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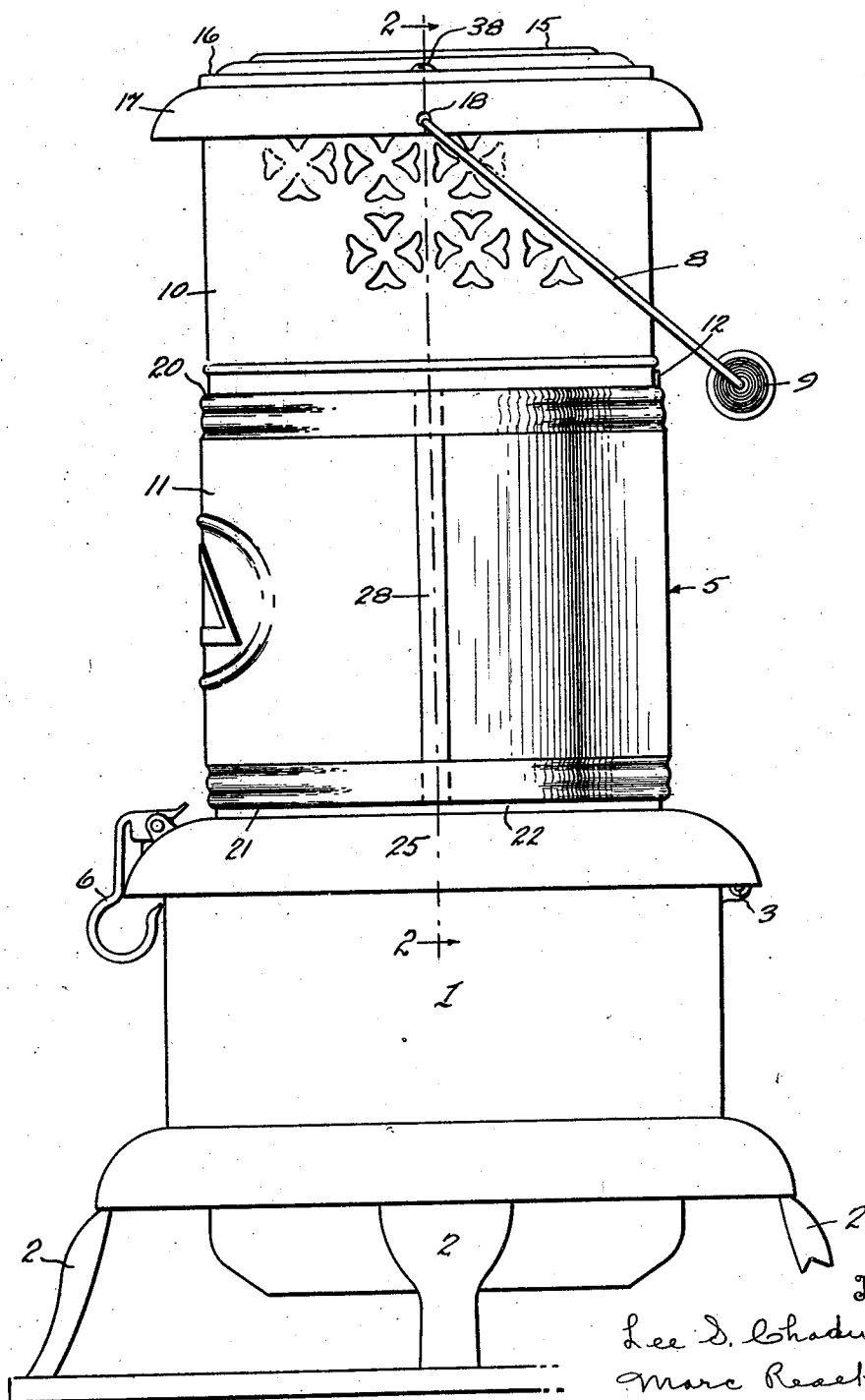
L. S. CHADWICK ET AL

