

[54] AIR JET HEAD ASSEMBLY FOR PIT TYPE INCINERATORS

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[51] Int. Cl. F23c 7/00

[58] Field of Search 110/7 R, 7 A, 18 R, 72 R, 110/75 R, 182.5

[56] References Cited

UNITED STATES PATENTS

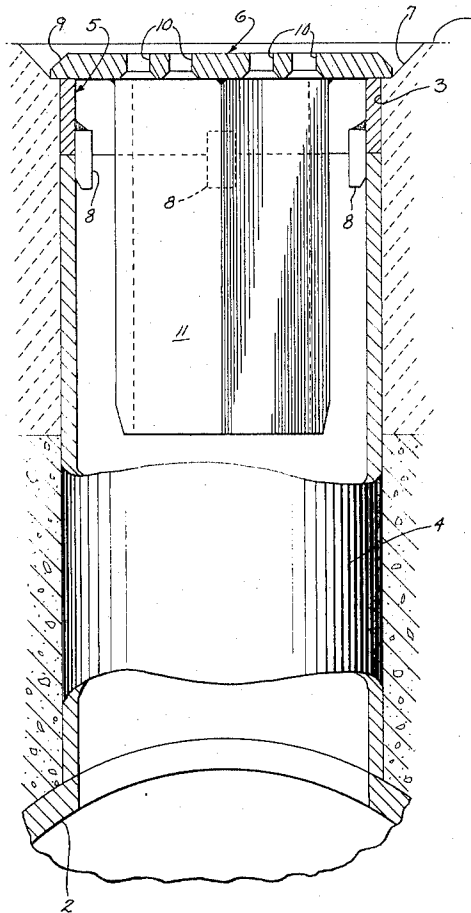
2,608,169	8/1952	Sparks et al.	110/75 X
3,354,847	11/1967	Clement et al.	110/72 X
3,638,591	2/1972	Lausmann.....	110/75 X
3,731,640	5/1973	Stutz.....	110/75 X

Primary Examiner—Kenneth W. Sprague
Attorney, Agent, or Firm—Andrus, Scales, Starke & Sawall

[57] ABSTRACT

The vertical jet openings through the thick refractory floor of a pit type incinerator are lined by sleeves extending upwardly to within a predetermined distance short of the upper surface of the floor, and a removable replaceable ring rests upon the upper edge of each sleeve to support the perforate plate cover at approximately the level of the floor. As the refractory floor wears down in removing ash from the pit the rings may be cut down, replaced by shorter ones or removed entirely to maintain the cover plates at the level of the worn floor.

