

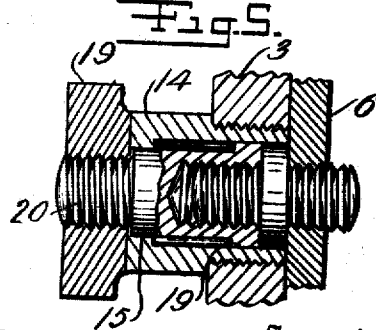
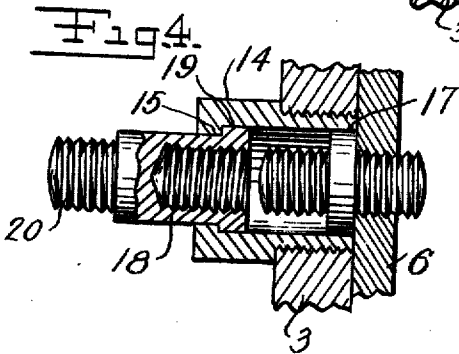
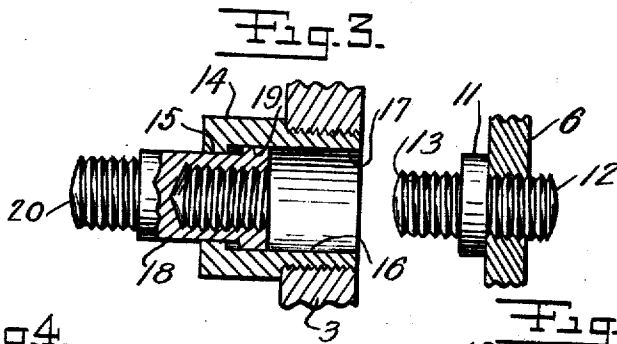
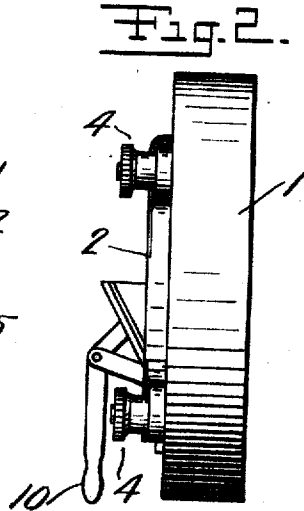
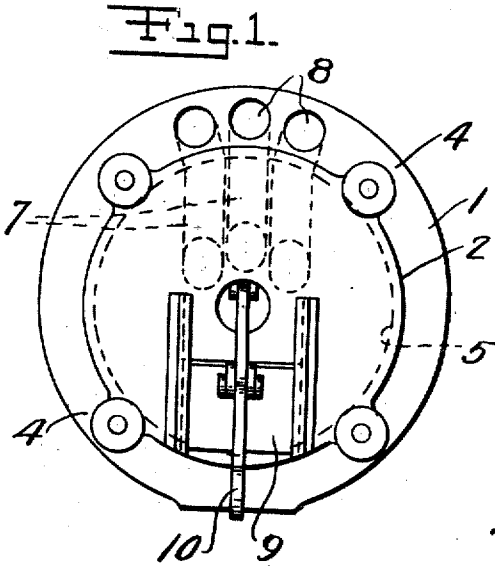
Jan. 15 , 1924.

A. T. LIGHT

1,480,686

SECURING DEVICE

Original Filed May 28, 1919



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Albert T. Light ^{Inventor}
By ^{his} Attorney
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1,480,686

UNITED STATES PATENT OFFICE.

ALBERT T. LIGHT, OF NEW YORK, N. Y.

SECURING DEVICE

Original application filed May 28, 1919, Serial No. 300,293. Divided and this application filed August 20, 1921. Serial No. 492,977.

To all whom it may concern:

Be it known that I, ALBERT T. LIGHT, a subject of the King of Great Britain and Ireland, residing at New York, in the county of Bronx and State of New York, have invented certain new and useful Improvements in Securing Devices, of which the following is a specification.