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CHIMNEY DRUM FOR HEATERS

Filed Aug. 3, 1929

3 Sheets-Sheet 1



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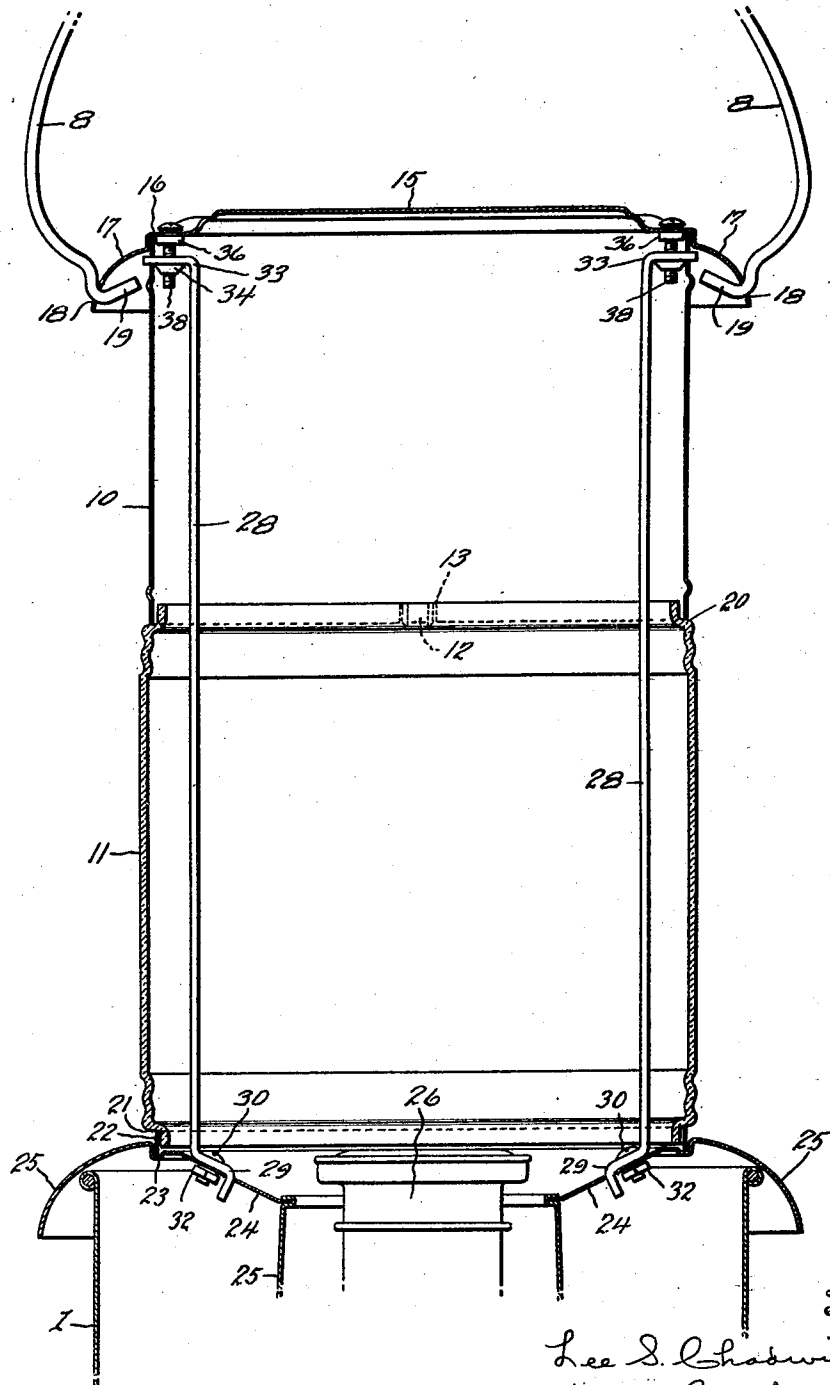
