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(54) **BLOWER CLEANING ATTACHMENT**

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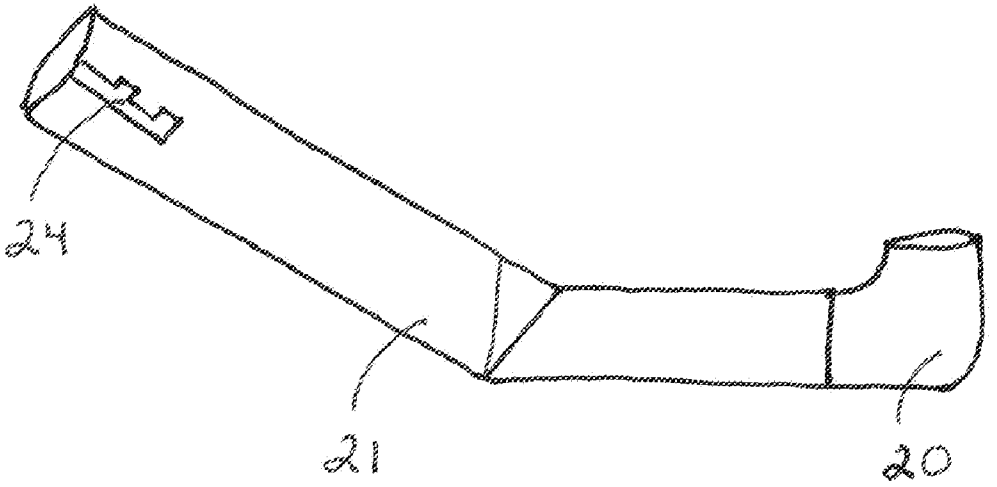
(57) **ABSTRACT**

The primary objective of the present invention is to provide a leaf blower or power blowers with an outlet nozzle or end pipe for blowing air upward for cleaning the debris from the underside of mower decks, snow blowers, vehicles or the like, thereby not having to lift or turn over the machine or bodily reach under the machine to scrape off the debris that accumulates.



