

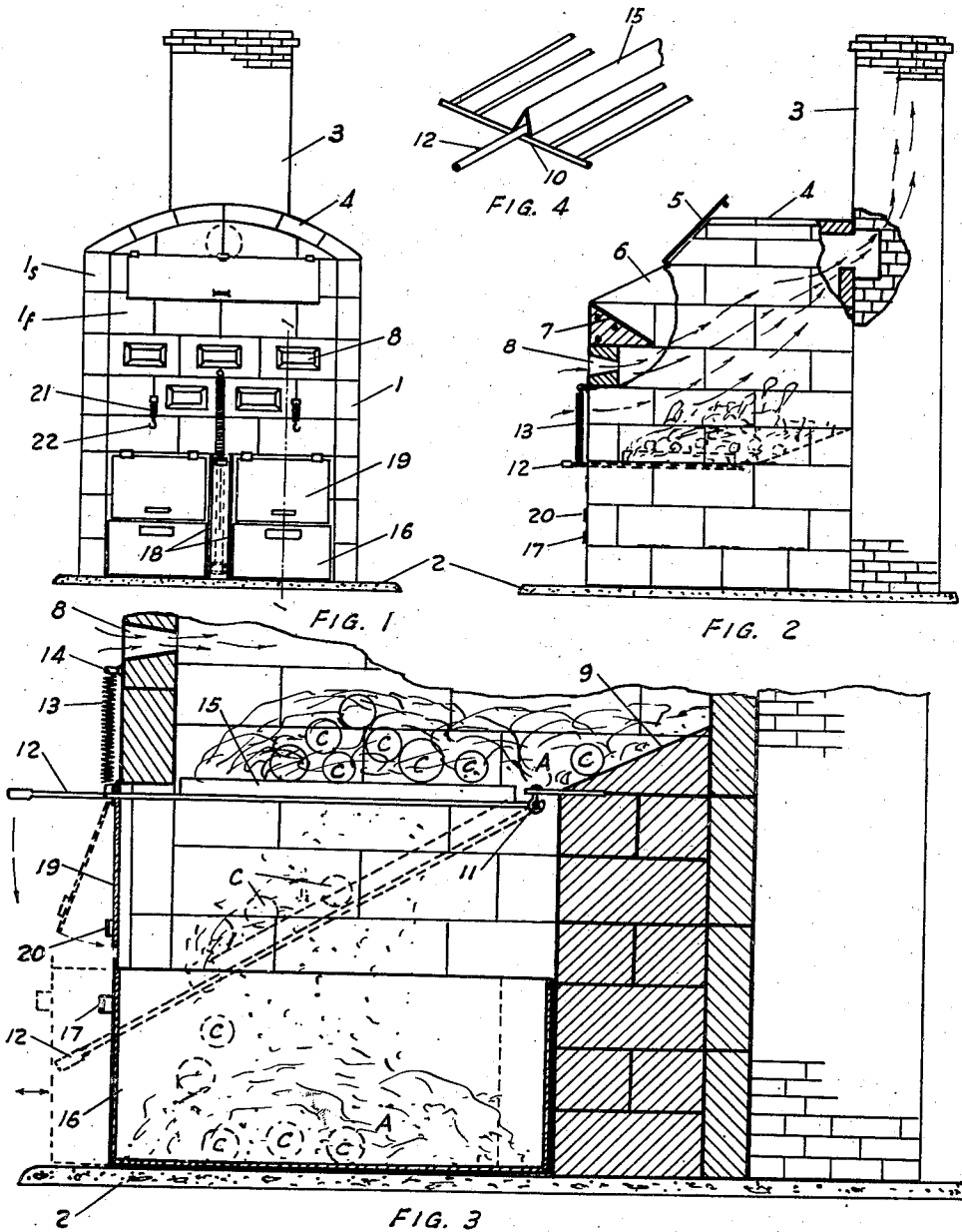
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REFUSE INCINERATOR WITH DUMPING GRATE

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REFUSE INCINERATOR WITH DUMPING GRATE

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1 Claim. (Cl. 110—18)

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My invention relates to incinerators.

An object of my invention is to provide in an incinerator a baffle construction designed to prevent smoke, sparks, and fumes from coming out of the filling door of the incinerator during the period of time the incinerator is being charged.

Another object of my invention is to provide in an incinerator an improvement in air duct constructions.

Another object of my invention is to provide an incinerator that will handle a charge of garbage or other waste material including bottles and tin cans.

Another object of my invention is to provide a grate construction for use in incinerators which is adapted to separate tin cans, bottles and the like from garbage ash and adapted to selectively discharge the ash, the tin cans and other refuse.

