

July 18, 1967

PAUL-EMILE GAUDET

3,331,405

LIQUID FILLING PIPE

Filed June 7, 1965

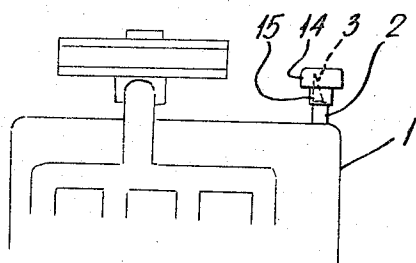


Fig. 1

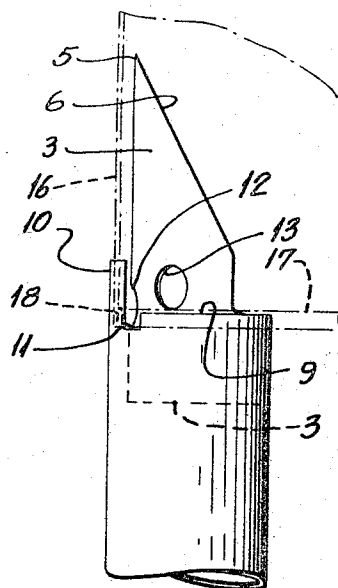


Fig. 2

Fig. 4

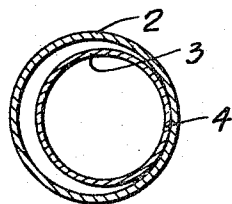
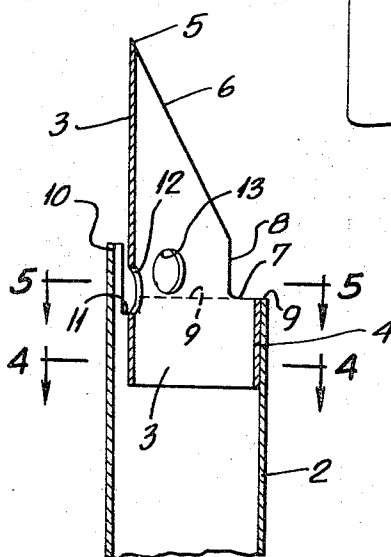


Fig. 3

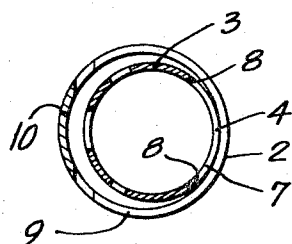


Fig. 5

INVENTOR
Paul-Emile GAUDET

BY
Perre Laspérance

PATENT AGENT

1

3,331,405

LIQUID FILLING PIPE

Paul-Emile Gaudet, P.O. Box 560,
Tracadie, New Brunswick, Canada
Filed June 7, 1965, Ser. No. 461,794
3 Claims. (Cl. 141-330)

ABSTRACT OF THE DISCLOSURE

The present invention consist of a liquid filling pipe permanently connected to the oil pan of an internal combustion engine, or the like liquid reservoir, provided with its own can opener whereby a can of liquid can be pushed against the opener and the contents of the can discharged directly into the reservoir, the pipe free edge being notched and provided with a tongue to receive the bead of the can and to support the can in inverted position and in such a manner that no spilling of liquid will occur during discharge of the can.

The present invention relates to internal combustion engines and other pieces of machinery having a liquid reservoir requiring filling at certain intervals from a sealed container of said liquid.

The present invention is more particularly directed to the liquid filling pipes for the oil pan, the transmission housing, the brake fluid reservoir and/or the water radiator of motor vehicle equipped with an internal combustion engine.

Engine oil, transmission oil, brake fluid and anti-freeze liquid are normally contained in sheet metal sealed containers, and to discharge said liquid into the appropriate reservoir or casing of the engine, the service man normally uses a removable can spout provided with a punch, or cutter, which is pressed against the container to open the same and to allow discharge of the liquid from the container through the spout into the appropriate reservoir of the engine.

However, the owner of the motor vehicle is not always assured that the oil or other liquid poured into the engine, is not contaminated by foreign matter, because the service man may well use the same spout for pouring different liquids, whereby a liquid adhering to the inside of the spout may be a contaminant for another liquid poured through said spout.

