May 19, 1925. 1,538,171

E. L. DAILEY

FUNNEL

Filed May 20, 1924 2 Sheets-Sheet 1

Fig. 1.

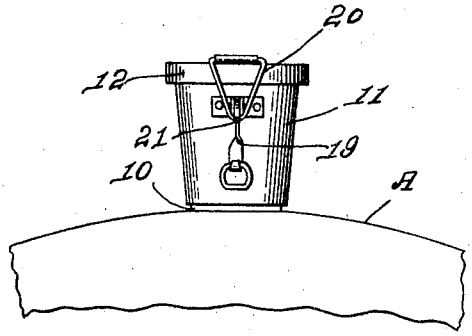
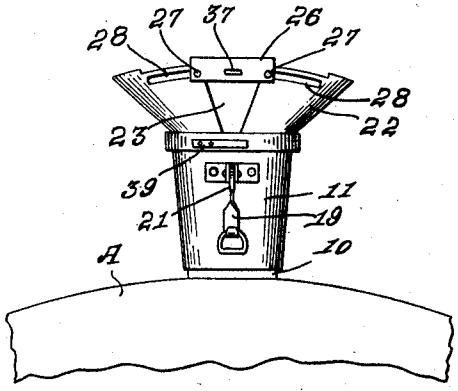


Fig. 2.



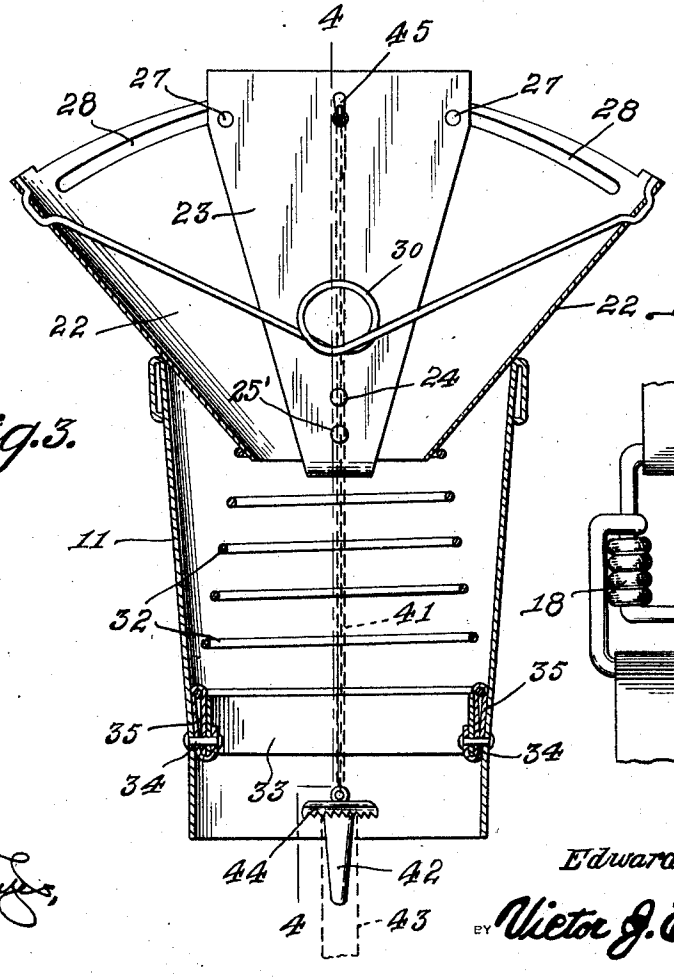
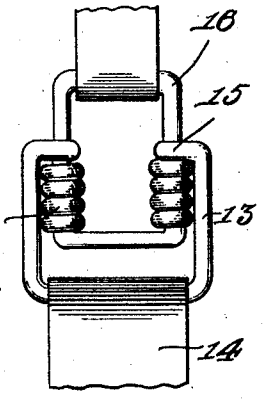


Fig. 3.

Fig. 4.



Leo Sayer,
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Fig. 4.

