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**Crowe, JR.**

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(54) **BOLT KEEPER TOILET FLANGE**

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(76) **Inventor: Donald W. Crowe JR., Beverly Hills, FL (US)**

(57) **ABSTRACT**

Correspondence Address:  
**Edward M. Livingston, Esq.**  
**628 Ellen Dr.**  
**P.O. Box 1599**  
**Winter Park, FL 32790 (US)**

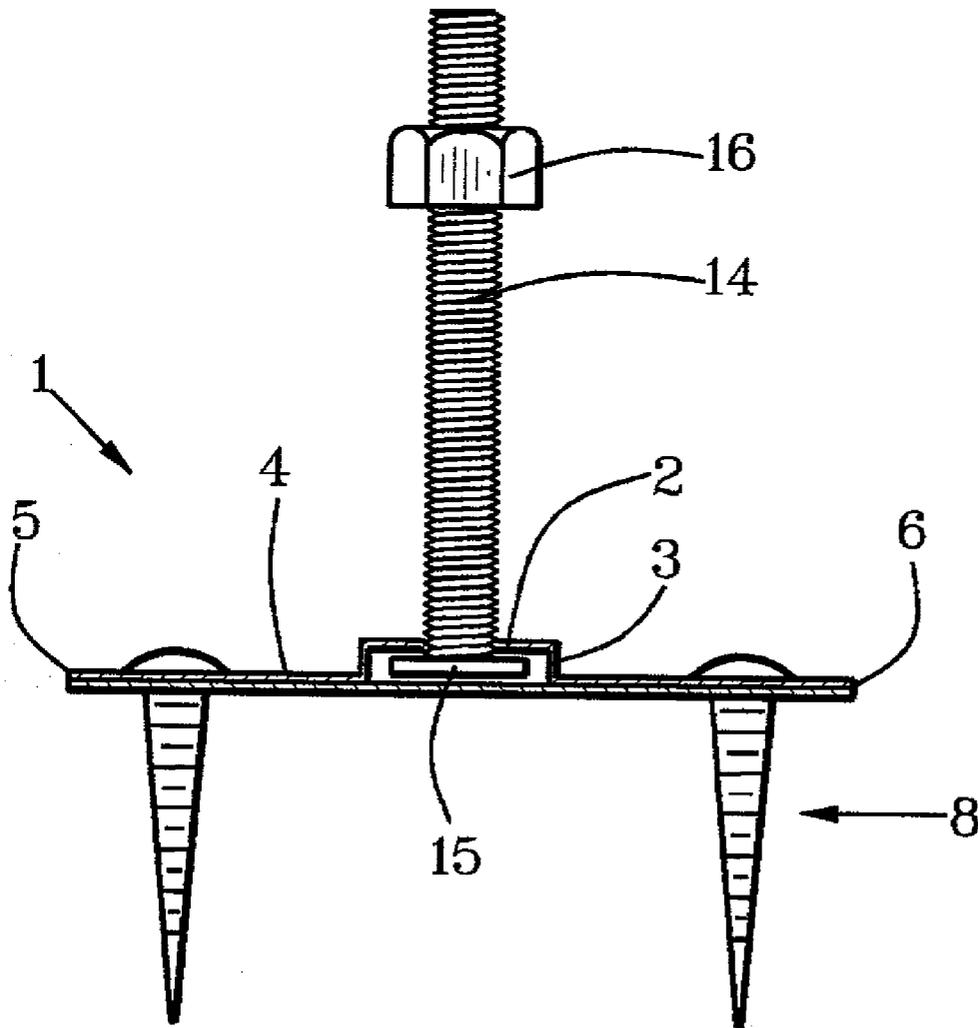
A bolt-keeper toilet flange has a predeterminedly arcuate plate (1) with one or more bolt-head brackets (2, 9) for holding a toilet-bolt head (15) in order to position it upright in a predetermined place for attachment of a toilet bowl. On opposite sides of the bolt-head bracket are floor-bolt apertures (7, 21) through which floor bolts (8) can be inserted downwardly with heads of the floor bolts being retained upwardly by the floor-bolt apertures for bolting the arcuate plate to a floor selectively about a toilet drain aperture. Optionally, for a repair embodiment, the arcuate plate can be a connector plate (11) for bridging between sections of an existing toilet-bowl ring. For an original-installation embodiment, the arcuate plate can be a base circumferential plate (13).

