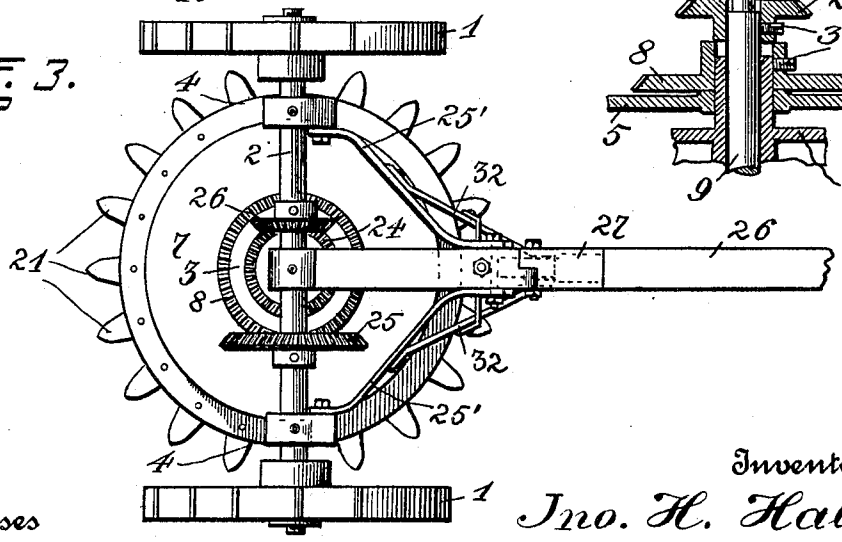


Fig. 3.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 4.

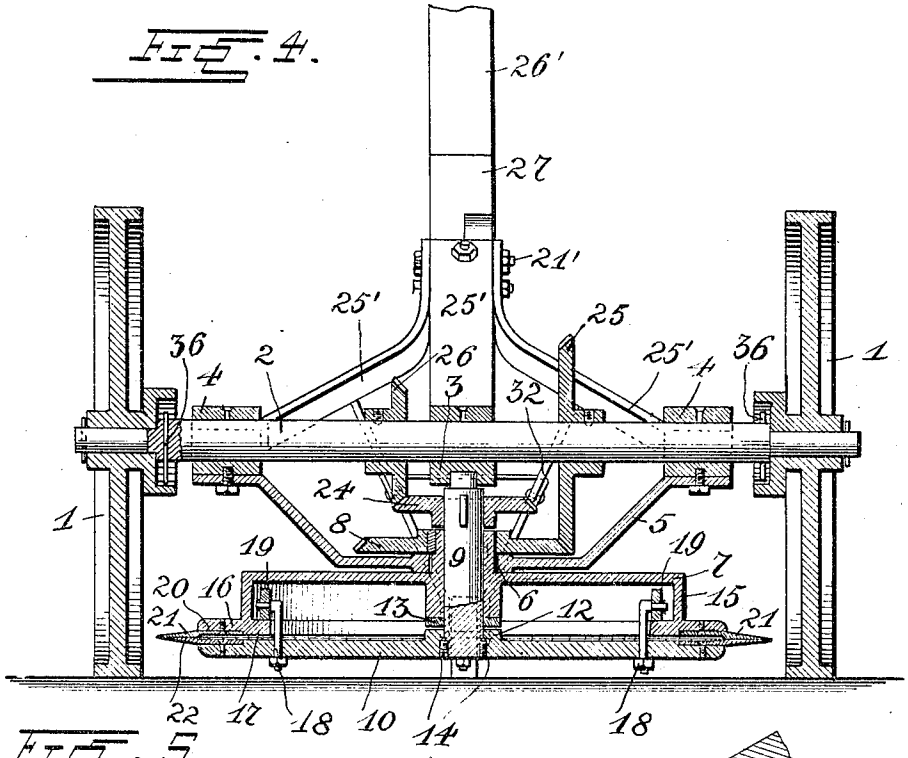

Fig. 5.