3 Claims, 7 Drawing Figures



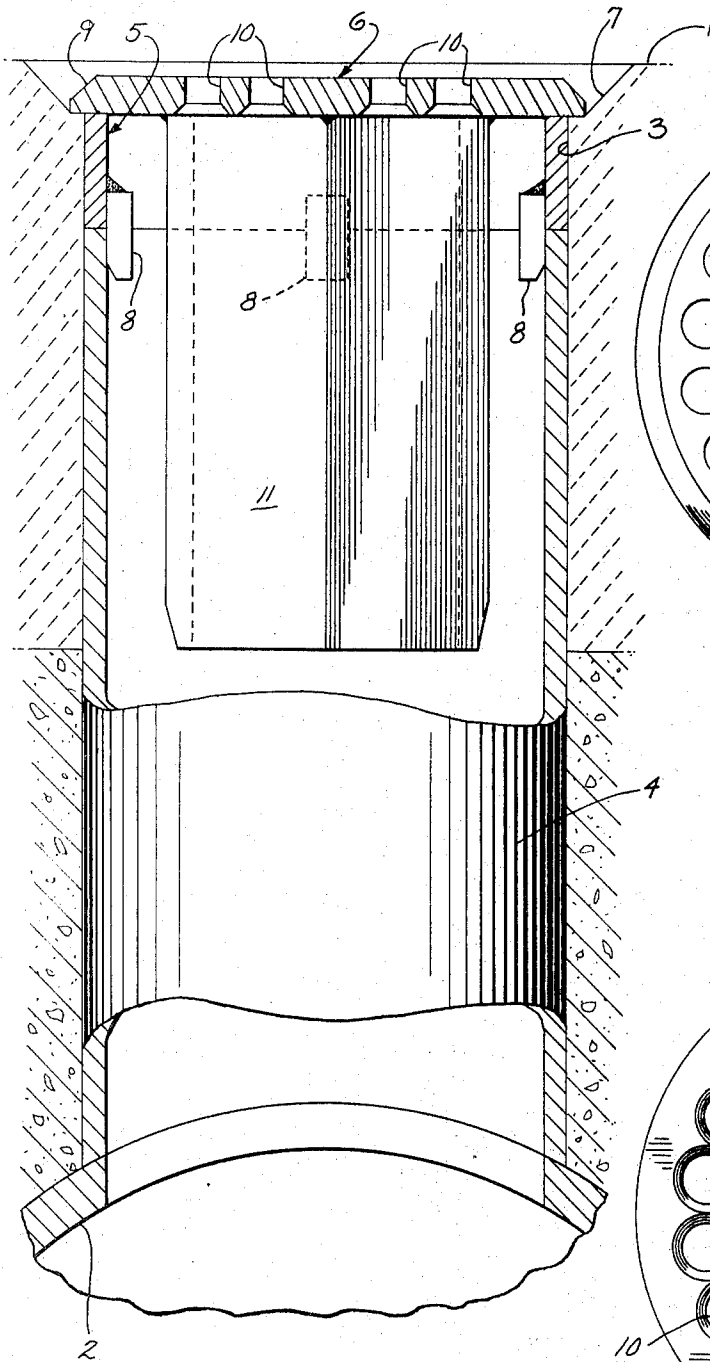


Fig. 1

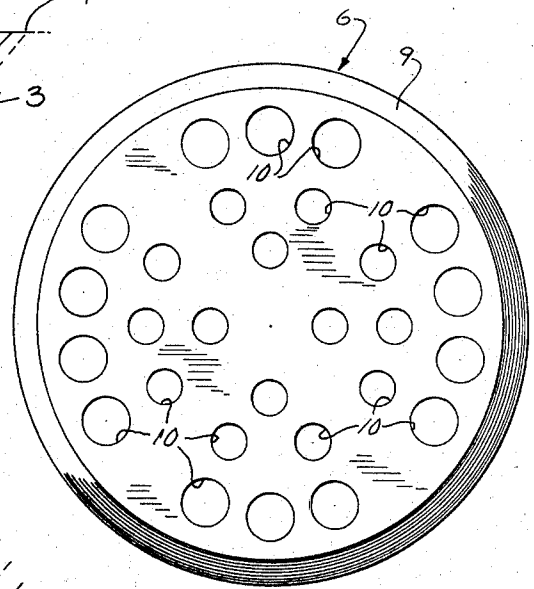


Fig. 2

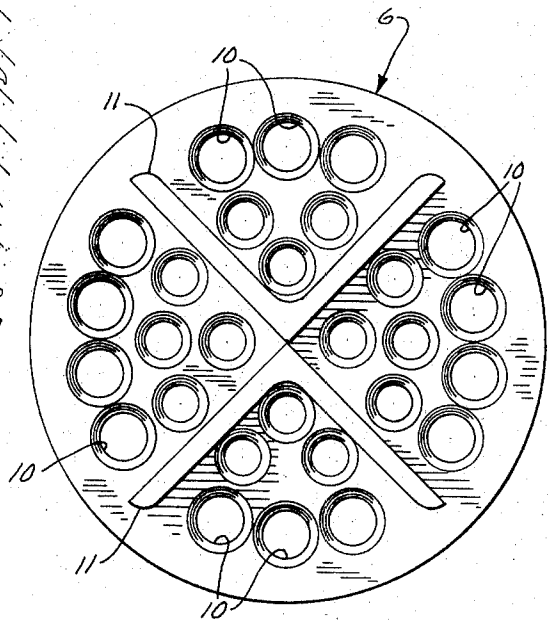


Fig. 3

Fig. 4

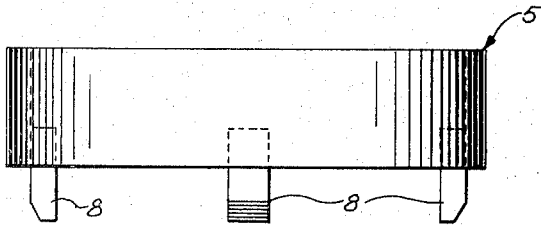


Fig. 5

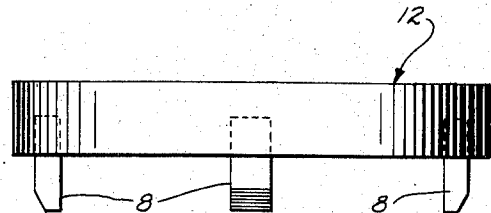


Fig. 6

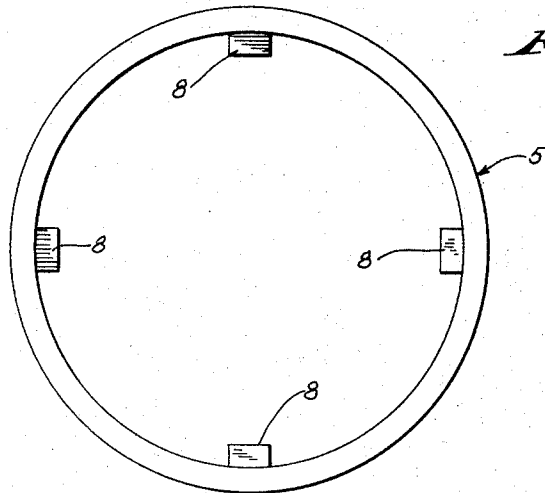
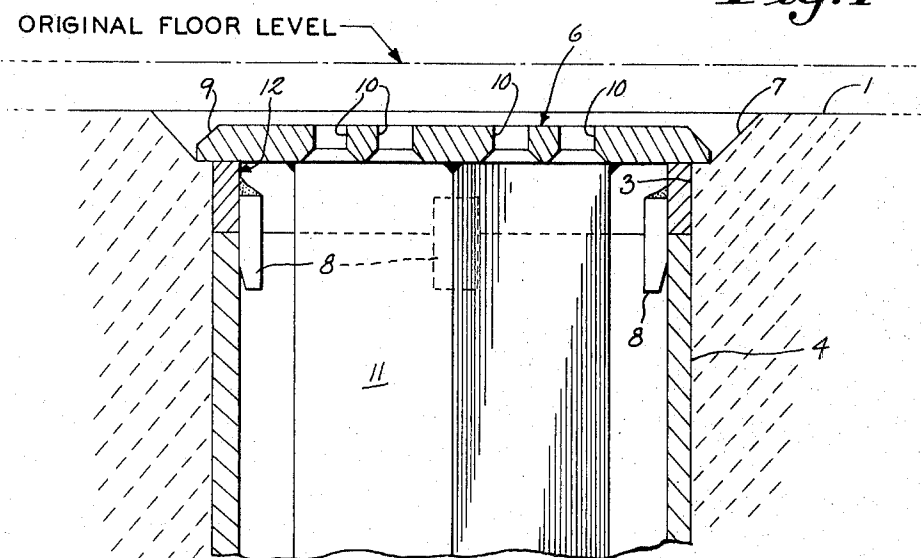


Fig. 7



AIR JET HEAD ASSEMBLY FOR PIT TYPE INCINERATORS

CROSS REFERENCE TO RELATED APPLICATION

A pit type incinerator with which the present invention may be employed is illustrated in applicant's co-pending application for "Air Supply for Pit Type Incinerator" filed on even date herewith by the present inventor.

BACKGROUND OF THE INVENTION

This invention relates to an air jet head assembly for pit type incinerators.

In constructing jet heads for such incinerators heretofore it has been the practice to support the perforate plate covers directly upon the fixed liner sleeves for the jet openings in the floor of the incinerator.

In such practice wear of the refractory floor by equipment removing ashes from the pit frequently left the perforate cover plates above the floor level whereby the plates were susceptible to damage by the ash removal equipment in the course of time. Difficulty was frequently encountered in maintaining the cover plates in place.

SUMMARY OF THE INVENTION

According to the present invention the liner for the vertical jet opening in the refractory floor is constructed to end short of the top surface of the floor, and a spacer ring is disposed to rest upon the sleeve and to extend upwardly to support the cover plate at approximately the level of the upper surface of the floor.

The spacer ring is susceptible to replacement by successively shorter rings as the upper surface of the refractory floor wears down, or the ring may be cut shorter and finally eliminated entirely as the floor wears.

BRIEF DESCRIPTION OF THE DRAWING

The accompanying drawing illustrates the preferred embodiment constituting the best mode presently contemplated by the inventor for carrying out the invention.

