March 10, 1953 J. E. TYLER 2,630,919

OIL FILTER APPLIANCE

Filed Jan. 5, 1950 2 SHEETS—SHEET 1

Fig. 1.

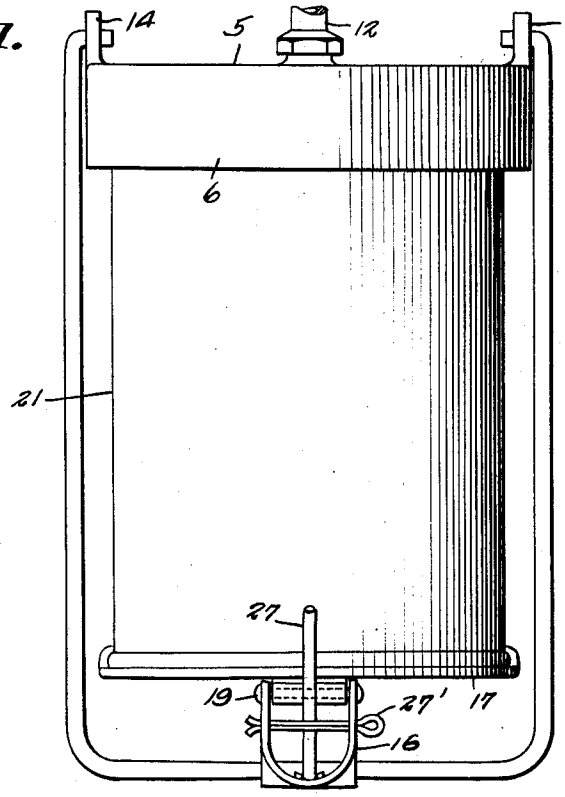
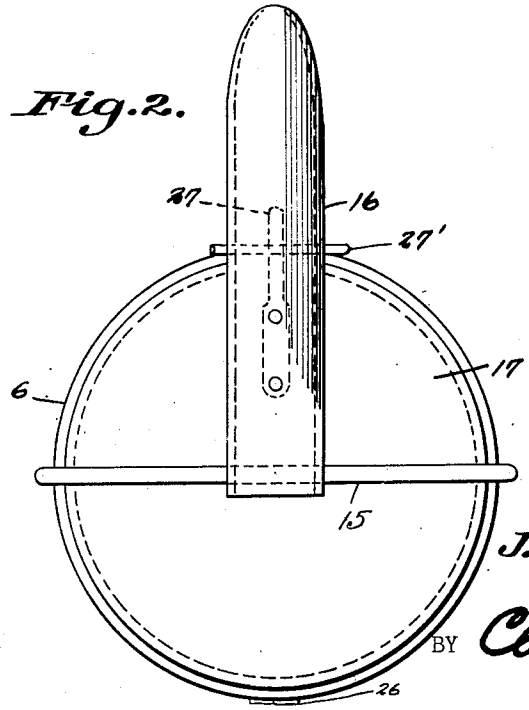



Fig. 2.




J. E. Tyler
INVENTOR

BY C. A. Snow & Co.
ATTORNEYS.

March 10, 1953 J. E. TYLER 2,630,919

OIL FILTER APPLIANCE

Filed Jan. 5, 1950 2 SHEETS—SHEET 2

Fig. 5.

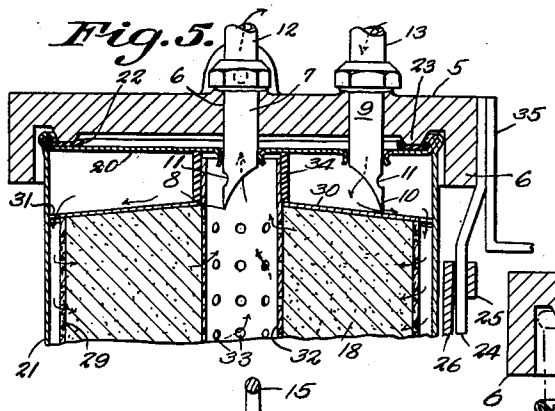


Fig. 3.