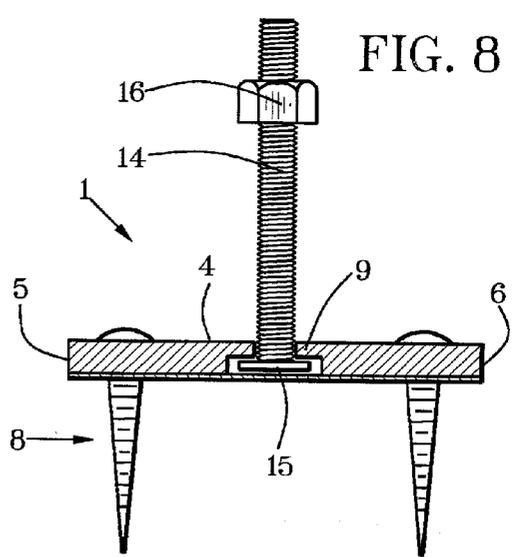
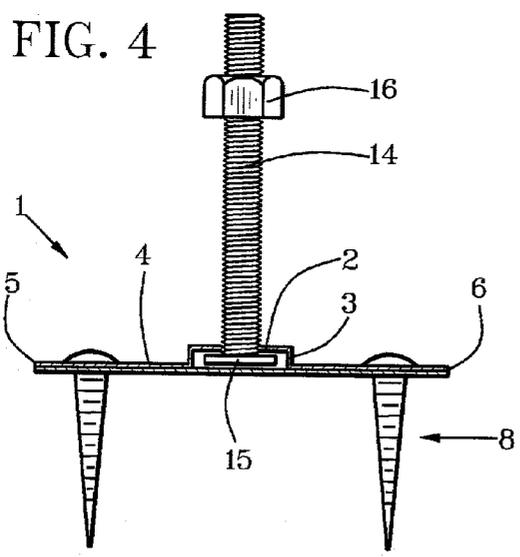
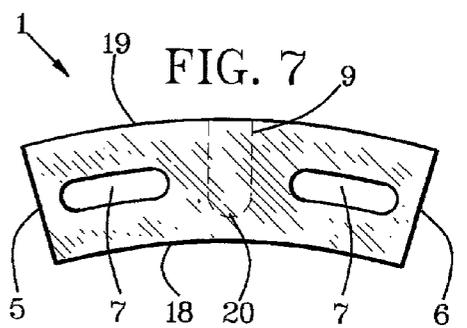
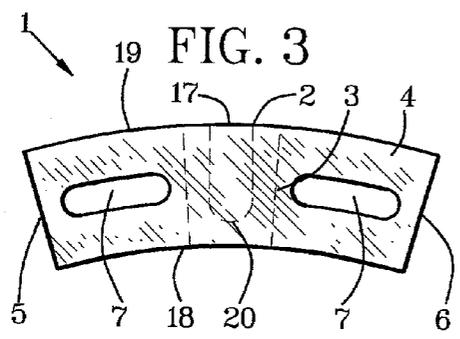
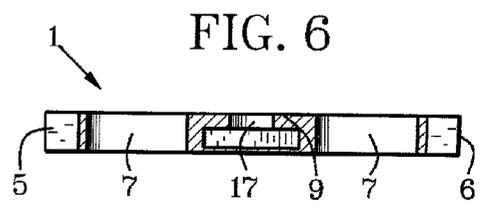
