

J. H. AUBLE.
WHEEL FOR LAWN MOWERS.
APPLICATION FILED SEPT. 11, 1905.

974,848.

Patented Nov. 8, 1910.

2 SHEETS—SHEET 1.

Fig. 3.

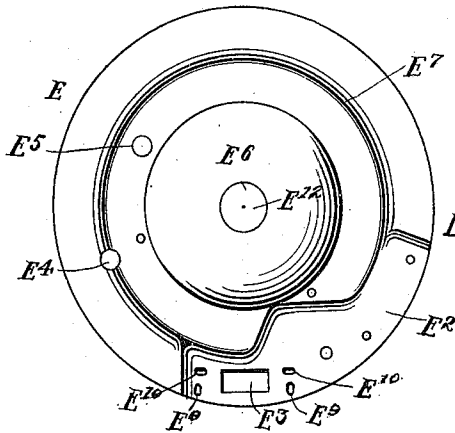


Fig. 4.

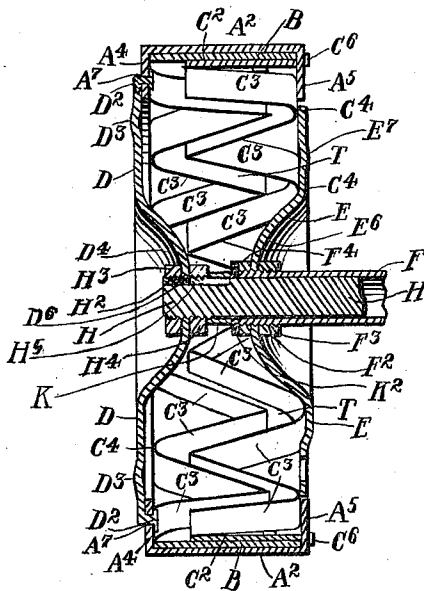
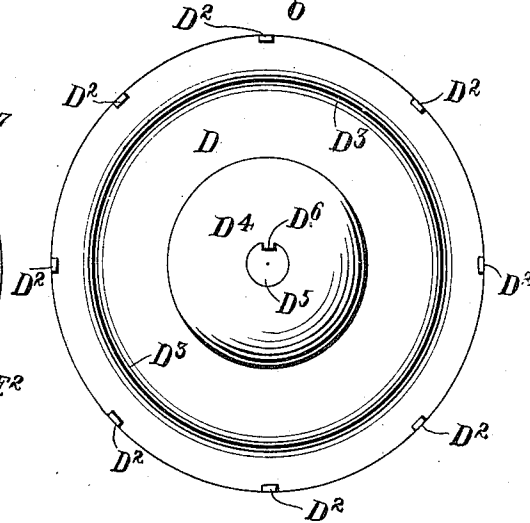


Fig. 2.

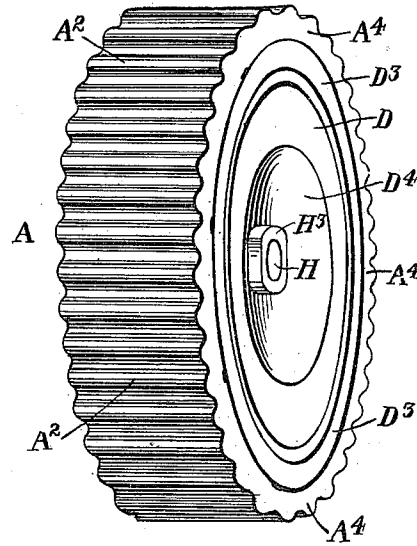


Fig. 1.

