W. R. JEAVONS.

HEATER.

APPLICATION FILED JULY 22, 1911.

1,045,409.

Patented Nov. 26, 1912.

3 SHEETS—SHEET 1.

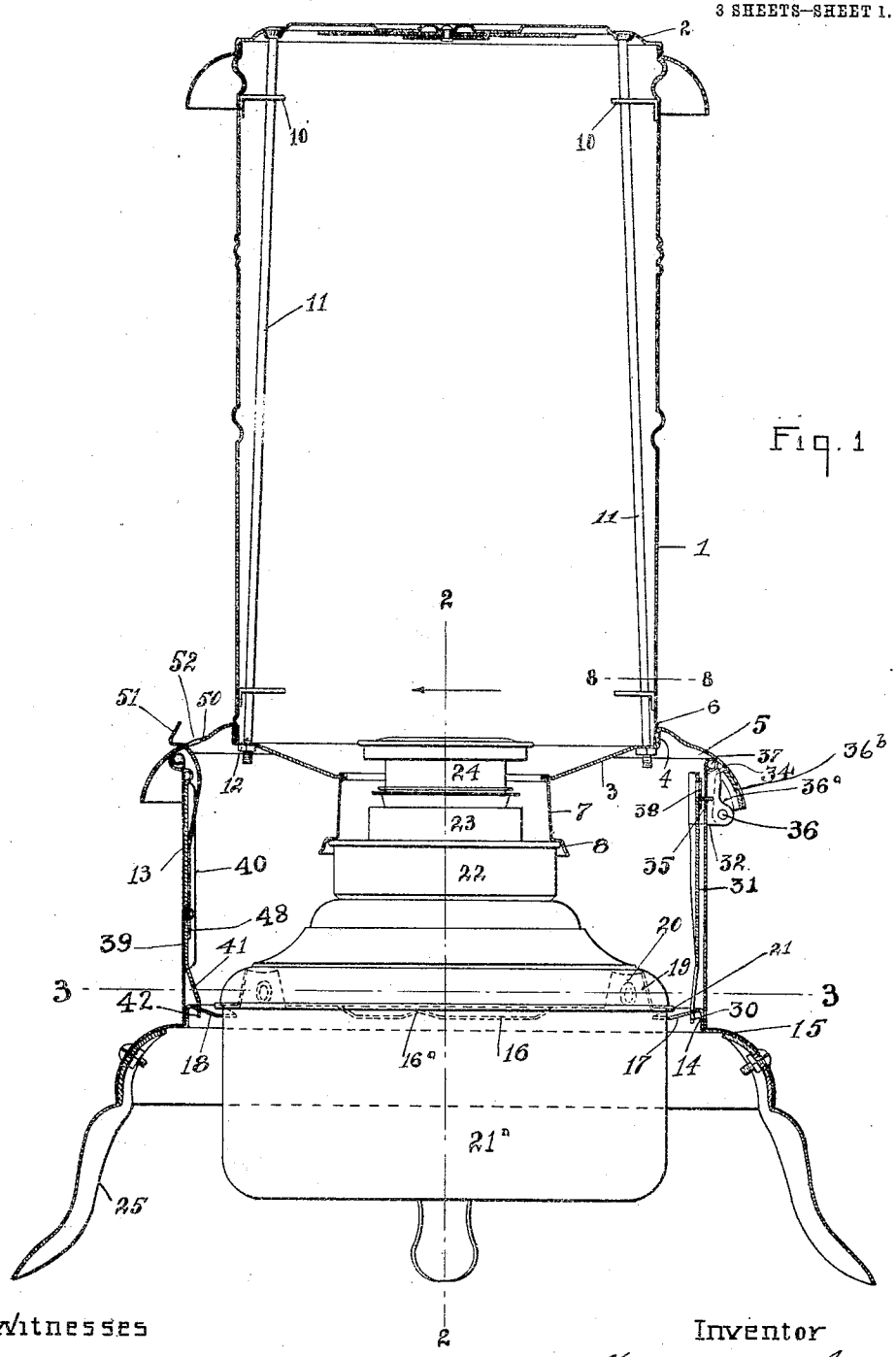

Fig. 1

Witnesses

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3 SHEETS—SHEET 2.

