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Blankenship

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[54] **INCINERATOR TOILET HAVING A VERTICALLY MOVABLE INCINERATOR CHAMBER LID**

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[*] Notice: The portion of the term of this patent subsequent to June 24, 1991, has been disclaimed.

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[52] **U.S. Cl.** ..... **4/131;** 110/9 E

[51] **Int. Cl.** **A47k 11/02**

[58] **Field of Search** ..... 4/118, 131; 110/9 R, 9 E

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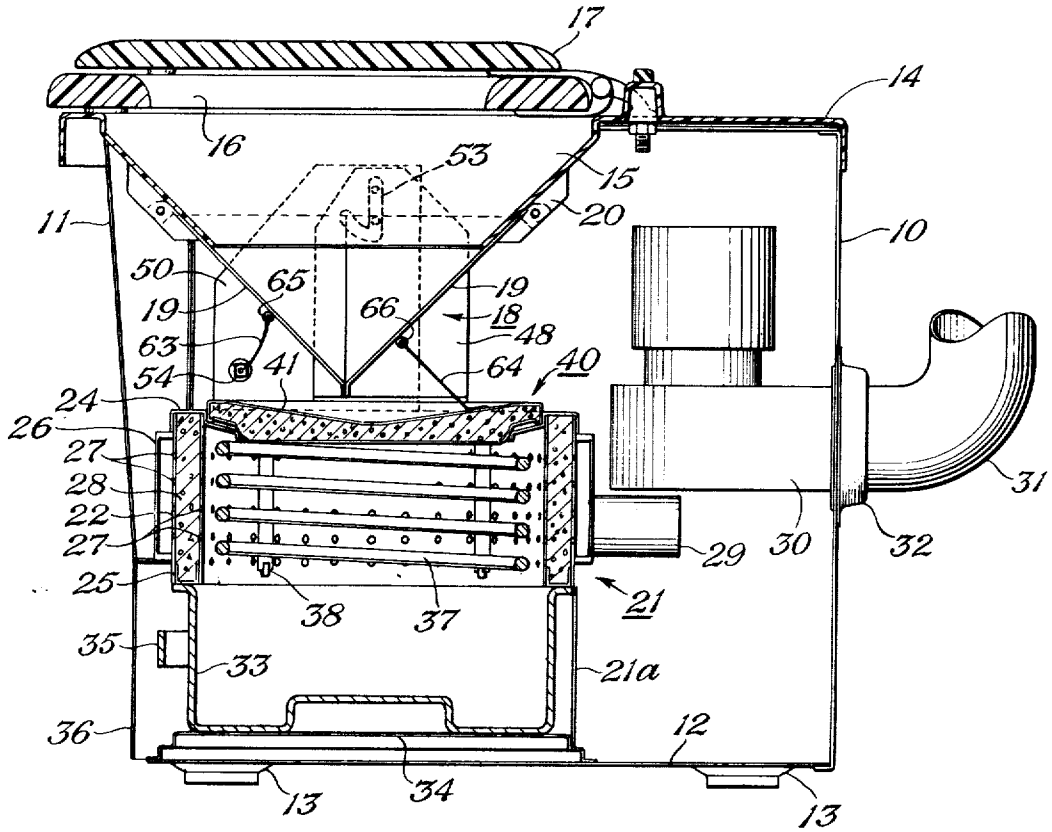
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[57] **ABSTRACT**

An incinerator toilet having an incinerator chamber beneath a waste receiving bowl and a vertically and thence laterally movable lid for normally closing the top of the incinerator. The invention makes possible an effective metal to metal seal between the lid and the chamber's upper inner periphery.