Other objects and advantages of my invention will appear from a reading of my detailed description to follow of an incinerator construction embodying my invention which is shown illustrated in the accompanying drawings.

In the drawings:

Figure 1 is a front elevation view of an incinerator embodying my invention.

Figure 2 is a side elevation view, partly broken, of the incinerator illustrated by Figure 1.

Figure 3 is an enlarged broken elevation view, in part cross section on line 1—1 of Figure 1, and

Figure 4 is a fractional view of the incinerator grate.

Referring to the drawings, numeral 1 designates generally the fire box of the incinerator which is shown in the drawings rectangular in cross section. But it is to be understood that the fire box 1 may be made circular in cross section or in other shapes if desired within the scope of my invention.

The floor 2 forms a bottom wall of the fire box 1. The chimney 3 with which the fire box 1 communicates at its arched top 4 is not strictly a part of the incinerator, but is necessary to its operation. This incinerator may be built to abut a chimney that is already in existence. This incinerator might even be installed in an abutting position to a chimney located in the basement of a dwelling or office building or the like.

A filling door 5 and the filling opening 6 that it closes are preferably located near the top of

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the front wall 1_f of the fire box 1. The arched top 4 is preferably made slanting at its front edge so that the filling door 5 may be laid back upon it, as best shown in Figure 2 of the drawing.

A baffle ledge 7, having its upper surface made sloping, defines the lower wall of the filling opening 6. The baffle ledge 7 is preferably extended entirely across the front wall 1_f of the fire box 1, that is to say the distance between the side walls 1_s of the fire box 1. The downwardly sloping surface of the baffle ledge 7 serves as a guide for directing the charge to a position well back of the front wall 1_f of the fire box 1.

A more important function of the baffle ledge 7 is its function as a baffle in deflecting the smoke, sparks, and fumes arising from the burning charge in a stream that ascends to the arched top 4 a sufficient distance rearwardly of the filling opening 6 to prevent any of the smoke, sparks and fumes from coming out of the filling opening 6 when the filling door 5 is opened.

The employment of the ledge 7 makes possible the use of a horizontally extending filling opening 6. The advantage of the horizontally extending filling opening 6 is that during the charging operation the operator may rest a barrel or other container on the lower wall or front wall of the filling opening to support the container while it is being dumped.

It is due to the feature of the baffle ledge 7 that it is possible to install my incinerator in basement spaces. The reader will appreciate the importance of this improvement in incinerators when he considers how crowded office buildings are. In the case of most office buildings there is not enough ground space outside of the building for the location of an outside incinerator.

The air ducts 8 provided in the front wall 1_f of the fire box 1 are formed to converge inwardly. Due to this special shape of the opening of the air ducts 8, air is drawn into the fire box 1 but the fumes, sparks and smoke are prevented from coming out of the air ducts 8. I place the air ducts 8 in the front wall 1_f beneath the baffle ledge 7 for the reason that the inrushing air to support the combustion of the charge cooperates with the ledge 7 in deflecting the fumes, sparks and smoke arising from the burning charge. The tapered air ducts 8 constitute

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nozzles for directing the air of combustion coming through them into fast moving concentrated streams of air. The reader will better understand the meaning of this statement when I say that the fast moving streams of air coming in through the air ducts 8 and descending down to the burning charge bucks the ascending fumes, sparks and smoke and pushes it backwardly, or some of it. Additional air of combustion reaches the burning charge through the gap between the ash drawers 16 beneath the grate 10.

The charge that is dumped in through the filling opening 6 falls down and accumulates on the grate 10 and the sloping hearth 9 extending rearwardly and upwardly from the grate axle 11. I make the hearth 9 sloping downwardly to the grate 10 so that any accumulation of ashes A and cans C will slide down over the grate 10 in its lowered tilted position and be discharged along with accumulated ashes A and cans C on the grate 10.

The grate 10 is pivotally mounted along its back edge on a grate axle 11 that is extended through the side wall 1s of the fire box 1. While the grate axle 11 is shown in the drawings as extended entirely across the fire box 1, it is to be understood that a pair of stud axles may be used. The axle 11 may be made a unitary part of the grate 10 and adapted to turn in the side walls 1s if desired.

The grate 10 is provided with a grate handle 12 fashioned in the shape of a rod of sufficient length to extend far enough outside of the front wall 1r so that when the grate 10 is lowered to its lowest position shown by the dotted lines in Figure 3, a small fraction of the handle 12 would extend beyond the ash drawers 16 shown resting on the floor 2.