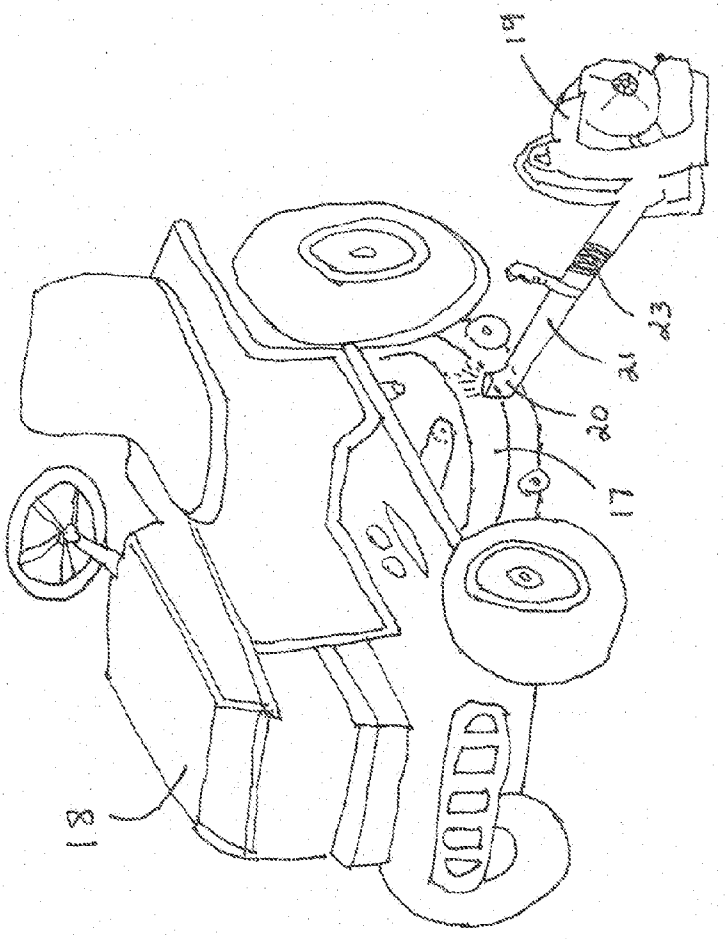


Fig. 1

Fig. 2

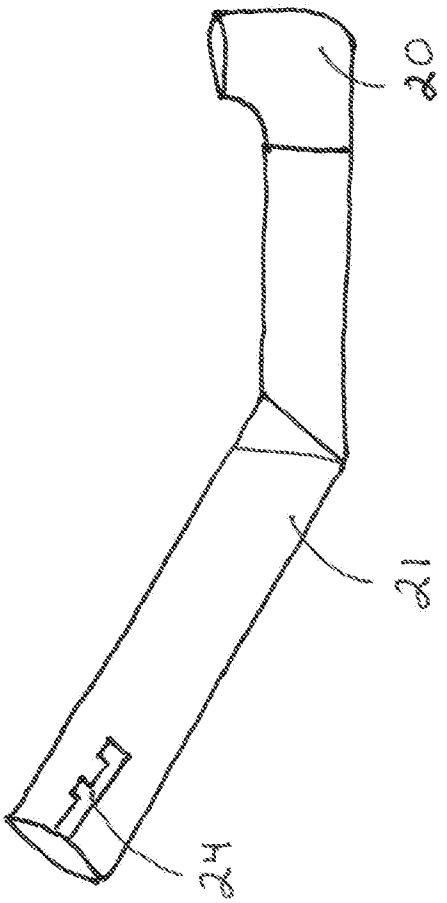
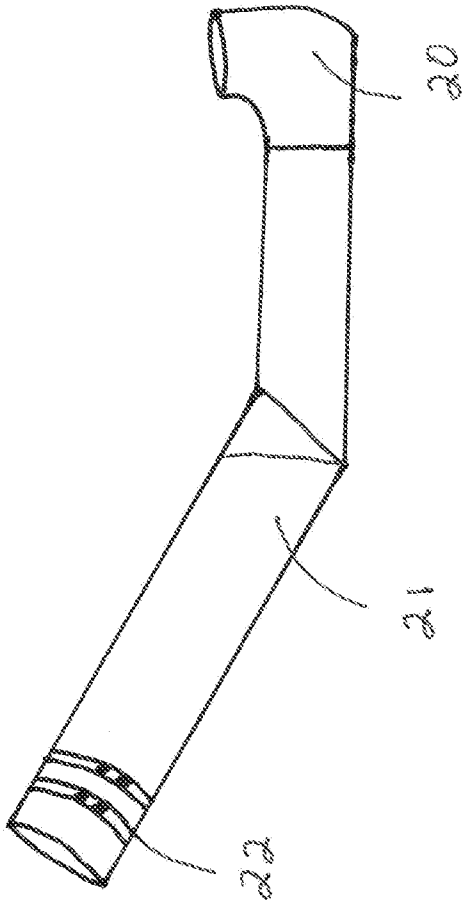