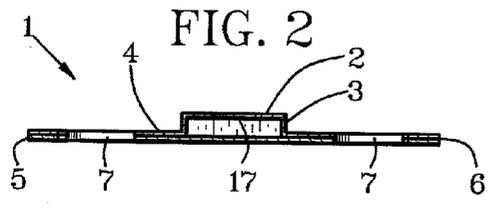
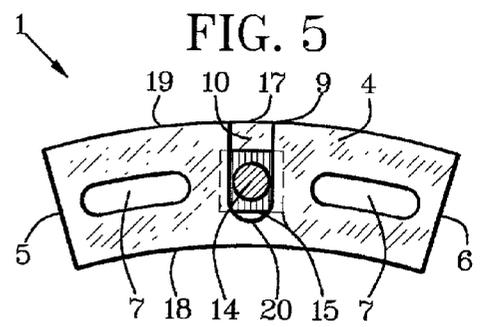
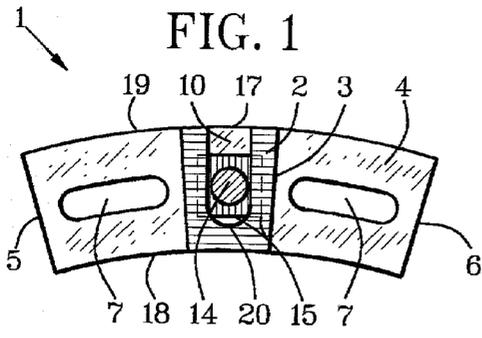
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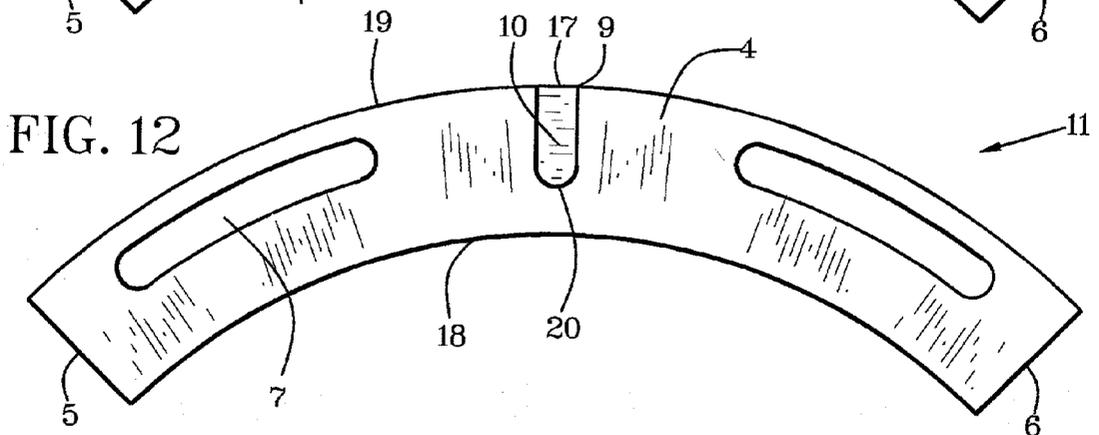
