

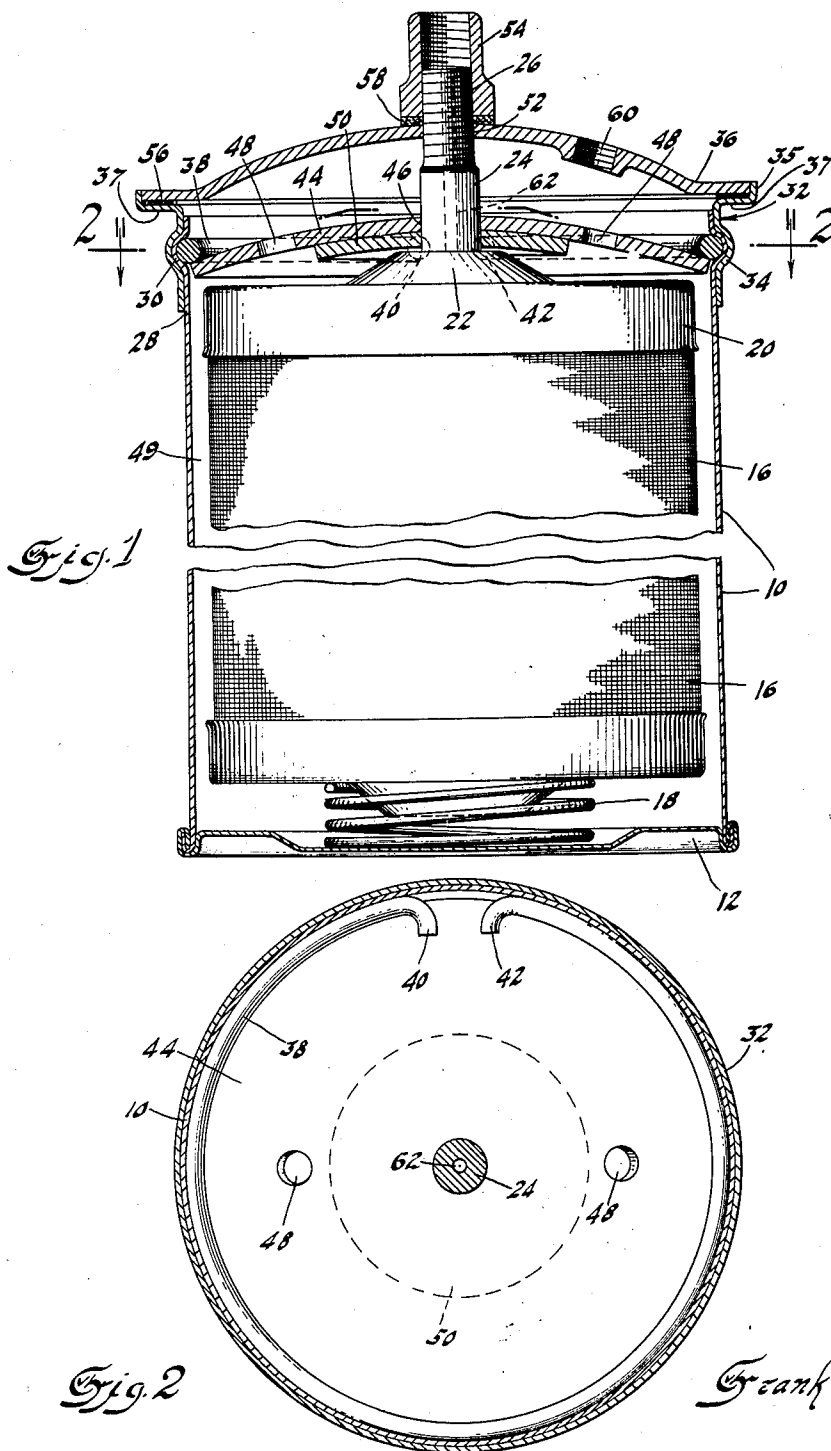
June 3, 1930.

