

Nov. 28, 1967

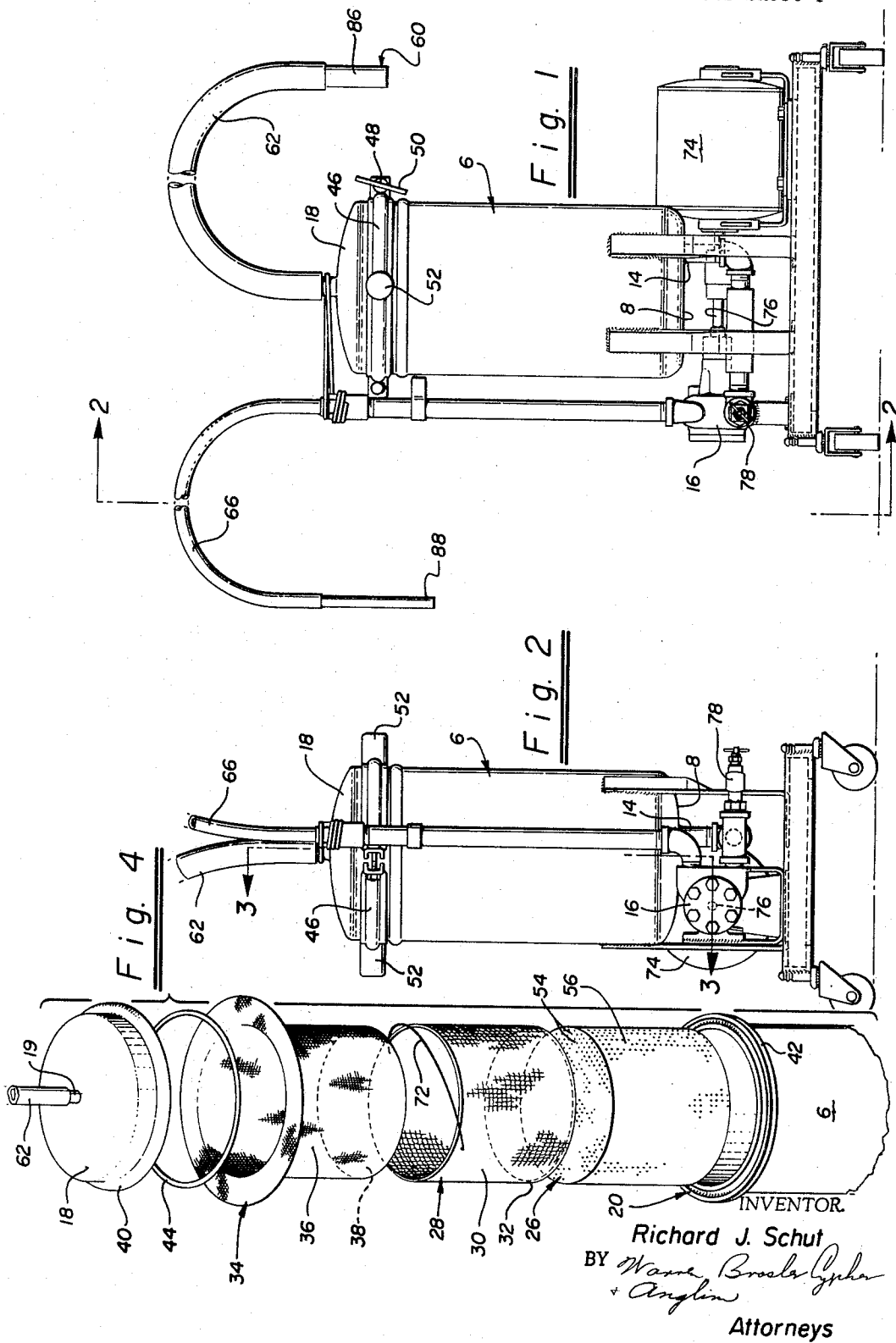
R. J. SCHUT

3,355,026

PORTABLE FILTER

Filed March 2, 1966

2 Sheets-Sheet 1



Nov. 28, 1967

R. J. SCHUT
PORTABLE FILTER

3,355,026

Filed March 2, 1966

2 Sheets-Sheet 2

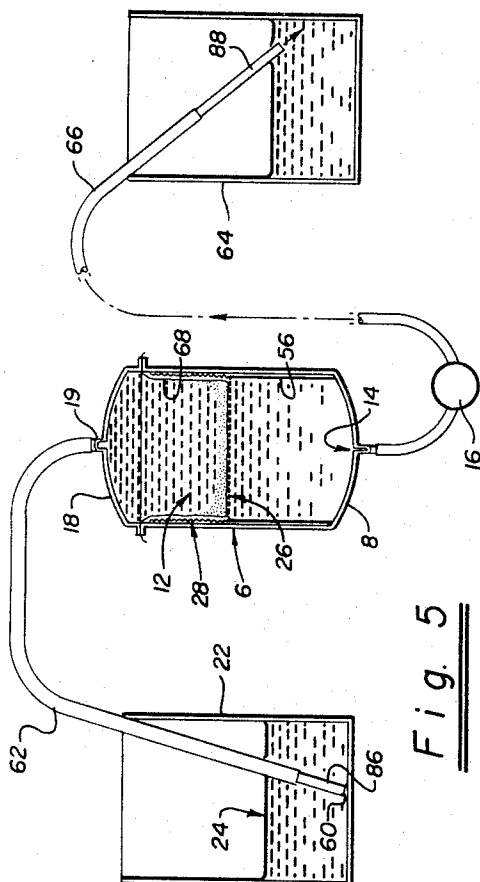


Fig. 5

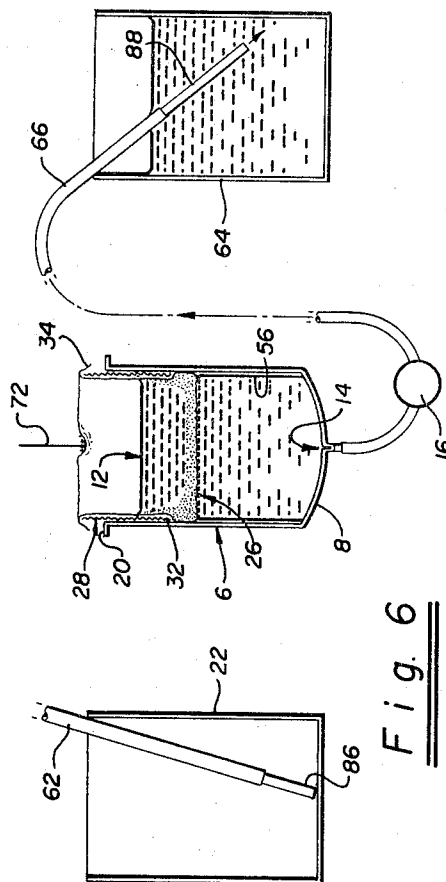


Fig. 6

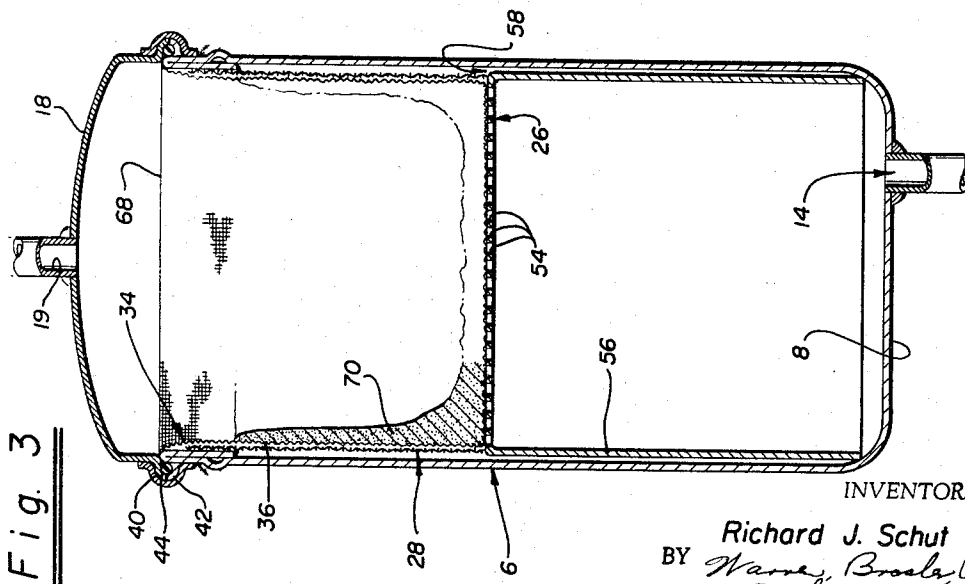


Fig. 3

INVENTOR.

Richard J. Schut
BY *Warner, Bros. & Co.*
+ *Anglin*
Attorneys

1

3,355,026

PORTABLE FILTER

Richard J. Schut, 16108 Via Primero,
San Lorenzo, Calif. 94580

Filed Mar. 2, 1966, Ser. No. 531,233
5 Claims. (Cl. 210-416)

The present invention relates to portable filters particularly adapted for removing residue from cooking oils.