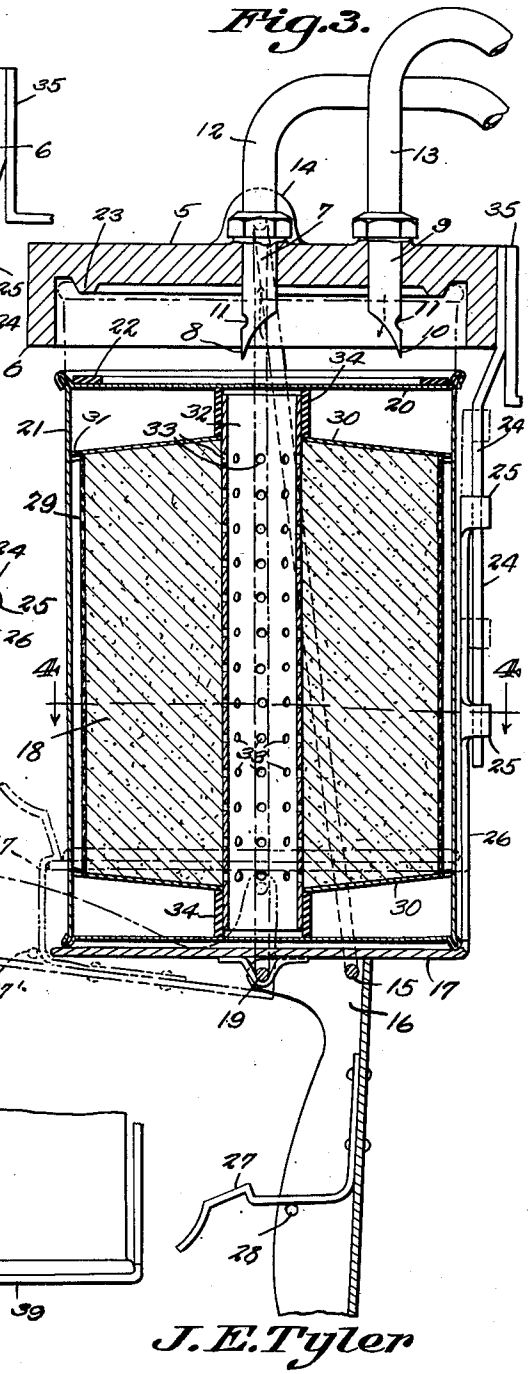


Fig. 4.

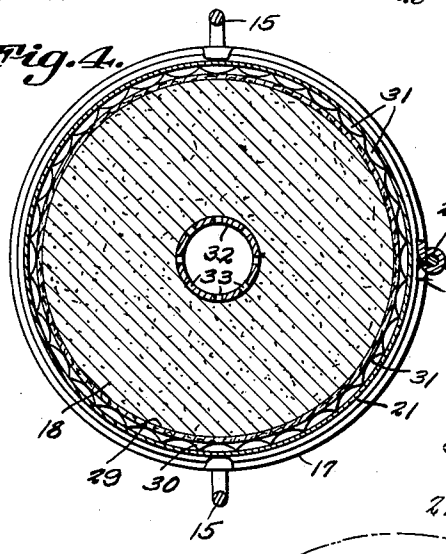


Fig. 6.

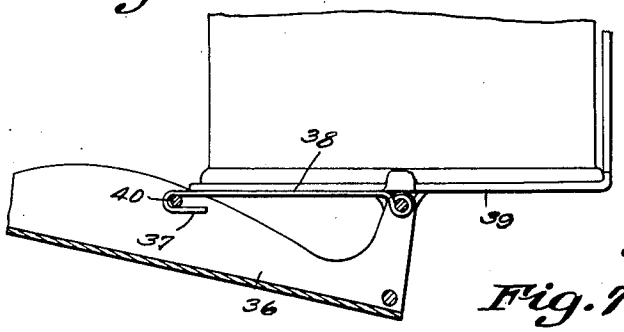
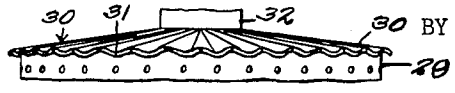


Fig. 7.



