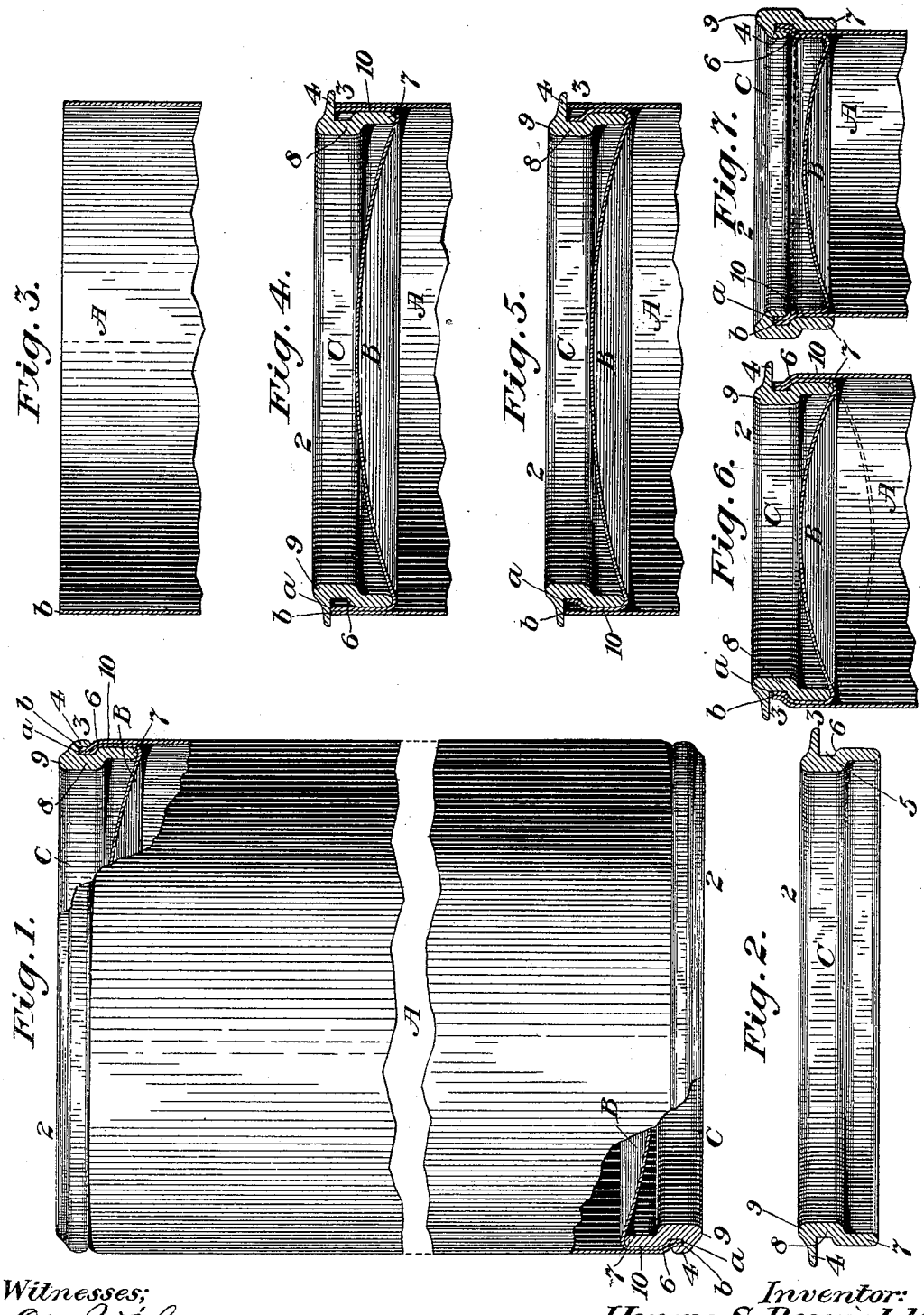
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CONSTRUCTION OF RECEPTACLES.

(Application filed Nov. 18, 1898.)

(No Model.)



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CONSTRUCTION OF RECEPTACLES.

SPECIFICATION forming part of Letters Patent No. 621,540, dated March 21, 1899.

Application filed November 18, 1898. Serial No. 696,758. (No model.)

