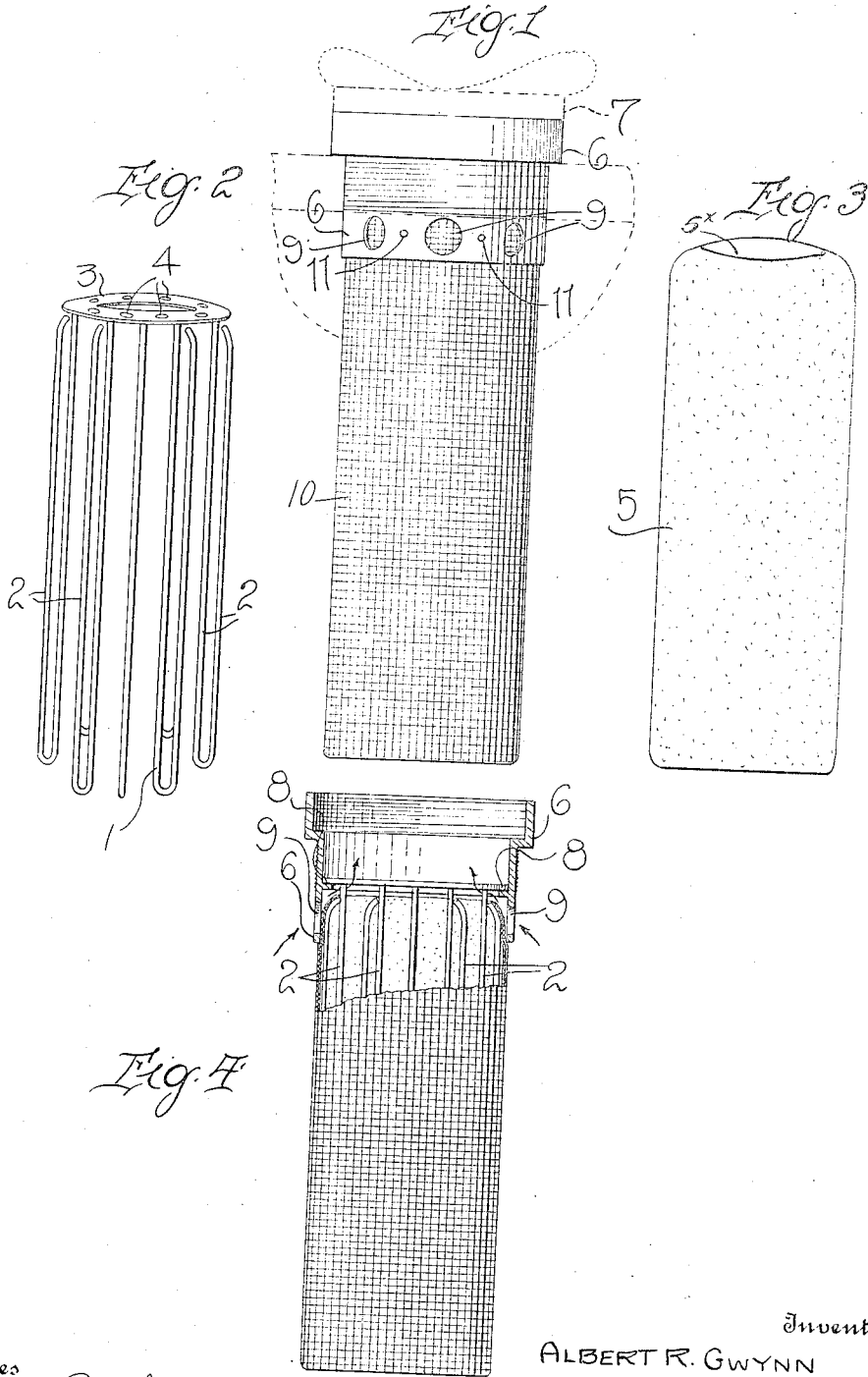


1,137,480.

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GASOLENE FILTER.  
APPLICATION FILED JULY 18, 1914.

Patented Apr. 27, 1915.



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## GASOLENE-FILTER.

Specification of Letters Patent. Patented Apr. 27, 1915.

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Application filed July 18, 1914. Serial No. 351,301.