J. E. Tyler

INVENTOR

BY C. A. Snow & Co.

ATTORNEYS.

Patented Mar. 10, 1953

2,630,919

# UNITED STATES PATENT OFFICE

2,630,919

## OIL FILTER APPLIANCE

James E. Tyler, Jackson, Miss.

Application January 5, 1950, Serial No. 136,872

1 Claim. (Cl. 210—164)

1

This invention relates to oil filtering devices, and particularly to that type of oil filtering device used with internal combustion engines for filtering the oil in the circulating system to insure the bearings and moving parts being supplied with clean filtered oil.

The primary object of the invention is to provide a filtering unit which is hermetically sealed in a can, and a holder including a head having inlet and outlet pipes formed with piercing ends adapted to pierce the end of the can containing the filtering unit, establishing communication between the filter and oil line of the internal combustion engine of which it forms a part.

An important object of the invention is to provide an oil filter wherein the filtering element may be readily and conveniently changed without the use of tools, and eliminating the disagreeable and objectionable procedure necessary in the replacing of filtering cartridges, now in common use.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claim, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

Referring to the drawings

Figure 1 is a front elevational view of a filtering device, constructed in accordance with the invention.

Fig. 2 is a bottom view thereof.

Fig. 3 is a vertical sectional view through the device.

Fig. 4 is a sectional view taken on line 4—4 of Fig. 3.

Fig. 5 is a fragmental sectional view illustrating the lid of the can of the filtering device as punched by the inlet and outlet pipes of the device.

Fig. 6 is a view illustrating means for securing the lever of the device against accidental movement.

Fig. 7 is a fragmental elevational view illustrating the upper fluted end of the cartridge.

Referring to the drawings in detail, the device comprises the head 5 which is formed with an annular depending flange 6, which head is provided with an opening, though which the pipe 7 extends, and in which the pipe 7 is secured. The pipe 7 is formed with a beveled end defining a piercing prong 8 so located, that it will

2

pierce an opening in the center of the upper end of the can of the filtering device, to be hereinafter more fully described.

Disposed adjacent to the pipe 7, is a pipe 9 which is also formed with a piercing point 10 designed to pierce the end of the can of the device, at one side thereof.

Openings 11 are formed in the pipes 7 and 9, adjacent to the piercing points thereof, which openings provide oil vents to facilitate oil flow.

The pipe 7 has connection with the pipe 12 that forms a connection between the pipe 7 and oil pipe line of the oil system of the internal combustion engine, while the pipe 9 is connected with the pipe 13 that also provides connection between the oil system and the filtering device, the pipes 9 and 13 constituting the pipes through which the oil passes from the oil system, into the filter, while the pipes 7 and 12 constitute the outlet pipes of the filter.

Secured to the head 5, by means of the apertured ears 14 which extend upwardly from the head 5, is the U-shaped yoke 15 which hangs downwardly from the head, and is pivotally connected with the lever 16 that is pivotally connected with the supporting disc 17 that provides a support for the can containing the filtering unit 18. The pivot point between the supporting disc and lever 16, is indicated by the reference character 19, and the connection between the yoke 15 and lever 16 is eccentric, with respect to the pivot point 19, to the end that as the lever 16 is swung from the full line position, shown by Fig. 3 of the drawing, to the dotted line position, the supporting disc or shelf 17 is elevated, forcing the upper end 20 of the can 21 into engagement with the piercing points 8 and 10, with the result that the piercing points pierce the upper end 20 of the can providing communication between the interior of the can, and the pipes 12 and 13.

The can 21 which contains the filtering unit, is provided with the gasket 22 that fits against the annular rib 23 depending from the inner surface of the head 5, providing a fluid-tight connection between the upper end 20 of the can 21, and the head to insure against leakage of the oil at this point.