To all whom it may concern:

Be it known that I, HENRY S. REYNOLDS, a citizen of the United States, residing in the borough of Brooklyn, in the city of New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Construction of Receptacles, of which the following is a specification.

This invention relates to the manufacture or construction of receptables or reservoirs, such as metallic receptacles or packages—such, for instance, as cans, barrels, boilers, &c.; and the object of the invention is to provide an improved receptacle of this character the head or heads of which may be formed separately from the drum or body and united therewith in such manner and with such rigidity that it forms with such drum, for all practical purposes, an integral structure.

A further object of the invention is to provide improved means for securing the head to the drum or body of the receptacle, which means not only constitutes a locking means for this purpose, but also, owing to its construction, a reinforcing means for the receptacle.

In the drawings accompanying and forming part of this specification, Figure 1 is a view of a receptacle constructed in accordance with the present invention, said view having parts thereof broken away and in section for the better illustration of one mode of securing the heads to the drum. Fig. 2 is a sectional view, detached, of the reinforcing and locking or clamping member. Fig. 3 illustrates one end of a receptacle drum or body before the head is secured thereto. Fig. 4 illustrates in section one mode of assembling the drum, its head, and the clamping means for securing the head and drum together. Fig. 5 illustrates in section another mode of assembling the head, the drum, and the clamping means, the head being first secured to the clamping means. Fig. 6 illustrates in section the head and drum secured in position relatively to the clamping member and the latter in readiness to clamp such parts rigidly together, said view also showing in dotted lines a somewhat different curvature of head; and Fig. 7 illustrates another mode of assembling the head and drum together by means of the clamping member, said view illustrating in dotted lines a different form of head.

Similar characters designate like parts in all the figures of the drawings.

As a preface to a further description of this improvement I desire to state that the same is applicable to all kinds of receptacles or reservoirs and metallic packages in which the drum or body is provided with one or more heads—such, for instance, as preserving-cans, barrels, pails, range-boilers, and many other articles too numerous to mention.

The improvement in practice usually comprehends a drum or body, (designated in a general way by A,) a head (designated in a general way by B) adapted for attachment to said body, and means (designated in a general way by C) for securing the said head and drum in juxtaposition.

The drum or body A when a metallic receptacle is provided may comprise a sheet-metal or analogous drum, which may be a seamless structure formed, if desired, from a tube or may be constructed with a suitable joint or seam, secured by rivets or otherwise, as may be found most suitable and convenient.

The head B may comprise any suitably-shaped member—as, for instance, flat, concavo-convex, or provided with one or more curved faces—said head having a flange or rim adapted for attachment to the drum or body. The head may have one or more openings therein, as found desirable.

The means C for securing the head to the drum, and which I have herein designated as a "clamping" or "locking" member, may be constructed of some suitable material in any desired manner adapted for the purpose and may be turned or rolled or otherwise formed, as found most convenient and suitable.

In the form of clamping member shown herein and which may be considered as the preferred form thereof, if desired, it is shown comprising an annular ring 2, provided with locking or clamping means 3, which may comprise two parts—one a locking-flange 4 and the other a projection or shoulder 6, forming a receiving-recess 5. In the construction shown the flange 4 is shown located at one side or above the recess, (considering the upper end of the receptacle when in the position

shown in the drawings,) while such recess is formed at its under side with an annular, usually rounded, projection or shoulder 6, for the purpose hereinafter set forth. The clamping-ring is provided at one side or below said recess (considering the upper end of the receptacle when in the position shown in the drawings) with an annular depending member or flange 7, adapted to receive the thrust of the head when under pressure and which also constitutes a means for maintaining the head-flange in firm engagement with the drum-wall. The ring in the present structure is so constructed that the rear wall 8 of the recess 5 constitutes a pressure-resisting member, and for this purpose the ring is shown formed with its inner face substantially ogee in cross-section, whereby the formation of the recess 5 with a high-pressure resisting-wall is permitted. Furthermore, owing to this structure of clamping member a protecting edge or bead 9 is provided for the edge of the drum and head flanges, so that when the receptacle is dropped or thrown down endwise the clamping member receives the blow and, owing to its durable formation, prevents injury to the receptacle.