In the drawing:

FIG. 1 is a vertical transverse section through a part of the floor of a pit type incinerator taken axially of a vertical jet opening therethrough and transversely of the header feeding air to the jet;

FIG. 2 is a top plan view of the jet head shown in FIG. 1;

FIG. 3 is a bottom plan view of the cover plate for the jet head;

FIG. 4 is a side elevation of the riser ring employed during the first period of use of the incinerator;

FIG. 5 is a view similar to FIG. 4 of the riser ring employed to replace the ring of FIG. 4 after a given wear of the refractory floor;

FIG. 6 is a plan view of the ring of either FIG. 4 or FIG. 5; and

FIG. 7 is a detail section similar to a part of FIG. 1 after substitution of the riser ring of FIG. 5 for that of FIG. 4.

DESCRIPTION OF THE PREFERRED EMBODIMENT

As shown in the drawings pit type incinerators generally have a thick refractory floor 1 with one or more air supply ducts 2 extending horizontally below the floor and constituting a manifold feeding air to a plurality of vertical openings 3 through the floor.

Each opening 3 is lined with a cylindrical sleeve 4 extending upwardly from duct 2 and terminating a predetermined distance down from the upper surface of floor 1.

A riser ring 5 rests upon the top of sleeve 4 and extends upwardly to support the jet head plate 6 in a shallow recess 7 in floor 1.

The ring 5, as shown in FIGS. 1 and 4, is of the same diameter as sleeve 4 and is held in place thereon by a plurality of circumferentially spaced vertical strips 8 which constitute guide anchors welded at their upper ends to the inside of the ring and extending downwardly to fit within the sleeve 4.

The vertical height of riser ring 5 is such as to support the jet head plate 6 at the desired position with respect to the upper surface of floor 1.

The jet head plate 6 is generally a flat circular metal plate having a downwardly beveled edge 9 to resist interference with cleaning operations.

A plurality of jet openings or ports 10 in plate 6 are shaped and directed to establish separate jets of high velocity air upwardly into the burning mass of trash in the incinerator, thus supplying under-fire air for combustion purposes, and tending to be self-cleaning as against deposit of ash on the plate and against clogging by ash.

The plate 6 is held in place by suitable guide anchors 11 welded to the underside of the plate and extending downwardly into the sleeve 4 for a substantial distance. The guide anchors 11 shown are constructed of two angle irons disposed back to back in opposed V formation to provide four radial plates spaced 90° apart.

In service a scraper is used in the pit to remove ash and unburned trash from the bottom of the pit through a suitable side clean-out door, not shown. In due time the scraper wears the floor 1 down to beyond the level of jet head plate 6 and then has a tendency to disclose the plate from its desired position on riser ring 5.

After the floor 1 of the incinerator has been worn down in any area to a level generally below the plate 6 there arises a tendency for the plate to interfere with the cleaning operation, and the plate may even catch on the scraper and become dislodged so as to require replacement upon the ring 5. When this occurs, the present invention contemplates that ring 5 will be removed and a shorter ring 12 as shown in FIGS. 5 and 7 will be substituted for it to support plate 6 at a lower level corresponding to the new level of the floor after wear.

Instead of providing separate riser rings 5 and 12 of different axial length it is possible to merely remove and cut down the riser ring 5 to a shorter length to accommodate the desired positioning of plate 6.

If and when floor 1 wears down beyond the position of plate 6 in FIG. 7, it is possible to remove riser ring 12 and to rest the plate 6 directly upon sleeve 4. Further wear of the floor 1 beyond that accommodated by positioning of plate 6 upon sleeve 4 will generally require replacing or recapping the floor.

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Various modes of carrying out the invention are contemplated as being within the scope of the following claims particularly pointing out and distinctly claiming the subject matter which is regarded as the invention.

I claim:

1. In an incinerator of the class described having a refractory floor of substantial thickness with a plurality of vertical openings therethrough adapted to supply under-fire air to aid in combustion of the material in the incinerator, a jet head assembly and mounting comprising a generally cylindrical sleeve fixed in an opening and extending upwardly from a source of air to a top position below that generally allowable for wear of the surface of the floor, a jet head plate disposed generally

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at the level of the upper surface of the floor, and means to support said plate upon said sleeve selectively at a plurality of adjusted levels above the top of the sleeve and consonant with different levels for the top surface of the floor as the latter wears down in service.

2. The construction of claim 1 in which said supporting means comprises a plurality of riser rings of different height adapted to be selectively positioned upon said sleeve in sequence as the floor wears down.

3. The construction of claim 2 in which each said ring has a plurality of guide anchors comprising circumferentially spaced strips secured to the inside of the ring and extending downwardly therefrom to fit within said sleeve.

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