F. N. NUTT

1,761,932

OIL FILTER

Filed May 7, 1928



Inventor
Frank N. Nutt

Blackmore, Spencer, & Fink
 Attorneys

UNITED STATES PATENT OFFICE

FRANK N. NUTT, OF FLINT, MICHIGAN, ASSIGNOR TO A C SPARK PLUG COMPANY, OF
FLINT, MICHIGAN, A COMPANY OF MICHIGAN

OIL FILTER

Application filed May 7, 1928. Serial No. 275,753.

This invention relates to oil filters or lubricant purifiers, and particularly to a container or casing for housing the filtering material.

Oil filter containers used in present practice usually have the top and bottom rigidly secured to the container sides by means of a lock seam in order to secure a tight joint. These sides or ends are not removable, and when the filtering material becomes clogged or is worn out, it is necessary to throw away the container as well as the filtering material.

It is the object of the present invention to build a container which has a removable end which may be separated from the filter so that the filtering material therein may be removed and a new filtering unit applied. This will enable the container to be reused until worn out or damaged beyond repair.

The object of the invention is accomplished by providing in one end of the container a groove pressed outward from the inside thereof. On the outside of the container at the grooved portion there is positioned a suitable flanged strip which is beaded to conform to the groove, and which strip forms a seat for the cover. Positioned inside the container within the groove is an open ended freely or loosely disposed ring which fits snugly in the groove. Within the container and below the ring there is an arched or cambered plate, the edges of which are retained by the ring and whose center has an opening for the reception of the inlet fitting of the filtering unit. The cover or closure of the container fits in the seat on the annular strip at the outside of the container end, and has a central opening for the reception of a threaded end of the inlet fitting. Over this threaded end a nut is applied and when tightened against the cover or closure will rigidly hold the parts in secured relation.

The cover or closure has an outlet opening, while the plate has one or more openings to allow for the egress of oil toward the outlet. In the drawing:

Figure 1 shows a transverse sectional view through the filter container of the invention.

Figure 2 is a section on the line 2—2 of Figure 1.

Referring to the drawing, the numeral 10 indicates an oil filter container or casing having the bottom 12 rigidly to the container side 10 by means of a lock seam. Within the container 10 is the filtering unit 16 suspended from the bottom 12 by means of a coil spring 18. The top of the filtering unit 16 is provided with a cap portion 20 spread out as at 22 and to which cap portion there is secured the inlet fitting 24 threaded at its upper end as at 26.

The upper end 28 of the container has a groove or bead 30 pressed outwardly from the inside of the container. Fitting over this groove or bead 30 is an annular flanged angle strip 32 provided with a bead 34, which conforms to the groove or bead 30 of the casing 10. The upper portion 37 of the annular strip 32 is provided with a flange 35 and forms a seat for the cover or closure 36 of the filter.

Positioned on the inside of the container 10 within the groove 32 is a ring 38 which has free ends 40 and 42 as shown in Figure 2. The purpose of the open ended ring is to allow for its ready insertion and removal from the groove 30. The end portions 40 and 42 are slightly bent inwardly and it will be obvious that by the use of the fingers or a suitable tool, the ends 40 and 42 may be moved toward each other so as to decrease the circumference of the ring and permit of its insertion into or removal from the groove 30.

Positioned over the fitting 24 and beneath the ring 38 so that the edges will be retained underneath the ring is a cambered or arched plate 44, having a central opening 46 for the reception of the inlet fitting 24, and the openings 48 to permit the passage of filtered oil from the space 49 between the container 10 and the filtering unit 16. A reinforcing plate 50 is positioned between the enlarged portion 22 of the cap 20 and the plate 44.

The cover or closure 36 is provided with a central opening 52 through which there extends the threaded end 26 of the fitting 24.