This invention relates generally to devices for attaching two structures together, and particularly for attaching a closure member in position on a receptacle. This application is a division of my pending application Serial No. 300,293, filed May 28, 1919.

In apparatus in which relatively large mixing or other chambers are employed, considerable difficulty is found in manipulating the heavy closure members required for such apparatus. This has been particularly the case where the closure member takes the form of a removable plate designed to take a vertical position in occupying a closing relation to an opening in a vertical wall of the container. In such situations the mounting of the cover member in place has heretofore required the exercise of special care and attention in order to bring the cover into proper alinement with the opening and to prevent the stripping of the threaded bolts employed in clamping the closure member in place.

An object of the invention is to provide a closure attaching or fastening device which will be free from the objections referred to and which will furnish effective means for expeditiously mounting and clamping a closure member in position. The invention includes closure supporting members formed for attachment to the container to guide the cover to its proper position in alinement with the container opening and to support the closure member in its alined position while the clamping or fastening means are being applied.

In the drawing, in which a preferred form of the invention is illustrated,

Figure 1 is an end view of a container showing a closure member held in place by devices embodying the invention.

Figure 2 is a side elevation of the device shown in Figure 1.

Figure 3 is a view in section and disassembled condition of parts of the device and showing the mounting of respective parts

on the closure and the container before the closure is brought into contiguous relation to the container.

Figure 4 is a view similar to Figure 3 and showing the part attached to the container serving as a guiding and supporting means for the closure before the closure is clamped to the container.

Figure 5 is a view similar to Figure 4 showing the device in clamping relation to the closure and the container members.

Referring to the drawing for a more detailed description, Figures 1 and 2 illustrate the end portion of a container 1 of substantial size and which may be used for a mixing chamber or for any other desired purpose. An end plate or closure member 2 is provided with apertured ears or lugs 3 with which specially constructed holding devices, indicated generally at 4, cooperate to attach or mount the closure plate 2 in position to close the opening 5 in the end wall 6 of the container 1. Preferably the closure member 2 is provided with one or more passages 7 cooperating with ports 8 in the container and wall 6 through which material may be fed into the container, and with any suitable valve or gate, such as is shown at 9, for operation by the handle 10, through which the treated material may be removed from the container.

This invention has more particularly to do with the clamping or holding devices 4 by means of which the end plate 2 is mounted on the vertical wall 6 of the container.

Referring to Figure 3, there is shown at the right on an enlarged scale a fragmentary portion of the container end wall 6 in which a cover supporting base member 11 is mounted by the threaded engagement of a screw lug 12 with a correspondingly threaded opening provided for the purpose in the plate 6. Cover supporting members 11 such as are shown in Figure 3 are rigidly anchored or seated in holes provided in the end wall 6 corresponding to the positions occupied by the ears or lugs 3 on the cover member 2. The cover supporting seats 11 are provided with screw lugs 13 projecting in an opposite direction from the screw lugs 12 in position to be engaged by suitable threaded clamping members that will be hereinafter described.

Before mounting the cover member 2 on

the seats 11, the aperture in each of the ears 3 is fitted with a sleeve 14 having a reduced inner diameter at its outer extremity as at 16, the main bore portion 16 of the sleeve being smooth and of a diameter such that the end 17 of the sleeve can be easily fitted to the corresponding seat member 11 on the container wall 6.

Before fitting the sleeve 14 to the seat 11 a nut or take-up member 18 having a shoulder 19 for engagement with the constricted end 15 of the sleeve 14 is inserted in the sleeve 14, as indicated in Figure 3. The take-up member 18 is provided with a threaded bore 20 for engagement with the threaded lug 13 on the seat member 11, and the member 18 being both rotatable and slidable in the smooth bore 16 of the sleeve 14.