Fig. 2.

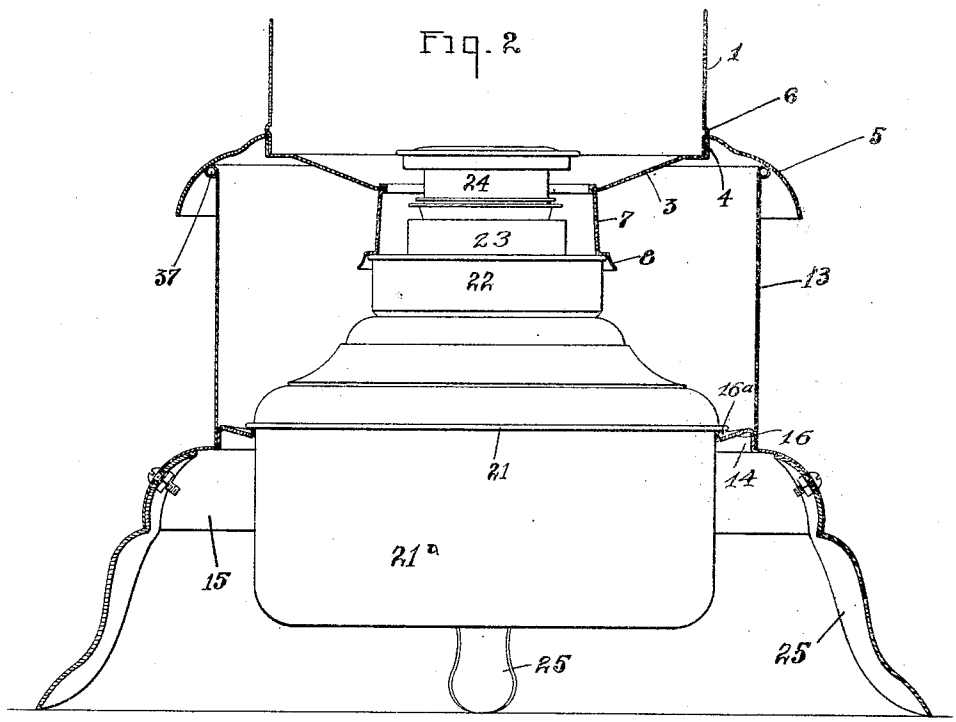
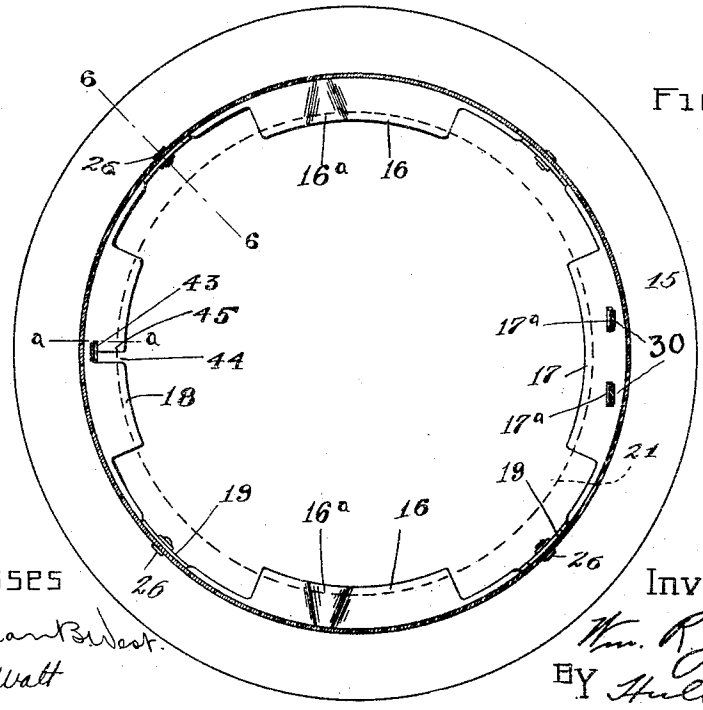


Fig. 3.