Secured over the threaded end 26 is a nut 54 which when tightly screwed home will pull the plate 44 against the ring 38 and clamp the cover or closure 36 tightly down on the seat 34 of the annular angle member 32.

In order to secure liquid tight connections, gaskets 56 and 58 are provided between the cover 36 and seat 34 and between the cover 36 and nut 54 respectively.

The cover 36 is provided with an outlet 60 to permit the outflow of filtered oil from the interior of the container 10.

The fitting 24 is provided with a bore 62 to allow for the inflow of oil from a suitable pipe connected to the nut 54. From the bore 62 the oil will flow into the filtering unit 16, and from the unit 16 to the space 49 through the openings 48 to the outlet 60, from where it may be conducted to any suitable point.

If the outlet to the filter is below the plate 44, the openings 48 need not be provided.

In order to remove the filtering unit and supply a new one, it will be necessary to unscrew the nut 54 which will permit the removal of the closure 36. The ring 38 will then be removed by pressing together the ends 40 and 42 and after the ring has been removed, the filtering unit 16 together with the plate 44 may be bodily raised from the container. The plate 44 may if desired, previously be removed from the filtering unit 16. A new filtering unit is then inserted in the container, the plate 44 reapplied and the ring 38 then snapped into place. After the cover has been positioned over the threaded end 26, the nut 54 is again screwed home to rigidly hold the parts in secured relation.

I claim:

1. In a container, a groove in the container, a ring mounted in said groove, a plate in the container and retained at its edge by the ring, a closure, means passing through said plate and closure, and means attached to said means to hold the closure on the container.

2. In a container for a lubricant purifier, a groove formed in said container, a ring freely mounted in said groove, a plate in said container retained at its edges by said ring, a closure for the container, said closure and plate having openings, a bored fitting passing through said openings, and a nut on the end of the fitting to retain the closure on the container and the plate and closure in secured relation.

3. The structure of claim 2, and a second plate positioned between said first named plate and the fitting.

4. In a container, a groove in the container, an open ended ring mounted in said groove, a plate in the container retained at its edge by the ring, a closure, means passing through said plate and closure, and means

attached to said means to hold the closure on the container.

5. In a container, a groove in the container, a ring freely or removably mounted in said groove, a plate in the container and retained at its edge by the ring, a closure, means passing through said plate and closure, and means attached to said means to hold the closure on the container.

6. In a container, a groove in the container, an open ended ring freely or removably mounted in said groove, a plate in the container retained at its edge by the ring, a closure, means passing through said plate and closure, and means attached to said means to hold the closure on the container.

7. In a container, a groove in the container, a ring mounted in said groove, a plate in the container retained at its edge by the ring, a closure, means passing through said plate and closure, and a nut threaded on said means to hold the closure on the container.

8. In a container, a groove in the container, a ring mounted in said groove, a plate in the container retained at its edge by the ring, a closure, means passing through said plate and closure, and means attached to said means to hold the closure on the container, said plate and closure having central openings for the reception of said first named means.

9. In a container, a groove in the container, a ring mounted in said groove, a plate in the container retained at its edge by the ring, a closure, a fitting passing through said plate and closure, said fitting permitting the passage of a liquid, and means attached to said fitting to hold the closure on the container.

10. In a container for a lubricant purifier, a groove formed in said container, a ring freely mounted in said groove, a plate in said container retained at its edges by said ring, a closure for the container, said closure and plate having central openings, a bored inlet fitting passing through said openings, and a nut on the end of the fitting to retain the closure on the container and the plate and closure in secured relation.

11. In a container for a lubricant purifier, an outlet, a groove formed in said container, a ring freely mounted in said groove, a plate in said container retained at its edges by said ring, said plate provided with openings to allow the flow of liquid to the outlet, a closure for the container, said closure and plate having openings, a bored fitting passing through said openings, and a nut on the end of the fitting to retain the closure on the container and the plate and closure in secured relation.

In testimony whereof I affix my signature.

FRANK N. NUTT.