Witnesses

Charles H. Spiegel.
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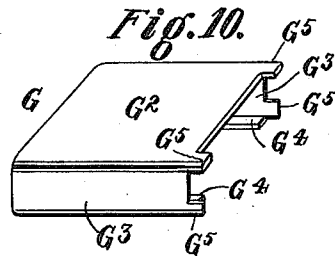
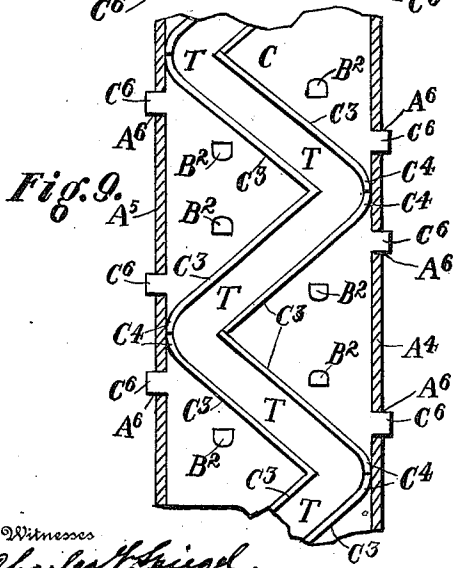
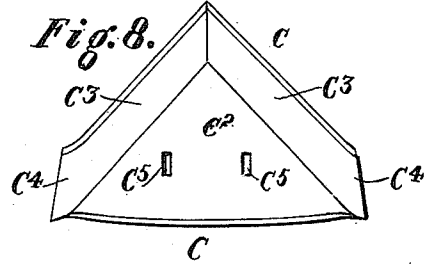
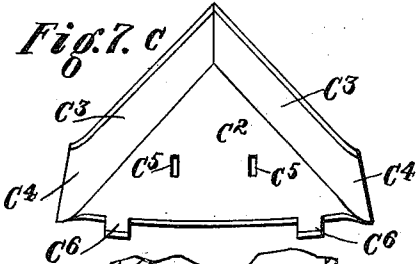
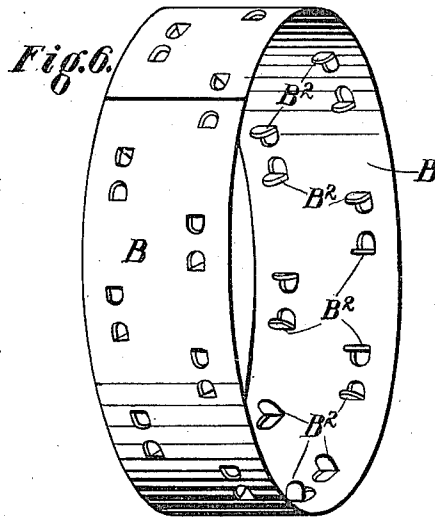
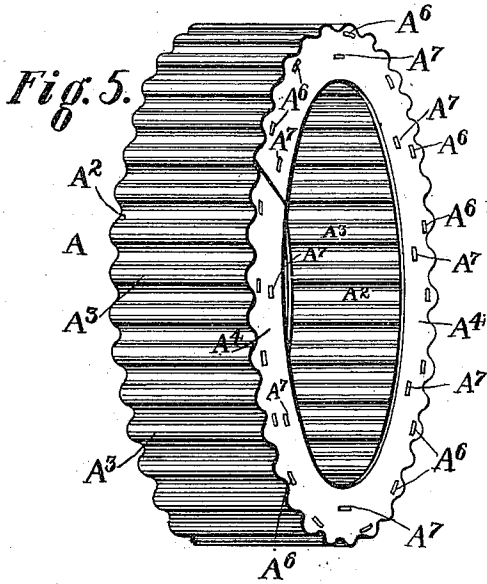
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2 SHEETS—SHEET 2.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES H. AUBLE, OF CINCINNATI, OHIO, ASSIGNOR OF TWO-THIRDS TO JACOB H. BROMWELL, OF WYOMING, OHIO, AND JAMES J. McDONALD, OF CINCINNATI, OHIO.

WHEEL FOR LAWN-MOWERS.

974,848.

Specification of Letters Patent.

