Aug. 12, 1969 W. M. FISHER 3,460,490

REFUSE BURNER APPARATUS

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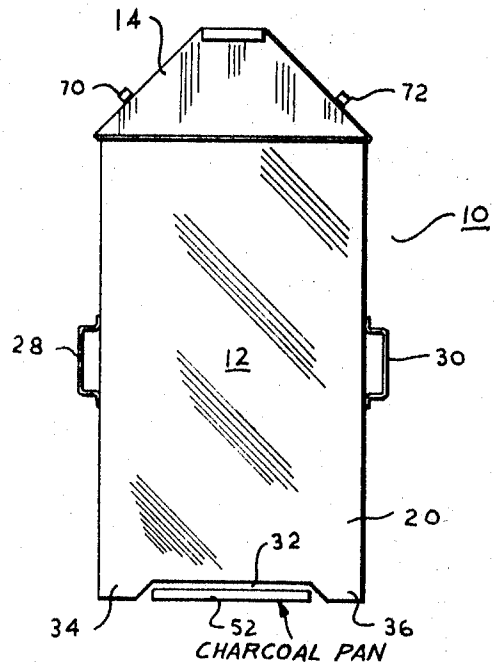
FIG. 1



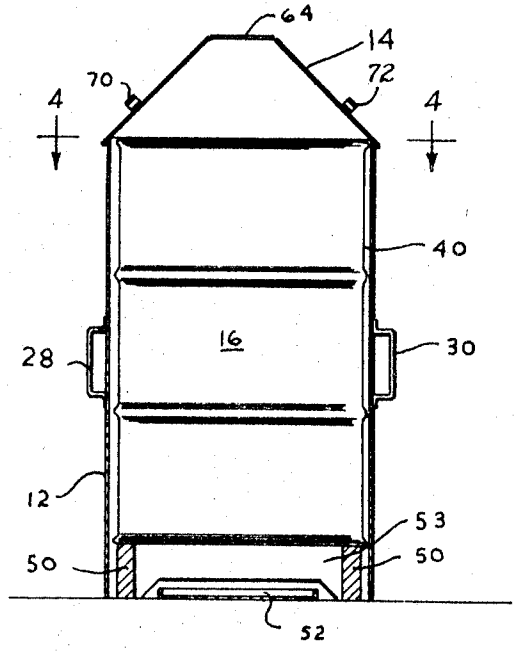


FIG. 3

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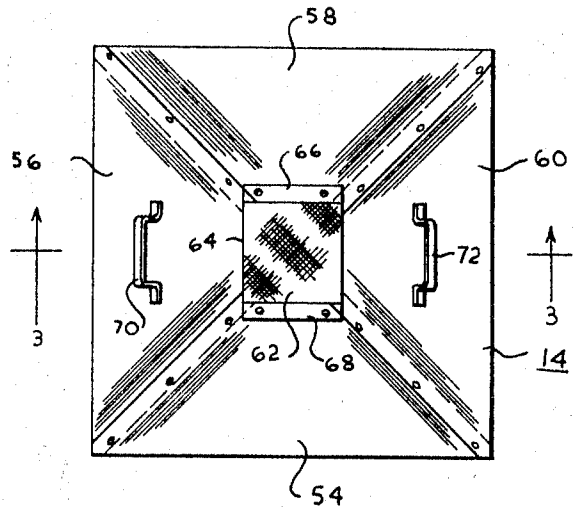

FIG. 2

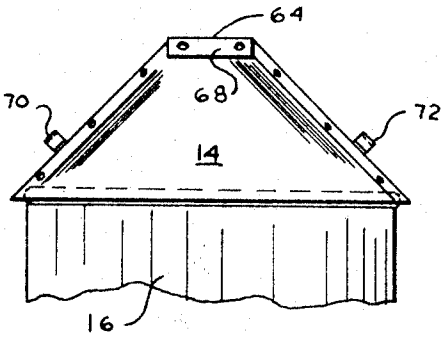

FIG. 5

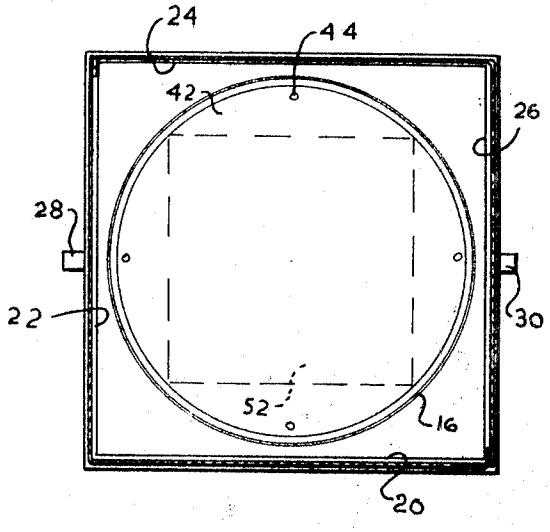

FIG. 4

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REFUSE BURNER APPARATUS

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U.S. Cl. 110—18 10 Claims

ABSTRACT OF THE DISCLOSURE

A refuse burning apparatus having a cylindrical shaped burner portion and a removable pyramid shaped cover mounted above the burner portion and having a hole in the top. The burner portion may be enclosed in a rectangularly shaped body and at least one of the panels of the body is provided with an opening near the bottom for combustion air.