Witnesses

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3 SHEETS—SHEET 3.

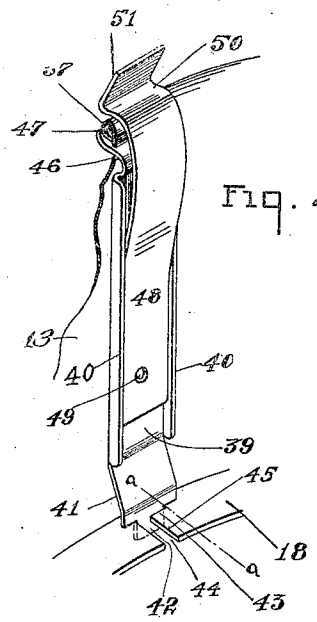

Fig. 4

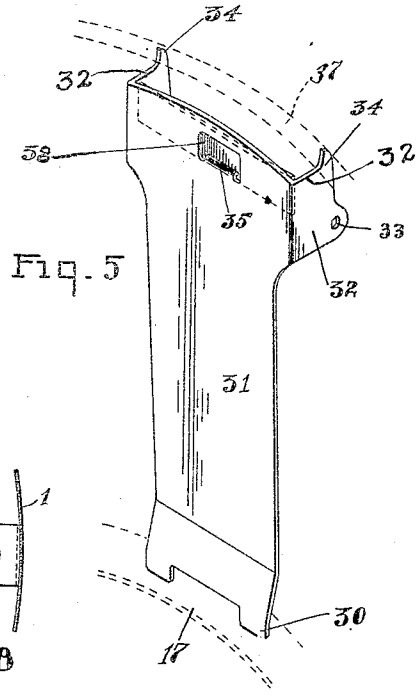

Fig. 5

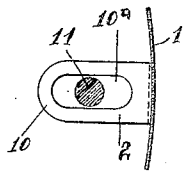

Fig. 8

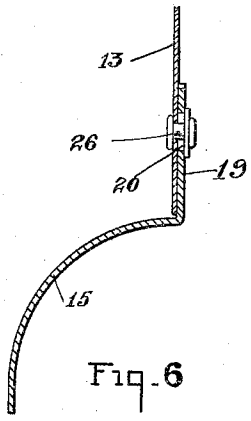

Fig. 6

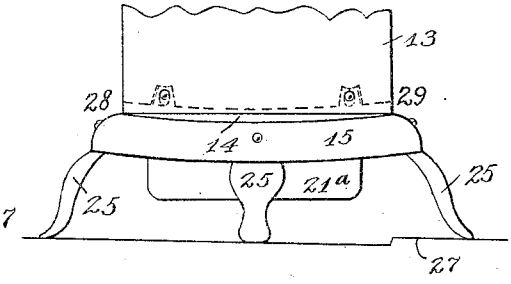

Fig. 7

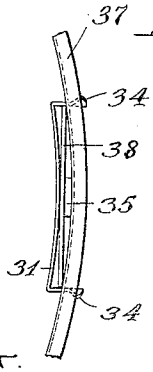

Fig. 9

Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM R. JEAVONS, OF CLEVELAND, OHIO.

HEATER.

1,045,409. Specification of Letters Patent. Patented Nov. 26, 1912.

Application filed July 22, 1911. Serial No. 639,991.

To all whom it may concern:

Be it known that I, WILLIAM R. JEAVONS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Heaters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to oil stoves of the type known to the trade as "heaters." Stoves of this type as ordinarily constructed are provided with a heating drum and drum base made of plain sheet metal.

It is the general purpose of this invention to provide a form of heater which is especially adapted for the use of enameled metal for the foregoing parts, although certain other features of the invention are of more general application.

More especially stated, the object of the invention is to provide means for securing a drum of enameled or similar material in place upon its coöperating seating member in such manner as to avoid liability of breaking or injuring the enamel; to provide a heater having an enameled drum and drum base with a form of hinge and latch particularly adapted for use with this kind of material; to provide an efficient connection between a drum base of such material and its base or supporting ring.