Also, these types of removable spouts very often are not kept clean and the use of the same may result in the oil or other liquid being admixed with dust, dirt and other foreign material. On the other hand, persons operating farm tractors and other engines located far from service stations are not usually equipped with a removable can spout and, therefore, the liquid container must be cut open with a knife, or other awkward tool, and poured into the filling tube of the engine in a cumbersome manner and with the possibility of spilling some of the liquid.

Accordingly, the general object of the present invention resides in the provision of means for eliminating the above-noted disadvantages.

A more specific object of the invention resides in the provision of a liquid filling pipe for internal combustion engines and other pieces of machinery, which is provided with its own permanently attached means for opening a container of said liquid and for allowing direct discharge of the contents of said container into and through said pipe.

Another object of the present invention resides in the provision of a liquid filling pipe of the character described, more particularly adapted for use as a pipe for filling the oil pan of an internal combustion engine and provided

2

with means for opening and directly pouring into the pipe the contents of a sealed container of the engine oil.

Another object of the present invention resides in the provision of means of the character described, in which

5 spilling of the liquid is entirely eliminated.

Another object of the invention resides in the provision of means of the character described, in which practically all of the liquid contents of the can is allowed to be discharged into the pipe.

10 Another object of the present invention resides in the provision of means of the character described, in which the pipe is adapted to be conveniently and quickly closed by a cover provided, if desired, with the usual means to allow air passage through said cover.

15 Another object of the invention resides in the provision of a liquid filling pipe of the character described, of relatively simple and inexpensive construction.

The foregoing and other important objects of the present invention will become more apparent during the following disclosure and by referring to the drawings, in which:

FIGURE 1 is a side elevation, somewhat schematic, of an internal combustion engine, provided with an oil filling

25 pipe in accordance with the invention, closed by a cap;

FIGURE 2 is a side elevation of the inlet end of the liquid filling pipe in accordance with the invention;

FIGURE 3 is a longitudinal section of the same;

FIGURE 4 is a cross-section taken along line 4-4 of

FIGURE 3; and

30 FIGURE 5 is a cross-section taken along line 5-5 of FIGURE 3.

Referring now more particularly to the drawings in which like reference characters indicate like elements throughout, FIGURE 1 shows a portion of an internal combustion engine 1, having an oil filling pipe 2 in communication with the oil pan of the engine and opening upwardly. Pipe 1 may be vertical or inclined.

In accordance with the invention, the outer open end of pipe 2 is provided with a cutter, generally indicated at 3, for cutting a hole in a flat end wall of a sheet metal sealed container of oil to be discharged and for discharging said oil into the engine through pipe 2.

The cutter 3 consists of a nipple having an external diameter small than the internal diameter of pipe 2, partly inserted within the open end of pipe 2 and having its inserted end rigidly secured by means of welding, or the like, to the pipe 2 along a restricted longitudinal zone, shown at 4, of the cylindrical walls of the nipple 3 and pipe 2. Thus, the longitudinal axis of nipple 3 is spaced from and parallel to the long axis of pipe 2.

The portion of nipple 3 protruding from pipe 2 is cut at a bevel to define a point 5 and side bevelled cutting edges 6 converging towards point 5. Point 5 is diametrically opposed to zone 4.

55 Nipple 3 is notched just above the zone 4 to define a circular edge portion 7 lying in a plane substantially perpendicular to the long axis of nipple 3, and longitudinal edges 8 extending along lines parallel to the long axis of nipple 3 and merging with the inclined side cutting edges 6.

The circular edge 7 extends through approximately 1/4 of a circle. The outer end of pipe 2 defines a circular edge portion 9 normal to the long axis of pipe 2 and substantially level with circular edge 7 of cutter 3. At any rate, circular edge 7 must not protrude from circular edge 9.

65 Circular edge 9 has a tongue 10 protruding outwardly therefrom. Tongue 10 is a continuation of the cylindrical wall of pipe 2 and extends parallel to nipple or cutter 3 in a diametrically opposed to the attachment zone 4; that is, in the region where the cutter 3 has a maximum spacing with the pipe wall 2, tongue 10 being longitudinally and axially spaced from point 5.

70

On each side of tongue 10, the circular edge 9 of pipe 2 is provided with a notch 11, of square or rectangular shape.

A hole 12 is made in cutter or nipple 3, radially opposite tongue 10 and at a level straddling the plane containing the circular edge 9 of pipe 2.

Lateral additional holes 13 are made in nipple or cutter 3 on each side of hole 2. Holes 13 are slightly outwardly offset with respect to hole 12, such that their innermost zone is substantially tangent to the plane containing circular edge 9.