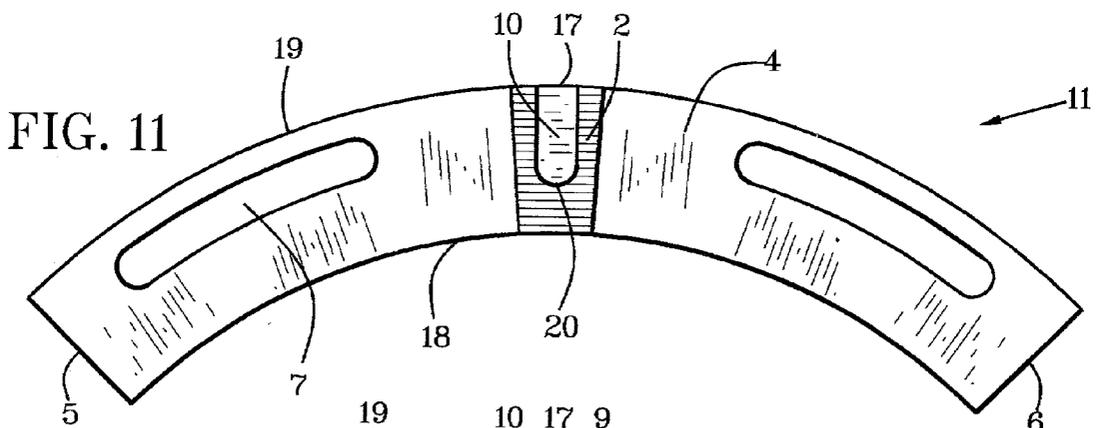
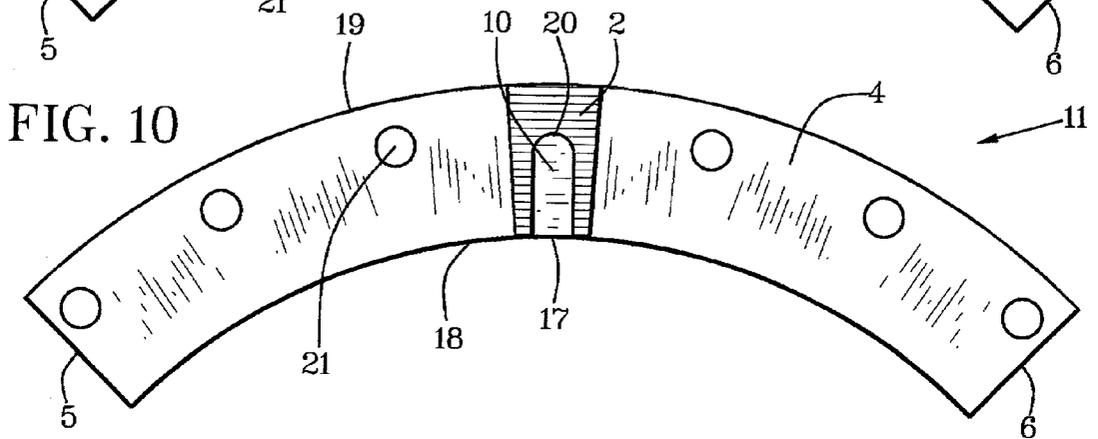
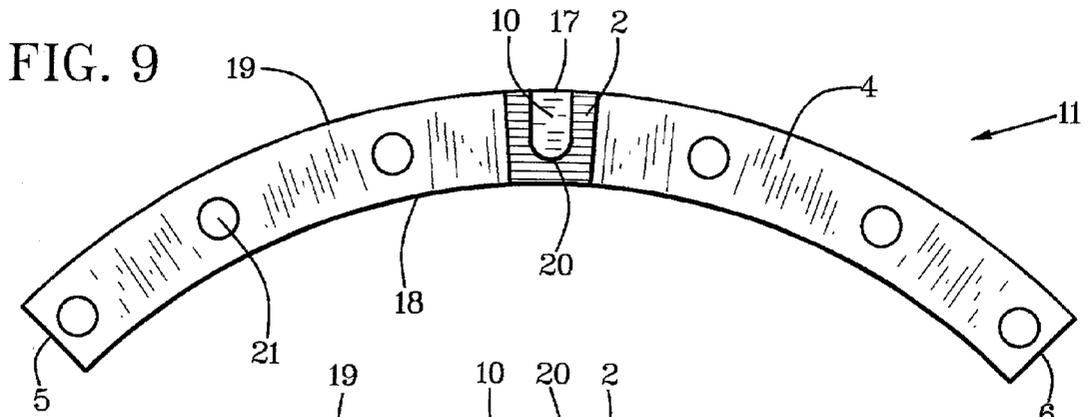
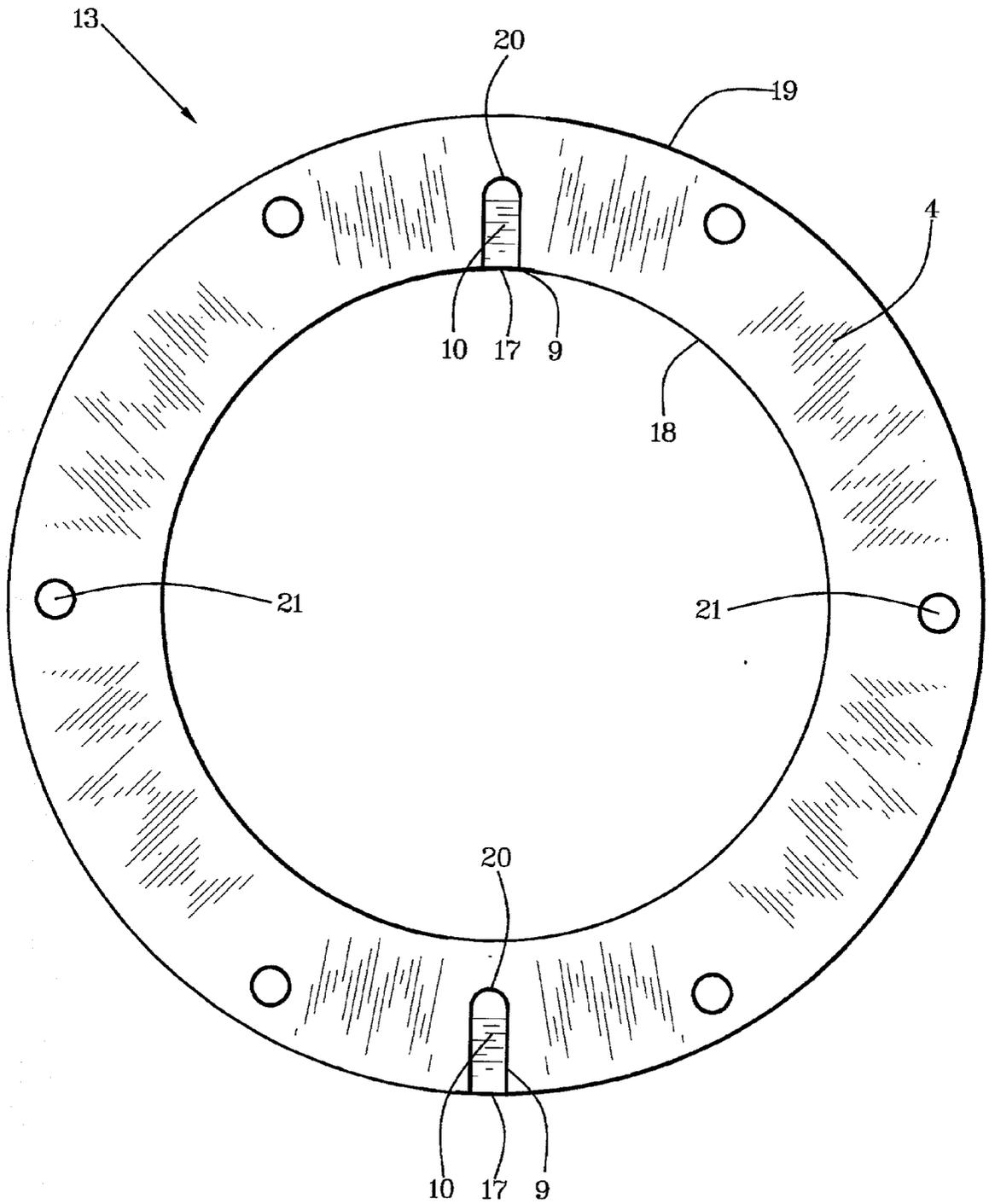