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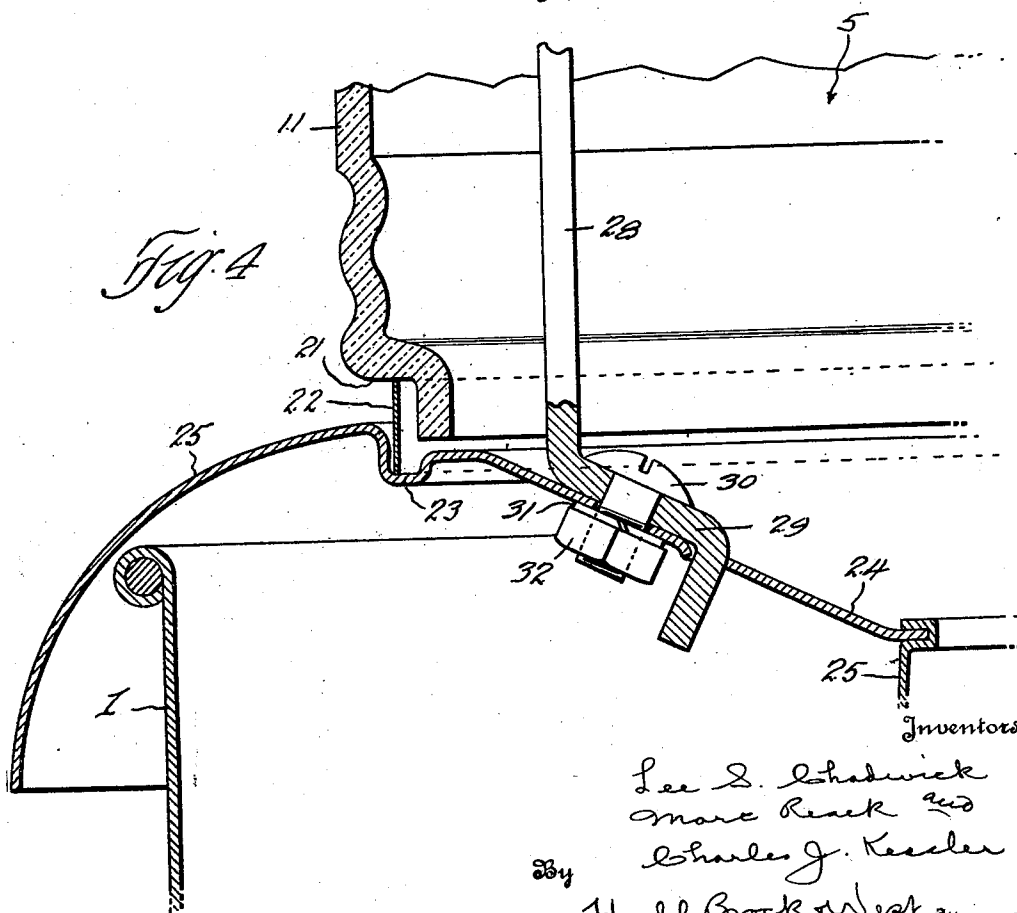
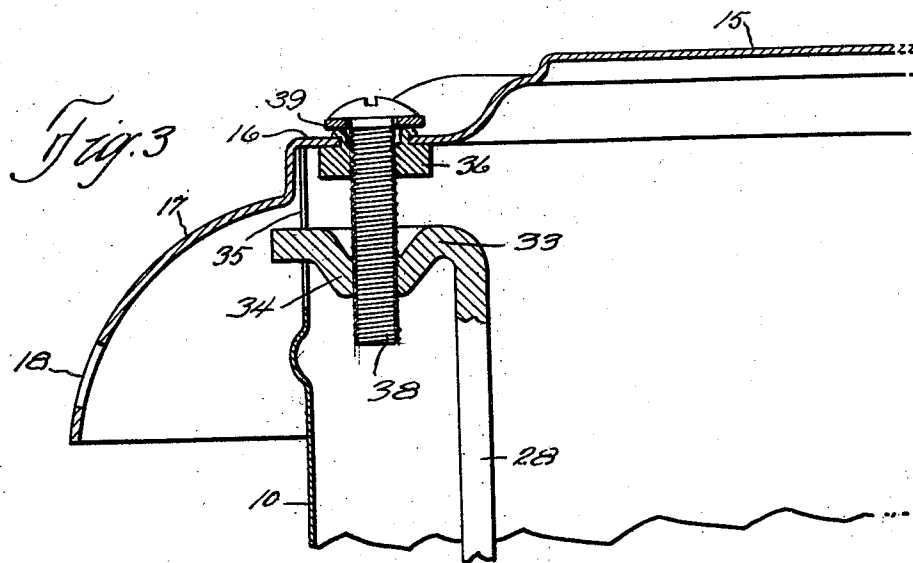
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CHIMNEY DRUM FOR HEATERS

