The invention of which this disclosure is offered for public dissemination as a patent relates to yard burners for burning leaves and the like. According to the present invention, the well-known problems in connection with burning leaves are quite satisfactorily overcome. Even wet leaves may be burned, and the burning is rapid enough to make more room available in the burner by the time the leaves are likely to be raked to dump in. Smoke is so nearly eliminated that it is not noticed, even with wet leaves. This is accomplished by using a blower to provide a forced draft, together with a stack which ensures a passage for the air to reach a large burning area extending substantially throughout the height of the burning mass so that there will be substantially no zone of smoldering in the absence of an excess of air. Additional objects and advantages of the invention will be apparent from the following description and from the drawings.

Designation of figures

FIGURE 1 is a side elevation of the burner chosen for illustration of the invention.

FIGURE 2 is an end elevation of the burner, partially broken away to show the internal air manifold and screen stack at approximately the plane of line 2—2 in FIG. 1.

General description

The following description of a specific embodiment is for the purpose of complying with the disclosure requirements of 35 U.S.C. 112 and should not be construed as imposing any unnecessary limitations upon the appended claims.

The illustrated form of the invention includes a hopper 11 with removable covers 12, a stack 13 of expanded metal or other screen-like material, and a blower 14 which blows air through a line of orifices 16 in a horizontal pipe 17 exposed at the bottom of the hopper 11. The stack is open at its bottom, which is directly over the perforated pipe 17 so that the air may blow freely into the stack and up through the apertures in its screening or expanded metal material.

Portability and other features

The burner is preferably made for easy movement about the yard. To this end a pair of wheels 21 may be mounted at the two ends of a shaft 22 extending through legs 23. Each leg 23 may be part of a generally L-shaped pipe which also forms leg 24 terminating in foot 26.

Blower 14 may be supported partly by rod 27 extending between legs 24. It may also be rigidly secured to inflow pipe 28 which connects with a T 29 which communicates with two sections of the pipe 17 one extending in each direction from the T 29. The two sections of pipe 17 may both extend through snugly fitting holes in the side walls of hopper 11 and have caps 31 secured to them. Likewise pipe 28 extends out through a snugly fitting hole in the sloping end of hopper 11. In this way, the piping structure is rigidly positioned.

Blower 14 is driven by a motor 33 connected by an electric cord 34 to any convenient electrical outlet.

A handle 36 is provided on the opposite side of the hopper 11 from the wheels 21. Preferably this handle 36 is bulged at its ends beyond the sides of the hopper 11, as seen in FIGURE 2, so that after the blower has cooled off the cord 34 may be wound on the handle 36.

Covers 12 may be hinged if desired, but preferably are slideably mounted as shown. They may be opened part way as desired or may be slid off entirely.

The screen stack 13 may be made as an independent removable unit so that it can be replaced if it burns out. Although the air flowing through it is expected to prevent its burning out very rapidly, the knowledge that it can be replaced may be a selling feature. It may be formed of two tapered, narrow sheet-metal pieces 38 joined by the expanded metal 39 which may be in one piece bent to a narrow V-shape to fit snugly over the upper end of the side plates 38. Heavy expanded metal should be used.

An important feature of the invention is that the perforated pipe 17 is located directly below the screen stack 13 and close enough to its bottom so that there is no danger that the perforated pipe 17 will be effectively sealed off by a thick layer of the densely-packed leaves.

If dry leaves are dumped into the hopper 11 on both sides of the screen stack 13, they will fall between the screen stack 13 and the sloping ends 41 of the hopper, and are expected to spread lightly over the perforated pipe sections 17. However, the angle of repose of the leaves is such that the two angles of repose will meet not more than a few inches above the pipe 17, and hence even if leaves are dumped in and packed down prior to starting the fire there will be no danger of serious interference with the flow of air.

Ordinarily, it is expected that paper or other light kindling material will be placed in the hopper 11 first and pressed down to the bottom thereof. When the leaves are at hand ready to be dumped in, the paper will be lit and the leaves dumped in immediately afterwards. A small igniting aperture may be provided for this purpose but it is preferred to use the door 43 which may be locked closed by turning a handle 44 to the position shown. This door not only facilitates lighting the fire when preparations have been made as described, but also will make it possible to insert dry paper in the event that the hopper 11 has been carelessly filled with wet leaves, or with dry leaves which were allowed to get wet, instead of preparing the fire as described.

In addition to burning leaves, the burner is very satisfactory for burning trash of a mainly paper nature. Experience may show that an even wider variety of materials may be burned in it where local ordinances permit.

Preferably the screen stack 13 extends above the side walls of hopper 11, so that even if the leaves are piled as high as they can be piled on top of the hopper, the screen stack 13 will extend fairly near to the top of the leaves.

Covers 12 are provided with handles 46. If the user should so desire, when he has dumped in all of the leaves which are to be burned, he may restore the covers 12 to their position shown in full lines in FIGURE 1. Even if the blower 14 is then turned off while there is still a residue of leaves unburned, they will usually continue to...
burn harmlessly until fully consumed, the products of combustion escaping through the projecting portion of screen stack hopper.

Good results have been achieved with a 60 CFM blower and with the pipe 17 formed of 1/4 inch pipe, with quarter-inch holes drilled on one-inch centers. One-inch tubing has been used successfully for legs 23, 24. A screen stack 28 inches high, with its bottom 6 inches wide in the narrow direction and located approximately 10 inches above the perforated pipe 17 has been found suitable. The top opening of the hopper 11 can conveniently be 38 inches by 24 inches, although of course other sizes, especially larger sizes, could be used.

Achievement

With the burner of this invention, leaves, even wet leaves, can be burned rapidly and with such complete combustion that the products of combustion are relatively unobjectionable, there being almost no smoke. As a yard is being raked, this unit may easily be moved from point to point to be close to the raking operation so that the leaves may be dumped in and burned as the raking proceeds. If only one raker is working, he may find it desirable to use only one-half of the burner so that one filling of leaves will not be too fully consumed to start the next filling by the time he has it raked. If the leaves are so dry that those on the ground constitute a fire hazard, the burning may be accomplished with the covers 12 kept closed except while leaves are being inserted.

We claim:

1. A yard burner including a hopper-shaped container, generally rectangular in horizontal cross-section, air liberation means near the bottom thereof, a blower with power means for blowing air through the air liberation means and a screen-like stack extending substantially across the hopper generally parallel to horizontal lines in sloping sides thereof and extending upwardly from a short distance above the air liberation means to a point open to the atmosphere substantially above the top of the container for liberating air substantially through the height of the burning mass to ensure complete combustion; and for carrying off products of combustion; the sloping walls extending into such proximity to the bottom of the stack as to bring all materials to a narrow area for certainty of burning.

2. A yard burner including a hopper-shaped container, generally rectangular in horizontal cross-section, air liberation means near the bottom thereof, a blower with power means for blowing air through the air liberation means and a screen-like stack extending substantially across the hopper generally parallel to horizontal lines in sloping sides thereof and extending upwardly from a short distance above the air liberation means to a point open to the atmosphere substantially above the top of the container for liberating air substantially through the height of the burning mass to ensure complete combustion, and for carrying off products of combustion; the sloping walls extending into such proximity to the bottom of the stack as to bring all materials to a narrow area for certainty of burning; the zone between the air liberation means and the stack being in open communication with the spaces between the stack and side walls for passage of material to be burned somewhat into said zone.

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