An object of the present invention is to provide a new and improved filter apparatus.

Another object of the present invention is to provide a more compact portable filter.

A further object of the present invention is to provide a device which requires a minimum of time to clean the machine after each use.

A still further object is to provide a filter which is inexpensive to manufacture from a few rugged parts which will give long trouble-free service.

The invention possesses other objects and features of advantage, some of which of the foregoing will be set forth in the following description of the preferred form of the invention which is illustrated in the drawings accompanying and forming part of this specification. It is to be understood, however, that variations in the showing made by the said drawings and description may be adopted within the scope of the invention as set forth in the claims.

With reference to said drawings (2 sheets):

FIGURE 1 is a side elevation view of a filter apparatus constructed in accordance with the present invention.

FIGURE 2 is another side elevation view of the apparatus taken substantially along the line 2-2.

FIGURE 3 is an enlarged cross-section view of the device shown in FIGURE 2 taken substantially along the line 3-3.

FIGURE 4 is an exploded perspective view on a reduced scale of the apparatus shown in FIGURE 3.

FIGURE 5 is a schematic view of the apparatus described in the present invention.

FIGURE 6 is a schematic view of the invention showing the apparatus in a different position.

The filtering apparatus of the present invention consists briefly of an open top container 6 having a bottom wall 8 and upstanding side walls 10 for receiving liquid oil 12 having a discharge opening 14 in the bottom wall adapted for connection to a suction pump 16; a removable container top 18 formed and dimensioned for sealing engagement with the open top 20 of the container and having an intake opening 19 therein adapted for communication with a source 22 of unfiltered oil 24; a perforated false bottom member 26 mounted in the container and spaced from the bottom wall forming a lower chamber and an upper chamber and spaced from the side walls permitting oil flow therebetween; a sleeve member 28 having a perforated upstanding side wall 30 mounted in spaced relation to the walls of the upper chamber and having a first position wherein a first end 32 is in engagement with the false bottom and a second position wherein the first end is spaced from the false bottom; and an open topped filter member 34 having bottom and side walls 36 and 38 dimensioned for receipt within the sleeve member and dimensioned for seating against the container walls when the sleeve is raised to the second position.

The container 6 is preferably cylindrical for easy manufacture and cleaning having a side wall height greater than its diameter. The container is preferably made of metal such as stainless steel.

The container top 18 may be of various shapes and is here shown as a dome shape having an annular flange 40 formed for mating engagement with an annular flange

2

42 formed in the container so as to form a seal with an annular ring 44. The ring may be made of rubber or compressible plastic. An annular split ring 46 joined by a threaded bolt 48 having a wing nut 50 joins the ends for sealing and unsealing the container. It is to be understood that various methods of joining the split ring may be utilized. Wood or other insulated type handles 52 are joined to the split ring for handling the hot split ring.

The container is divided into an upper chamber for receiving the oil into a filter bag and a lower chamber forming a suction chamber by means of a false bottom member 26 formed with perforations 54 for permitting the oil to drain therethrough. Perforated support 56 spaces the false bottom above the discharge opening and forms the suction chamber. The false bottom is dimensioned so that there is an annular space formed between the false bottom and the sides of the container as indicated by arrow 58 permitting flow of oil therebetween. The false bottom is constructed so that it may be completely removed from the container for cleaning.

A primary feature of the present invention is its compactness. This economy in space is achieved by permitting filtering action through not only the perforated false bottom 26 but also through the perforated sleeve 30. The sleeve is a free standing member made of metal spaced from the side walls of the container as shown in FIGURE 3. The sleeve may be partially or completely removed from the container.

The filter member 34 may be made of various materials but is preferably made of cloth. The cloth is formed in an open top cylindrical shape reaching from the false bottom and extending beyond the top of the sleeve and over the outside of the cylinder and being secured between the top of the sealing ring and the lid.

Applicant found that when the upper chamber was filled with oil and the end 60 of the intake hose 62 was submerged in the unfiltered oil, the flow out of the filter and into a receiving tank 64 through a discharge hose 66 was relatively fast and efficient. When the unfiltered oil reservoir was emptied and the oil level in the filter dropped below the top 68 of the filter bag 34, the pump drew air through the perforated sides of the sleeve instead of oil. Thus it took an inordinate amount of time to empty the relatively small quantity of oil remaining in the container 6 at the end of the filtering process. The solution discovered by applicant was to form the sleeve 28 without a bottom so that when the oil level dropped in the filter container, lid 18 could be removed and the sleeve raised to a second position so that the filter bag and the residue could move against the sides of the container and form a seal therewith (see FIGURE 6). Thus in this position, oil is filtered only through the false bottom 26 and the discharge opening 14 is sealed from the air at the top of the container. Thus the last remaining quantity of oil is filtered through the bottom of the bag only.