Most trash burners which do not have a secondary source of heat, such as gas, will often not burn the trash completely, and will frequently smolder, smoke and smell for extended periods of time until the fire dies out, leaving the half burnt material in the burner. The partially burnt material accumulates in the burner and interferes with the effective operation of the burner and requires frequent emptying. Further, these burners, which are often drum or cyindrical shaped and open at the top, emit sparks and flames which create a fire hazard to surrounding property and to the one emptying the refuse and stirring the fire to accelerate burning. This type of burner, while simple in construction and operation and relatively inexpensive, is virtually incapable of burning wet or damp material which, if placed in the burner, will extinguish the fire and will have to be removed therefrom. It is therefore one of the principal objects of the present invention to provide a refuse burner apparatus which is so constructed and designed that it will direct the draft to obtain effective combustion of the refuse material and to consume most of the smoke, and which will handle wet and damp materials without causing the material to smolder, smoke or smell to any extent or for extended periods of time.

Another object of the invention is to provide a burner for all types of combustible rubbish, which is relatively simple in construction and operation and which can be easily cleaned, relocated and maintained in optimum operating condition without attention or servicing.

Sttll another object of the invention is to provide a refuse burner which provides maximum safety to person and property, and which is neat and attractive in appearance and easy to fabricate, ship, store and assemble, without the use of any special tools or equipment.

Further objects and advantages of the invention will become apparent from the following description and accompanying drawings, wherein:

FIGURE 1 is a front elevational view of a trash burner apparatus embodying the present invention;

FIGURE 2 is a top plan view of the trash burner apparatus shown in FIGURE 1;

FIGURE 3 is a vertical cross sectional view of the present apparatus, the section being taken on line 3—3 of FIGURE 2;

FIGURE 4 is an enlarged horizontal cross sectional view of the present apparatus, the section being taken on line 4—4 of FIGURE 3, illustrating more effectively the relationship of parts in the present structure; and

FIGURE 5 is a side elevational view of the top of

the present trash burner apparatus showing it as a modification of the inventive concept.

Referring more specifically to the drawings, numeral **10** designates the present refuse burner apparatus generally, **12** the body of the burner, **14** a cover, and **16** the internal fire box or burner for the material to be burnt. The present burner apparatus may be of various sizes and constructed of sheet metal of various gauges and kinds, including galvanized steel and aluminum. It may also be painted or left in the metallic condition. These are details which do not directly involve the present invention, and hence will not be described further herein.

Body **12** is constructed of four rectangular panels **20**, **22**, **24** and **26** joined together at the corners, either integrally or by a suitable joint to form four continuous side walls of rigid construction. Two handles **28** and **30** are mounted on two opposed panels and are secured thereto by rivets or other suitable securing means to provide an easy means for lifting the body. These handles may be at various locations; however, the location shown in the drawings is preferred, in that the body must be lifted to a relatively high position in order to disassemble the body from fire box **16**, as will be more fully explained hereinafter. One or more openings **32** is provided at or near the lower edge of one or more of the panels in order to provide the air for combustion. In the embodiment illustrated in the drawings, the opening consists of merely a notch-like configuration in the lower edge of one of the panels, but a series of round holes or a plurality of notches in each side may be provided if desired. The notch **32**, in effect, forms two legs **34** and **36** at opposite corners of each panel which may rest directly on the ground or on cement blocks or on other suitable supporting structures.

The fire box or burner **16** is cylindrical in shape and the side walls **40** and bottom **42** are imperforate except for one or more small holes **44** in the bottom for draining water or other liquids from the burner. These holes, not being intended for the combustion air, may be omitted entirely and are not required for the effective operation of the present burner apparatus. While the fire box may be specially constructed for the present burner, a conventional oil drum forms a suitable burner or fire box in combination with body **12** and cover **14**, the burner shown in the drawings consisting of such a drum. The holes **44** can readily be drilled or punched in the bottom of the drum and the lid thereof is completely removed and discarded. In order to obtain the full benefits of the present invention, the fire box or burner is mounted upon a plurality of supports **50** to hold the bottom of the box several inches above the ground or other supporting surface. Supports **50**, as shown in the drawings, may consist of a plurality of bricks of cement blocks or may be legs permanently attached to the bottom of the drum. As a further alternative, the drum may be supported by the legs or support members mounted in the body **12**, thus eliminating the leg-type construction illustrated in FIGURE 3. As illustrated in FIGURE 4, the side walls **20**, **22**, **24** and **26** are spaced outwardly from the external surface of the fire box, and while this is the preferred arrangement, the space at the four corners of the body provides adequate air, hence making the spacing between the inner sides of the four panels and the external surface of the fire box unimportant. A pan **52** is disposed in the space **53** created by the elevated fire box position and it is designed to contain a pile of charcoal or other long burning combustible material, the purpose of which will be more fully explained hereinafter.

