No. 692,184. Patented Jan. 28, 1902.

C. R. KLINE & J. KELLER.

PNEUMATIC BARKER.

(Application filed Apr. 29, 1901.)

(No Model.)

Fig. 1.

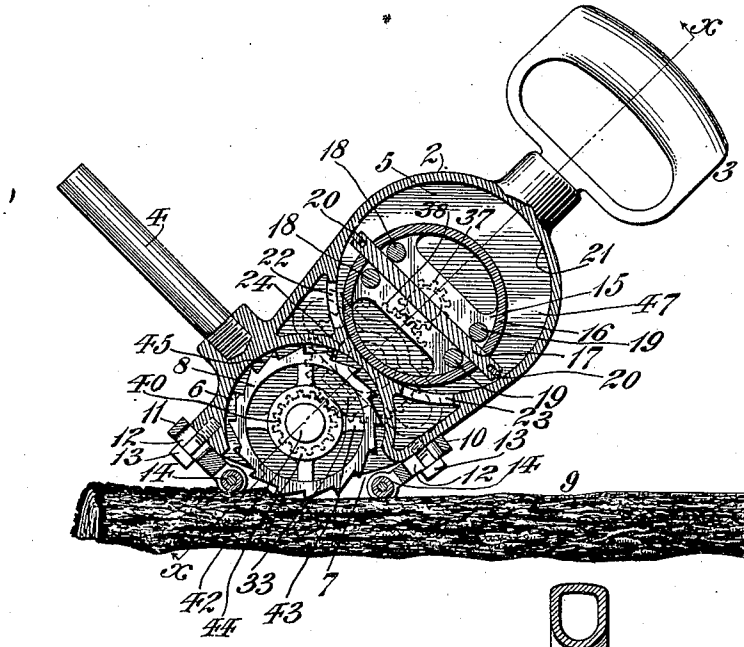


Fig. 7.

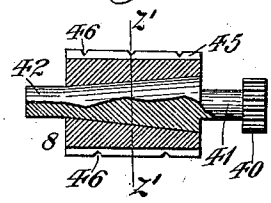


Fig. 8.



Fig. 3.

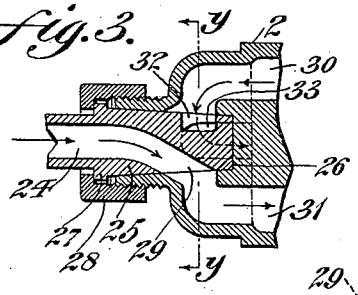


Fig. 2.

Fig. 5.

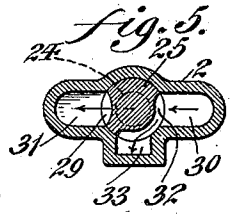


Fig. 6.

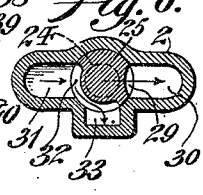
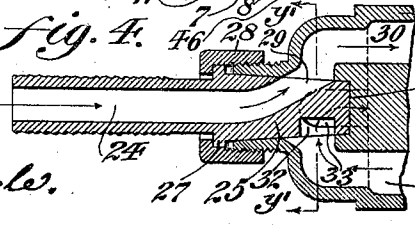


Fig. 4.



Witnesses

L. Bouville,

P. J. Aragle.

Inventors

Charles R. Kline.

Julius Keller.

By Wiedersheim & Fairbanks

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES R. KLINE, OF BEECHWOOD, AND JULIUS KELLER, OF PHILADELPHIA, PENNSYLVANIA; SAID KELLER ASSIGNOR, BY MESNE ASSIGNMENTS, TO SAID KLINE.

PNEUMATIC BARKER.

SPECIFICATION forming part of Letters Patent No. 692,184, dated January 28, 1902.

Application filed April 29, 1901. Serial No. 57,882. (No model.)