In order to assist in raising the sleeve 28, a manually engageable wire handle 72 is attached to the upper portion of the sleeve. This handle folds to a horizontal position when the lid is fastened to the container.

A suction pump which will pull both hot oil and air is mounted beneath the container and connected to an electric motor 74 through a drive shaft 76. A hand operated valve 78 is connected to the intake side of the pump in the lowest point of the system to drain the hot oil remaining so that it does not solidify and clog the pump and system.

The discharge side of the pump is attached to an upstanding pipe 80 which in turn is connected to the discharge hose 66. Preferably, the discharge hose is rubber or other elastic material so that the hose can be transferred to and from the hot oil vats.

Since the filter is used in connection with foods, it is

important to keep the parts off the floor and for this reason as well as for convenience reasons, the lid is attached to the upstanding pipe by a metal bracket or stiff wire 82 so that when the lid is removed it can be conveniently swung to one side and maintained at approximately the elevation of the top of the container.

The intake hose 62 is also rubber or plastic material to protect the user. I have found also that in order to protect the end of the hose it is desirable to place a metal tube insert 86 on hose 62 and a metal tube insert 88 on hose 66.

Because of the compactness of the device it can be easily mounted on a frame 90 and moved about easily on casters 92. The compactness also has the advantage of conserving space.

In operation, the intake hose 62 is placed in a reservoir of hot, unfiltered oil 24 used for cooking doughnuts, french fries, chicken, or other deep fried foods. Motor 74 is turned on and the pump quickly builds up a vacuum so that the oil is drawn into the filter as shown in FIGURE 5. The residue 70 builds up on the filter cloth bag 34. This buildup of residue actually serves as a further filtering agent for the oil. After the vat is emptied as shown in FIGURE 6, the pump is continued until the level of the oil is below the top 20 of the container. The lid 13 is removed and the sleeve 28 withdrawn a sufficient amount so that the filter bag and residue move against the wall of the container forming a seal therewith. The filter bag remains in contact with the false bottom 26. The pump is continued until the filter container is emptied. It is desirable to then remove the discharge hose from the reservoir 64 and the filter bag and its contents from the filter. The system is then flushed with a small quantity of hot water. To fully evacuate the system, the drain valve 78 is opened and the oil and water removed.

The cloth bag and its contents may be either disposed of or the contents emptied from the bag and the bag washed in boiling water and re-used.

What is claimed is:

1. A filtering apparatus for liquid cooking oils comprising:

- an open topped container having a bottom wall and upstanding side walls for receiving liquid oil having a discharge opening in said bottom wall adapted for connection to a vacuum pump;
- a removable container top formed and dimensioned for sealing engagement with the open top of said container and having an intake opening therein adapted for communication with a source of unfiltered oil;

a perforated false bottom member mounted in said container and spaced from said bottom wall forming a lower chamber and an upper chamber and spaced from said side walls permitting oil flow therebetween;

a sleeve member having a perforated upstanding side wall mounted in spaced relation to said walls of said upper chamber and having a first position within said upper chamber wherein a first end is in engagement with said false bottom and a second position within said upper chamber wherein said first end is spaced from said false bottom; and

an open topped filter member having a bottom and side walls longer than said sleeve for receipt within said sleeve member and dimensioned for seating against said container walls when said sleeve is raised to said second position.

2. The apparatus of claim 1 wherein:

said sleeve member includes a manually engageable handle for moving said sleeve to said second position; and

said filter is made of a cloth material.

3. The apparatus of claim 1 comprising:

a vacuum pump mounted below and connected to said container discharge opening and having a drain opening formed in the intake side;

a hand operated drain valve connected to said pump drain opening;

an upstanding discharge pipe connected to the discharge side of said pump; and

holder means connected to said pipe and said removable container lid for holding said lid in the removed position.

4. The apparatus of claim 1 wherein:

said sleeve member is formed for removal from said container.

5. The apparatus of claim 1 wherein:

said false bottom member is formed for removal from said container.

References Cited

UNITED STATES PATENTS

1,810,965	6/1931	Hopkins	210—448
3,167,435	1/1965	Hall.	

REUBEN FRIEDMAN, *Primary Examiner.*

F. MEDLEY, *Assistant Examiner.*