FIG. 14



**BOLT KEEPER TOILET FLANGE****BACKGROUND OF THE INVENTION**

[0001] This invention relates to toilet-bowl bolt flanges having bolt keepers to set, retain and lock toilet-bowl bolts when being installed or repaired.

[0002] Generally, toilet bowls are bolted to cement or wooden floors with toilet bolts that point up from a toroidal toilet-bolt flange that is bolted down to the floor with floor bolts that point down at separate circumferential portions of the toilet-bowl flange.

[0003] Positioning the toilet bolts that point up, preventing them from falling through floor openings and preventing them from rotating for opposition to rotation of fastener nuts screwed onto them are problems that have not been solved previously for original installation and more yet for repair of old toilet bowls. Overcoming these problems are objectives of this invention.

[0004] Examples of most-closely related known but different devices are described in the following patent documents:

U.S. Pat. No.	Inventor	Issue Date
5,890,239	Hite	Apr. 6, 1999
3,921,229	Yavitch	Nov. 25, 1975
3,409,918	Gaddy	Nov. 12, 1968
919,935	Oidtmann	Apr. 27, 1909
3,579,670	Frank	May 25, 1971
879,176	Jackson	Feb. 18, 1908
812,543	Buchanan, Jr.	Feb. 13, 1906
1,005,751	Schweitzer	Oct. 10, 1911
1,061,632	Podolsky	May 13, 1913
4,207,630	Bressler	Jun. 17, 1980

**SUMMARY OF THE INVENTION**

[0005] Objects of patentable novelty and utility taught by this invention are to provide a bolt-keeper toilet flange which:

[0006] can be used in original toilet installation to prevent toilet bolts from slipping out of place or falling through floor openings;

[0007] can be used as a supplemental flange on top of current flanges for toilet repairs; and

[0008] can be positioned circumferentially on top of present flanges.

[0009] This invention accomplishes these objectives with a bolt-keeper toilet flange having a predeterminedly arcuate plate with one or more bolt-head brackets for holding a head of a toilet bolt in order to position the toilet bolt upright in a predetermined place for attachment of a toilet bowl. On opposite sides of the bolt-head bracket are arcuate floor-bolt apertures through which floor bolts can be inserted with heads of the floor bolts being retained by the floor-bolt apertures for bolting the arcuate panel to a floor selectively about a toilet drain aperture. Optionally, for a repair embodiment, the arcuate plate can extend predetermined degrees for bridging between sections of an existing toilet-bowl ring.

For original installation, the arcuate plate can be two halves or one complete toroidal flange.

[0010] The above and other objects, features and advantages of the present invention should become even more readily apparent to those skilled in the art upon a reading of the following detailed description in conjunction with the drawings wherein there is shown and described illustrative embodiments of the invention.

**BRIEF DESCRIPTION OF DRAWINGS**

[0011] This invention is described by appended claims in relation to description of a preferred embodiment with reference to the following drawings which are explained briefly as follows:

[0012] **FIG. 1** is a top view of an arcuate-plate embodiment having a supplemental bolt-head bracket;

[0013] **FIG. 2** is a partially cutaway front view of the **FIG. 1** illustration;

[0014] **FIG. 3** is a bottom view of the **FIG. 1** illustration;

[0015] **FIG. 4** is a front view of the **FIG. 1** illustration with floor bolts and a toilet bolt in place for repair use to attach a toilet bowl to a floor;

[0016] **FIG. 5** is a top view of an arcuate-plate embodiment having an integral bolt-head bracket;

[0017] **FIG. 6** is a partially cutaway front view of the **FIG. 5** illustration;

[0018] **FIG. 7** is a bottom view of the **FIG. 5** illustration;