A conventional cap 14 is adapted to close pipe 2 when the latter is not in use for filling the engine with oil. Cap 14 has a collar 15 adapted to have a sliding fit with the pipe 2 and cap 14 fully encloses cutter 3. Cap 14 is preferably provided with openings and air filtering material therein to allow passage of air therethrough, while preventing dust and the like from entering the pipe 2.

For filling the oil pan of the engine, the cap 14 is removed and a standard oil container, consisting of a sheet metal can 16 of cylindrical shape and having flat end walls 17, joined to the cylindrical wall thereof by means of a bead 18, is handled in such a way as to present one flat wall 17 thereof to point 5 with the point 5 engaging the wall 17 adjacent bead 18.

The can is pressed against the point 5 whereby the same enters the can and its cutting side edges 6 cut an opening within the end wall 18 of the can. The can is inserted until its end wall 17 engages and rests against the circular edge 9 of pipe 2 with the bead 18 engaging notches 11 and the cylindrical wall of the can 16 engaging between the cutter or nipple 3 and tongue 10.

The oil contents of the can 16 is immediately discharged into the pipe 2 to fill the oil pan of the engine 1. Any oil which might escape between the outside of cutter 3 and the edge of the hole made in end wall 17 of can 16, simply flows along the outside wall of the inner portion of nipple 3 within pipe 2 and does not spill. The can is firmly maintained in pouring position, due to the fact that it is engaged by tongue 10 and that the longitudinal edges 8, engaging the edge of the hole made in the end wall 17 of the can, prevents tilting of said can towards point 5.

The spaced holes 12 and 13 allow the contents of the container 15 to freely enter the pipe 2 up to practically the last drop of the container contents.

The filling pipe and cutter combination can naturally be used for filling the brake fluid reservoir, or the transmission reservoir for transmission oil. The pipe 2 may also be used as the filling pipe of a radiator, the cutter 3 being used for opening a can of anti-freeze liquid.

The filling pipe 2 and its cutter could also be used in conjunction with a reservoir for containing gasoline mixed with oil, in which case the cutter would be used for opening an oil can, the contents of which would be mixed with the gasoline in the reservoir.

The system in accordance with the invention eliminates

entirely the use of a separate removable spout provided with a punch for opening a container, and enables the user of an engine, or other piece of machinery, to always have at his disposal suitable means for quickly opening a liquid can and pouring the same into the engine or other piece of machinery.

While a preferred embodiment in accordance with the invention has been illustrated and described, it is understood that various modifications may be resorted to without departing from the spirit and scope of the appended claims.

What I claim is:

1. A liquid filling pipe permanently attached to and in communication with a reservoir adapted to receive liquid through said pipe, said pipe having an open free end defining a free edge disposed in a plane substantially perpendicular to the long axis of said pipe, said nipple of an external diameter smaller than the internal diameter of said pipe, disposed within said pipe and protruding therefrom with the long axis of said nipple parallel to and spaced from the axis of said pipe, said nipple being rigidly secured to said pipe along a restricted longitudinal zone of the cylindrical walls of said nipple and of said pipe, the pipe protruding portion of said nipple forming a cutter operable to cut an opening in a wall of a container pushed thereagainst until said container engages said pipe free edge, said pipe free edge having two angularly spaced notches and a tongue integral with the cylindrical wall of said pipe and protruding from said pipe free edge intermediate said notches and adjacent thereto, said notches and tongue being located in the zone of said pipe wall farthest from said nipple cylindrical wall.

2. A liquid filling pipe as claimed in claim 1, wherein said nipple has its outer edges converging to a point to form said cutter, said outer edges being notched in a zone of said nipple disposed axially outwardly from and close to the attachment zone of said nipple to said pipe, said notched zone defining a circular edge portion in a plane substantially normal to the longitudinal axis of said nipple and not protruding from the free edge of said pipe.

3. A liquid filling pipe as claimed in claim 1, wherein said nipple has a hole made therein radially opposite said tongue and substantially at the level of said pipe free edge.

References Cited

UNITED STATES PATENTS

2,130,085	9/1938	Harks	184—105
2,130,634	9/1938	Wiswell	184—105
2,134,004	9/1938	Pittman	184—105
2,350,451	6/1944	Embrey	222—81
2,693,249	11/1954	Baumbach	184—105

MARK NEWMAN, *Primary Examiner.*

WENDELL E. BURNS, *Examiner.*