To all whom it may concern:

Be it known that we, CHARLES R. KLINE, residing at Beechwood, in the county of Cameron, and JULIUS KELLER, residing in the city and county of Philadelphia, State of Pennsylvania, citizens of the United States, have invented a new and useful Improvement in Pneumatic Barkers, of which the following is a specification.

Our invention relates to an improved construction of pneumatic barker which is adapted to remove the bark from sticks without taking off any wood, the device adapted to be run lengthwise over the stick, around it, or diagonally across it, and being especially adapted to be used on straight, crooked, knotty, smooth, round, or split sticks with equal facility.

To the above ends our invention consists in the combination of a novel construction of a pneumatic motor and a rotary cutter contained in a single casing and having suitable power-transmitting devices interposed between the rotary piston of the motor and the rotary cutter, and provision being also made for reversing the direction of rotation of the motor and cutter according to requirements.

It also consists of novel means embodying adjustable plates which are located upon opposite portions of the casing inclosing the pneumatic motor and cutter, whereby the depth to which the cutter acts can be regulated according to requirements.

It further consists of novel details of construction, all as will be hereinafter fully set forth, and particularly pointed out in the claims.

Figure 1 represents a vertical sectional view of a pneumatic barker embodying our invention, showing also a portion of a stick to which the same is applicable. Fig. 2 represents a section on line x x, Fig. 1. Fig. 3 represents a section on line z z, Fig. 2. Fig. 4 represents a sectional view similar to Fig. 3, but showing the inlet and exhaust ports in reverse position. Fig. 5 represents a section on line y y, Fig. 3. Fig. 6 represents a section on line y' y', Fig. 4. Fig. 7 represents a longitudinal sectional view of a form of solid cutter. Fig. 8 represents a section on line z' z', Fig. 7.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates a pneumatic barker, the same having the casing 2, which is provided with the handle 3 at its upper portion and the handle 4, which projects from a side thereof, whereby the device can be readily manipulated.

5 designates a piston-chamber, and 6 designates the cutter-chamber, which are contained within the casing 2, said cutter-chamber having the opening 7 at its lower portion through which the teeth or operative portions of the cutter 8 project, the latter being shown in Fig. 1 in the act of removing the bark from a stick 9, wherein it will be seen that the depth to which the cutter operates is regulated by the adjustable plates 10 and 11, which are each provided with the slots 12 therein and are held in position by means of the bolts or other fastening devices 13, each of said plates being provided with the rollers 14, suitably journaled therein.

In the piston-chamber 5 is rotatably mounted the piston 15, which latter consists of the cylindrical or similar shaped shell 16, which is mounted eccentrically within said piston-chamber, said shell having the sliding blade 17 mounted therein, the latter passing in the present instance diametrically through said shell and being supported on the oppositely-located pairs of rollers or antifriction devices 18 and 19, and said blade 17 being provided with the packing 20, of any suitable description, which is adapted to bear against the inner periphery 21 of the piston-chamber 5. The lower portion of the wall of the piston-chamber 5 is provided on the opposite walls thereof with ports 22 and 23, which may be utilized, respectively, for inlet or exhaust ports, according to requirements, it being evident that when one port is used as an inlet the other port is used for the exhaust, and vice versa.

24 designates the inlet-pipe for the motive fluid, which is in the present instance provided with a tapered portion 25, the extrem-

ity of which contacts with a suitable seat 26, said pipe having a flange 27, against which the nut 28 bears, whereby a species of swiveled joint is formed. The tapered portion 25 is provided with the inlet-port 29, which extends to one side thereof and forms a communication with the passage 30 or 31, as may be desired, as will be understood from Figs. 3 and 4. The passages 30 and 31 are thrown into communication according to requirements with an exhaust-channel 32, which is located in a suitable portion of the inlet-pipe 25, so that the exhaust from the desired point to the main exhaust-port 33 may be readily effected, it being noted that said exhaust-port discharges directly into the cutter-chamber 6, so as to expel the chips and cuttings therefrom, as will be apparent from Fig. 2, although it will be apparent that the exhaust may be directed from other portions of the casing if desired.