[0019] **FIG. 8** is a front view of the **FIG. 5** illustration with floor bolts and a toilet bolt in place for repair use to attach a toilet bowl to a floor;

[0020] **FIG. 9** is a top view of a connector plate having a supplemental bolt-head bracket with an entry at an outside edge and a width of approximately three-quarters of an inch with circular floor-bolt apertures;

[0021] **FIG. 10** is a top view of a connector plate having a supplemental bolt-head bracket with an entry at an inside edge and a width of approximately one inch with circular floor-bolt apertures;

[0022] **FIG. 11** is a top view of a connector plate having a supplemental bolt-head bracket with an entry at an outside edge and a width of approximately one inch with arcuate floor-bolt apertures;

[0023] **FIG. 12** is a top view of a connector plate having an integral bolt-head bracket with an entry at an outside edge and a width of approximately one inch with arcuate floor-bolt apertures;

[0024] **FIG. 13** is a top view of a supplemental circumferential plate having a first supplemental bolt-head bracket with an entry at an inside edge, a second supplemental bolt-head bracket with an entry at an outside edge and a width of approximately one-and-one-half inches with circular floor-bolt apertures; and

[0025] **FIG. 14** is a top view of a base circumferential plate having a first integral bolt-head bracket with an entry at an inside edge, a second integral bolt-head bracket with an

entry at an outside edge and a width of approximately one-and-one-half inches with circular floor-bolt apertures.

#### DESCRIPTION OF PREFERRED EMBODIMENT

[0026] Listed numerically below with reference to the drawings are terms used to describe features of this invention. These terms and numbers assigned to them designate the same features throughout this description:

- 
1. Arcuate plate
  2. Supplemental bolt-head bracket
  3. Bracket walls
  4. Bolt-head side
  5. First arcuate end
  6. Second arcuate end
  7. Arcuate floor-bolt apertures
  8. Floor bolts
  9. Integral bolt-head bracket
  10. Bolt-shank opening
  11. Connector plate
  12. Supplemental circumferential plate
  13. Base circumferential plate
  14. Toilet-bolt shank
  15. Toilet-bolt head
  16. Toilet-bolt nut
  17. Bracket entry
  18. Inside edge
  19. Outside edge
  20. End wall
  21. Floor-bolt apertures
- 

[0027] Referring to FIGS. 1-4, a bolt-keeper toilet flange has a toilet-fastener plate that includes an arcuate plate 1 having a bolt-head bracket that includes a supplemental bolt-head bracket 2 having bracket walls 3 that are supplemental to and superimposed onto material of construction of the toilet-fastener plate and project upwardly from a bolt-head side 4 of the toilet-fastener plate that includes the arcuate plate 1. The arcuate plate 1 has a predetermined arcuate length intermediate a first arcuate end 5 and a second arcuate end 6. The supplemental bolt-head bracket 2 is approximately centered intermediate the first arcuate end 5 and the second arcuate end 6. Intermediate the first arcuate end 5 and the supplemental bolt-head bracket 2 are arcuate floor-bolt apertures 7 that preferably have an arcuate length of at least three diameter lengths of floor bolts 8.

[0028] The bolt-head bracket can include an integral bolt-head bracket 9 that is shown in FIGS. 4-8, 12 and 14 in contrast to the supplemental bolt-head bracket 2 which is shown in FIGS. 1-3, 9-11 and 13. The bolt-head bracket, whether the supplemental bolt-head bracket 2 or the integral bolt-head bracket 9, has a bolt-shank opening 10 on the bolt-head side 4 of the toilet-fastener plate. This is the same for the arcuate plate 1 that is shown in FIGS. 1-8, a connector plate 11 that is shown in FIGS. 9-12, a supplemental circumferential plate 12 that is shown in FIG. 13, and a base circumferential plate 13 that is shown in FIG. 14. The supplemental bolt-head bracket 2 is superimposed on thin supplemental toilet-fastener plates in contrast to the integral bolt-head bracket 9 that preferably is integrated into a wall thickness of the toilet-fastener plates.

[0029] The bolt-shank opening 10 is for holding a toilet-bolt shank 14 uprightly from a toilet-bolt head 15 in the

bolt-head bracket of either the supplemental bolt-head bracket 2 or the integral bolt-head bracket 9. This prevents the toilet-bolt shank 14 from rotating and holds it in place where it can be accessed when a toilet bowl that is not shown is placed on it and toilet-bolt nuts 16 are screwed onto the toilet-bolt shanks 14.