Patented Nov. 8, 1910.

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To all whom it may concern:

Be it known that I, JAMES H. AUBLE, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in the Wheels for Lawn-Mowers, of which the following is a specification.

One of the principal objects of my invention is to attain a construction which enables me to manufacture the various portions of the devices hereinafter specified out of sheet metal in a rapid, accurate and economical manner, and at the same time preserve the full strength of the material and of the structure.

Other objects of my invention will be hereinafter apparent.

The several features of my invention and the various advantages resulting from their use conjointly or otherwise will be apparent from the following description and claims.

In the accompanying drawings making a part of this application,—Figure 1 is a view in perspective of a wheel illustrating my invention. Fig. 2 is a view partly in section and partly in elevation of the same wheel. Fig. 3 is a view of the stationary disk that covers at one side of the wheel, the space within the wheel, and affords support for mechanism for operating the knives. Fig. 4 is a view of the disk at the other side of the wheel. This disk covers there the space within the wheel and adds strength to the wheel. This disk rotates with the wheel. Fig. 5 is a view in perspective of the outer shell of the driving wheel. Fig. 6 is a view, in perspective, of the inner lining or inner shell, which is located within this ring portion. Fig. 7 is a perspective view of one of the pieces that go to form the zigzag or serpentine channels. Fig. 8 shows, in perspective, a view of another of the pieces that may be used in the serpentine channel. Fig. 9 is an elevation of a portion of the inner portion of the wheel, illustrating how these pieces that enter into the construction of the serpentine channel are connected to the inner shell of the wheel. The edges shown in section belong to the flanges of the outer shell of the wheel. Fig. 10 illustrates in perspective the preferred make of box that holds a part of the reciprocatory mechanism that receives its initial motion from the

wheel, and imparts it to the cutting knives that cut the grass, etc.

Similar characters of reference herein indicate corresponding parts.

I will now proceed to describe my invention in detail.

I form the peripheral shell A of the wheel of sheet metal, substantially as shown. Thus formed, there is a peripheral tread A², having raised cross projections A³. These cross projections are to create friction between the wheel and the ground, so that the wheel shall not slip on the ground. At each edge of this peripheral tread is a flange. So there are two flanges, one indicated by A⁴, and the other by the character A⁵. Both of these flanges are integral with the peripheral tread A², all being struck up or stamped out of a single sheet of metal. Within this wheel I locate a lining or inner shell B. This is made of one piece of sheet metal. This lining is adapted to carry the serpentine chamber or track. The preferred mode of constructing it, so as to carry said channel is as follows: I stamp up little lugs or clip pieces B², which when so stamped project inwardly toward the axial center of this shell. I form out of sheet metal pieces such as C, Figs. 7 and 8. The piece has a base C² and flanges C³, C³. The free ends of these flanges at C⁴ are curved outwardly. These pieces C are attached to the inner side of the shell B, and when so disposed are located relatively to one another and to the shell B, as shown in Fig. 9. The track T formed thereby is continuous around the inner periphery of the inner shell B of the wheel. The pieces C have openings C⁵, C⁵. Through these openings are respectively received the adjacent lugs B² of the inner shell B. These lugs after being so inserted are bent down, see Fig. 9, and constitute clamps, which respectively hold each piece C to the shell B. Some of these pieces C are also made to hold the outer shell firmly to themselves, and also hold the inner shell B in place against the outer shell A. For illustration: The piece C, of Fig. 7 is provided with end lugs C⁶, C⁶. Openings A⁶ in the flanges A⁴ and A⁵ of the outer wheel shell A respectively receive these lugs. The latter are duly bent over, and when thus bent firmly hold the inner shell B against the outer shell A, and also hold their piece C to

this outer shell A. The construction with the lugs C⁶, as shown in Fig. 7, is the preferred one.