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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CHIMNEY DRUM FOR HEATERS

Application filed August 3, 1929. Serial No. 383,336.

This invention relates to heaters of the drum type, and it has for its primary purpose the provision of a construction which makes it practical and economical to employ glass cylinders in the chimney drums of such heaters.

It may be briefly explained that the chimney drums of heaters of the kind in question are composed of a top member, a bottom member or so-called "cone" plate, a cylindrical shell or chimney drum which is interposed between the two members; and means for drawing or tying the top and bottom members together so as to hold the cylindrical shell or drum between them.

Early attempts to employ glass cylinders as a part of the chimney drums of heaters of the above mentioned type met with little success. These glass cylinders when made in the usual manner are not at all uniform, varying considerably in height and in diameter and are usually out of round, so that when such cylinders were clamped between them the top and bottom members of the heater they would immediately be placed under strain or would assume such condition when heated, and as a consequence thereof would crack or break.

As indicated above, it is the main object of the invention to overcome the foregoing difficulty; and further objects are to provide simple, cheap, substantial and durable means for tying the top and bottom members of the chimney drum together without imposing undue pressure or strains upon the glass section and which is of such a nature that it renders the drum comparatively economical of production and quick and convenient of assembly.

The above mentioned objects, with others hereinafter appearing, are attained in the construction illustrated in the accompanying drawings wherein Fig. 1 is a side elevation of a heater incorporating the invention; Fig. 2 is a central vertical section through the

drum substantially on the line 2—2 of Fig. 1, the view being taken as though looking in the direction of the arrows associated with said line, the present view being on a scale somewhat enlarged over that of Fig. 1; and Figs. 3 and 4 are details on further enlarged scales showing, respectively, the connection between the upper end of one of the tie members and the chimney top, and the lower end of said tie member and the cone plate.

The stove comprises a base 1 that is supported a suitable distance above the floor by legs 2, and to its rear side is connected by a hinge 3 the drum that is designated generally by the reference numeral 5. A latch 6 detachably connects the front side of the drum to the corresponding side of the base, and pivotally connected to the top of the drum, in a manner presently to be described, is a bail 8 involving a hand grip 9.

The chimney drum, in the present instance, is made up of a perforated metallic section 10 and a glass cylinder 11. The two are held against relative rotary motion by a projection 12 on the glass section that occupies a notch 13 in the lower edge of the metallic section. A top member 15 rests, through a shouldered portion 16 thereof, on the top of the section 10, and outwardly beyond the portion 16 the top is curved downwardly and outwardly to provide a skirt 17. At diametrically opposite sides the skirt 17 has apertures 18 in which are engaged the hooked ends 19 of the previously mentioned bail 8.

The glass section 11 of the chimney drum is reduced in diameter at top and bottom to provide respective ledges 20 and 21, the former receiving the lower end of the metallic chimney section 10, and the latter bearing upon a ring 22 that is engaged within an annular depression 23 of what is known as the cone plate 24. The outer wall of the depression 23 is comparatively deep and is curved outwardly at its upper end and merges into a

flaring skirt 25 that extends downwardly over and rests upon the upper end of the stove base 1. Inwardly of the depression 23, the cone plate is inclined downwardly and inwardly to where it is connected to a collar 25¹ which cooperates with a part of the burner that is designated generally by the reference numeral 26 and is suitably supported within the stove base.

Connecting the top member 15 and the cone plate 24, at diametrically opposite sides of the chimney drum, are tie bars 28. At their lower ends these bars are deflected inwardly at an angle to their vertical body portions corresponding to the incline of the inner portion of the cone plate and bear directly upon the said plate, and beyond such deflected portions the terminals of the tie bars are flanged downwardly at right angles and are projected through slots in said plate. Such lower ends of the tie bars will be referred to as feet 29, and extending through registering holes in said feet 29 and in the cone plate are bolts 30 to the lower ends of which are applied lock washers 31 and nuts 32. Heads 33 are formed on said tie bars by turning their upper ends outwardly at right angles, said heads having conical depressions 34 through the bottoms of which extend threaded apertures. The chimney section 10 has diametrically opposed notches 35 for the accommodation of the outer ends of the heads 33, and riveted within holes in the top member 15, above the heads 33, are the reduced upper ends of thimbles 36 having threaded apertures with which are adapted to be axially aligned the threaded apertures in the heads 33. Screws 38, carrying washers 39 of compressible material beneath their heads (see Fig. 3), are threaded downwardly through the thimbles 36 and through the heads 33 for connecting the parts together.