In assembling the parts the head, having an outwardly-turned annular flange 10—that is, a flange extending toward the exterior of the receptacle—may be first inserted into the drum, Fig. 4, after which the clamping member may be inserted in position and the edge portions *a b*, respectively, of the head-flange and drum pressed into position previous to the bending or locking of the flange into position or simultaneously therewith, if desired. In practice, however, it is preferable to first assemble the head and the clamping member when these parts are formed separate from each other, which, however, may not always be the case, and which may be done by forcing or pressing, in some suitable way, by hand or machine, the edge *a* of the head-flange around the shoulder or projection into the recessed portion of the clamping member, Fig. 5, whereby the parts so assembled constitute an improved head in readiness to be inserted into the receptacle body or drum, and, owing to the construction described, it will be understood that heads of various sizes and adapted for various purposes could be manufactured and sold as separate articles of manufacture, if desired, to the makers of the drums or body and to be by them placed in position. The drum and the head so formed are then assembled, as shown, for instance, in Fig. 5, whereupon the edge *b* of the drum is forced or pressed in a manner similar to that set forth in connection with the edge *a* of the head-flange around the shoulder or projection and into the recessed portion of the clamping member and into engagement with the turned-in edge *a* of the drum-flange, Fig. 6, whereupon the locking-flange 4 is bent or forced into position and rigidly clamps or locks the drum and head around such projection or shoulder and into firm engagement and into position in the recessed portion of the clamping member. The compressing of the drum edge *b* may, if found desirable, be simultaneous with the bending into position of the locking-flange 4. Owing to the construction of the clamping-ring the pressure or force exerted during the compression steps above set forth is received and resisted by the pressure-resisting wall 8, so that it has been found in actual practice that the pressure exerted may be sufficient to cause the edges *a* and *b*, together with the locking-flange 4 and recessed wall, to become substantially an integral structure, thereby materially increasing the strength and rigidity of the structure.

In the construction shown it will be seen that the locking-flange 4 when in position so overlaps the edges *a* and *b* that it assists in drawing the material forming the drum and head-flange around and over the shoulder 6, and may so project into the recess formed by the edges *a* and *b* as to have its outer face flush with the outer side of the drum or body, thereby not only giving a neat appearance to the article, but making the separation of the head from the drum practically impossible.

The head, as above set forth, may be of concavo-convex formation, with the concave surface thereof extending toward the exterior, as shown in dotted lines in Fig. 6. When, however, the parts are so assembled that the convex face of the head extends toward the exterior, the flange of the head is so formed that its point of flexure with the head proper may coincide with and extend around the lower end of the depending flange 7, which is usually made of rounded formation for this purpose, whereupon when the head is under pressure the outward thrust thereof will be received by the edge of said flange 7 and so prevent the head-flange from being drawn out of position intermediate the locking members. Furthermore, by this construction it will be observed that the thrust of said head is so received by the clamping member that it is transmitted to the clamping part of said member, thereby to more firmly maintain said locking-flange in engagement with the contracted edges of said head-flange and body, and consequently said head-flange and body in firmer engagement with the inner or pressure receiving wall of said clamping member or ring. When the head is formed with its concaved face projecting toward the exterior, the head may also have its point of flexure coincide with the lower end of the flange 2 and be in engagement therewith.

In some forms of receptacles it may be desired to reinforce the outer side thereof to a greater extent than the inner side, especially in those receptacles where it is desirable to have a hoop or band at the outer side, in which case the locking-flange 4 of the clamping mem-

ber may be disposed at the interior of the receptacle, while the depending flange 7 may extend on the exterior thereof, substantially in the manner shown in Fig. 7, thereby forming a hoop or band for the receptacle, which when the same is provided with a head at each end is thus furnished with a pair of hoops. The advantages, however, of having the head at its point of flexure in engagement with the flange 7 of the clamping member must in this case be dispensed with, except when the head is provided with a relatively shallow flange 10, (see dotted lines, Fig. 7,) in which case the same advantages set forth in connection with the depending flange 7, projecting into the interior of the receptacle, are present. The head is shown in dotted lines in Fig. 7 as flat, but it may be concavo-convex, if desired. In the construction just described the advantages of a hoop or band at the outer side while the locking-flange 3 receives the thrust of the head when under pressure are both obtained.