In Fig. 9, the lugs C⁶ are shown straight and inserted through the flanges A⁴ and A⁵ of the shell A. In Fig. 2, these lugs C⁶ are shown after having been bent down in place. When the lugs C⁶ are not needed, they will be omitted from the piece C. The latter will then appear as seen in Fig. 8.

The side of the wheel is composed of a sheet metal disk D, stamped to shape. This side D, see Fig. 4, has lugs D² extending horizontally toward what may be termed its inner side. Openings A⁷ in the flange A⁴ of the outer shell A respectively receive these lugs D². The latter are then bent down, see Fig. 2, and firmly hold this side D to the wheel rim shell A. This side D has preferably an annular rib D³, which confers strength, and adds to the ornamental appearance of this side piece. The central portion D⁴ of this side piece D is made concave. This concave shape not only adds strength to the wheel, but also allows room for the nut or other means used to secure the wheel in place on the axle shaft F, and which is to be placed within the plane of that side of the wheel. Thus this nut, or other means, does not project out beyond this plane, neither does the shaft F itself project beyond this plane.

At the inner side of the wheel, I locate a disk E. This disk E serves to cover the adjacent side of the wheel. It also serves to support the mechanism whereby as the wheels revolve the serpentine track T communicates motion to the mechanism that directly operates the cutter bar. A part of the handle also can utilize the disk as a support and as a means for tilting the frame and cutter bar of the machine. These functions of the disk and said mechanism are already fully described in other applications for Letters Patent.

The part E² is struck up as shown. Great strength is thus imparted to it. An opening E³ through it is the one through which passes a reciprocating bar that receives motion from the serpentine track and communicates its motion through proper intermediate means to the cutter bar.

The openings E⁴, E⁵ are for a part of the handle to engage, according to the inclination at which the machine is to be operated.

The central portion E⁶ of the disk E is concave, as shown. This shape confers strength upon the disk and also affords room for the means that hold the disk from slipping laterally along the axle, and yet allow the axle to rotate within it. This disk is also preferably formed with an annular concave E⁷.

As the preferred construction of the mechanism between the wheel and the cutter bar, a guideway G, see Fig. 10, is employed, and

this guideway is supported by the disk E. I will describe this guideway and the mode of connecting it to the disk. The guideway consists of sheet metal bent so as to have a top G² and sides G³, G³. It has also flanges G⁴, G⁴, one at the lower edge of each side G³. Each flange G⁴ is parallel to the top G² and extends inwardly. The guideway is provided at one end with lugs G⁵, preferably two on a side. These lugs respectively enter openings E⁹ and E¹⁰ of the disk E, and being longer than the disk is thick, they when inserted project beyond the inner side of the disk. These projecting portions are bent down. The guideway is now securely connected to the disk, and the space within the guideway aligns with the space of the openings E³. The diskal piece E, making the inner side of the wheel, is mounted on a hollow cylinder or shaft F. The preferred means for connecting the diskal piece E to this hollow shaft F is as follows:—This shaft F has near its end a screw thread F². The shaft F is passed through the central opening E¹² of the disk E. Nuts F³, F⁴ are located on the shaft, one on one side of this disk, and the other nut on the other side of this disk. These nuts are now screwed toward the disk, and clamp it securely in position.

The disk D, making the outer side of the wheel A, is duly secured on its shaft H, as follows:—The shaft H passes through the hollow shaft F and through a central opening D⁵ in the disk D. The end portion of this shaft is provided with a screw thread H². On this shaft H is secured a nut H⁴ located at the inside of the disk D. Another nut H³ is screwed on this shaft H and located at the outside of this disk D. This disk D is securely clamped between these nuts. The disk D is securely fixed so as to be stationary on and with this shaft H, not only by means of the friction of the clamping nuts H³, H⁴, but also principally by means of the detent D⁶, which is preferably integral with the disk D, and which extends into a channel H⁵, running longitudinally in the shaft H. The preferred means of preventing the wheel and this disk D which forms a part of this wheel from approaching the disk E and from coming into too great frictional contact therewith is as follows:—The hollow shaft F is continued beyond the nut F⁴ toward the nut H⁴, and may impinge directly against it, but the preferred means, as shown, is a small tube K, which embraces the axle H and a washer K². The latter rests against the adjacent end of the tube F, and the tube K at one end is against the other side of this washer, and at the other end bears against the nut H⁴. Adjustment of the nuts F³ and F⁴ will serve to move the disk E nearer to or farther from the wheel as desired.