*To all whom it may concern:*

Be it known that I, ALBERT R. GWYNN, a citizen of the United States, residing at Phoenix, in the county of Maricopa and State of Arizona, have invented certain new and useful Improvements in Gasolene-Filters, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to gasolene filters, and particularly to filters adapted to be arranged in the filling vent of the gasolene tanks of automobiles, in the filling opening of gasolene cans, or in like situations; and the object of the invention is the provision of a device of this character whereby a filtering bag or casing of filtering material may be held in an expanded condition within and projecting below the top of the tank, and whereby this bag may be readily removed for cleaning and as readily replaced.

A further object of the invention is the provision of a construction of this character in which the bag or other filter casing is held in expanded condition by means of spring fingers extending downward from the head of the filter, these fingers not only acting to hold the bag in expanded position, but also acting to hold the upper end of the bag in engagement with the head so as to prevent the casing or bag from being disengaged from the fingers by the pressure of gasolene passing through the bag.

A further object of the invention is to so construct the spring frame which holds the bag or casing expanded that the frame may be readily withdrawn from its engagement with the head, carrying with it the filtering bag.

Other objects will appear in the course of the following description:

Figure 1 is a side elevation of the filter with its several parts in proper relation, Fig. 2 is a perspective view showing the spring tension frame, Fig. 3 is a side elevation of the chamois bag and Fig. 4 is a side view of the filter with the cap removed and showing the head in central vertical section and the wire screen broken away and exposing the springs and washer head of the springs in elevation.

Similar reference numerals indicate like parts in the several figures of the drawing.

1 is the spring tension frame which consists of a series of fingers 2 extending parallel to each other but arranged in a circle,

these fingers each consisting of a resilient rod or wire, one end of which is riveted or otherwise attached to a supporting ring 3. These rods extend parallel to each other and at right angles to the ring 3, and each rod is bent or returned upon itself so as to form an upwardly extending resilient leg, the upper end of this resilient leg being inwardly curved as shown clearly in Fig. 2. The upper end of the upwardly extending spring portion of each member 2 normally projects outwardly beyond the outer edge of the ring 3, as also shown clearly in Fig. 2, and for a purpose which will be later stated. Adapted to be disposed upon the spring fingers 2 which constitute the expansible frame, is a bag 5, preferably made of chamois skin, this bag 5 having a diameter slightly less than the exterior diameter of the frame formed by the fingers 2, the upper end of the bag being contracted and formed with a central opening 5\*, through which the spring fingers of the frame may be inserted. When the spring fingers are inserted into the bag, they will first be contracted, and when the outer portions of the fingers have passed the opening 5\*, these outer portions will expand, holding the bag in expanded position, the contracted portion at the upper end of the bag bearing against the upper curved ends of the outer legs of the fingers. The ring 3 is formed with a plurality of air passages 4 and is adapted to be supported in a head 6. This head is threaded exteriorly about centrally for securing the filter in place, and at its upper extremity threaded interiorly for the reception of the ordinary cap 7, and is formed with an interior annular shoulder 8, upon which the ring 3 carrying the tension spring frame, is supported. It is also provided with air inlet orifices 9 shown in Fig. 1 to be again referred to. 10 is a wire screen cylinder surrounding the chamois bag 5, and which is secured to the head 6, by rivets 11, or in any other suitable manner, and is confined between the head and the free ends of the springs 2.

From the construction as shown and described it will be seen that when the filter is in use and the parts are assembled, in the manner illustrated in the drawing, air will be admitted through the inlet orifices 9 in the head 6 and that this air will travel upward and through the orifices 4 in the ring 3, as indicated by arrows in Fig. 4.

While I have shown the cap at its outer

extremity round, it will be understood that it may be of octagon or other desired form.

The filter constructed as described is made of such proportions as to fit the filling vent of an automobile and the screw threads on the exterior of the head 6 are adapted to traverse the interior threads of the vent and when the filter is thus adjusted, the gasolene is introduced through the filter to the tank and is purified.

When it may be necessary or desirable to disassemble the several parts of the filter the cap 7 is removed giving free access to the ring 3, which with the several parts connected therewith may be lifted out of the head 6, the free ends of the spring 2, yielding readily for this movement.

