

2,675,660

DISK TYPE MOWER

Filed Feb. 15, 1951

3 Sheets-Sheet 1

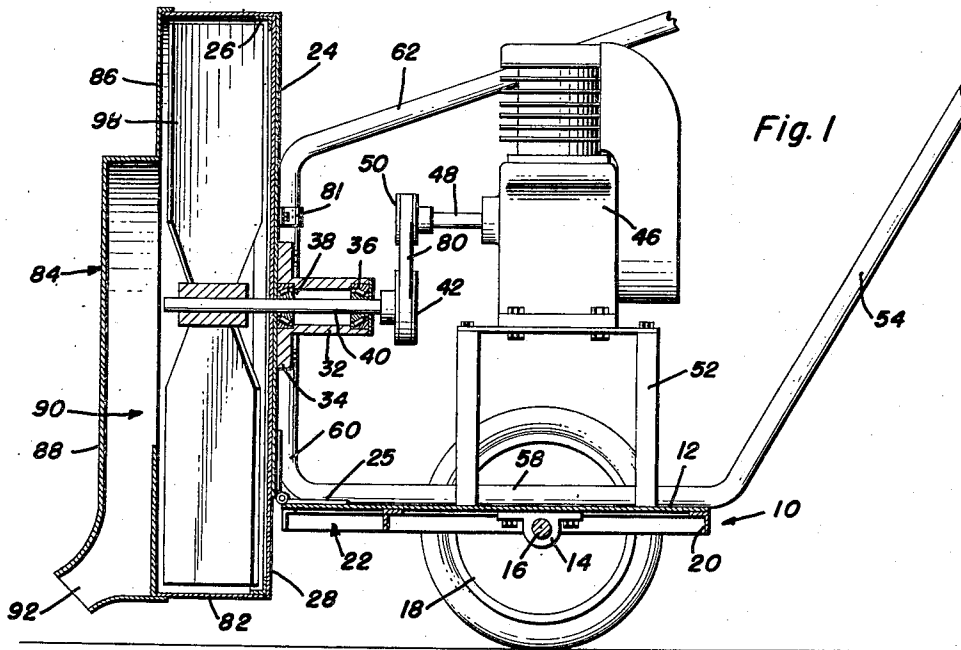


Fig. 1

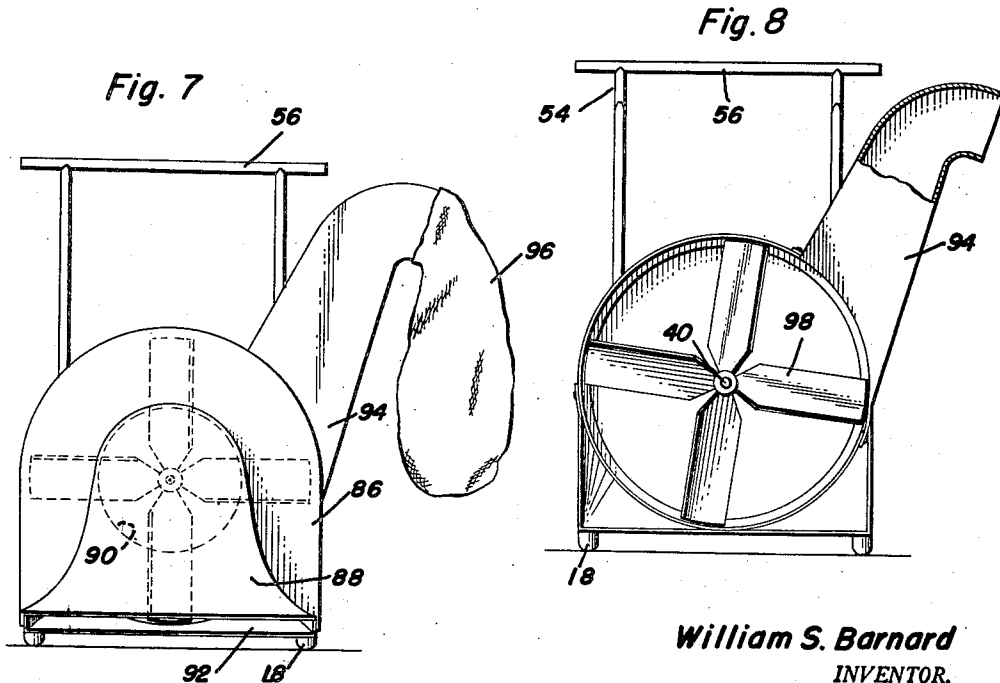


Fig. 8

Fig. 7