[0030] The bolt-head bracket, whether the supplemental bolt-head bracket 2 or the integral bolt-head bracket 9, includes a bracket entry 17 that is articulated to receive the toilet-bolt head 15 and the toilet-bolt shank 14 radially from a predetermined entry edge of the fastener plate. The entry edge can be an inside edge 18 or an outside edge 19. FIGS. 13-14 depict bracket entries 17 on both inside edges 18 and outside edges 19 for illustration purposes only. Most toilet-fastener plates will have the bracket entries 17 on a same predetermined side.

[0031] The bolt-head bracket also includes an end wall 20 in the bolt-shank opening 10 for preventing the toilet-bolt shank 14 and the toilet-bolt head 15 from passing through the bolt-head bracket.

[0032] The supplemental circumferential plate 12 of FIG. 13 is intended primarily as a thin, supplemental plate to be used for repairs to hold-toilet bolt shanks 14 and floor bolts 8 in place in relationship to existing but damaged toilet flanges. The base circumferential plate 13 of FIG. 14 is intended for original installation. Either can have inside and outside peripheries with diameters for particular toilet hardware. Widths of one-to-one-and-one-half inches are suitable for most applications. Either can have floor-bolt apertures 21 that include two series of predetermined pluralities of the floor-bolt apertures 21 that are oppositely disposed circumferentially at predetermined radii from an axis of the base circumferential plate 13 or the supplemental circumferential plate 12.

[0033] A new and useful bolt-keeper toilet flange having been described, all such foreseeable modifications, adaptations, substitutions of equivalents, mathematical possibilities of combinations of parts, pluralities of parts, applications and forms thereof as described by the following claims and not precluded by prior art are included in this invention.

What is claimed is:

1. A bolt-keeper toilet flange comprising:

a toilet-fastener plate having at least one bolt-head bracket articulated to hold a toilet-bolt head;

the bolt-head bracket having a bolt-shank opening on a bolt-head side of the toilet-fastener plate for positioning the toilet-bolt head in the bolt-head bracket with a toilet-bolt shank held uprightly from the toilet-fastener plate in a predetermined place for attachment of a toilet bowl to the toilet bolt with a toilet-bolt nut screwed onto the toilet-bolt shank; and

floor-bolt apertures which extend through the toilet-fastener plate on arcuately opposite sides of the bolt-head bracket for receiving floor-bolt shanks of floor bolts inserted downwardly through the floor-bolt apertures and for retaining floor-bolt heads of the floor bolts proximate a top of the toilet-fastener plate for bolting the toilet-fastener plate to a floor predeterminedly about a toilet-drain aperture in the floor.

2. The bolt-keeper toilet flange of claim 1 wherein:

the toilet-fastener plate includes an arcuate plate having a predetermined arcuate length.

3. The bolt-keeper toilet flange of claim 2 wherein:

the arcuate plate has an arcuate length of predeterminedly proximate two inches, a width of predeterminedly proximate three-fourths of an inch and a thickness of predeterminedly proximate one-sixteenth of an inch.

4. The bolt-keeper toilet flange of claim 1 wherein:

the bolt-head bracket includes a bracket entry that is articulated to receive the toilet-bolt head and the toilet-bolt shank radially from a predetermined entry edge of the fastener plate; and

the bolt-head bracket includes an end wall opposite the bracket entry to prevent passage of the toilet-bolt head through the bolt-head bracket.

5. The bolt-keeper toilet flange of claim 4 wherein:

the entry edge of the fastener plate is an arcuately outside edge of the fastener plate.

6. The bolt-keeper toilet flange of claim 4 wherein:

the entry edge of the fastener plate is an arcuately inside edge of the fastener plate.

7. The bolt-keeper toilet flange of claim 1 wherein:

the floor-bolt apertures are arcuate and have aperture lengths that are equal to a predetermined plurality of diameter lengths of the floor bolts.

8. The bolt-keeper toilet flange of claim 1 wherein:

the toilet-fastener plate includes a connector plate with an arcuate extension of predeterminedly proximate 90 degrees, a width of predeterminedly proximate three-fourths of an inch and a thickness predetermined for structure of the bolt-head bracket.

9. The bolt-keeper toilet flange of claim 1 wherein:

the toilet-fastener plate includes a connector plate with an arcuate extension of predeterminedly proximate 90 degrees, a width of predeterminedly proximate one-and-one-half inches and a thickness predetermined for structure of the bolt-head bracket.

10. The bolt-keeper toilet flange of claim 1 wherein:

the floor-bolt apertures include a predetermined plurality of circular orifices at a predetermined arcuate radius.