18 Claims, 6 Drawing Figures



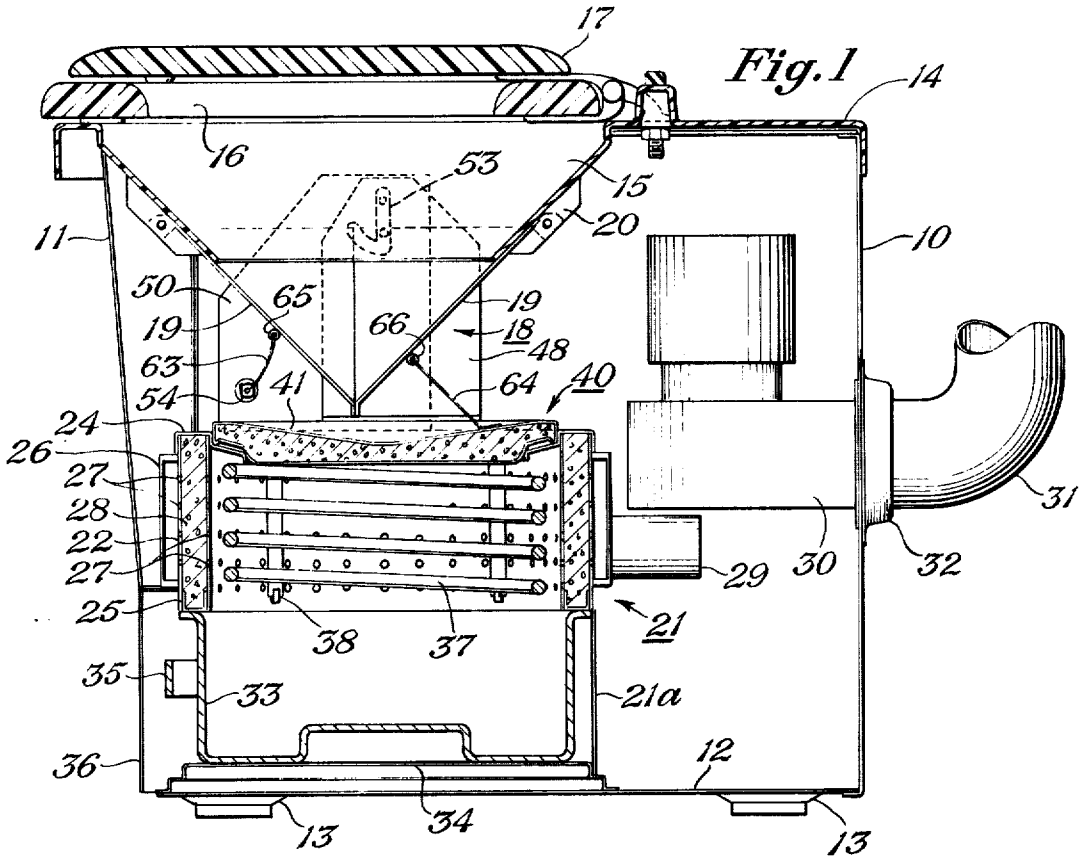


Fig. 1

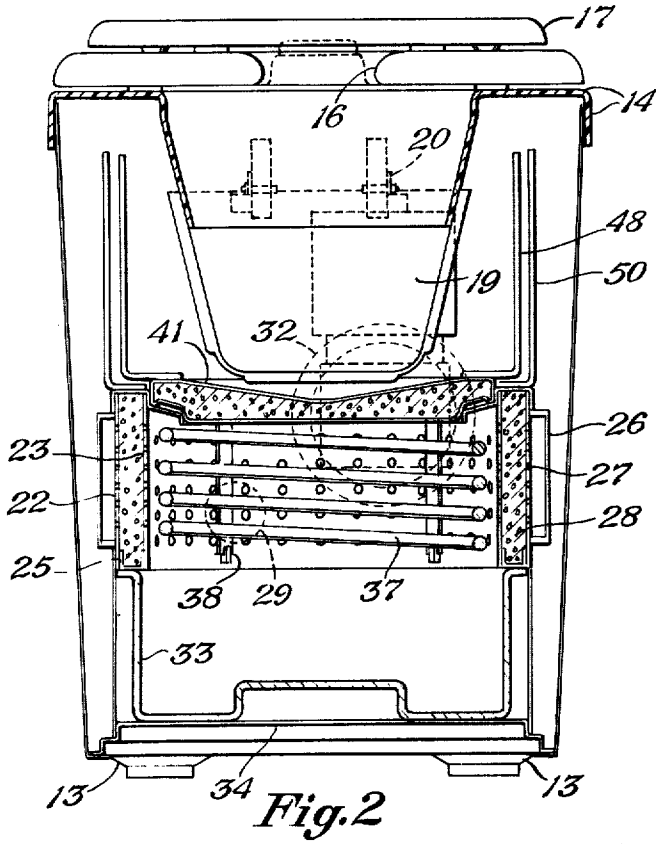


Fig. 2

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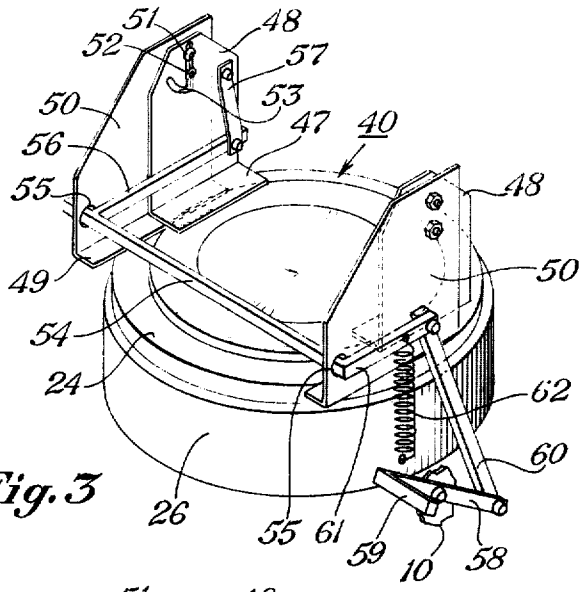


Fig.3

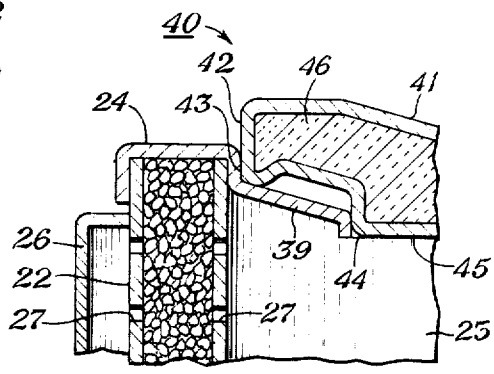


Fig.6

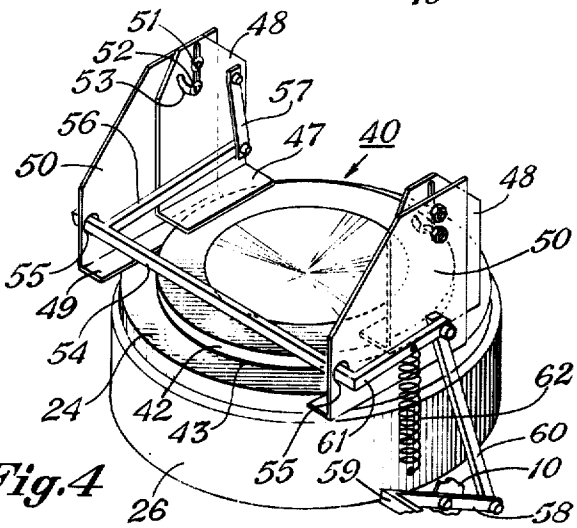


Fig.4