William S. Barnard
INVENTOR.

BY *Chance A. Olson*
and Harvey E. Jordan
Attorneys

April 20, 1954

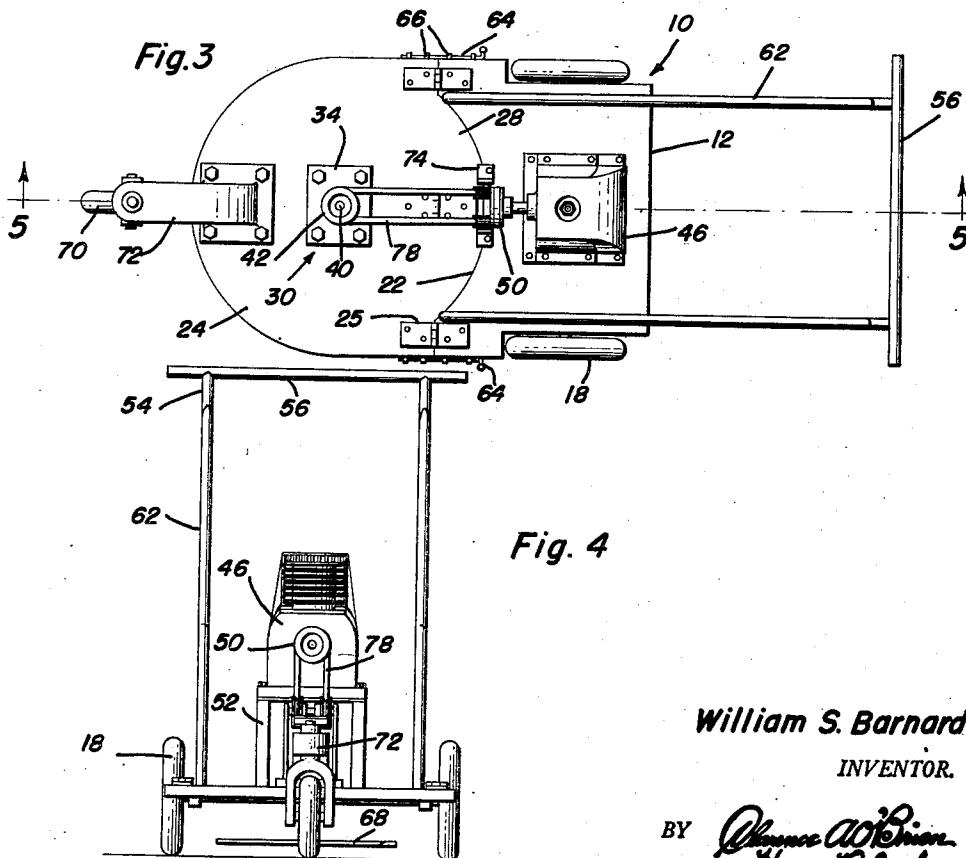
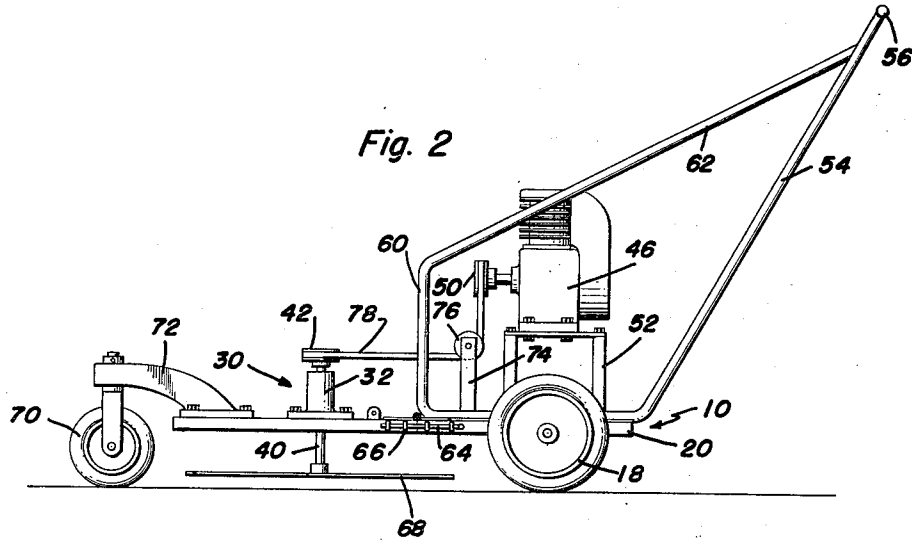
W. S. BARNARD