It is to be understood that on the other end part of the hollow shaft F is a disk similar to the disk E, and on the other end part of the shaft H is a wheel similar to the one shown herein. In other words, the machine will be substantially symmetrical. As the parts fully described are simply repeated at the other side of the machine, the description herein presented is deemed sufficient.

The clips or lugs of one piece entering the slots of the opposite piece and bent over, are the preferred means of connecting such pieces together, but other means can be employed. When the clips or lugs and the slots are present, it is not essential that these clips or lugs should be upon the part shown, but they can be upon the opposite part and enter slots in the complementary part. The clips or lugs and the complementary slots can be varied as to the pieces they belong to, and be interchanged in any reasonable manner.

What I claim as new and of my invention and desire to secure by Letters Patent, is:—

1. In the wheel of a mowing machine, the peripheral portion having transverse ribs and side flanges, formed out of one piece of sheet metal, and the inner shell or lining for this peripheral portion formed out of a single piece of sheet metal, and flanged channel plates to form a trackway, with means for securing the trackway to the inner shell, substantially as and for the purposes specified.

2. In a wheel of a mowing machine, the peripheral portion having transverse ribs and slotted side flanges, formed out of one piece of sheet metal, and the inner shell or lining for this peripheral portion formed out of a single piece of sheet metal, and the flanged track or channel plates provided with lugs at one edge adapted to pass through the slots of the side flanges of the peripheral portion and be bent, these several parts being thus combined, substantially as and for the purposes specified.

3. In a wheel of a mowing machine, the peripheral portion having transverse ribs and slotted side flanges, formed out of one piece of sheet metal, and the inner shell or lining for this peripheral portion formed out of a single piece of sheet metal, and the flanged track or channel plates provided with lugs at one edge adapted to pass through the slots of the side flanges of the peripheral portion and be bent, the inner lining or shell provided with struck-up lugs, adapted to pass through slots in the base of the adjacent channel plate, and be bent, thus combined, these several parts being thus held together, substantially as and for the purposes specified.

4. In a wheel of a mowing machine, the peripheral portion having transverse ribs and slotted side flanges, formed out of one

piece of sheet metal, and the inner shell or lining for this peripheral portion formed out of a single piece of sheet metal, and the flanged track or channel plates provided with lugs at one edge adapted to pass through the slots of the side flanges of the peripheral portion and be bent, the inner lining or shell provided with struck-up lugs, adapted to pass through slots in the base of the adjacent channel plate, and be bent, thus combined, and a side diskal plate formed out of sheet metal, and provided with lugs struck up, and adapted to enter slots in the flange of the peripheral portion, and to be bent down, these several parts being thus held together, substantially as and for the purposes specified.

5. In a wheel of a mowing machine, the peripheral portion having transverse ribs and slotted side flanges, formed out of one piece of sheet metal, and the inner shell or lining for this peripheral portion formed out of a single piece of sheet metal, and the flanged track or channel plates provided with lugs at one edge adapted to pass through the slots of the side flanges of the peripheral portion and be bent, the inner lining or shell provided with struck-up lugs, adapted to pass through slots in the base of the adjacent channel plate, and be bent, thus combined, and a centrally concaved side diskal plate formed out of sheet metal, and provided with lugs struck up, and adapted to enter slots in the flanges of the peripheral portion, and to be bent down, these several parts being thus held together, substantially as and for the purposes specified.