By this construction it will be seen that the members constituting the receptacle are rigidly locked together and that the wall 8, opposing the groove 5, into which the edges *a* and *b* of the head-flange and drum are embedded or clamped, constitutes a resistance-wall against which the pressure is applied during the operation of bending or turning the locking-flange of the clamping-ring into position, and that the locking-flange 4 is forced into a recess formed by the pressing of the drum edge and flange edge around the shoulder or projection 6, so that the outer side of the locking-flange is substantially flush with the outer or inner side of the drum, as the case may be, thereby forming a very firm and rigid structure, the edges *a* and *b* of the drum and head being securely locked together and in a manner so as to permit the head to resist great pressure.

In this improvement the clamping-ring, which owing to its construction comprises a pair of annular members or rings one of less diameter than the other, (shown herein in one form thereof as an integral structure,) not only operates as a binder for holding the head and drum together, but it furnishes a bead or flange for protecting the edges of the parts which directly sustain the pressure or take the strain. Furthermore, the band furnishes a trussed member for maintaining the stability of the completed article. In addition to this the locking-flange 4 of the clamping member may also constitute a calking-flange, whereby at any time the seam may be made tight should the drum be formed with a seam, since if the device should spring a leak at this point it is only necessary to apply a calking-tool to the edge of the flange, and thereby neatly close up the leak.

From the foregoing it will be seen that by means of this construction an improved receptacle is provided in which owing to the mode of assemblage and the locking action of the various parts the head is for all practical purposes integral with the body.

It will also be seen that by means of this improvement it is unnecessary to form in the first instance the head as one member with the body, whereby each part can be more quickly and readily constructed, and it is also unnecessary to solder or braze or rivet the head into position, the brazing material being subject to contraction and expansion independently of the metal forming a part of the structure and the rivets tending to weaken the article, owing to the displacement of a considerable portion of the metal to give place to such rivets.

Having described my invention, I claim—

1. A receptacle comprising a head, a body, and a clamping member, said member having an annular projection or shoulder around which one part of said body and head are bent, and also having a locking-flange overlapping said bent portions and clamping said parts around said projection.

2. A receptacle comprising a body, a head, and a clamping-ring having an annular recess formed in its side wall, and a locking-flange, said body and head having its edges in engagement and contracted into said recess and locked therein by said locking-flange, which overlaps said contracted edges.

3. A receptacle comprising a body, a head, and a clamping-ring, said ring having an annular projection or shoulder extending from its side wall, and a recess adjacent thereto, and around which projection and into said recess one part of said body and head are bent, said ring also having a binding-flange overlapping said bent portions and locking said parts in said recess and around said projection.

4. A receptacle comprising a body, a head, and a clamping-ring having an annular projection extending from its side wall, a locking-flange, and a thrust-receiving member adapted to receive the thrust of said head when under pressure, said head and body having its edges clamped around said projection and overlapped and locked in position by said locking-flange.

5. A receptacle comprising a body, a head, and a clamping-ring having a pair of members projecting in the same direction and intermediate which the edges of said body and head extend, one of the members of said ring having a projection or shoulder around which the edges of said head and body are bent, and the other of said members overlapping and maintaining said edges around said shoulder.

6. A receptacle comprising a body and one or more heads, and means for securing each of said heads to said body, and each comprising a clamping-ring having a pair of members projecting in the same direction and intermediate which the edges of said body and head extend, one of the members of said ring having a laterally-extending projection

around which the edges of said head and body are locked by the other of said members, and one of said members also having a recess into which bent portions of said head and body project.

7. A receptacle comprising a body having one or more heads each having means for securing it to said body and comprising a pair of members intermediate which the edge of the body extends, one of said members having a laterally-extending annular projection and a recess formed in its side wall adjacent thereto, and around which projection and into which recess the edge of said body is bent, and the other of said members coacting with said member to clamp the edge of the body bent around said projection and into said recess.

8. The herein-described receptacle comprising a body and one or more heads each head having an annular flange extending toward the exterior of, and in parallelism with, said body; a clamping-ring for securing each head in position, and having a thrust-receiving member in position adjacent to the point of flexure of the head-flange to receive the thrust of said head when under pressure, and also having an annular shoulder or projection and a recess formed in its side wall adjacent to said shoulder; and a locking-flange, said body and head-flange having its edges bent in juxtaposition around said shoulder and into said recess and clamped therein by said locking-flange.