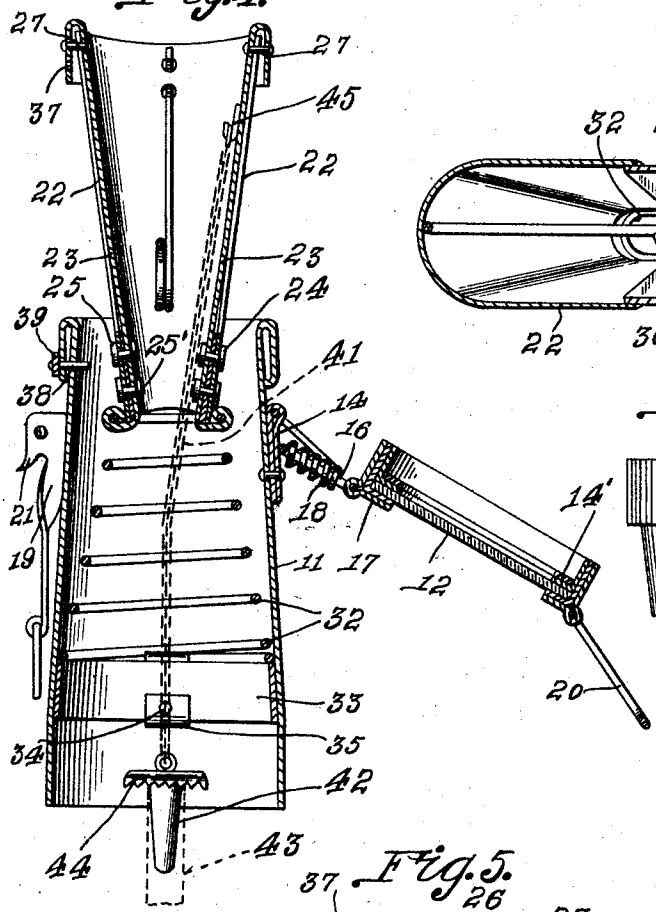


Fig. 6.

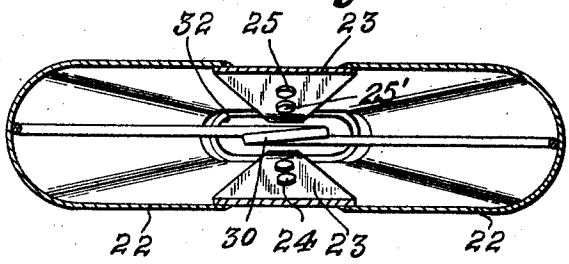


Fig. 8.

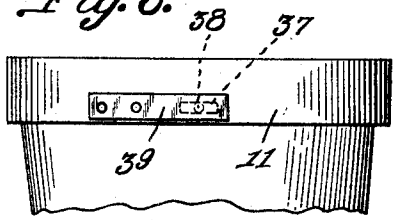


Fig. 7.

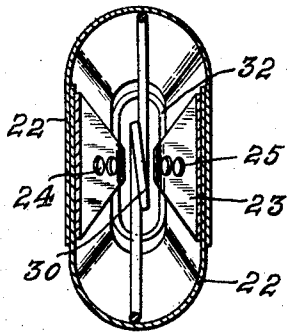
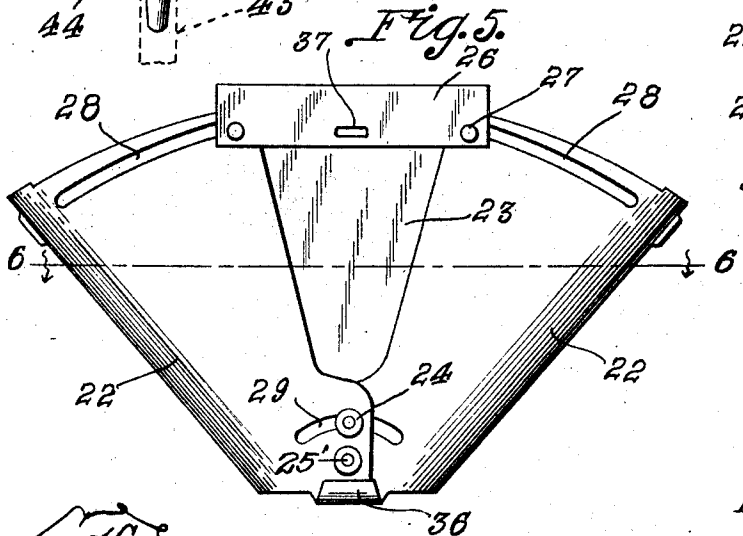


Fig. 5.



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Patented May 19, 1925. 1,538,171

UNITED STATES PATENT OFFICE.

EDWARD L. DAILEY, OF BERG, NORTH DAKOTA.

FUNNEL.

Application filed May 20, 1924. Serial No. 714,719.

To all whom it may concern:

Be it known that I, EDWARD L. DAILEY, a citizen of the United States, residing at Berg, in the county of McKenzie and State of North Dakota, have invented new and useful Improvements in Funnels, of which the following is a specification.

This invention relates to funnels, and has particular application to a structure primarily designed for use in conjunction with the filling tube forming part of an automobile radiator.