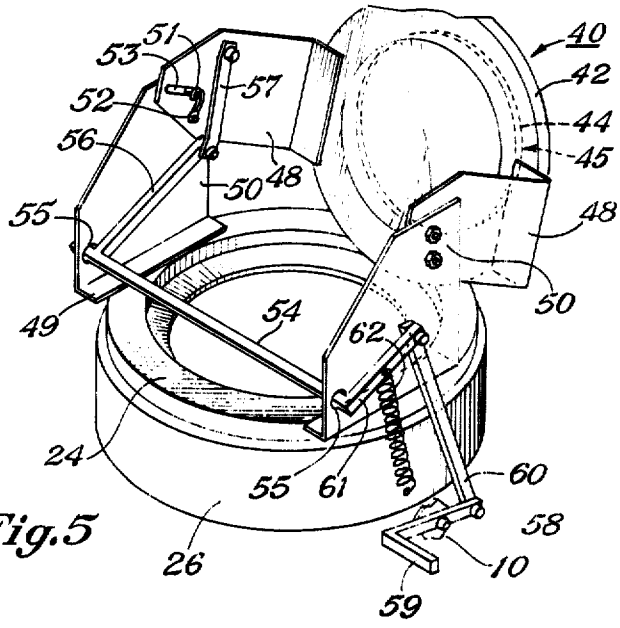


Fig.5

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INCINERATOR TOILET HAVING A VERTICALLY MOVABLE INCINERATOR CHAMBER LID

This invention relates to incinerator toilets and has reference to sealing means between an incinerator chamber and a lid therefor located beneath a waste receiving bowl.