Fig. 3



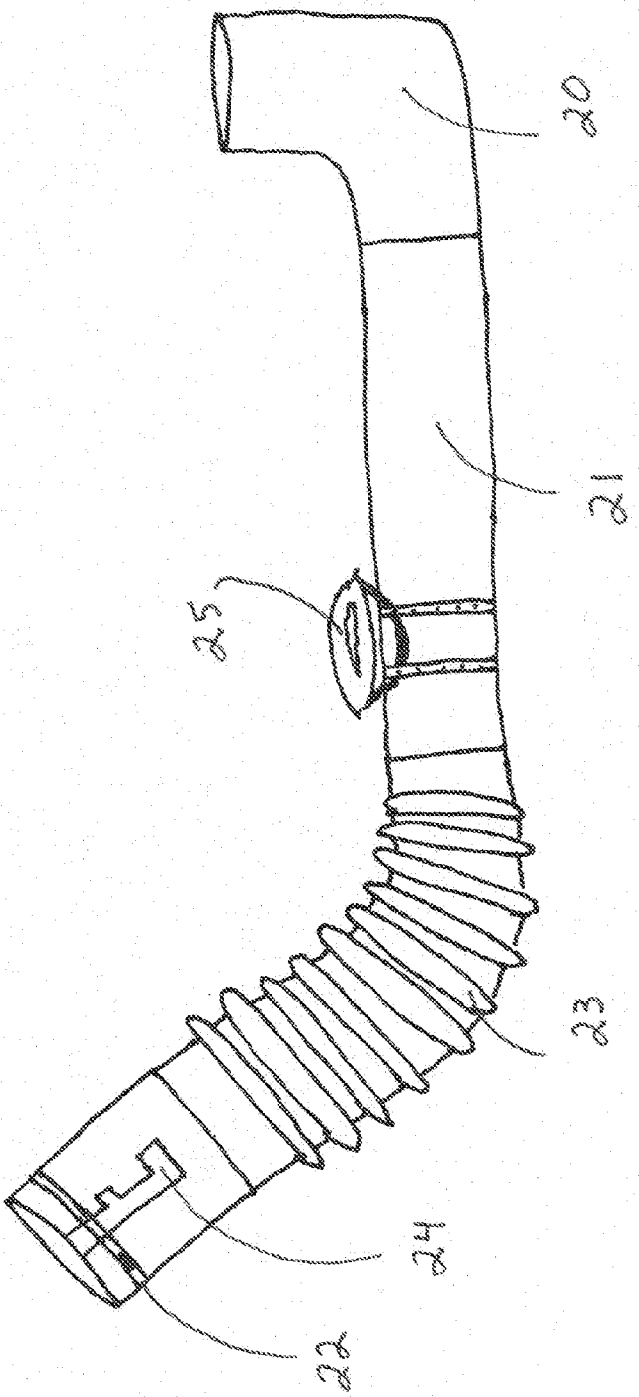


Fig. 4

BLOWER CLEANING ATTACHMENT

BACKGROUND OF THE INVENTION

[0001] The present invention is in the field of powered landscape equipment.

[0002] 1. Field of the Invention

[0003] The present invention relates to a power working machine such as a leaf blower or power blower which utilizes a high speed air stream to perform cleaning operations or the like. In particular, this invention relates to a blower pipe which is connected to the end of an air blow-off port on a blowing machine.

[0004] 2. Description of the Prior Art

[0005] Power blowers or "leaf blowers" are small portable clean-up machines having a small electric or gasoline motor connected to an elongate tubular extension which is held in the hand of operator to direct a forceful stream of air onto the surface to be cleaned. In some models, the motor is carried on the back of the operator and in other models the motor is provided with a strap such that the blower is easily carried during the cleaning operations. The tubular extension has a sleeved nozzle which is slidably received on the end. The nozzle is formed of lightweight plastic material and terminates in either a round or rectangular shape depending upon the manufacturer. These lightweight easily maneuverable blowers substantially reduce the time and labor required for many cleanup tasks and is used primarily for cleaning grass clippings and leaves from walks and driveways after cutting the lawn. They are also widely used in some areas of the country in removing snow.

[0006] There are several patents which disclose various blowers and brush combinations, none of which are suitable for use on or under the equipment, which is where the debris accumulates on the equipment that is used for the yard work or landscaping.

[0007] With respect to such conventional blower pipes as described above, there have been proposed on Richardson U.S. Pat. No. 5,054,159 that has a mounting flange, brush and scraper attachments. This is used for clearing the pavement, walkways or concrete surfaces.

[0008] Henke, et al. U.S. Pat. 5,652,995 According to the invention, a lawn and garden blower has a nozzle which provides a comparatively wide pattern of high velocity air. At the exit of the nozzle, there are pluralities of high-efficiency tubular-shaped bores, arranged side-by-side, which divide the airstream entering the nozzle into a plurality of high-velocity air jets substantially parallel to each other. This patent is also used to clean the ground of leaves, walkways and the like.

[0009] All referenced patents researched and found use the appropriate angle so as to blow the high speed air stream directed at the same angle; down or parallel with the ground, and cannot be used for cleaning underneath equipment.

SUMMARY OF THE INVENTION

[0010] The primary objective of the present invention is to provide a leaf blower or power blowers with an outlet nozzle or end pipe for blowing air upward for cleaning the debris from the underside of mower decks, snow blowers, vehicles or the like.

[0011] The present invention provides a tubular extension, with an approximately 75 to 90 degree reduced tapered angle end blower pipe to be able to reach under equipment and direct the air flow upwards for cleaning.