2,675,660

DISK TYPE MOWER

Filed Feb. 15, 1951

3 Sheets-Sheet 2



William S. Barnard
INVENTOR.

BY *James A. O'Brien*
and *Harvey B. Jackson*
Attorneys

April 20, 1954

W. S. BARNARD

2,675,660

DISK TYPE MOWER

Filed Feb. 15, 1951

3 Sheets-Sheet 3

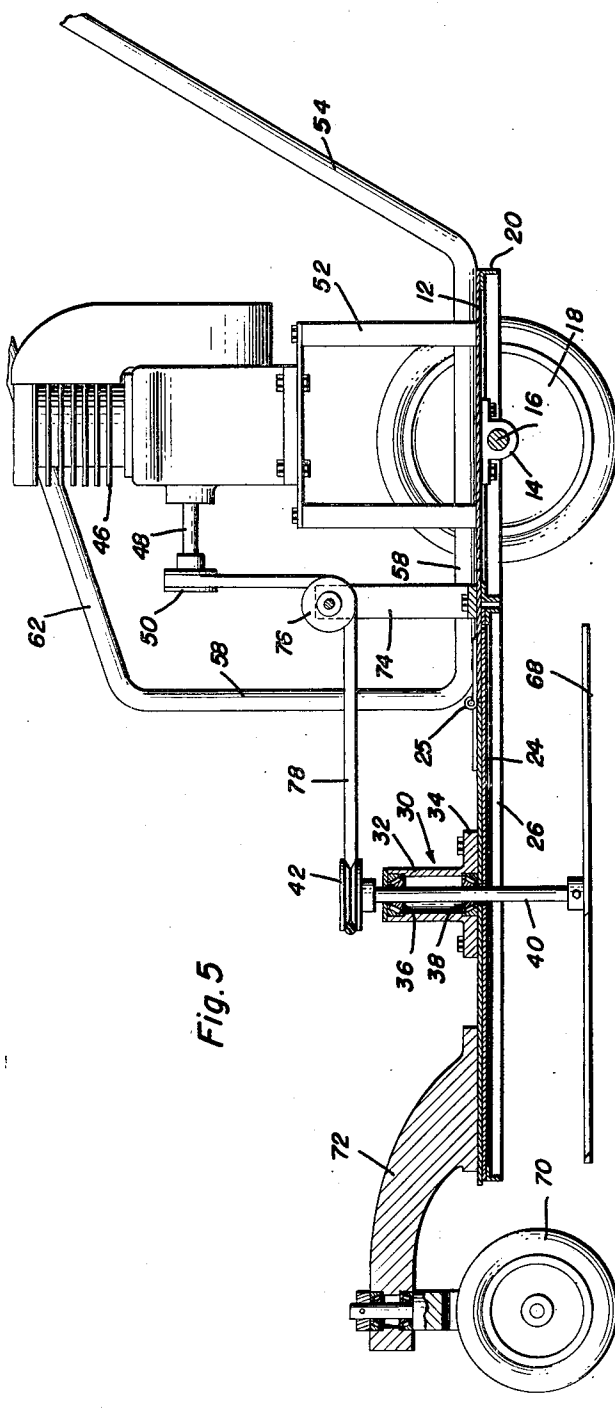


Fig. 5

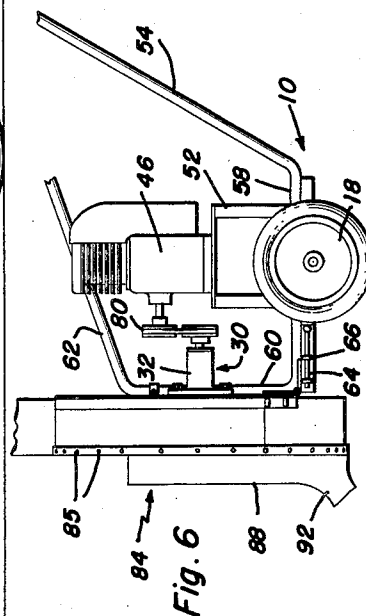


Fig. 6

William S. Barnard
INVENTOR.

BY *Almonce A. O'Brien*
and Harvey E. Jackson
Attorneys

UNITED STATES PATENT OFFICE

2,675,660

DISK TYPE MOWER

William S. Barnard, Bellevue, Nebr.

Application February 15, 1951, Serial No. 211,115

1 Claim. (Cl. 56-25.4)

1

This invention relates to a combination mower, lawn cleaner and snow remover, a machine having certain portions which bear a fixed positional relationship to each other, certain other portions which are adjustable, and certain other portions which are selectively securable in operative positions on the machine, all designed to allow conversion of the machine to the above-named uses.

The objects of this invention include the provision of a machine of the character above mentioned and characterized by a tiltable bed plate which is pivotally adjustable about an horizontal axis and carried by the base of the machine, this bed plate being equipped with a drive shaft capable of being drivingly connected with a motor on the base of the machine and capable of carrying a rotary blade element, whereby such a rotary blade can be driven when disposed in both vertical and horizontal planes, according to the positioning of the bed plate, it being assumed that the base of the machine will ordinarily be substantially horizontal.

Another object of this invention, ancillary to the preceding object, is to provide a casing on the bed plate when the same is in vertical position, this casing encompassing the rotary blade element and making the machine suitable for use as a snow remover.

Yet another object of this invention, equally important with the preceding objects, is to provide a suction chamber removably securable to the front of said rotary blade element casing, so that the machine is converted into a lawn cleaner,

Yet another object of this invention is to provide means to hold the bed plate in horizontal position, and to provide for suitable drive connection for the above-mentioned shaft when the bed plate is in this horizontal position, so that a suitable blade may be secured to the lower end of the shaft and the machine used as a grass cutter, a caster being secured to the front edge of the bed plate, if desired.

An object of this invention is to provide means whereby each of the above-mentioned functions can be made readily available, the steps necessary to transform the machine for the different functions being extremely simple and easily carried out by persons of no great mechanical ability.

A last object to be mentioned specifically is to provide a machine of this character which is relatively inexpensive and practicable to manufacture, which is safe, convenient and simple to operate, and which will give generally efficient and durable service.