Heretofore a problem in incinerator toilets has been the provision of an adequate seal around the incinerator chamber cover or lid. Without an effective seal, particularly during an incinerating operation, obnoxious fumes escape upwardly through and around the toilet seat. In those constructions where resilient seals were used the heat in the incinerator soon caused the soft material to deteriorate and in metal to metal seals a sliding action was necessary because of the presence of a waste receiving bowl immediately above the normally closed incinerator chamber. Sliding metal lids were objectionable because of restrictions of space and because of jamming of metal to metal in sliding guide means.

The primary object of the invention is to provide an improved seal between a lid or cover and the top opening of an incinerator chamber.

A particular object is to provide a durable and effective metal to metal seal for the purpose above referred to.

A further object is to provide a metal to metal seal between a lid and incinerator chamber wherein the lid is initially vertically movable and then laterally movable so as to avoid contact with a waste receiving bowl positioned thereabove.

These and other objects of the invention will become apparent from the following description and the accompanying drawings, in which:

FIG. 1 is a longitudinal vertical sectional view of an incinerator toilet according to the invention.

FIG. 2 is a vertical sectional view taken at a right angle with respect to FIG. 1, and

FIGS. 3–5 are perspective views of the top portion of the incinerator chamber, lid and actuating mechanism, and, respectively, showing the lid in its closed position, initially open position and its fully open position.

FIG. 6 is an enlarged vertical broken sectional view of a seal according to the invention.

The incinerator toilet shown includes a generally oval shaped housing **10** having an arcuate front panel **11**, a bottom **12**, feet **13** and a top **14** of molded heat resisting synthetic resin. The forward area of the top **14** includes a recessed upper bowl portion **15**, and above and around the bowl there is seat **16** and a hinged lid **17**, both of which are mounted in the usual manner. The hinged seat lid **17** is distinct from the incinerator chamber lid, hereinafter described. A lower bowl portion **18** is positioned beneath the upper bowl portion **15** and is transversely divided into halves **19**. As best shown in FIG. **1**, the lower bowl portion halves **19** are pivotally mounted on the outer surface of the upper bowl portion **15** by hinges **20**.

The incinerator chamber **21** includes a vertically disposed open member of cylindrical or similar shape and comprised of spaced inner and outer walls **22** and **23** having top and bottom ring closures **24** and **25**. The diameter of the chamber **21** is less than the width of the housing **10** and is mounted on a semicircular sheet metal support **21***a*. Around the chamber **21** there is a circular effluent collection ring **26** which communicates with the interior of the chamber by means of perforations **27** in the inner and outer incinerator walls **22** and **23**. The space between the inner and outer walls **22** and **23** is filled with a heat activated permeable catalyst **28** such as oxidized aluminum pellets. An inside vent **29** connected with the rear area of the receptacle **26** discharges adjacent the intake of a motor driven blower **30** which, in turn, is connected with an outside vent **31** by means of a collar **32** in the rear wall of the housing **10**.

An ash pan **33** is slidably mounted on a stepped support **34** on the housing bottom **12** within the chamber support **21***a* and has a handle **35** on its front surface which is accessible by means of a removable panel **36** beneath the front panel **11** of the housing **10**. Around the surface of the inner wall **23** of the chamber there is a heating element **37** mounted on brackets **38**. While the heating element shown is electrical other heaters, not shown, such as gas, may be used.

