ABSTRACT OF THE DISCLOSURE

A partially enclosed casing or housing which serves as a frame for mounting wheels, a power source, related control means and a rotor or blade assembly. The blade assembly consists of a shaft journaled at each end in the housing. Rigidly mounted on the shaft is a plurality of obliquely arranged discs. The entire perimeter of each disc is formed with teeth extending radially a uniform depth. Such teeth assist in penetration of material, such as snow, by the discs. Material penetrated is moved into the housing through action of the oblique disc arrangement and of the flat faces of the disc teeth. Removal from the housing is accomplished as material is lifted through action of the discs and propelled by centrifugal force through an appropriate opening in the housing.

Background of the invention

(1) Field of the invention.—This invention pertains to general art of rotation with a movable housing of a device adapted to penetrate and move snow, the housing being equipped with suitable snow outlets to deposit the snow in a predetermined relation to its original position.

(2) Description of the prior art.—The rotating element of snow-throwers customarily serves to penetrate snow and to move the snow into the housing. Snow is then either ejected with a separate element or by the rotational force of the rotating element. Where the latter is the case, considerable effort has been put forth in developing elements which expose a substantial surface to the snow to be moved and thus exert maximum rotational force in ejecting such snow. Obtaining greater surface exposure has resulted in decreased penetration ability of the rotating element. It is in the area of combined substantial blade surface to move snow with a design which has a high degree of penetration ability, in which applicant's invention lies.

Summary of the invention

The foregoing background shows that the snow-thrower art has not, prior to applicant's invention, effectively solved the problem of loss of penetration ability which has previously been created when the rotating element is constructed to expose maximum surfaces to snow to be moved. The solution of this problem constitutes the primary object of this invention.

Other objects and advantages of the invention will become apparent from the following description and accompanying drawings in which:

FIGURE 1 is a perspective view of the first embodiment of the machine showing the blade assembly through the discharge opening.

FIGURE 2 is a side view of a single disc from the blade assembly of said first embodiment.

FIGURE 3 is an enlarged side view of one of the teeth which are positioned around the periphery of each of the discs in the blade assembly of said first embodiment.

FIGURE 4 is an end view of a single disc of the blade assembly taken along the lines 4-4 of FIGURE 2.

FIGURE 5 is a side view of the blade assembly of the first embodiment removed from the snow thrower.

FIGURE 6 is a side view of the blade assembly in the second embodiment of the invention showing the blade assembly through the snow intake opening.

FIGURE 7 is a side view of the blade assembly of the second embodiment of the invention removed from the machine.

FIGURE 8 is a side view of a major portion of a disc from the blade assembly of the third embodiment of the invention.

FIGURE 9 is an end view of a section of the disc shown in FIGURE 8 taken along the lines 9-9 of said FIGURE 8.

Referring now to the drawings, wherein similar reference characters represent corresponding parts throughout, it will be seen that in FIGURE 1, casing 1 serves as the main frame of the machine on which are mounted axes 2 and 3 having ground engaging wheels 5 and 4 respectively. Power source 6 is mounted on said casing from which power is transmitted to shaft 7 by drive chain 8 and to blade assembly shaft 9 by drive chain 10 (see FIGURE 6).

On blade assembly shaft 9 are mounted a series of discs 11, said discs on one half of said shaft being arranged at a uniform angle relative to said shaft and on the other half of said shaft at a uniform angle complementary to the first said angle.

Chute 12 is associated with casing 1 to deflect snow from discs 11. Teeth 13 on such discs 11 are designed to produce a high degree of penetration of said discs into snow.

A blade assembly shaft 9 is rotated, discs 11 are rotated therewith and snow is penetrated by the discs it is moved upward and to the rear through opening 14 in casing 1 and against chute 12. Chute 12 then deflects the snow to a desired location at the side of the machine.

In the second embodiment of the invention, all of the features of the invention are identical to those in the first embodiment except that discs 11 are arranged at a uniform angle to shaft 15 throughout the entire length of said shaft. This results in causing the snow which is moved to travel in a single direction relative to said shaft 15.

In the third embodiment of the invention all features are identical with the first embodiment except that one side of disc 11 is provided with a series of reinforcing lugs 16 which extend radially from the disc body onto each tooth 13 to provide reinforcing for said tooth and to assist in the penetration and movement of snow. In addition, each tooth 13 is formed in disc 11 by cutting along the curved side of said tooth and bending the adjacent material along a radial line passing through the point of deepest penetration of said cut, whereas the corresponding cut is along the radial line in embodiments one and two and the bending of adjacent material in said embodiment is along the curved side of the tooth.

It is to be understood that various changes as to the size, shape and arrangement of parts may be resorted
to without departing from the spirit of the invention or
the scope of the subjoined claim.

Having thus described my invention, I claim:

In a snow thrower including a casing, a source of
power associated therewith, a snow intake opening and a
snow discharge opening in said casing, and a rotating
assembly comprising a multiplicity of spaced discs ar-
 ranged at an acute angle on a shaft within said casing and
operably connected with said power source, each disc be-
ing circular and having a multiplicity of cuts extending
from the circumference each with that portion of the disc
adjacent a side of said cut positioned at substantially
ninety degrees with the face of said disc.