The cover **14** is generally of a pyramid shape shown in the drawings as a frusto-pyramid, and is constructed

of four generally triangular panels **54**, **56**, **58** and **60**, shown as a trapezoidal shape, joined at their corners to the adjacent panels by rivets or other suitable means, including one or more integral joints. The cover seats on the upper edge of body **12** and is provided with a small overhang and seats sufficiently tightly on the upper edge that no substantial amount of air for combustion is provided from any space between the body and cover. A hole **62** is provided in the upper end of the cover and in the embodiment illustrated in the drawings, is rectangular in shape and covered by a screen **64** secured to the cover and to the top of two opposite panels by strips **66** and **68** secured thereto by a plurality of screws. Handles **70** and **72** are mounted on opposite panels and secured thereto by rivets or other suitable securing means to assist in removing the top from body **12**.

In the operation of the present trash burner apparatus, rubbish or other material to be burned is placed in fire box or burner **16** and lighted. Cover **14** is then placed on body **12**, thus causing the updraft to flow through hole **62** and the incoming draft to flow inwardly through openings **32**, upwardly in the space between the body side walls and the side walls of burner **16**. As the air passes upwardly through this space, it may be heated by the fire in the burner and, upon reaching the top of the burner, passes downwardly along the internal side walls of the burner to the base of the flame, thereby providing partially heated air for effective combustion. Some of the air which reaches the top of the burner is directed upwardly to mix with the smoke and hot gases passing through the cover, thereby providing air for effective combustion of the gases before they are discharged through hole **62**.

Since many materials, such as green grass, wet leaves and garbage, contain sufficient moisture to prevent combustion or to retard combustion to the point where the material smolders for long periods of time, the present burner provides a means for preparing these wet or moist materials for burning. Charcoal or other long burning, high heat material is placed in pan **52** and ignited after the moist or wet material has been placed in burner **16**. The heat from the burning charcoal passes through the bottom of the container and the air heated by this material passes along the sides of the burner, vaporizing the moisture in the material. The driving off of this moisture is continued until the material has become sufficiently dry to burn readily without the application of any external heat. After the rubbish material has been dried sufficiently, the length of time required depending upon the bulk of the material and the amount of moisture therein, the material is ignited and burns in the same manner as the material previously referred to herein.

Another advantage of the present invention is the fact that the cover can be used separately from body **12** by merely placing it over the top of the fire box or drum as illustrated in FIGURE 5. The rectangular cover provides at its corners four well defined air inlets which direct the combustion air first upwardly and then over the top of the burner, causing it to flow downwardly along the inner sides of the burner to the base of the flame to provide sufficieint air for combustion, and simultaneously causing it to flow upwardly along the inner side of the

cover to provide air for combustion of the hot gases. This construction permits the top to be sold separately from the body and permits it to be used on several drums containing various combustible materials, in addition to its use on body **12**.

While only one embodiment of the present invention has been described in detail herein, various changes and modifications may be made without departing from the scope of the invention.

I claim:

1. A refuse burning apparatus comprising a cylindrically shaped burner and a removable generally pyramid shaped cover for said burner disposed thereabove and having a hole in the top, the four corners of said cover projecting outwardly from the sides of said burner and in close proximity to the upper edge thereof and forming air passages for combustion of refuse in said burner.

2. A refuse burning apparatus as defined in claim **1**, in which a rectangularly shaped body encloses said burner and supports said cover.

3. A refuse burning apparatus as defined in claim **2**, in which said body consists of four rectangularly shaped metal panels joined together to form a rigid structure and having the center of their inner sides in close proximity to the external surface of said burner.

4. A refuse burning apparatus as defined in claim **3**, in which at least one of said panels is provided with an opening near the bottom for combustion air.

5. A refuse burning apparatus as defined in claim **2**, in which a support means is provided for elevating the bottom of said burner above the lower edge of said body to provide a space beneath said burner.

6. A refuse burning apparatus as defined in claim **5**, in which a tray is disposed in said space for retaining a combustible material beneath the bottom of said burner.

7. A refuse burning apparatus as defined in claim **1**, in which said cover is constructed of four generally triangularly shaped panels joined together at their edges to form a rigid structure.

8. A refuse burning apparatus as defined in claim **7**, in which the hole in the top is covered with a screen-like structure.

9. A refuse burning apparatus as defined in claim **2**, in which said body consists of four rectangularly shaped panels, and said burner is supported therein above the lower edge of said body to provide a space for receiving a combustible material for driving off moisture from refuse in the burner before said latter material is ignited.

10. A refuse burning apparatus as defined in claim **9**, in which the upper edges of said body and said burner are on substantially the same plane.

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