[0012] A mounted stabilizing handle on one side of the end tube is for directing the bottom flexible pipe and the high speed air stream to the desired location.

[0013] The use of existing and specific connecting means insures the tight fit to the existing blower tube for optimal high speed air stream and prevents the blower pipe and stabilizing handle from accidently coming off during operation.

THE ADVANTAGES

[0014] The advantages of the present invention include, without limitation, fast cleaning of grass, leaves and other debris from under lawn mower decks, snow blowers, vehicles and other equipment with hard to reach areas.

[0015] This attachment solves a major OSHA safety concern. The device greatly increases personal safety while decreasing insurance/workman compensation claims. Currently lawn professionals and homeowners must turn over their mowers, mower decks or similar equipment or jack up the equipment to reach under with their arms and hands to hand scrape the buildup of grass and debris which is time consuming, dangerous and dirty work. The machine can fall on the operator; the operator can be cut by the sharp blades while scraping off the grass under the deck or get burned by accidentally touching the hot engine and parts. Afterwards, from lying on the ground to reach under the deck, the operator has to clean up their tools, hands and clothes. With the current invention, one could quickly install the end pipe on their blower, start the blower and safely direct the high speed air up and under the machine while standing out of harm's way, cleaning it for immediate continuation of work or storage.

[0016] Another advantage is a major concern of the Department Of Agriculture and the property owners; a clean machine that reduces the spreading of fungus, bugs, diseases, and weeds from one property to another.

[0017] Another advantage of the present invention is the savings of wear and tear on the machines. By keeping the equipment clean, the homeowner and landscaper has sharper blades, longer engine life, longer blade and drive belt life and added fuel efficiency which is a big advantage in these economic times of high gas and spare part prices.

[0018] Another advantage of the present invention is it can be used with all models of equipment and is reusable. Also, every landscape or lawn service company and the average homeowner already have "leaf blowers", so purchasing an adapter to fit the equipment that's already owned would be economical and practical.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] FIG. **1** is a schematic perspective view of a riding lawn mower and a power blower employing one embodiment of the blower pipe according to the present invention;

[0020] FIG. **2** is a perspective view of the solid blower pipe shown in FIG. **1**, wherein the blower pipe is viewed from the side and attached to the blower machine utilizing the blower manufactures L-slot connectors;

[0021] FIG. **3** is a perspective view of the solid blower pipe shown in FIG. **1**, wherein the blower pipe is viewed from the side and attached to the blower machine utilizing a rubber connector and quick clasps;

[0022] FIG. **4** is a is a perspective side view of the blower pipe shown in FIG. **1**, wherein the blower pipe and extension is connected with flexible piping and handle.

DETAILED DESCRIPTION OF THE INVENTION

[0023] In the following, an embodiment of the present invention will be described with reference to the accompanying drawings.

[0024] FIG. **1** is a general perspective view of a lawn mower **18**, lawn mower cutting deck **17** and power blower **19** as a power working machine on which a blower pipe of this embodiment is mounted.

[0025] It is designed that air taken from the air-intake vents of the blower machine **19** is compressed and forced toward the air blowing barrel **21** by means of the blower fan. The blower pipe end portion **20** and **21** is detachably attached. The blower pipe portion comprises an intermediate blower pipe **21**, flexible pipe **23**, optional handle **24**, optional quick clasps **22** and an end blower pipe **20**.

[0026] The air stream is blown off through an angled elbow blow-off opening **20** formed at the downstream end of the blower pipe **21** via a flexible pipe **23** portion of the blower pipe **21**, By means of the compressed air stream and the present invention, the debris under the mower deck or like equipment is air blasted off.

[0027] FIG. **2** shows the blower pipe **20** and **21** provided with the blow-off piping in detail.

[0028] The blower pipe **20** with the blow-off opening has its blow out end formed into a 90 degree shaped fitting that is decreased in output diameter. The blow out angle fitting **20** at the end pipe can be adjustable or fixed and is designed to enable an operator to easily apply the high speed air stream to fit under the deck of the machine to be cleaned. The blower machine can be operated while holding it by the operator's hand, by suspending it from operator's shoulder or by sitting it close by the machine to be cleaned.