9. A receptacle comprising a body, a head, and a clamping-ring, said ring having an annular recess formed in one of its side walls, and a bendable locking-flange, said parts being assembled by compressing the edge of the head into said recess and inserting the assembled head and ring into the receptacle-body and compressing the edge thereof into juxtaposition with the edge of said head and into said recess, and maintaining the same therein by bending said locking-flange into engagement with the edge of said body either simultaneously with or after the compressing of said edge.

10. A receptacle comprising a body and a head, said head having a pair of members one comprising a bendable locking-flange and one having a recess in its side wall, said head and body being assembled by compressing the edge of the body into said recess and maintaining the same therein by bending said flange into engagement therewith either simultaneously with or after the compressing of said edge.

11. A receptacle comprising a body, a head, and a clamping-ring, said ring having an annular projection or shoulder extending from one of its side walls, and a bendable locking-flange, said parts being assembled by compressing the edge of the head and the edge of the body either separately or simultaneously around said shoulder and maintaining the same in such position by bending said locking-flange over the bent edges of said head and body either simultaneously with or after the compressing of said edges.

12. A head adapted to be secured to a receptacle-body and comprising a clamping-ring having an annular projection or shoulder extending laterally from its side wall, and an outwardly-extending bendable locking-flange, said head member having its edge bent around said projection whereby the parts are rigidly secured together in readiness to be connected to a vessel-body.

13. A head adapted to be secured to a receptacle-body and comprising a clamping-ring having an annular recess formed in its side wall, and a bendable locking-flange, said head member having an annular flange with its edge compressed into said recess whereby the parts are firmly assembled in readiness to be secured to a vessel-body.

14. A head adapted to be secured to a receptacle-body and comprising a clamping-ring having an annular recess formed in its side wall; a shoulder adjacent thereto; a thrust-receiving member; and a bendable locking-flange, said head member having its edge bent around said shoulder and into said recess whereby said parts are rigidly locked together in readiness to be attached to a receptacle-body.

15. A clamping member comprising a ring having an annular recess formed in its side wall, and an annular bendable locking-flange adapted to extend over said recess.

16. A clamping member comprising a ring having a pressure-receiving wall with an annular projection and a recess formed at one side thereof, said wall terminating in an annular thrust-receiving member, and also having an annular bendable locking-flange adapted to extend over said recess.

17. The method of constructing a receptacle comprising a clamping member provided with an annular projection or shoulder, a bendable flange and a thrust-receiving part; a head; and a body, and which consists in assembling said parts by pressing the edge of the head and the edge of the body, either separately or simultaneously around said shoulder and maintaining the same in such position by bending either simultaneously with or after the bending of said edges, said flange over the bent portions of said head and body; the parts being so assembled that the thrust of said head is received by said clamping member whereby the strain thereon at its thrust-receiving part is so transmitted to the clamping part of said member as to more firmly maintain said bendable flange in engagement with the bent portions of the head and body and thereby said head and body in firmer engagement with said clamping member.

18. The method of constructing a receptacle comprising a clamping member provided with an annular recess and a projection or shoulder, a bendable locking-flange, and a thrust-receiving member; a head having an annu-

lar flange; and a body, and which consists in assembling said parts by pressing the edge of the head-flange and the edge of the body either separately or simultaneously around said shoulder and into said recess and maintaining the same in such position by bending, either simultaneously with or after the bending of said edges, said locking-flange over the bent portions of said head-flange and body; the parts being so assembled that the thrust of said head is received by said clamping member whereby the strain thereon at its thrust-receiving part is so transmitted to the clamping part of said member as to more firmly maintain said locking-flange in engagement with the bent portions of the head-flange and body and thereby said head-flange and body in firmer engagement with said clamping member.

19. The method of constructing a receptacle, which consists in assembling a clamping member having an annular projection or shoulder, a bendable locking-flange, and a thrust-receiving portion; and a head member, then bending or contracting a part of said head around said shoulder; then assembling the combined clamping member and head member with a receptacle-body and bending or contracting a part of said body over the bent part of said head, and then bending said locking-flange into engagement with the bent portions of said body and head; the parts being so assembled that the thrust of said head is received by said clamping member, whereby the strain thereon at its thrust-receiving part is transmitted to the clamping part of said member thereby to more firmly maintain said locking-flange in engagement with said bent portions of the head and body and consequently said head and body in firmer engagement with said clamping member.

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