Further objects of the invention are to provide an efficient and attractive seat between the drum proper and its seating ring; to provide a hinge for a drum which is capable of adjustment toward and from the center of the drum base and burner in order to insure efficient coöperation between the burner and the burner-engaging collar carried by the "cone plate" of the drum seat: also to provide means whereby the drum may be swung down into proper relation to the burner without liability of the collar striking the burner parts before seating upon the top of the gallery: also to provide a construction whereby the legs which support the heater may be in simultaneous engagement with the floor or other supporting surface, notwithstanding the size and number of the irregularities in such surface.

With the foregoing objects in view, the invention may be defined further and generally as consisting of the combinations of elements embodied in the claims hereto annexed and illustrated in the drawings forming part hereof, wherein—

Figure 1 represents a vertical sectional view taken through a heater constructed in accordance with my invention, the burner and reservoir being shown in elevation; Fig. 2 a sectional view corresponding to the line 2—2 of Fig. 1, the burner and reservoir being shown in elevation: Fig. 3 a sectional view corresponding to the line 3—3 of Fig. 1, the burner and reservoir being omitted: Fig. 4 is a detail in perspective of the latch and the associated parts of the drum base and base ring: Fig. 5 a similar view of the hinge frame and associated parts, the latter being shown in dotted lines; Fig. 6 a sectional detail corresponding to the line 6—6 of Fig. 3: Fig. 7 a detail in elevation illustrating the manner in which the heater may be supported on all of its legs, notwithstanding unevenness of the supporting surface; Fig. 8 a sectional detail corresponding to the line 8—8 of Fig. 1: and Fig. 9 a detail in plan of the upper portion of the hinge frame and the coöperating portion of the drum.

Describing by reference numerals the various parts illustrated herein, 1 denotes a cylindrical drum of enameled sheet metal, said drum having a perforated top 2 applied thereto and resting at its bottom upon a seat provided at the outer periphery of the cone plate 3, the cone plate being provided with an upwardly extending cylindrical flange 4 and with a depending ring 5, said ring being generally frusto-conical in shape and constituting at its lower end a skirt which overhangs and rests upon the top of the drum base. The drum 1 is provided with an outwardly projecting bead 6 so located as to substantially abut against the top of the ring 5 and cover and conceal the joint between the lower portion of the drum and said ring. The cone plate 3 is provided with a central circular opening from which depends the collar 7, said collar being secured to the cone plate in any desirable manner and having its lower end flanged outwardly and downwardly, as shown at 8, the ring thus provided forming a seat which is adapted to substantially abut against the top of the gallery 22 of the burner.

The drum is provided with lugs 10 projecting inwardly from the inner wall thereof and having slots 10^a therein, two pairs of

vertically arranged lugs being shown and each pair constituting a vertical guideway for a rod 11 having its upper enlarged end fitting a flared seat in the cover 2 and having its lower end projecting through the cone plate 3 and there provided with a thread for the reception of the nut 12. By this construction, the drum is anchored to the cone plate without the necessity for employing fastening means liable to break or injure the enamel.

The drum and its associated parts are hinged to and supported by the drum base 13, which is also of enameled metal, the lower end of the drum base resting upon the ring base, the latter having a cylindrical portion 14 at its upper end adapted to sleeve within the drum base and a rounded and downwardly projecting skirt 15 below this cylindrical portion. The upper end of the cylindrical portion is provided with a pair of integral, oppositely arranged inwardly extending segmental flange projections 16 and a pair of oppositely arranged inwardly extending flange projections 17 and 18. The flanges 17 and 18 are arranged diametrically opposite each other, with their centers about ninety degrees from the flanges 16. The ring base is also provided with a plurality of upwardly extending integral lugs 19, conveniently located between the flange projections 16, 17 and 18 and each having an elongated vertically extending slot 20 therein, (see Fig. 6). The ring base is of flexible or yielding sheet metal, for a purpose to be described.