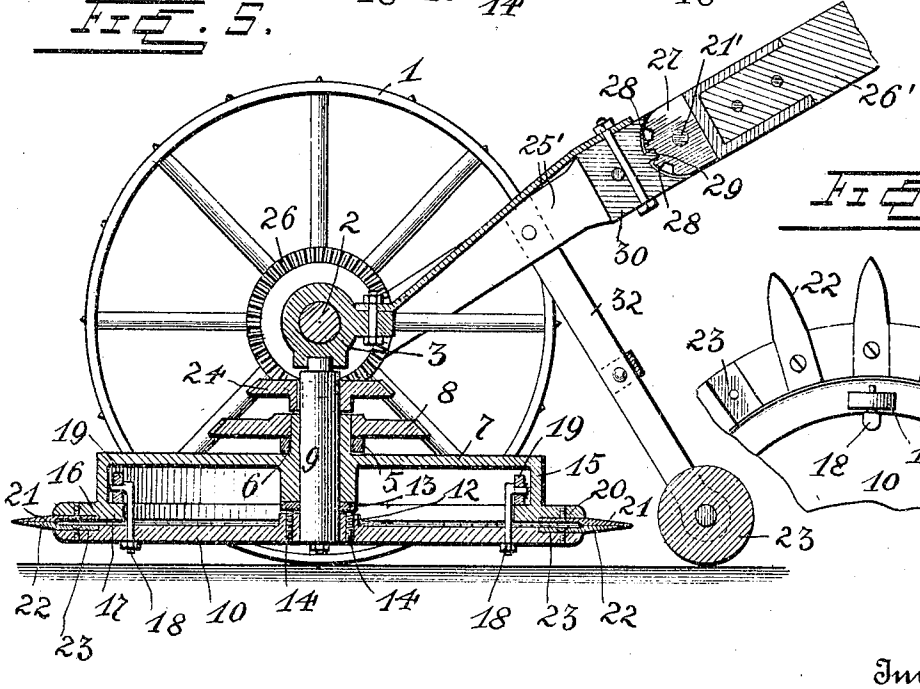

Fig. 6.

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No. 784,396. Patented March 7, 1905.

UNITED STATES PATENT OFFICE.

JOHN H. HALL, OF PATRICK, WEST VIRGINIA.

LAWN-MOWER.

SPECIFICATION forming part of Letters Patent No. 784,396, dated March 7, 1905.

Application filed November 10, 1904. Serial No. 232,173.

To all whom it may concern:

Be it known that I, JOHN H. HALL, a citizen of the United States, residing at Patrick, in the county of Kanawha and State of West Virginia, have invented certain new and useful Improvements in Lawn-Mowers: and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in lawn-mowers.

The object of the invention is to provide a rotary lawn-mower which will be simple, strong, and durable in construction, efficient and reliable in operation, and which will be adapted to cut either long or short grass.

With the above and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a front elevation of a lawn-mower constructed in accordance with the invention, the front hood or cover of the same being removed. Fig. 2 is a side elevation. Fig. 3 is a top plan view with the hood or cover removed. Fig. 4 is a vertical sectional view taken on a line with the supporting and driving axle. Fig. 5 is a similar view taken on a line with the disk-shafts and at right angles to Fig. 4. Fig. 6 is an inside view of a portion of one of the cutter-disks, and Fig. 7 is a detail fragmentary sectional view showing a modified construction of the cutting-disk-supporting mechanism whereby said disks may be raised or lowered to cut at different distances above the ground.

Referring more particularly to the drawings, 1 denotes the supporting and driving wheels of the lawn-mower, and 2 the axle, which is mounted in said wheels and adapted to be turned by the same when moving in a forward direction. On the axle 2 is arranged intermediate and side bearing-brackets 3 and 4, to which brackets 3 is connected a hanger-bar 5, which projects below said axle and is formed with a centrally-disposed aperture 6. Through the aperture 6 projects a cylindrical hub of an upper cutter-supporting disk 7. On the upper end of said hub is secured a beveled gear 8, whereby said hub or sleeve is supported in the hanger-bar 5. Projecting upwardly through the hub of the upper disk 7 is a vertically-disposed stub-shaft 9, the upper end of which is journaled in the bearing-bracket 3 on the axle 2. On the lower end of the shaft 9 is keyed or otherwise secured a lower cutter-supporting disk 10, on which is formed an upwardly-projecting centrally-disposed boss 12, between which and the lower end of the hub of the upper disk is arranged a washer 13. Through the boss 12 are passed set-screws 14, which are adapted to be screwed into engagement with the washer 13, thereby adjusting the lower disk to cause the same to run true with respect to the upper disk.

On the upper disk 7 is formed a downwardly-projecting annular flange 15, on the lower edge of which are formed an outwardly-projecting annular flange 16 and an inwardly-projecting annular flange 17. In the lower disk 10 are arranged upwardly-projecting bolts 18, said bolts being disposed at diametrically opposite points on said disks. The upper ends of said bolts 18 are bent outwardly at right angles to form bearings on which are journaled rollers 19, said rollers being adapted to engage and run on the flange 17 of the upper disk 7, by which means the lower disk is supported by the upper disk.

On the lower base of the flange 16 of the disk 7 is formed an annular series of radially-disposed recesses 20, in each of which is mounted an upper cutting member or blade 21. The blade 21 is adapted to coact with similarly-arranged cutting-blades 22, which are arranged on radially-disposed recesses 23, formed in the adjacent face of the lower disk 10. The cutting members or blades 21 and 22 project radially from the outer edges of the disks 7 and 10, and on said projecting portions are formed cutting edges, which project slightly beyond the attaching portions of the blades, so that only the projecting edges of the blades are engaged. Any suitable number of blades may be arranged upon the cutter-disks, but twenty-four is the number preferably used.