The rotary piston 15 and its adjuncts are mounted so as to revolve on the journals or trunnions 34 and 35, which have suitable bearings in the casing 2 and are constructed so as to be readily accessible according to requirements. The journal 35 has as extension 36, upon which is formed or located the pinion 37, which meshes with the idler 38, which is mounted on the bearing or stud 39, said idler meshing with the pinion 40, which is formed or located upon the journal 41 of the cutter 8, the latter having at its opposite extremity the journal 42, both of said journals 41 and 42 having suitable bearings in the casing 2.

It will be noted that we have mounted the cutter 8 upon a skeleton frame or spider consisting of the arms 43, which extend from the hub 44, said cutter having straight flutes 45, which are preferably V-shaped, and have nicks 46 therein arranged in staggered order.

In the operation of the motor it will be apparent that when the parts are in the position seen in Figs. 3 and 5 the compressed air or other motive fluid will enter the pipe 24 and pass through the port 31 and thence through the port 22 to the under side of the blade 17, and thus cause the rotation of the piston in the manner which will be apparent to those skilled in this art, the exhaust taking place through the port 23 and passing thence through the port 30 around the channel 32 to the main exhaust 33 and thence into the interior of the cutter-chamber 6, as will be evident from Figs. 3, 5, and 2. When the inlet-pipe 24 is turned so that the parts assume the position seen in Figs. 4 and 6, it will be apparent that the flow of the motive fluid will be reversed, the latter passing through the port 30 and the port 23 (seen in Fig. 1) into the piston-chamber and, acting on the under side of the blade 17, will cause the piston to rotate in the opposite direction to that described, the exhaust taking place through the port 22, the port 31, and passing thence through the channel 32 to the main exhaust 33, as will be understood from Figs. 4 and 6. It will thus be seen that the inlet-pipe 24 has in addition the function of a reversing-valve and can be readily turned into the desired position upon loosening the nut 28. The cutter 8 can be adjusted so as to take a deep or shallow cut by adjusting the position of the plates 10 and 11, as will be evident. The lubrication of the gears 37, 38, and 40 can be effected in any well-known manner, and the plate 47 can be hinged or otherwise secured to the casing 2, so as to render the gearing accessible at all times.

We desire to call especial attention to the compact form of tooth-gearing employed to transmit the power from the rotary piston to the cutter; but it will be understood that other equivalent power-transmission devices—such as friction-gearing, chains, or other devices—may be employed in place of the gears 37, 38, and 40 without departing from the spirit of our invention.

It will be apparent that other reversing devices than that shown in Figs. 2, 3, and 4 may be employed and that other slight changes may be made by those skilled in the art without departing from the spirit of our invention. It will further be seen that the cutter and rotary piston are inclosed in a single compact casing, the lower portion of which latter serves as an inclosing hood for the cutter, which latter projects therethrough, whereby the cutter is enabled to coöperate with the rotary piston and the proper operation of the pneumatic motor and the cutter is positively assured. It will further be seen that the construction of the inlet and exhaust ports in the casing with respect to the rotary piston and the rotary cutter actuated thereby is such that the exhaust from the piston is utilized to discharge directly upon or into the cutter, so as to prevent clogging thereof, which is an important feature in this class of tools.

It will be apparent that cutters of different contours and having different-shaped flutes from the cutter 8 may be employed, if desired, whereby our invention can be utilized as a power-plane or for such other purposes as may be desired. It will further be apparent that our invention can be used for barking wood, may be run lengthwise over the stick, around it, or diagonally across it, and it is adapted to be used on straight, crooked, knotty, round, or split sticks with equal facility.

It will be apparent that changes may be made by those skilled in the art in the manner of assembling and connecting the rotary piston and cutter, and we do not therefore desire to be limited in every instance to the exact construction we have herein shown and described.