11. The bolt-keeper toilet flange of claim 1 wherein:

the toilet-fastener plate includes a base circumferential plate having a plate diameter predeterminedly in excess of a diameter of a predetermined toilet-drain aperture;

the bolt-head bracket including a first bolt-head bracket that is oppositely disposed diametrically from a second bolt-head bracket; and

the floor-bolt apertures include two series of predetermined pluralities of the floor-bolt apertures that are oppositely disposed circumferentially at predetermined radii from an axis of the base circumferential plate.

12. The bolt-keeper toilet flange of claim 11 wherein:

the base circumferential plate includes a width of predeterminedly proximate one-and-one-half inches and a thickness predetermined for containing an integral bolt-

head bracket and for providing rigidity and duration of materials of construction of the base circumferential plate.

13. The bolt-keeper toilet flange of claim 11 wherein:

the base circumferential plate includes a width of predeterminedly proximate one inch and a thickness predetermined for containing the integral bolt-head bracket and for providing rigidity and duration of materials of construction of the base circumferential plate.

14. The bolt-keeper toilet flange of claim 1 wherein:

the toilet-fastener plate includes a supplemental circumferential plate having a plate diameter predeterminedly in excess of a diameter of the predetermined toilet-drain aperture;

the bolt-head bracket including a first bolt-head bracket that is oppositely disposed diametrically from a second bolt-head bracket; and

the floor-bolt apertures include four series of predetermined pluralities of the floor-bolt apertures that are oppositely disposed orthogonally at predetermined radii from an axis of the supplemental circumferential plate.

15. The bolt-keeper toilet flange of claim 14 wherein:

the supplemental circumferential plate includes a width of predeterminedly proximate one-and-one-half inches and a thickness predetermined for supporting supplemental bolt-head bracket and for providing rigidity and duration of materials of construction of the supplemental circumferential plate.

16. The bolt-keeper toilet flange of claim 14 wherein:

the supplemental circumferential plate includes a width of predeterminedly proximate one inch and a thickness predetermined for supporting the supplemental bolt-head bracket and for providing rigidity and duration of materials of construction of the supplemental circumferential plate.

17. The bolt-keeper toilet flange of claim 1 wherein the bolt-head bracket includes the integral bolt-head bracket; and

the integral bolt-head bracket including walls that are integral with material of construction of the toilet-fastener plate.

18. The bolt-keeper toilet flange of claim 1 wherein

the bolt-head bracket includes the supplemental bolt-head bracket; and

the supplemental bolt-head bracket includes walls that are supplemental to and superimposed onto material of construction of the toilet-fastener plate.

19. A bolt-keeper toilet flange comprising:

an arcuate plate having at least one bolt-head bracket articulated to hold a toilet-bolt head;

the bolt-head bracket having a bolt-shank opening on the bolt-head side of the toilet-fastener plate for positioning the toilet-bolt head in the bolt-head bracket with a toilet-bolt shank held uprightly from the toilet-fastener plate in a predetermined place for attachment of a toilet bowl to the toilet bolt with a toilet-bolt nut screwed onto the toilet-bolt shank;

floor-bolt apertures which extend through the toilet-fastener plate on arcuately opposite sides of the bolt-head bracket for receiving floor-bolt shanks of floor bolts inserted downwardly through the floor-bolt apertures and for retaining floor-bolt heads of the floor bolts proximate a top of the toilet-fastener plate for bolting the toilet-fastener plate to a floor predeterminedly about a toilet-drain aperture in the floor;

the arcuate plate has an arcuate length of predeterminedly proximate two inches, a width of predeterminedly proximate three-fourths of an inch and a thickness predetermined for support of the bolt-head bracket;

the bolt-head bracket including a bracket entry that is articulated to receive the toilet-bolt head and the toilet-bolt shank radially from a predetermined entry edge of the fastener plate; and

the bolt-head bracket includes an end wall opposite the bracket entry to prevent passage of the toilet-bolt head through the bolt-head bracket.

**20.** A bolt-keeper toilet flange comprising:

a base circumferential plate having a plate diameter predeterminedly in excess of a diameter of the predetermined toilet-drain aperture;

a first bolt-head bracket that is oppositely disposed diametrically from a second bolt-head bracket on the base circumferential plate;

two series of predetermined pluralities of the floor-bolt apertures that are oppositely disposed circumferentially at predetermined radii from an axis of the base circumferential plate;

the base circumferential plate including a width predetermined for containing the first bolt-head bracket and second toilet-bowl bracket at predetermined radial distances from an axis of the base circumferential plate and for containing the floor-bolt apertures at a predetermined floor-bolt distance from the axis of the circumferential plate; and

the base circumferential plate includes a thickness predetermined for containing the integral bolt-head bracket and for providing rigidity and duration of materials of construction of the base circumferential plate.

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