The reference character 24 indicates a supporting arm which extends downwardly from the head 5, the supporting arm operating through the guides 25 that extend laterally from the bar 26 formed integral with the supporting disc or shelf 17, the guides 25 sliding over the

supporting arm 24, as the supporting disc or shelf 17 is moved vertically, as described.

A spring latch 27 is secured to the lever 16 and is so constructed that it will move upwardly and contact with the outer edge of the supporting disc or shelf 17, holding the supporting disc or shelf in its elevated position. An opening 28 is formed in the lever 16 and is disposed adjacent to the spring latch 27, for the reception of a pin 27' to prevent movement of the spring latch under normal conditions, to insure against the spring latch releasing, due to vibrations of the engine or vehicle, which would allow the supporting disc or shelf 17 to drop down and release the device.

The filtering device includes a cylindrical casing with its ends closed by the fluted discs 30, the discs 30 being of diameters greater than the diameter of the casing 29, so that the edges of the discs contact with the inner surface of the can 21. The portions of the discs 30 which extend beyond the outer surfaces of the casing 29, are serrated, providing openings or passageways 31 between the casing 29 and can 21, through which oil may pass.

The casing 29 may be constructed of any desirable material, and is provided with perforations, to permit oil passing through the space between the casing and can 21, to filter through the filtering unit 18.

Extending longitudinally through the center of the filtering unit 18, is the tube 32 which is formed with perforations 33 to allow oil to pass into the tube, from where the oil passes into the pipe 12.

The ends of the tube 32, project above and below the discs 30, where they are supplied with sleeve gaskets 34 that maintain a fluid-tight connection between the ends of the tube 32 and inner surfaces of the upper and lower ends of the can 21.

The reference character 35 indicates a bracket by means of which the device may be supported on a motor vehicle or an internal combustion engine.

In the form of the invention as shown by Fig. 6 of the drawings, the lever 36 is shown as provided with an opening that falls directly opposite to the hook 37 formed on the arm 38 that is secured under the disc or shelf 39, the opening accommodating a wire such as indicated at 40, for securing the lever 36 against accidental movement, due to vibrations of the engine or motor, to release the lever 36 and allow the filtering unit to move to its inactive position, for removal and replacement.

From the foregoing it will be seen that due



to the construction shown and described, I have provided a filtering device for the oil system of a motor vehicle or internal combustion engine, wherein it is only necessary to lower the lever 16, allowing the disc or shelf 17 to slide downwardly. The can 21, together with the filtering unit 18 may now be removed and replaced with a new filtering unit and cartridge. As the lever 16 is swung upwardly, it is obvious that the piercing points of the pipes 7 and 9 will puncture the upper end closing the can 21, the pipes entering the space between the upper end 20 and upper end of the filtering unit, establishing communication between the oil or lubricating system of the motor vehicle or engine with the filtering device. The oil in passing through the filtering device will be treated or filtered to remove foreign matter which is injurious to bearings and moving parts lubricated by the oil.

In view of the foregoing detail description, a further detail description of the device is believed to be unnecessary.

Having thus described the invention, what is claimed is:

An oil filtering device comprising a can having closed ends, in which a filtering element is housed, a holder for said can comprising a stationary disc on which said can is positioned, a vertically movable head having an annular depending flange adapted to fit over the top of the can, a U-shaped yoke pivotally connected to the stationary disc and head, adapted to move the head downwardly over the upper end of the can as said yoke is moved downwardly, pipes extending through the head, said pipes having piercing ends disposed within the confines of said depending flange of the head, through which oil circulates, said piercing ends of the pipes adapted to pierce the can in which the filtering element is housed, establishing communication between the pipes and can, as the head moves over the can clamping the can on the stationary disc.

JAMES E. TYLER.


REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

| Number | Name | Date |
|---|---|---|
| 1,781,964 | Thomas et al. | Nov. 18, 1930 |
| 2,337,469 | Hill | Dec. 21, 1943 |
| 2,556,292 | Newcum | June 12, 1951 |

FOREIGN PATENTS

| Number | Country | Date |
|---|---|---|
| 354,916 | France | Oct. 18, 1905 |