When it is found necessary to supply the radiator with water, it frequently happens that the operator is forced to use some large or cumbersome vessel without the assistance of a funnel, with the result that the water is spilled over the hood and other parts of the car incident to the filling of the radiator. It is for the purpose of overcoming this difficulty and the objection to the wetting of the hood and other parts of the vehicle that the present invention has been devised.

The chief characteristic of this invention resides in the provision of a collapsible funnel adapted to be normally housed within the filling tube, so that its use may be employed at any time desired, the funnel being adapted to be projected above the filling tube and subsequently expanded, after the cap of the filling tube has been removed.

In carrying out the invention, I provide means for automatically projecting the funnel above the filling tube subsequent to the removal of the cap therefor, as well as means for automatically expanding the funnel when so projected, the funnel when normally arranged within the tube being held immovable by a latch which is arranged to be conveniently manipulated to effect a release of the funnel when its use is desired.

The nature and advantages of the invention will be better understood when the following detailed description is read in connection with the accompanying drawings, the invention residing in the construction, combination and arrangement of parts as claimed.

In the drawing forming part of this application, like numerals of reference indicate similar parts in the several views, and wherein:

Figure 1 is a fragmentary view in elevation of a radiator showing the invention with the parts in normal position.

Figure 2 is a view similar to Figure 1 showing the funnel projected above the filling tube and expanded for use.

Figure 3 is an enlarged vertical sectional view through the invention showing the funnel in position for use.

Figure 4 is a sectional view taken at a right angle to Figure 3 on line 4—4 of Figure 3.

Figure 5 is a view in elevation of the funnel expanded.

Figure 6 is a sectional view taken on the line 6—6 of Figure 5, looking in the direction of the arrows.

Figure 7 is a transverse sectional view through the funnel with the latter in a collapsed condition.

Figure 8 is a fragmentary view of the housing for the funnel showing the latch for holding the funnel positioned within the housing.

Figure 9 is a detail view of the hinged joint for the cap of said filling tube.

Referring to the drawings in detail, A indicates a portion of a radiator of any well known construction, and wherein 10 represents the filling tube. In accordance with the present invention this filling tube is increased in height by using a housing for the funnel to be hereinafter described and which housing is indicated at 11. The housing may be attached to the filling tube 10 in any suitable manner, or it may in the manufacture of the radiator form an integral part of the filling tube, but in either instance it forms a continuity of the filling tube 10 for the purpose of increasing its size to accommodate the funnel referred to. Hereafter this housing 11 will be referred to as the filling tube, inasmuch as it is in reality a part of such tube whether integrally or separably connected therewith, and the term filling tube for this part will also be made use of in the claims. The filling tube is provided with a cover 12 which is hingedly supported upon the tube in the manner shown in Figures 4 and 9. This cover is provided with a gasket 14′ which of course prevents leakage when the cover is closed. The hinge is preferably constructed in the manner shown in Figure 9 wherein a substantially U-shaped element 13 is pivoted within a bracket 14 secured to that part of the filling tube indicated at 11, the terminals of said element 13 being

formed with eyes 15 to slidably receive a loop of rectangular contour indicated at 16, which loop pivotally supports the cover 12 by means of a suitable bracket 17. When the cover is swung to a closed position, the coil springs 18 which surround the parallel portions of the loop 16 are compressed as will be readily understood to assist the latch element 19 in holding the cover effectively closed. Projecting beyond the forward end of the cover is a wire loop 20 which is adapted to be engaged by the hook like portion 21 of the latch 19, the latch being pivoted on the portion 11 of the filling tube as clearly shown in Figures 1 and 4. Any other suitable means however, may be utilized to hold the cover in a closed position.