Referring to that portion of the heater which is adjacent to the hinge at the "rear" portion and the portion which is adjacent to the catch as the "front" portion, each of the projections 16 is provided in front of the center of the base ring with an upwardly projected portion 16^a, and these upwardly projected portions form angular seats, arranged in front of the center of the base ring, for the outwardly projecting bead 21 of the oil reservoir 21^a of the burner.

The burner comprises, not only the reservoir, but the gallery 22 referred to hereinbefore, the wick tubes (the outer tube being shown at 23) and the flame spreader 24. The reservoir and burner will normally be held with the axis of the same substantially coincident with the axis of the drum 1, through the engagement of the lower end of the collar 7 with the top of the gallery. When, however, the drum is tilted backwardly upon its hinge, for lighting or other purposes, the reservoir and burner also tilt backwardly upon the tiltable support 16^a until the bead 21 engages the flange 17. By this arrangement and adaptability of parts, the upwardly projecting spreader 24 which is of but slightly smaller diameter than the collar 7 can enter the latter when the drum is swung down into latching position, and the seat 8 on said collar can engage the top of the gallery 22.

The ring base 15 has legs 25 suitably attached thereto and is itself connected to the drum base 13 by means of rivets 26 extending through holes in the drum base and through the elongated slots 20 in the lugs 19. These slots are not only elongated, but are of greater width than their corresponding rivet holes in the drum base, whereby a certain amount of "play" between the ring base and the drum base is permitted while preventing the actual separation of the parts, as when the stove is lifted by means of the bail usually provided and applied to the drum.

As will appear by reference to Fig. 7, as well as Figs. 2 and 6, the ring base is made of thin resilient metal, and the drum base 13 is yieldingly connected thereto by the slots 20 and rivets 26. By this pin-and-slot connection and the resilience of the ring base, I am enabled to secure a firm bearing for the heater on an irregular surface. By seating the heater upon the surface, the legs will generally be forced into contact with the surface by the weight of the parts supported thereby, notwithstanding a considerable irregularity in the supporting surface. This action and adaptability are illustrated, in a somewhat exaggerated degree, in Fig. 7, wherein, one of the legs is shown as resting upon an elevation 27. This will naturally tend to lift the intermediate legs off the floor. Owing to the resilience of the ring base, these legs may be brought into contact with the floor or supporting surface by the springing of the ring base downwardly between the points 28 and 29, the yielding or pin-and-slot connection between the drum base and the ring base permitting this downward deflection or springing of the base, even by the weight of the parts supported by the legs.

The construction of the ring base and its flexible or yielding connection with the drum base constitutes the subject matter of a divisional application No. 727,864, filed October 26, 1912.

Owing to the employment of enameled metal for the drum and the drum base and the liability of such metal to crack, I have provided a special hinge arrangement which can be conveniently applied to a previously enameled drum base and to the base ring associated therewith without danger of injury to the enamel coating. The hinge construction is illustrated in detail in Figs. 1, 3 and 5.

Reference has been made to the projection 17 on the base ring. This projection is provided with a pair of slots 17^a which are adapted to receive the legs or prongs 30 depending from the hings frame plate 31 and

anchor the lower end of the same. This plate extends upwardly along the interior of the drum base and has, near its upper end, a pair of angular projections 32 extending outwardly therefrom. Each projection is provided with an aperture 33 for a hinge pintle and, at its extreme upper and outer portion, with an upwardly extending lug or ear 34. Intermediate between the projections 32, the plate 31 has a lip 35 struck therefrom and projecting outwardly, said lip being of less length than the projections 32. The projections 32 extend through slots which may be conveniently formed in the drum base 13 before the latter is enameled. A hinge pintle 36 is mounted in the apertures 33, and the ring 5 is provided with lugs 36^a pivoted upon said pintle, said lugs being carried by a metal lining piece 36^b suitably secured to the ring 5. The purpose of the lugs 34 is to permit of a limited but sufficient adjustment of the hinge plate 31 toward and from the burner. As is seen by Fig. 1, these lugs engage the wired edge 37 at the top of the drum base 13. By bending the lugs toward each other, it will be apparent that the top of the hinge frame will be moved outwardly away from the burner while, by bending them apart, the hinge frame may be moved toward the burner. This arrangement will insure proper seating of the ring 8 on top of the gallery 23. A spring plate 38, which is slotted to receive and be supported by the tongue 35, is mounted between the projections 32 and bears at its center against the hinge plate and at its ends against the inner surface of the drum base. This plate yieldingly forces the hinge frame inwardly and holds the lugs 34 in engagement with the wired edge 37. It will be evident, from the construction described, that the hinge frame plate 31 can be removed only by releasing the bottom from the flange segment 17, which can be conveniently accomplished by bending the segment downwardly or, preferably, by attaching the frame to the drum base before the latter is applied to the base ring. It is also evident that the strain due to hinging the drum is taken entirely off the enameled drum base, with the exception of the top wired edge, which is of ample strength to withstand this strain.