When the sleeves 14 and the take-up members 18 are placed in position on the ears 3 the closure member 2 is lifted to engaging position with the seat members 11 on the container wall 6, the seats 11 serving to guide the ears to their proper relative positions and then serving to support the closure member, as in Figure 4, while the take-up members 18 are manipulated to engaging position with the screw lugs 13, as indicated in Figure 5 of the drawing. A suitable knurled thumb piece 19 may be conveniently brought into threaded engagement with a threaded lug 20 projecting from the take-up member 18, in order to facilitate the manipulation of the take-up member 18 and threaded lug 13 into co-acting cover-securing relation, and to provide a shoulder against which the sleeve 14 abuts to hold the cover plate 2 in close engagement with the face of the container wall 6.

What is claimed is:

1. In a device for attaching two structures together, a seating member having threaded lugs projecting therefrom in opposite directions, one of said structures being provided with a threaded opening for engagement by one of said threaded lugs, said other structure being provided with an opening into which said seating member may be fitted, and a holding member arranged to have threaded engagement with the other of said lugs, said holding member including a portion having a greater diameter than the diameter of the seat-securing opening.

2. In a device for attaching a cover member to a vertical wall member, a cover supporting member having threaded lugs projecting therefrom in opposite directions, said wall member being provided with a threaded opening for engagement by one of said threaded lugs, said cover member being provided with a threaded opening, a sleeve member formed for threaded engagement with said threaded opening in said cover

member, said sleeve member being formed to fit said cover supporting member, and a holding member formed to enter and protrude through said sleeve member and have threaded engagement with the other of said lugs, said holding member provided with a flange portion having a greater diameter than the diameter of the opening in the sleeve through which it protrudes.

3. In a device for attaching a cover member to a vertical wall member, a cover supporting member having threaded lugs projecting therefrom in opposite directions, said wall member being provided with a threaded opening for engagement by one of said threaded lugs, said cover member being provided with a threaded opening, a sleeve member formed for threaded engagement with said threaded opening in said cover member, said sleeve member being formed to fit said cover supporting member, a holding member formed to enter said sleeve member and have threaded engagement with the other of said lugs, said holding member having a threaded extension projecting outside said sleeve when the holding member is in threaded engagement with said lug, and a thumb piece formed to have threaded engagement with said threaded extension and to bear against the outer end of said sleeve when in operative position.

4. A securing means for mounting a first structure on a second structure, comprising, in combination, a projection on the first structure having a smooth cylindrical base and a reduced threaded projecting portion, a hollow member carrying internal threads for coacting with the threads of said reduced portion and having an external slide surface, a sleeve member carrying an internal slide surface for coacting with the slide surface of said hollow member and with said base, said sleeve carrying external threads at its end near said base adapted to coact with a tapped hole in the second structure, said hollow member having a part projecting beyond said sleeve when the hollow member is threaded on said projection and is made to abut the base of the projection.

5. The means defined in claim 4, wherein the hollow member is externally shouldered at its end adjacent to said base and the sleeve is externally shouldered at its end removed from said base.

6. In a device for attaching two structures together, a seating member having threaded lugs projecting therefrom in opposite directions, one of said structures being provided with a threaded opening for engagement by one of said threaded lugs, said other structure being provided with an opening into which said seating member may be fitted, and a holding member slidably mounted within the opening of

the second mentioned structure and arranged to have threaded engagement with the other of said lugs.

7. In a device for attaching a cover member to a vertical wall member, a cover supporting member having threaded lugs projecting therefrom in opposite directions, said wall member being provided with a threaded opening for engagement by one of
10 said threaded lugs, said cover member being

provided with a threaded opening, a sleeve member carried by said cover member, said sleeve member being formed to fit said cover supporting member, and a holding member carried by said sleeve and adapted to have 15 threaded engagement with the other of said lugs.

In testimony whereof I affix my signature.

ALBERT T. LIGHT.