In the assembly of the chimney structure, the feet 29 of the tie bars 28 are connected in the manner above described to the cone plate 24. The ring 22 is then dropped within the depression 23 of the cone plate and the glass cylinder 11 is placed upon the ring 22. The lower end of the chimney section 10 is then engaged over the reduced upper end of the glass cylinder 11 and brought to bear upon the shoulder 20, the parts being positioned with the lug 12 of the glass cylinder in the notch 13 of the chimney section 10, and with the outer ends of the heads 33 of the tie bars within the notches 35 of said chimney section. The top 15, with the screws 38 retracted, is placed upon the upper end of the chimney section 10 and a definite weight is placed on top of the member 15, so that the parts are held together under a predetermined pressure until the screws are tightened. It has been found that to let the parts rest of their own weight alone, one upon another, they are too loose when the chimney is assembled.

With the weight in place the screws are then turned downwardly until they enter the conical depressions in the heads 33 of the tie bars 28, such depressions aligning the threaded apertures of the heads 33 with the screws. Through continued turning, the screws are advanced until their heads are stopped by the riveted upper ends of the thimbles 36. The assembly of the drum is thus completed. By reason of the fact that each screw 38 is threaded through both the thimble 36 and the head 33 of the corresponding tie bar 28, it is impossible to draw the parts together more firmly than when resting of their own weight upon one another, it being understood that the thimbles 36 are secured against turning with respect to the top member 15.

Thus it will be seen that our invention provides a very simple, economical and convenient means for tying the top and bottom members of the chimney drum together without imposing strains upon the glass section 11. Also, it is clear from the construction above described that the chimney section 10 is held by the tie bars against turning with respect to the cone plate which, in turn, bears a fixed relation to the base of the stove by reason of its hinge connection thereto, and the reason for locking the glass section 11 against rotary movement with respect to the metallic section 10 through the instrumentality of the lug 12 and notch 13, as above explained, is that in commercial practice, certain matter is embossed on the glass section and it is desirable to maintain the same in a given relation to the remainder of the structure, as at the front thereof.

An important advantage arising from the use of the metal ring 22 and the metallic drum section 10 at the opposite ends of the glass drum section 11 is that, inasmuch as the ring 22 and section 10 are flexible, they adjust themselves to any out-of-roundness of the glass drum section and thereby prevent undue strains being imposed upon the latter as a result of such an abnormal condition.

Having thus described our invention, what we claim is:

1. A chimney drum for heaters comprising a top member, a bottom member, a glass drum section interposed between said members, and tie means involving screw connections for connecting the top and bottom members together, said screw connections being operable to render the tie means effective without drawing said top and bottom members toward each other.

2. A chimney drum for heaters comprising a top member, a bottom member, a glass drum section interposed between said members, tie means extending from one of said members and terminating adjacent the other member, and screws for connecting together without drawing toward each other said other member and the tie means.

3. A chimney drum for heaters comprising a top member, a bottom member, a glass drum section interposed between said members, tie means extending from one of said members and terminating adjacent the other member, and screws cooperating through longitudinally spaced parts of like pitch with said other member and with the tie means.

4. A chimney drum for heaters comprising a top member, a bottom member, a glass drum section and a metallic drum section axially aligned and engaged with one another and interposed between said members, tie means extending from one of said members and terminating adjacent the other member, and screws threadedly connected to said other member and to the tie means.

5. A chimney drum for heaters comprising a top member, a bottom member, a glass drum section and a metallic drum section axially aligned and engaged with each other and interposed between said members, said sections having interfitting portions which hold them against relative rotation, tie means extending from one of said members and terminating adjacent the other member, the tie means and metallic drum section having parts interengaging for holding said drum section against rotation with respect to the tie means, and screws threadedly connected to said other member and to the tie means.

6. A chimney drum for heaters comprising a top member, a bottom member having an annular depression, a ring seated within said depression, a glass drum section interposed between said ring and the top member, tie means extending from one of said members and terminating adjacent the other member, and screws cooperating through longitudinally spaced parts of like pitch with said other member and with the tie means.

7. A chimney drum for heaters comprising a top member, a bottom member having an annular depression, a ring seated within said depression, a glass drum section having shoulders adjacent its ends, the shoulder adjacent its lower end bearing upon said ring, a metallic drum section interposed between the shoulder at the other end of said drum section and the top member, tie means extending from one of said members and terminating adjacent the other member, and screws threadedly connected to said other member and to the tie means.