Diametrically opposite the frame plate is arranged the latch. This latch is also constructed and supported in such manner as to relieve the enameled parts from strain or wear. The latch comprises the plate 39 having inturned flanges 40 providing a channeled supporting base and a latch plate carried by said base. The lower end of this base plate is deflected inwardly, as shown at 41, and is provided with a reduced end or tenon 42 which is adapted to enter a slot 43 formed in the segmental projection 18. A slot 44 extends inwardly from the slot 43, thereby providing a resilient tongue 45 which may be bent downwardly to permit the tenon 42 to be inserted in place and then be bent upwardly to lock said tenon and the channeled base plate 39 in position. The base plate is in substantial contact with the inner wall of the drum base, but is bent outwardly and upwardly at its upper end and such end is inserted through a slot 46 provided in the drum base just below the wired edge 37, the upwardly bent end 47 bearing against such edge. The latch plate is supported by this base plate and comprises a spring plate, the lower portion 48 whereof is riveted to the base plate between the flanges 40, as shown at 49. The latch plate is deflected inwardly and then outwardly, extending above and projecting across the top of the wired edge 37, as shown at 50. The extreme upper end of the plate is bent inwardly and upwardly, as shown at 51, providing a resilient locking device which is adapted to project through an aperture 52 in the base ring 5 and hold the said ring and the attached drum and cone plate in operative relation to the drum base and burner. It will be apparent that the latch can be removed only by first removing the tenon 42 from the projection 18 of the ring base. This removal can be easily effected by merely bending down the lip 45.

The construction herein described, while possessing some features of general application, is particularly well adapted to heaters having the enameled metal parts referred to. The anchoring of the drum to the cone plate and the manner of hinging and securing the drum in place are particularly well adapted for use with such material, as is also the case with the connection between the drum base and the ring base. In addition to these features, the manner of supporting the burner and reservoir, the adaptability of the ring base and depending legs to uneven surfaces, and the adjustability of the hinge, as well as certain other features of construction of the hinge and latch are of more general application.

Having thus described my invention, what I claim is:

1. In a heater, the combination of a drum base, a drum hinged to said base, a burner pivotally supported within said base and overbalanced rearwardly or toward the hinge and having a gallery, a cone plate carried by the drum, and a depending collar carried by said plate and adapted to engage the top of said gallery.

2. In a heater, the combination of a drum having a depending collar, a base to which said drum is hinged, a burner within said base having a portion on which said collar is adapted to seat, and means pivotally supporting the burner within the base so that

the burner is overbalanced and tends to tilt toward the drum hinge.

3. In a heater, the combination of a drum having a collar, a base to which said drum is hinged, a burner within said base having a portion adapted to be engaged by and to coöperate with said collar, and means pivotally supporting the burner within the base so that the burner is overbalanced and tends to tilt toward the drum hinge.

4. In a heater, the combination of a drum base, a drum hinged to said base and having a collar arranged to enter said base, a base ring on which said drum base is supported, said base ring having a pair of opposed pivots located forward of the center of the base ring and a burner mounted on said pivots and having a portion coöperating with and adapted to be engaged by said collar.