With these objects definitely in view, this invention resides in certain novel features of construction, combination and arrangement of elements and portions as will be hereinafter described in detail in the specification, particularly pointed out in the appended claim, and illus-

2

trated in the accompanying drawings which form a material part of this application, and in which:

Figure 1 is a longitudinal vertical sectional view, showing the arrangement of the elements of the machine when the same is used as a lawn cleaner;

Figure 2 is a reduced side elevational view of the machine when the same is adapted for use as a grass cutter;

Figure 3 is a top plan view of the structure shown in Figure 2;

Figure 4 is a front end view of the structure shown in Figure 2;

Figure 5 is an enlarged longitudinal vertical sectional view taken substantially on the line 5-5 in Figure 3;

Figure 6 is a reduced fragmentary side elevational view of the machine, as used as a lawn cleaner;

Figure 7 is a reduced front end view of the structure illustrated in Figures 1 and 6; and

Figure 8 is a reduced front end view of the machine when the rotary blade element casing is secured to the bed plate, the latter being in vertical position, and the above-mentioned suction chamber being removed from this casing so that the machine is adapted for use as a snow remover.

Similar characters of reference designate similar or identical elements and portions throughout the specification and throughout the different views in the drawings.

Referring now to the drawings in detail, this invention includes an ambulant frame or base, generally indicated at 10, and comprising a base plate 12 carrying aligned bearings 14, in which is supported axle structure 16 for ground-contacting wheels 18. Reinforcing structure, represented by the angle iron 20, will be welded or otherwise secured to the periphery of the plate 12 and on the underside thereof, and the plate 12 will have an arcuate recess 22 on what should be considered the front edge of the plate, this recess being best illustrated in Figures 1 and 3.

A bed plate 24, which is tiltable with reference to the base plate 12, is hinged as indicated at 25 on the front end portion of the base. It will be noted that the bed plate 24 is circular, and that portion of the bed plate between the hinges 25 extends into the arcuate recess 22 when the bed plate is coplanar with the base plate 12. The bed plate 24 will also have a reinforcing angle iron member 26 on the underside thereof, and at the periphery thereof, and this element 26 has a secondary function in supporting the rotary blade element casing 32, hereinafter referred to more particularly. It will also be noted that the part of the bed plate entering the recess 22 is of such a diameter that the lower end thereof will not touch the ground when the bed plate is in vertical position, as clearly indicated in Figure

3

1, the reference numeral 28 being applied to the lower end of the bed plate when the same is in this vertical position.

A bearing assembly 30 is mounted upon the bed plate 24, this bearing assembly including a tubular bearing block 32 having attaching flanges 34, upper and lower bearings 36 and 38, and these bearings support a drive shaft 40. One end of the drive shaft 40 is provided with a drive pulley 42. A motor 46 of any suitable character is provided, this motor having a drive shaft 48 extending horizontally and the drive shaft 48 carries a drive pulley 50. The motor 46 is supported on suitable supporting bracket structure 52, upon the base plate 12, preferably substantially vertically above the axle structure 16.

Handle structure to make the machine easily manipulated includes inclined bars 54, carrying a horizontal cross-bar or handle bar 56, while the opposite or lower end portions of the bars 54 are rigidly secured in any manner to the base plate 12, as indicated at 58. The forward ends of the elements 58 extend vertically upwardly from the base plate 12, near the forward edge of the said base plate, and the upper ends of the portions 60 incline upwardly as indicated at 62 for connection to intermediate portions of the bars 54.

When the machine is used as a grass cutter, the bed plate 24 is lowered into coplanar relationship with the base plate 12, and bolts 64 are inserted through aligned apertured lugs 66 on the sides of the angle iron members 20 and 26. The blade 68 which comprises the actual grass-cutting element, represented in Figures 2, 4 and 5, is rigidly secured to the lower end of the shaft 40, while a caster 70, mounted on a bracket 72 which is removably secured to a forward end portion of the bed plate 24, serves to maintain the machine against tilting about the axle structure 16, in order that the blade 68 shall not be allowed to strike the ground during the operation of the machine. It will also be noted that angle brackets 74 are removably secured to the upper surface of the base plate 12, and these angle brackets 74 carry an idler pulley 76 which is used to change the direction of a belt 78 entrained over the pulleys 42 and 50.