It is to be noted that with the construction above described the chamois skin bag may be readily detached from the spring fingers 2 of the frame so as to permit the interior of the bag to be cleansed. It will also be seen that the upper end of the bag is not only supported by being contracted around the inwardly curved extremities of the fingers, but that it is supported by a clamping action between the upper extremities of the fingers and the lower edge of the head 6, as shown clearly in Fig. 4. Thus, even if no exterior screen 10 were used the filtering bag would be held securely in place and prevented from dropping down by the weight of the liquid gathered in the bag. Of course the screen 10 prevents the dropping of the bag into the tank or can, but the fingers or members 2 by their clamping action against the bag, prevent the bag from wrinkling downward as it might do under the action of the weight of gasolene. Furthermore, the inwardly curved fingers, together with the inward curvature of the top of the bag keep the air openings 9 open at all times so as to permit free passage of air from the container. When the device is withdrawn from the head, the curved upper ends of the fingers contact with the flange 8 and the fingers are forced inward by the action of withdrawing the frame from the head. When, however, the frame is inserted in the head, the curved lower ends of the fingers will exert a wedging action to compress the frame. Thus there is no necessity of manually forcing in either end of these fingers and thereby soiling the hands by contact.

Having described the construction and arrangement what I claim as new and desire to secure by Letters Patent is:

1. A filter consisting of a tension spring frame supported from a ring having air orifices therein, a chamois bag surrounding the spring frame, a wire screen cylinder surrounding the chamois bag, a head provided with an internal annular shoulder for supporting the ring and a cap secured by screw

threads to the head of the filter, substantially as and for the purpose set forth.

2. In a filter such as described, a tension spring frame consisting of a ring provided with air orifices therein and a series of springs having one end securely connected with the ring, then returned at the bottom and carried upward and with the extremity free to vibrate, a filtering casing disposed around and carried by the spring frame.

3. In a filter of the character described, a head and a tension spring frame removably supported by the head, and a filtering bag surrounding the spring frame, said bag being confined at its upper extremity between the free ends of the spring frame and said head.

4. In a filter such as described, in combination with the head having lateral air inlet orifices adjacent to its lower extremity, a tension spring frame supported by a ring upon an annular shoulder on the head and provided with vertical air orifices, and a filtering casing carried by the spring frame.

5. In a device of the character described, the combination with a supporting head open at both ends, of a supporting member removably disposed in the head, a resiliently expansible frame carried by the member, and insertible through the head, said frame normally having a greater diameter than the head and compressible to permit its movement through the head, and a filtering casing of flexible material carried on said frame.

6. A filtering device of the character described, including a supporting member, a plurality of longitudinally extending outwardly expansible resilient members, each connected at one end thereto, the other end of each member being free, and a filter casing surrounding and carried by said members and held by them in expanded condition.

7. A filtering device of the character described, including a supporting member and a plurality of longitudinally extending resilient members extending in parallel relation from the supporting member, each of said longitudinally extending members being bent outward upon itself at its outer end and returned toward the supporting member, and a filtering casing surrounding said longitudinal members and held in an expanded condition by said returned portions.

8. A filtering device of the character described, including a ring-shaped supporting member, a plurality of resilient members attached each at one end to the supporting member and extending therefrom at right angles thereto, each member being bent upon itself and extending rearward toward the supporting member, the extremity of the rearward extension being inwardly bent, and a filtering casing cylindrical in form, closed

at one end and having a contracted opening at its upper end through which the spring frame is adapted to be inserted.

5 9. A filtering device of the character described, including an annular supporting head, a radially expansible spring frame insertible through said head and supported thereby, a filtering casing surrounding said frame and distended thereby, the upper end  
10 of said casing being clamped against the head by the spring frame.

10 10. A filtering device of the character described, including an annular supporting head having an inwardly projecting annular  
15 shoulder, a spring frame insertible through

the head and comprising a ring adapted to rest upon the shoulder, and longitudinally extending rebent resilient rods, the ends of the rebent portions being inwardly curved and the frame formed by said members having a diameter normally greater than the interior diameter of the annular shoulder, and a filtering casing supported in distended condition upon and by said frame.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

ALBERT R. GWYNN.

Witnesses:

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ESSIE WILLIAMS.