5. In a heater, the combination of a drum base, a drum hinged to said base and having a collar within said base, a base ring on which the drum base is supported, said base ring having a pair of opposed inwardly projecting flanges, each flange having an angular seat projecting upwardly therefrom and said seats being located in front of the center of the ring, and a combined reservoir and burner within the drum base and ring, the reservoir resting upon said seats and the burner having a portion coöperating with and adapted to be engaged by said collar.

6. In a heater, the combination of a base ring having an inwardly extending portion, a drum base supported by said base ring, said drum base having a wired edge at the top thereof and a slot located below and extending parallel with said edge and adjacent thereto, a latch base within said drum base and having its upper end bent outwardly through said slot in position to engage such edge and having its lower end anchored in the inwardly extending portion of the base ring, a spring plate secured to said base plate and having a locking portion extending above the wired edge of the drum base, and a drum pivotally supported by the drum base and arranged to be engaged and locked by the locking portion of the spring plate.

7. In a heater, the combination of a base ring having at its upper end a cylindrical seat and an inwardly projecting flange extending from the top of said seat, a drum base sleeved upon said seat and having a wired upper edge and provided with a slot adjacent to and extending substantially parallel with such edge, a base plate having its lower end anchored in said flange and having its upper end bent outwardly through said slot and beneath said wired edge, a spring plate secured to the base plate and having its upper end extending above and overhanging the wired edge and forming a locking projection, and a drum pivoted to the drum base and adapted to be engaged and locked by the locking projection on the spring plate.

8. In a heater, the combination of a drum base having a slot below the top thereof, a flexible member projecting inwardly near the bottom of said drum base and provided with an anchoring slot therein and a slot extending from the former slot to the inner edge of such member, a latch within the drum base and having supporting portions projecting through the slot in the drum base and into the anchoring slot, and a drum pivotally supported by the drum base and arranged to be secured by said latch.

9. In a heater, the combination of a drum base, a flexible member within said drum base and provided with an anchoring slot therein and a slot extending from the former slot to an edge of such member, a latch within the drum base and having a supporting portion projecting into the anchoring slot, and a drum pivotally supported by the drum base and arranged to be secured by said latch.

10. In a heater, the combination of a drum base having a wired upper edge and provided with a slot below such edge, anchoring means within said base, a latch base having its upper end extending through said slot and its lower end operatively engaging the anchoring means, said latch base having a pair of inwardly projecting spaced flanges, a spring plate anchored between said flanges and having its upper end provided with locking means, and a drum pivoted to the drum base and adapted to be engaged by said locking means.

11. In a heater, the combination of a drum base, a latch base within said drum base and having a pair of inwardly projecting spaced flanges, a spring plate anchored between said flanges and having its upper end provided with locking means, means anchoring said latch base within the drum base, and a drum pivoted to the drum base and adapted to be engaged by said locking means.

12. In a heater, the combination of a drum base, a hinge frame located within said base and having extensions projecting through said base below the top thereof, a drum pivotally supported by said extensions, and means whereby said frame may be adjusted toward and from the center of the drum base.

13. In a heater, the combination of a drum base, a hinge frame located within said drum base and having its lower end anchored within said base and having projections extending through the wall of the drum base, and a drum pivotally supported by said projections, said projections having lugs adapted to be bent into engagement

with the outer surface of the drum base to adjust the hinge frame toward and from the center of said drum base.

14. In a heater, the combination of a drum base, a hinge frame located within said drum base and having the lower end anchored within said base and having projections extending outside the drum base, a drum pivotally supported by said projections, and means whereby the hinge frame may be adjusted toward and from the center of said drum base.

15. In a heater, the combination of a drum base having a wired upper edge and provided with a pair of vertically extending slots below such edge and adjacent thereto, a member projecting inwardly from the drum base below said slots, a hinge frame within said base and having its lower end anchored in said member and having a pair of projections extending through said slots, said projections each having a lug adapted to engage the wired edge and said lugs being adapted to be bent toward and from each other, and a drum pivotally supported by said projections.

16. In a heater, the combination of a drum base provided with a pair of vertically extending slots below the upper edge thereof and adjacent thereto, a member within the said drum base, a hinge frame within said base anchored to said member and having a pair of projections outside said base, said projections having each a portion adapted to engage the outer surface of the base and to be bent toward and from each other, and a drum pivotally supported by said projections.