8. A chimney drum for heaters comprising a top member, a bottom member, said members having positioning parts, a ring applied to the positioning part of the bottom member, a metallic drum section engaged with the positioning part of the top member, a glass drum section interposed between and bearing upon the opposed ends of the metallic drum section and said ring, tie means extending from one of said members, and terminating adjacent the other member, and screws

threadedly connected to said other member and to the tie means.

9. A chimney drum for heaters comprising a top member having an annular shoulder, a cone plate having an annular depression, a ring seated within said annular depression, a glass drum section resting at its lower end upon said ring, a metallic drum section interposed between the upper end of the glass drum section and the annular shoulder of the top member, tie bars secured to and rising from the cone plate inwardly of said annular depression, the upper ends of said tie bars being formed to constitute heads, and screws threadedly connected to the top member and to said heads.

10. A chimney drum for heaters comprising a top member having an annular shoulder, a cone plate having an annular depression, a ring resting within said annular depression, a drum consisting of a metallic section and a glass section that are axially aligned and engaged with each other and interposed between said ring and the shoulder of the top member, tie bars rising from the cone plate inwardly of the aforesaid depression and terminating at their upper ends in heads that are spaced from portions of the top member, thimbles secured to said portions of the top member, said thimbles and the aforesaid heads having threaded apertures, and screws threaded through the apertures of the corresponding thimbles and heads.

11. A chimney drum for heaters comprising a top member having an annular shoulder, a cone plate having an annular depression, a ring resting within said depression, a glass drum section surmounting said ring, a metallic drum section interposed between the former drum section and the shoulder of the top member, tie bars secured to and rising from the cone plate inwardly of said annular depression and terminating at their upper ends in outwardly extended heads, the metallic drum section having openings wherein the outer ends of said heads are engaged, and screws threadedly connected to the top member and to said head, the drum sections having parts interfitting to hold said sections against relative rotation.

12. A chimney drum for heaters comprising a top member, a bottom member, a glass drum section and a metallic drum section axially aligned and engaged with each other and interposed between said members, said sections having interfitting portions which hold them against relative rotation, and tie means connecting said members together, the tie means and metallic drum section having parts interengaging for holding said drum section against rotation with respect to the tie means.

13. A chimney drum for heaters comprising a top member, a bottom member having

an annular depression, a ring seated within said depression, a glass drum section interposed between said ring and the top member, and tie means connecting said members together.

5 14. A chimney drum for heaters comprising a top member, a bottom member having an annular depression, a ring seated within said depression, a glass drum section having
10 shoulders adjacent its ends, the shoulder adjacent its lower end bearing upon said ring, a metallic drum section interposed between the shoulder at the other end of said drum section and the top member, and means for tying said members together.

15 15. A chimney drum for heaters comprising a top member, a bottom member, said members having positioning parts, a ring applied to the positioning part of one member, a metallic drum section engaged with the
20 positioning part of the other member, a glass drum section interposed between and bearing upon the opposed ends of the metallic drum section and said ring, and means tying said
25 members together.

16. A chimney drum for heaters comprising a top member having an annular shoulder, a cone plate having an annular depression, a ring seated within said annular depression, a glass drum section resting at its
30 lower end upon said ring, a metallic drum section interposed between the upper end of the glass drum section and the annular shoulder of the top member, and means connecting the top member and cone plate together.

35 17. A chimney drum for heaters comprising a top member, a bottom member, a glass drum section, a flexible metallic unit interposed between each member and the adjacent
40 end of the glass drum section, and tie means connecting the top and bottom members together.

18. A chimney drum for heaters comprising a top member, a bottom member, a glass
45 drum section therebetween having shoulders at its ends in opposed relation to said members, a flexible metallic unit interposed between each shoulder and the opposed member, and tie means for connecting the top and
50 bottom members together.

19. A chimney drum for heaters comprising a top member, a bottom member, a drum section of fragile material interposed and establishing a fixed distance between said
55 members, and tie means connecting together and spacing apart said top and bottom members, said means automatically adapting itself to said fixed distance thereby to avoid undue pressure being imposed upon the drum
60 section.

20. A chimney drum for heaters comprising a top member, a bottom member, said members having positioning parts, a cylindrical metallic unit engaged with the
65 positioning part of each member, a glass drum

section interposed between the units, and tie means connecting the members together, one of the units being held against turning with respect to the members and cooperating with the glass drum section to hold the latter
70 against relative rotation.

In testimony whereof, we hereunto affix our signatures.

LEE S. CHADWICK.

MARC RESEK.

CHARLES J. KESSLER.

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