On the upper end of the shaft 9 above the gear 8 is fixed a horizontally-disposed beveled gear 24, which is of less diameter than the gear 8. On the axle 2 is fixed a beveled gear-wheel 25, the teeth of which mesh with the gear 8 on the hub of the upper cutter-disk, whereby said upper cutter-disk is rotated in one direction. A similarly-mounted gear 26 is arranged on the axle 2 and meshes with the gear 24 on the shaft 9 of the lower disk, whereby said lower disk is revolved in a direction opposite to that of the upper disk. The sizes of said disk-driving gears are such that the disks will be driven at the same speed.

Connected to the bearing-brackets 3 and 4 are rearwardly-projecting arms or bars 25′, to which is connected the lower end of the mower-handle 26′, said handle being provided on its lower end with a casting 27, on which is formed a radial series of teeth 28. Said teeth 28 are adapted to be engaged with a tooth 29, formed on a head 30, to which the ends of the bars 25′ are connected. A clamping-bolt 21′ is passed through the casting 27, to which the handle is connected, and through the head 30, by means of which said handle may be adjustably secured at any desired angle and by which means the cutter-disks may be held in a horizontal plane. To the bars 25′ are bolted rearwardly-projecting arms 32, between the outer ends of which is journaled a roller 33, which also aids in supporting the cutter-disk in a horizontal position.

Arranged over the forward portion of the machine and supported upon the bearing-brackets 4 is a hood or casing 34, by which the operating parts of the mower are protected, grass and foreign matter being thus prevented from falling upon the operating-gears and clogging the same.

The rear portion of the cutting-blades and the cutters carried thereby are covered and protected by means of a casing 35.

In order to prevent a retrograde movement of the cutting-disks when the mower-wheels are turned backward, a suitable pawl-and-ratchet connection 36 is provided between the outer ends of the axle and the hub of the supporting-wheels 1, whereby when the machine is pushed in a forward direction the wheels 1 will become locked to the axle and will turn the same in a forward direction; but should the machine be drawn backward the wheels will run loosely upon said axle, as will be understood.

In Fig. 7 of the drawings is shown a slightly-modified construction of the cutting-disk-supporting mechanism. In this instance the shaft 9 of the disk 10 and the hub of the disk 7 are elongated to permit the same to be adjusted through the hubs of the gear-wheels 24 and 8, thereby raising or lowering the cutting-disks. The bearing 3 is provided with an elongated socket to accommodate the upper end of the shaft 9 in its adjusted positions. Set-screws 38 are arranged in the hubs of the gears 8 and 24 to engage the shaft and sleeve of the cutting-disks, thereby holding the same in their adjusted positions.

From the foregoing description taken in connection with the accompanying drawings the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. In a mowing-machine of the character described, the combination with the supporting and driving wheels of an axle mounted therein to turn in a forward direction, bearing-brackets mounted on said axle, a hanger-bar secured to said brackets, an upper cutter-disk revolubly supported in said hanger, a lower cutter-disk revolubly supported by said upper disk, and means whereby said lower disk may be adjusted with respect to said upper disk, and gears actuated by said axle whereby said disks are revolved in opposite directions, substantially as described.

2. In a mowing-machine of the character described, the combination with the supporting and driving wheels, of an axle mounted therein to turn in a forward direction, bearing-brackets mounted on said axle, a hanger-bar secured to said brackets, an upper cutter-disk revolubly supported in said hanger, a lower cutter-disk revolubly supported by said upper disk, means whereby said lower disk may be adjusted with respect to said upper disk, means whereby said disks are driven in opposite directions, and a handle adjustably secured to the same, substantially as described.

3. In a mowing-machine of the character described, the combination with the supporting and driving wheels of an axle mounted therein to turn in a forward direction, bearing-brackets mounted on said axle, a hanger-bar secured to said brackets, an upper cutter-disk revolubly supported in said hanger, a lower cutter-disk, an annular flange formed on said upper disk, upwardly-projecting bearing-bolts arranged on said lower disks, bearing-rollers journaled on said bolts and adapted to engage said annular flange on the upper disk thereby supporting said lower disk, means whereby said lower disk is adjusted with respect to said upper disk, and means whereby said disks are driven in opposite directions, substantially as described.

4. In a mowing-machine, the combination with the driving-wheels of a shaft mounted therein, means whereby said shaft is turned by said wheels in a forward direction only,

bearing-brackets arranged on said axle, a hanger-bar supported by said bracket, an upper cutter-disk revolubly mounted in said hanger, a beveled gear-wheel fixed on the hub of said disk above said hanger, a lower cutter-disk arranged beneath said upper disk, an upwardly-projecting stub-shaft fixed in said lower disk and projecting upwardly through said upper disk-hub, a washer arranged between the hubs of said upper and lower disks, set-screws arranged in the hub of said lower disk to engage said washer thereby permitting said upper and lower disks to be adjusted, a beveled disk fixed on the upper portion of said lower disk-shaft, beveled gears fixed on the axle of said machine to engage the opposite sides of said disk-gears whereby said disks are turned in opposite directions, blades or cutters arranged on said disks, a rear supporting-roller, a handle, and means whereby said handle is adjustably connected to said machine, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN H. HALL.

Witnesses:
W. L. GWINN,
W. L. PRICE.