17. In a heater, the combination of a drum base, a hinge frame located within said base and anchored at its lower end, said frame having supporting means extending through the wall of the drum base, a drum pivotally mounted on said supporting means, and means whereby the upper end of said frame may be adjusted toward and from the center of the drum base.

18. In a heater, the combination of a drum base, a hinge frame located within said base and anchored at its lower end, said frame having pivot supporting means extending through the wall of the drum base, a drum pivotally mounted on said supporting means, and means whereby the upper end of said frame may be adjusted toward and from the center of the drum base.

19. In a heater, the combination of a drum base having slots in the wall thereof adjacent to the top and having, within the lower portion thereof, anchoring members, a latch device having its bottom anchored in one of said members and its top extending through a slot in the drum base wall thereabove, a hinge frame having its lower end anchored in the other member and having hinge projections extending through the slots thereabove in the drum wall, and a drum pivotally supported by said projections.

20. In a heater, the combination of a drum base, a latch device within said base and having its lower end anchored in a member provided within and separate from said base, a hinge frame mounted within said base and having its lower end anchored in a similarly arranged member, and a drum pivotally supported by the hinge frame.

21. In a heater, the combination of a drum base, a hinge frame supported by said base, a drum pivotally supported from said frame, and means whereby the frame may be adjusted toward and from the center of the drum base.

22. In a heater, the combination of a drum base, a hinge frame supported by said base, a drum pivotally supported by said frame, means for positively moving the frame in one direction with reference to the center of the drum base, and means yieldingly resisting such movement.

23. In a heater, the combination of a drum base, a hinge frame supported by said base, a drum pivotally supported from the upper end of said frame, a spring tending to force the upper end of the frame inwardly or toward the center of the base, and means for moving the upper end of the frame outwardly against the resistance of said spring.

24. In a heater, the combination of a drum base, a hinge frame supported by said base, a drum pivotally supported from said frame, a spring tending to force the upper end of the frame inwardly or toward the center of the base, and adjustable means for moving the frame outwardly against the resistance of said spring.

25. In a heater, the combination of a drum base, a hinge frame having its lower end supported within said base and having a pair of projections extending through the base, a spring mounted between said projections within the base and adapted to bear with its opposite ends against said base and with its ends against the drum base, a drum pivotally supported outside of the base on said projections, and means, located outside of the drum, for moving the upper portion of the frame outwardly against the action of said spring.

26. In a heater, the combination of a drum base having an opening adjacent to its upper edge, a latch base having its lower end anchored within the drum base and having its upper end extending outwardly through said opening, a spring plate secured to the latch base and having its upper end provided with locking means, and a drum pivoted to the drum base and adapted to be engaged by said locking means.

27. In a heater, the combination of a drum base having an opening adjacent to

its upper edge, a latch base having its lower end anchored within the drum base and having its upper end extending outwardly through said opening, a spring plate secured to the latch base and having its upper end provided with a locking projection, and a drum having an aperture through which said projection extends for the purpose of locking the drum in operative relation to the drum base.

28. In a heater, the combination of a drum base, a member within said drum base, a hinge frame within said base anchored to said member and having a supporting portion projecting outside of said base, lugs projecting from the supporting portion and adapted to engage the outer surface of the base, and a drum pivotally connected to the supporting portion.

29. In a heater, the combination of a drum base, an anchoring member within said base, a hinge frame having its lower end within said base and anchored to said member and having near its upper end a portion projecting through the drum base below the top thereof, a drum pivoted to such projecting portion of the hinge frame, and means carried by the projecting portion of the hinge frame for securing or anchoring the same to the drum base.

30. In a heater, the combination of a drum base, a drum pivoted thereto, and a latch for securing the drum to the base, said latch being located within the drum base and having a securing portion extending through an opening in said base and having its lower end anchored to a member independent of said drum base.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

WILLIAM R. JEAVONS.

Witnesses:
J. B. HULL,
BRENNAN B. WEST.