A spring 13 is provided to releasably hold the grate 10 in the elevated horizontal position best shown in Figure 3. In a stretched position the lower end of the spring 13 is attached to the grate handle 12 while the upper end of the stretched spring 13 is attached to the spring hook 14 embedded in the front wall 1r. The spring 13 must be sufficiently stiff when only partially stretched to sustain a full charge loaded onto the grate 10. To dump the grate 10 the operator disconnects the spring 13 from the handle 12 and lowers the grate 10 to the dotted line position shown in Figure 3, the discharging position of the grate 10. In this discharging position the forward edge of the grate 10 rests on the ash drawers 16. It is more accurate to say that this lowermost position of the grate 10 is the residue discharging position, the position at which tin cans, bottles and other unburned residue may be discharged into the ash drawers 16. The ash from the burned charge will fall in between spokes of the grate 10. To facilitate the discharge of this ash and to stoke the fire, the operator of the incinerator merely presses the handle 12 downwardly and allows the spring 13 to snap it up. The jarring action of the handle 12 resulting from the striking of the handle on the portion of the front wall 1r bridging the gap between the ash drawers 16 is transmitted to the grate 10 resulting in a shaking of the charge supported by the grate. The operator will shake the grate in the manner above described as often as he thinks is necessary.

When a number of charges containing tin cans, or even a single charge containing tin cans, bottles and the like has been burned, and the ashes have been sifted into the two ash drawers 16, the cans C or other residue will be retained on the

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grate 10. The ashes may be disposed of and put to some practical use, and the drawers 16 returned to loading position. Then the operator releases the spring 13 from the handle 12 and lowers the handle 12 down to the floor 2 to the dotted line residue discharging position of the grate 10. In this position the cans C or the like residue roll down into the ash drawers 16.

The grate 10 is provided with an inverted V-shaped deflector 15 extending lengthwise of the grate 10 in a position straddling the grate handle 12, the inner portion of which grate handle 12 constitutes a center rod portion of the grate 10. The ash deflector 15 is adapted to deflect the ashes A and cans C into the ash drawers 16.

The ash drawers 16 are spaced from each other to provide, as said above, an additional air duct to supply air of combustion and also to provide a space for the handle 12 to move up and down in.

The ash drawers 16 are provided with drawer handles 17. The ash drawers 16 are spaced apart at their bottoms by means of guide rails 18 secured to the floor 2. I find small angle irons suitable for use in making the guide rails 18.

In this incinerator the ashes A and cans C may be allowed to accumulate in the ash drawers 16 until they are heaping full without hindering the withdrawal of the ash drawers 16 because of the feature of the inspection doors 19. The inspection doors 19 hinged to front wall 1r may be raised and fastened with the door chains 21 carrying door hooks 22. The operator need merely lift the inspection doors 19 up by their door handles 20 and hook the door hooks 22 around the door handles 20 to hold the doors 19 while he removes and then returns the ash drawers 16. There is sufficient head space provided in this incinerator above the drawers 16 to permit them to be piled high with ashes A and cans C and removed without difficulty.

My incinerator may be made out of the materials heretofore used in the construction of incinerators, for example the fire box 1 may be constructed out of bricks or cement and lined on the inside with a fire resisting material such as fire clay. The grate 10, the handle 12 and grate axle 11 can be made out of steel or other fire resisting metals. To facilitate the discharging of the cans C I preferably use a grate 10 that is made up of rods extending lengthwise of the grate, that is to say parallel to the grate handle 12. Such grate rods act as guide rails for the cans C to roll down. It is to be understood however that other types of grates may be used within the scope of my invention.

Having thus described my invention, I claim:

An incinerator comprising a body portion having an upper combustion chamber and an ash pit beneath the combustion chamber and in free communication therewith, a pair of removable drawers mounted within the ash pit and including ends and sides, the drawers being transversely spaced to provide a passage between them, a grate disposed within the body portion at the bottom of the combustion chamber and adapted to be horizontally arranged, the forward end of the grate terminating short of the forward ends of the drawers, the grate being adapted to assume a lowered inclined position with its forward end resting upon the sides of the drawers with such forward end spaced from the forward ends of the drawers so that articles upon the grate may roll into the drawers, means to pivotally support the rear end of the grate so that the grate may swing

vertically, a handle secured to the forward end of the grate and extending longitudinally beyond the same and projecting to the exterior of the body portion and movable within the passage, and a retractile coil spring connected with the body portion and with the handle and normally retaining the grate generally horizontal and to vibrate the grate when the handle is depressed and released so that the handle strikes against the end wall of the passage.

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