Around the inner periphery of the upper incinerator ring **24** there is an inwardly and downwardly sloped flange **39** for receiving and supporting an incinerator chamber lid **40**, the details of which are best shown in FIG. **6**. The lid **40** has a concave upper surface **41** and a perpendicular periphery **42** which engages the inner diameter **43** of the upper chamber ring **24**. Similarly, an inwardly spaced shoulder **44** around the lid's bottom **45** engages the inner periphery of the flange **39**. The lid **40** is of assembled sheet material and has a filler of suitable insulating material **46**.

Opposite upper surfaces of the lid **40** connect with lower inwardly turned flanges **47** on vertical actuating plates **48**. Similarly, other inwardly turned flanges **49** on the incinerator ring **24** support vertical stationary plates **50** outwardly of the actuating plates **48** and are parallel therewith. Upper and lower studs **51** and **52** project inwardly from opposing faces of the stationary plates **50** and are slidably engaged in "J" slots **53** in the actuating plates **48**.

A shaft **54** is pivotally mounted in openings **55** in the lower forward edges of the stationary plates **50** and has integral rearwardly extending arms **56** which extend substantially across the inner faces of the actuating plates. The ends of the arms **56** are pivotally connected with upper rear areas of the actuating plates **48** by links **57**. A lever **58** is pivoted intermediate its ends on one side of the housing **10** and has a foot pedal **59** on its forward end, whereas the remaining end of the lever is pivotally connected with a link **60** which, in turn, is pivotally connected with an outer arm **61** on the shaft **54**. A coiled tension spring **62** is connected between the outer arm **61** and the outer surface of the effluent collection ring **26**. The hinged bowl halves **19** are normally closed by leaf springs **63** and **64**, one of which (**63**) is mounted on the shaft **54** and has a roller **65** on its extending end for contacting one of the bowl halves, and the other spring (**64**) is mounted on the chamber lid **40** and has a roller **66** on its extending end for contacting the other bowl half.

In operation, after the bowl has been used, the user steps on the foot pedal **59**. This action operates the first lever **58**, thee link **60**, the outer arm **61**, the shaft **54**, the rearwardly extending arms **56**, the links **57** and the actuating plates **48**, and thereby initially raises the incinerator lid **40** as shown in FIG. **4**. The continued upward movement of the actuating plates **48**, and the action of the J slots on the studs **51–52**, causes the lid **40** to swing rearwardly as shown in FIG. **5** and clear of the

depending bowl halves **19**. The movement of the shaft **54** and the lid **40** causes the springs **63** and **64** to release the bowl halves **19** which then swing open by gravity. Upon releasing the pedal **59**, the tension spring **62** reverses the described operation and the lid **40** again seats in the chamber ring **24** as shown in FIG. **6**. The heating element **37** may be activated by any suitable switch means, not shown, and during and after the incinerating operation the effluent is drawn from the chamber **26**, over the heated catalyst pellets **28**, through the collection ring **26** and is then blown out through the vent **31**.

The invention is not limited to the exemplary construction herein shown and described, but may be made in various ways within the scope of the appended claims.

What is claimed is:

1. An incinerator toilet comprising:
an incinerator chamber having an open upper end,
a recessed seat located below the top of said upper end of said chamber and extending around the opening of said upper end,
a lid for opening and closing said upper end of said chamber,
said lid having a seat adapted to fit into and engage said recessed seat to close said upper end of said chamber,
a bowl disposed above said chamber and including an upper bowl portion and a lower bowl portion,
said lower bowl portion comprising hinged sections adapted to move inward together and to move outward away from each other for closing and opening the bottom end of said lower bowl portion,
means for initially raising said lid out of said recessed seat and then moving said lid laterally of said upper end of said incinerator chamber to open said upper end,
said hinged sections being allowed to move outward away from each other to open the bottom portion of said lower bowl portion when said lid is moved laterally of said upper end of said chamber to its open position to allow substance in said bowl to pass into said incinerator chamber.

2. The incinerator toilet of claim **1** wherein:
the outer periphery of said lid is adapted to fit within said recessed seat of said chamber.

3. The incinerator toilet of claim **2** wherein:
said lid comprises a unitary member free from passages extending therethrough.

4. The incinerator toilet of claim **3** wherein:
said lid has an upper recessed surface to be located below said lower bowl portion when said lid is in its closed position.