When the device is used as a lawn cleaner, the elements 68—78 are removed, and the bed plate 24 is shifted into the vertical position indicated in Figures 1 and 6, the bolts 64 being withdrawn from the apertured lugs 66. A shorter belt 80 is now entrained on the pulleys 42 and 50, and a bracket 81, shown in Figure 1, is used to secure the bed plate 24 to the upright portion 60, the main weight of the bed plate and parts carried thereby being still borne by the hinges 25. A rotary blade element casing 82, comprising simply a short tube of a diameter substantially equal to the diameter of the angle iron flange 26, is affixed to this flange 26, it being preferred that the casing 82 shall merely have a tight fit upon the flange 26, although any suitable fastening means may be provided if desired or found necessary. A suction chamber 84 is somewhat similarly secured to the front edge portion of the casing 82, although screws 85, as illustrated in Figure 6, may be used to secure the chamber 84 on the casing 82. The chamber 84 includes a vertical wall 86 closing the front of the casing 82 and also includes a second wall 88 extending upwardly to the top of an inlet opening 90 in the wall 86, while the wall 88 curves outwardly into a transversely elongated mouth 92. The casing

4

82 has a discharge spout 94, to which a bag 96 may be secured by any suitable means for the collection of the cut grass and any trash gathered during the lawn cleaning process. The rotary blade element 98 will ordinarily be different from the rotary blade element 68, in order that the two functions of a blower fan and a cutter can be accentuated, although it is conceivable that a general utility blade element could be used for both purposes, since the only requirements would be a sharp edged blade having a considerable pitch.

When the machine is used as a snow remover, the suction chamber 84 is removed from the casing 82, and the bag 96 will also be removed. Use of the machine as a snow remover is illustrated in the front end elevation of the machine in Figure 8.

The operation of this machine will be understood from the foregoing description of the mechanical details thereof, taken in connection with the above recited objects and the drawings. Further description would appear to be unnecessary.

Minor modification of the machine, varying in minor details from the embodiment of the machine illustrated and described here, may be resorted to without departure from the spirit and scope of this invention, as defined in the appended claim.

Having described the invention, what is claimed as new is:

A lawn mower comprising a wheeled frame, said frame including a base plate having a concave forward edge portion terminating at outer ends thereof in aligned straight portions, a bed plate, said bed plate being generally circular in outline and having a rear edge portion complementary to said forward edge portion, said rear edge portion terminating in straight aligned outer rear edge portions, hinge means connecting respective straight portions of said base plate and said bed plate whereby said bed plate may be selectively moved from a horizontal position to a vertical position, said base plate and said bed plate having aligned side edges, cooperating disengageable latch means carried by said side edges for retaining said bed plate in a horizontal position, a rearwardly extending handle carried by said base plate, said handle including spaced parallel bars having vertical leg portions disposed along said concave forward edge portion for abutting engagement with said bed plate to facilitate the retention of said bed plate in a vertical position, a driven shaft extending vertically through said bed plate and rotatably journaled therein, a blade on the lower end of said shaft, said blade being of a lesser diameter than the diameter of said bed plate, a power unit including a drive shaft mounted on said base plate, flexible drive means drivingly connecting said drive shaft and said driven shaft.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,336,257	Muzzy	Apr. 6, 1920
1,577,561	Chiles	Mar. 23, 1926
2,110,071	Pociecha	Mar. 1, 1938
2,148,841	Senior	Feb. 28, 1939
2,175,542	Robarge	Oct. 10, 1939
2,476,526	Badlot	July 19, 1949
2,538,643	Gregory	Jan. 16, 1951
2,556,790	Berdan	June 12, 1951