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

1. In a pneumatic barker, a casing, a pneumatic motor in the upper portion of said casing, a cutter in the lower part of said casing, the latter being open at its lower portion, and shaped so as to form a hood for said cutter, and power-transmission devices intermediate said motor and cutter.

2. In a pneumatic barker, a casing, a pneumatic motor therein, a cutter in the lower part of said casing, the latter being open at its lower portion and shaped to form a hood inclosing said cutter, means for transmitting power from said motor to said cutter, a handle projecting upwardly at an angle from said casing, and a second handle projecting from said casing at an angle to said first-mentioned handle.

3. The combination of a pneumatic motor, having a casing, a rotary piston therein, journals for said piston, a rotary cutter located within and projecting through the lower portion of said casing, journals for said cutter, gears on said journals, and an idler meshing with said gears.

4. The combination of a pneumatic motor, having a casing, a rotary piston therein, journals for said piston, a rotary cutter within said casing, journals for said cutter, gears on said journals, and an idler meshing with said gears, in combination with means for reversing the rotation of said piston.

5. The combination of a pneumatic motor, having a casing, a rotary piston therein, journals for said piston, a rotary cutter within said casing, journals for said cutter, gears on said journals, and an idler meshing with said gear, said casing being open at its lower portion and permitting said cutter to extend therethrough, in combination with adjustable plates having rollers thereon, located on either side of said open portion, whereby the depth of the cut can be regulated.

6. The combination of a pneumatic motor, having a casing, a rotary piston therein, journals for said piston, a rotary cutter within said casing, journals for said cutter, gears on said journals, and an idler meshing with said gears, in combination with inlet and exhaust passages for said piston, said exhaust-passages discharging upon said cutter.

7. A pneumatic barker, consisting of a casing having an opening in the lower portion thereof, a rotary cutter mounted in said casing and adapted to have its teeth project through said opening, plates mounted on said casing and carrying rollers, means for adjusting said plates so as to regulate the depth of cut, a piston mounted in said casing, means for rotating said piston and power-transmission devices intermediate said piston and cutter.

8. The combination of a casing, a rotary piston therein, a rotary cutter also contained in said casing, power-transmission devices common to said piston and cutter, a handle located on a line passing substantially through the axes of the piston and cutter, and a second handle projecting from said casing at substantially a right angle to said line passing through said axes.

9. In an apparatus of the character named, a casing, a piston therein, a cutter in the lower portion of said casing, power-transmission devices common to said cutter and piston, an inlet for the motive fluid, an exhaust-channel located within said inlet-pipe, inlet and exhaust passages leading to and from said casing and means controlled by said inlet-pipe for reversing the flow of the motive fluid through said inlet and exhaust passages.

10. In a pneumatic barker, a casing, a rotary piston therein, a rotary cutter also mounted in said casing, means for transmitting power from said piston to said motor, an inlet-passage for said piston and an exhaust-passage leading therefrom, said exhaust-passage discharging upon said cutter.

11. In a pneumatic barker, a casing, a pneumatic motor in the upper portion thereof, a cutter in the lower portion of said casing, journals for said motor and cutter, an extension on one side of said casing, gears mounted on extensions of said journals, an idler meshing with said gears, and a plate movably secured to said extension, whereby said gears are readily accessible.

12. In a pneumatic barker, a casing, a pneumatic motor contained therein, a cutter in the lower part of said casing, the latter being open at its lower portion and power-transmission devices intermediate said motor and cutter.

13. In a pneumatic barker, a casing, a pneumatic motor contained therein, a cutter in the lower part of said casing, the latter being open at its lower portion and power-transmission devices intermediate said motor and cutter, in combination with plates mounted on said casing and carrying rollers, and means for adjusting said plates so as to regulate the depth of cut.

CHARLES R. KLINE.
JULIUS KELLER.

Witnesses:
E. HAYWARD FAIRBANKS,
C. D. MCVAY.