[0029] The piping **21** has an approximate 45 degree angle fitting that is angled for the end pipe **20** to fit under the equipment. The complete pipe diameter **20** and **21** and angles incorporates a reduced pipe size opening that increases the exiting air flow to increase the cleaning force.

[0030] An L-slotted molded connector **22** as connecting means for tightly connecting the blower pipe **20** and **21** to the blower machine **19**. The proximal fitting **23** is formed at the upstream end opposite to the blow-off opening and is provided and molded with two L-shaped locking grooves opposite to each other to fit existing manufacturers blower pipe models.

[0031] FIG. **3** is a view showing the pipe as in FIG. **2** but utilizing a rubber coupling and quick clasp **22** or hose clamps for connecting means to fit unusual size blower output tubes.

[0032] FIG. **4** is a side view of the flexible pipe **23** and the end angled pipe **20** and **21**; all connected with the quick clasps **22** or L-slot **24** grooves. This view shows the end pipe **20** with an extended pipe assembly and stabilizing handle **25** to direct the air flow when sitting the blower on the ground for larger mowers, equipment or the like.

MAKE AND METHOD

[0033] A polyethylene alloy or the like can be used as a material to prepare the blower pipe **20**, **21** and **23**. The material is melted and introduced into a mold having a desired shape, and air is blown to obtain an integrally molded product. The blower pipe may also be prepared by other means or methods, reducing the cost of the product.

[0034] The connector for the end pipe **20**, **21** and **23** can also use a rubber coupling with quick clasps so a tight fitting will be established with different sizes of existing blower pipes.

[0035] While the foregoing written description of the invention enables one of ordinary skill to make and use what is considered presently to be the best mode thereof, those of ordinary skill will understand and appreciate the existence of variations, combinations, and equivalents of the specific embodiment, method, and examples herein. The invention should therefore not be limited by the above described embodiment, method, and examples, but by all embodiments and methods within the scope and spirit of the invention.

REFERENCE NUMERALS

[0036] **17**: Mower cutting deck
[0037] **18**: Mower
[0038] **19**: Blower
[0039] **20**: End blow off pipe (present invention)
[0040] **21**: Blower pipe (present invention)
[0041] **22**: Quick clasps
[0042] **23**: Flexible pipe
[0043] **24**: Molded L-slotted connector
[0044] **25**: Optional handle

OPERATION

[0045] In operation one uses the "leaf blower" in a normal manner with these steps: Stop and shut off the machine to be cleaned, raising the deck or area to be cleaned to its highest setting off the ground.

[0046] Attach the cleaning end pipe to the blower using the existing screw-on L shaped attachment that is manufactured on most blowers or the supplied coupling with quick clasps. If end pipe is adjustable, adjust to desired angle.

[0047] Set the blower on the ground next to the machine to be cleaned, and start the blower, setting the throttle on full speed. Make sure your safety glasses are used.

[0048] Grasp the stabilizing handle on the cleaning end pipe and move it under the equipment to he cleaned. If using the cleaning end pipe on a smaller hand blower or large backpack blower, after lifting it up or strapping it on, grasp the throttle handle and move the blower pipe assembly back and forth underneath the deck area to be cleaned.

[0049] When no more debris comes out from under the equipment, shut off the blower, remove the end cleaning adapter and store it for the next cleaning.

What is claimed is:

1. An outlet nozzle and end blower extension pipe for use with power blower assembly comprising:

a. The pipe having an upper end adjacent the blower assembly and a lower tapered, blow-out end;

b. The upper end of said pipe has a positive coupler assembly joining same to the blower pipe assembly;

c. The lower end of the pipe is formed as to deflect the air flow through a 90 degree elbow like fitting with a reduced blow-out opening and formed to maintain forced high speed air directed under lawn mower decks, equipment or the like. The end pipe can also be an adjustable degree fitting or method to adapt to different equipment and heights.

d. The extension pipe being adjustable or curved between its ends at selected angles so that the lower outlet end

directs forced air upwards when the blower assembly is on the ground or held manually by a user;

e. The extension pipe also has the option of a handle and flexible piping to help direct the pipe under the equipment to be cleaned.

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