6. The combination of the peripheral piece with flanges, the outer side piece connected thereto, and the inner lining shell, and the trackway pieces against the shell, each made out of sheet metal struck to shape, and means for securing these metal parts together, substantially as and for the purposes specified.

7. The combination of the peripheral piece with flanges, the centrally concaved outer side piece connected thereto, and the inner lining shell, and the trackway pieces against the shell, each made out of sheet metal struck to shape, and means for securing these metal parts together, substantially as and for the purposes specified.

8. The combination of the peripheral piece with flanges, the centrally concaved outer side piece connected thereto, and the inner lining shell, and the trackway pieces against the shell, each made out of sheet metal struck to shape, and means for securing these metal parts together, and the inner disk, centrally concaved and struck up of sheet metal, and axle connected to the outer side piece and passing through the inner disk, and means for securing the sheet metal

parts together and the axle in position relative to the wheel and the inner disk, substantially as and for the purposes specified.

9. The combination of the guideway G
5 having side flanges G³, G³, and bottom
flanges G⁴, G⁴, and end lugs G⁵, disposed
as shown, and the inner disk E having the
opening E³ complementary to the space in-
closed by the guideway and the small slots
10 E⁹ and E¹⁰, adapted to respectively receive
the lugs of the guideway, substantially as
and for the purposes specified.

10. In combination with the peripheral
portion of the wheel, the side disk having
15 the detent extending into the axial opening
of it, this disk and this detent being of one
piece of sheet metal, and the shaft having a
recess for the reception of this detent, and
also a screw thread, and clamping nuts for
20 holding the disk on the shaft, a disk at the
inner side of the wheel, a hollow shaft on
which this disk is mounted, this hollow shaft
having a screw thread, clamping nuts there-
on between which this last named disk is
25 held, the first named shaft extending through
this hollow shaft, and the latter extended
into the wheel, substantially as and for the
purposes specified.

11. The combination of a wheel, an axle
30 or shaft H, means for holding the wheel in
place on the said axle, a hollow shaft em-
bracing said axle, an inner disk mounted on
this hollow shaft, a washer and an addi-
tional tube around said axle, and located be-
35 tween the wheel and said inner disk, sub-
stantially as and for the purposes specified.

12. The combination of a wheel, an axle
or shaft H, clamping nuts therefor, and en-
gaging a screw thread on the axle, a feather
40 or key connection between the axle and the

wheel, a hollow shaft embracing said axle,
an inner disk mounted on said hollow shaft,
a washer and an additional tube around said
axle, and located between the wheel and the
inner end of said hollow shaft, substantially
as and for the purposes specified. 45

13. The combination of a wheel, an axle
or shaft H, clamping nuts therefor, and en-
gaging a screw thread on the axle, a feather
or key connection between the axle and the
50 wheel, a hollow shaft embracing said axle,
an inner disk clamped upon said hollow
shaft by screw nuts, a washer and an addi-
tional tube around said axle, and located be-
tween the wheel and the inner end of the
55 hollow shaft, substantially as and for the
purposes specified.

14. The combination of a wheel, an axle,
means for holding the wheel in place on the
said axle, a hollow shaft embracing the said
60 axle, an inner disk clamped upon said hol-
low shaft by screw nuts, a washer and an
additional tube around said axle, and lo-
cated between the inner end of the hollow
shaft and the wheel, substantially as and
65 for the purposes specified.

15. The combination of a wheel, an axle,
means for holding the wheel in place on the
said axle, a hollow shaft embracing the said
axle, an inner disk clamped upon said hol-
70 low shaft by screw nuts, a washer and an
additional tube around said axle, and lo-
cated between the inner end of the hollow
shaft and the inner holding means for the
wheel, substantially as and for the purposes
75 specified.

JAMES H. AUBLE.

Attest:

JOHN E. FITZPATRICK,
K. SMITH.