The funnel is of a collapsible character, which allows the funnel to be housed within the portion 11 of the filling tube, and when projected therefrom, the funnel is expanded to provide a funnel of suitable size for the purpose for which it is intended. The funnel is of oblong contour in plan, and is made up of companion end sections 22 and intermediate sections 23, the latter being positioned within the end sections which are mounted for pivotal movement toward and away from each other. The pivots for said end sections are indicated at 25'. The upper ends of the intermediate sections 23 project above the corresponding edges of the end sections, and are turned downwardly as at 26 in the formation of channels which receive the end sections to guide the latter in their movements toward and away from each other. These down turned portions 26 of the intermediate sections assist in holding the parts operatively associated, while the end sections are further guided in their pivotal movements by means of pins 27 supported by the upper ends of the intermediate sections, and which pins are received by arcuate shaped slots 28 formed in the end sections. Then again, the end sections adjacent the lower ends are formed with short curved slots 29 which receive the stops 24 and 25 and by reason of this construction the end members are limited in their outward movements away from each other under the influence of the spring utilized to expand the funnel after it has been projected to a position for use. This spring just referred to is formed from a single length of resilient wire and is wholly disposed within the funnel, the intermediate portion of the spring being formed with a resilient coil 30, while the terminals of the spring which is of substantially V-shaped formation is passed through openings in the end sections as clearly shown in Figure 3. It was hereinabove stated that the funnel was automatically projected above the filling tube when its use was desired, and for this purpose I utilize a bell shaped spring 32 which is wholly disposed in the portion 11 of the filling tube, one end of the spring being secured to the filling tube and the other end attached to the funnel. The lower end of this spring is associated with an annulus 33, the latter being riveted or otherwise suitably secured as at 34 to an appropriate part of the filling tube. Attached to this annulus 33 by the same rivets or fastening elements 34 are a plurality of loop like elements 35, preferably two in number arranged diametrically opposite each other, and which elements 35 project a slight distance above the annulus 34 to receive the lowermost convolution of the spring 32. In this manner the lower end of the spring is fixed to the filling tube while the upper end is attached to the lower extremity of the funnel. For the purpose of attaching the uppermost convolution to the funnel I extend the lower ends of the intermediate section 23 thereof beneath the corresponding lower edges of the sections 22, and curve the said lower extremities of the intermediate sections upwardly as clearly shown in Figures 4 and 5, at 36. These curved portions 35 receive the adjacent convolution of the spring 32, so that when the funnel is collapsed and depressed to wholly position the funnel within the portion 11 of the filling tube, the spring 32 is compressed, to subsequently function to automatically project the funnel above the tube for use.

One of the downward turned portions 26 of the intermediate section 23 of the funnel is provided with a slot or opening 37 as shown in Figure 5, and this slot is adapted to receive a pin 38 carried by one end of a flat spring 39, which spring is secured to the portion 11 of the filling tube at a point adjacent the upper end thereof. The flat spring is arranged horizontally and the pin 38 projects through an opening formed in the filling tube, so that after the funnel has been positioned within said filling tube, the spring 39 can be manipulated to position the pin 38 within the opening or slot 37 above referred to, and this of course holds the funnel within the filling tube against the influence of the spring 32. When it is desired to use the funnel it is only necessary to swing the cover 12 to the position shown in Figure 4, and subsequently pull outwardly on the flat spring 39, which of course releases the funnel. The spring 32 then functions to automatically project the funnel above the tube 11, while the spring within the funnel operates to automatically expand or extend the funnel as shown in Figure 3. Suspended from the funnel by means of a chain or other flexible element 41 is a stopper or plug 42 which is adapted to be positioned within the overflow pipe 43, to prevent water from entering this pipe while the radiator is being filled. The plug stopper

42 is provided with a cap 44 which extends beyond the overflow pipe or tube 43 as shown and reposes upon the upper end of the tube to support the plug 42 in the position shown in Figure 4. The chain 41 may be attached to the funnel in any suitable manner, but is preferably supported from a hook 45.

While it is believed that from the foregoing description, the nature and advantages of the invention will be readily apparent, I desire to have it understood that I do not limit myself to what is herein shown and described, and that such changes may be resorted to when desired as fall within the scope of what is claimed.

Having thus described the invention, I claim:

1. In combination, a collapsible funnel adapted to be normally housed within the filling tube of a radiator, yieldable means for automatically projecting the funnel above the tube for use, and a cover for holding the funnel within the tube against the influence of the aforementioned means.

2. In combination, a collapsible funnel adapted to be normally housed within the filling tube of a radiator, yieldable means for automatically projecting the funnel above the tube for use, means for normally holding the funnel within the tube against the influence of the aforementioned means, and resilient means for automatically expanding the funnel when projected.

3. In combination, a collapsible funnel adapted to be normally housed within the filling tube of a radiator, said funnel being substantially of oblong contour in cross section and including intermediate sections, and companion end sections pivoted on said intermediate sections for movement toward and away from each other, and means for automatically projecting the funnel above the tube for use.

4. In combination, a collapsible funnel adapted to be normally housed within the filling tube of a radiator, and including opposed intermediate sections, and companion end sections pivoted on the intermediate sections for movement toward and away from each other, means for automatically projecting the funnel above the tube for use, means for normally holding the funnel within the tube against the influence of the aforementioned means, means for automatically expanding the funnel when projected, and means for limiting the movements of said end sections to these expanded positions.

5. The combination with the filling tube of a radiator, of an extension for said tube, a collapsible funnel adapted to be normally housed within said extension, means for automatically projecting the funnel above the extension for use, means for normally holding the funnel positioned within the extension against the influence of the aforementioned means, and means for automatically expanding the funnel when projected.

In testimony whereof I affix my signature.

EDWARD L. DAILEY.