5. The incinerator toilet of claim **3** wherein:
said recessed seat comprises downwardly extending wall means and inwardly extending wall means,
the outer periphery of said lid is adapted to fit within said downwardly extending wall means.

6. The incinerator toilet of claim **5** wherein:
said inwardly extending wall means slope downwardly.

7. The incinerator toilet of claim **1** comprising:
means for heating the contents in said chamber,
channel means located on the outside of said incinerator chamber and in communication with the interior thereof by way of apertures formed through the side wall of said incinerator chamber, and
means in communication with said channel means for drawing gases from the interior of said incinerator chamber by way of said apertures and said channel means.

8. The incinerator toilet of claim **7** comprising:
an odor reducing means located between said channel means and the inner wall of said incinerator chamber and in the flow path of gases passing from the interior of said chamber through said apertures to said channel means.

9. The incinerator toilet of claim **1** wherein said means for initially raising said lid out of said recessed seat and then moving said lid laterally of said upper end comprises:
transverse shaft means pivotally mounted outwardly of said lower bowl portion,
means for pivoting said shaft means in a given direction, and
means coupled to said lid and to said shaft means for causing said lid to be initially raised out of said recessed seat and then moved laterally of said upper end of said incinerator to its open position when said shaft means is pivoted in said given direction.

10. The incinerator toilet of claim **9** comprising:
stationary guide means located on opposite sides of said chamber and,
plate means coupled to opposite sides of said lid and having slots for receiving said guide means for allowing said plate means to move initially upward and then along a path which extends laterally and upward when said shaft means is pivoted in said given direction.

11. The incinerator toilet of claim **10** wherein said slots comprise J shaped slots formed in said plate means.

12. The incinerator toilet of claim **10** wherein:
said hinged sections comprise two sections hinged at their upper ends, and
spring means for contacting said hinged sections when said lid is in its closed position for normally maintaining said hinged sections in their closed positions.

13. The incinerator toilet of claim **12** wherein said spring means comprises:
a first spring connected to said shaft means for contacting one of said hinged sections, and
a second spring connected to said chamber lid for contacting the other of said hinged sections.

14. The incinerator toilet of claim **3** comprising:
means for heating the contents in said chamber,
channel means located on the outside of said incinerator chamber and in communication with the interior thereof by way of apertures formed through the side wall of said incinerator chamber, and
means in communication with said channel means for drawing gases from the interior of said incinerator chamber by way of said apertures and said channel means.

15. The incinerator toilet of claim **3** wherein said means for initially raising said lid out of said recessed seat and then moving said lid laterally of said upper end comprises:
transverse shaft means pivotally mounted outwardly of said lower bowl portion,
means for pivoting said shaft means in a given direction, and

means coupled to said lid and to said shaft for causing said lid to be initially raised out of said recessed seat and then swung laterally of said upper end of said incinerator clear of said hinged sections to its open position when said shaft means is pivoted in said given direction.

16. The incinerator toilet of claim **7** wherein said means for initially raising said lid out of said recessed seat and then moving said lid laterally of said upper end comprises:

transverse shaft means pivotally mounted outwardly of said lower bowl portion,

means for pivoting said shaft means in a given direction, and

means coupled to said lid and to said shaft for causing said lid to be initially raised out of said recessed seat and then moved laterally of said upper end of said incinerator clear of said hinged sections to its open position when said shaft means is pivoted in said given direction.

17. The incinerator toilet of claim **14** wherein said means for initially raising said lid out of said recessed seat and then moving said lid laterally of said upper end comprises:

transverse shaft means pivotally mounted outwardly of said lower bowl portion,

means for pivoting said shaft means in a given direction, and

means coupled to said lid and to said shaft for causing said lid to be initially raised out of said recessed seat and then moved laterally of said upper end of said incinerator clear of said hinged sections to its open position when said shaft means is pivoted in said given direction.

18. The incinerator toilet of claim **1** wherein:

said hinged sections comprise two sections hinged at their upper ends, and

first and second holding means for contacting said hinged sections when said lid is in its closed position for normally maintaining said hinged sections in their closed positions,

one of said holding means being connected to said lid and adapted to hold its hinged section away from said lid as it is moved laterally to its open position.

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