Sept. 22, 1936. W. PAULUS 2,055,445

HOUSING FOR VALVES OR OTHER CHAMBERS

Filed June 3, 1932

Fig.1.

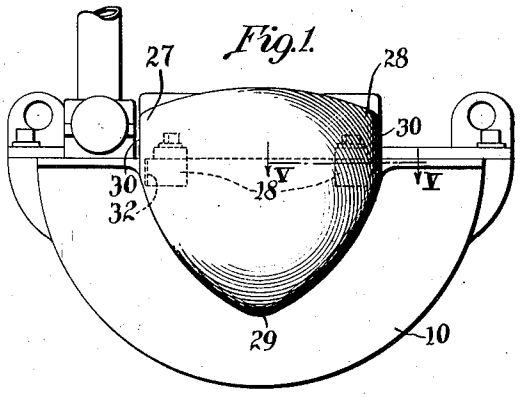


Fig.5

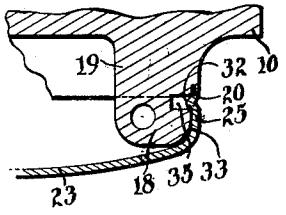


Fig.2.

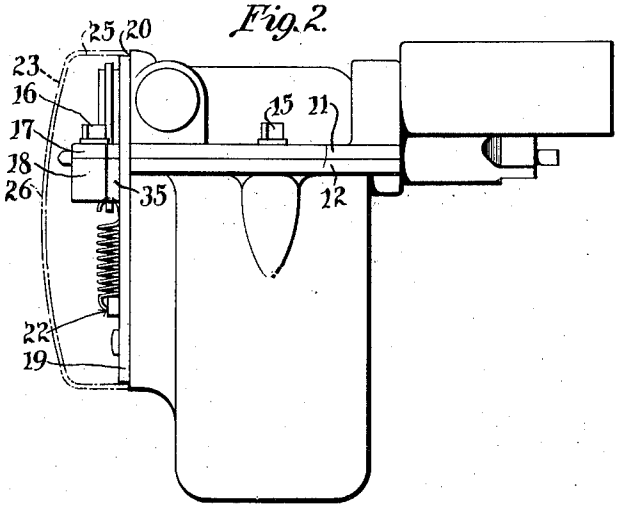


Fig.3.

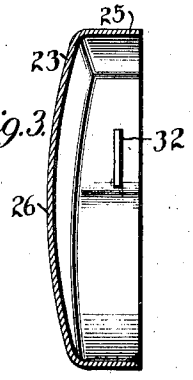
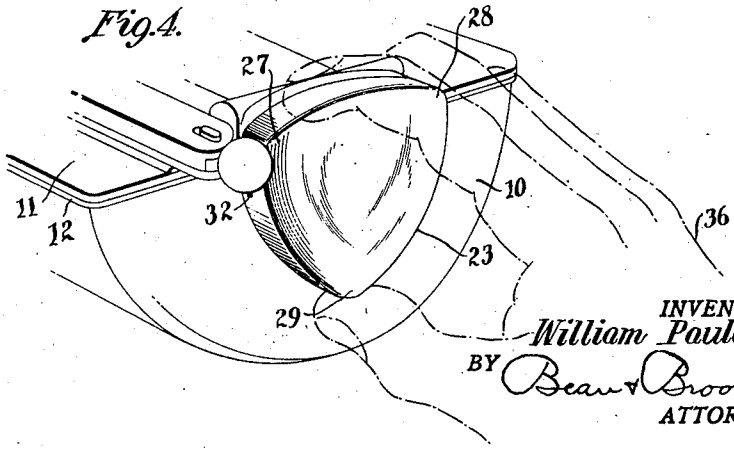


Fig.4.



INVENTOR
William Paulus,
BY Beau & Brooks.
ATTORNEYS

Patented Sept. 22, 1936 2,055,445

UNITED STATES PATENT OFFICE

2,055,445

HOUSING FOR VALVES OR OTHER CHAMBERS

William Paulus, Buffalo, N. Y., assignor to Trico Products Corporation, Buffalo, N. Y.

Application June 3, 1932, Serial No. 615,216

3 Claims. (Cl. 121—97)

This invention relates to an enclosure or chamber and is especially adapted for housing the valve mechanism of windshield cleaner motors. The invention has for one of its objects to provide a chamber in which its closure or cover member is readily removable so that access may be gained to the interior with the least possible effort. A further object of the invention is to provide an enclosing housing so constructed as to be readily removable and adapted to lend itself to be blended into the contour of the cleaner motor.

Another object of the invention is to provide a housing for covering portions of a cleaner motor and so designed as to be manually removable by springing it over portions of the motor.

In the drawing:

Fig. 1 is a front elevation of a windshield cleaner motor embodying the invention;

Fig. 2 is a side elevation on the motor;

Fig. 3 is a vertical section of a housing embodying elements of the invention;

Fig. 4 is a perspective on a cleaner motor illustrating the manner in which the housing is installed; and

Fig. 5 is a horizontal section, on a larger scale taken substantially along the line V—V of Fig. 1, and showing in detail the connections between the housing and the motor proper.

In practicing the invention a windshield cleaner motor 10 is provided for installation in a conventional manner upon a motor vehicle (not shown). Complemental sectional portions 11 and 12 of the cleaner motor are assembled and secured by means of suitable fastening devices 15 and 16, the latter of which extend through registering lugs 17 and 18 of the respective sectional casing portions. A suitable wall or flange 19, having an outer shoulder 20, surrounds the lugs 17 and 18 and also surrounds or encloses a valve mechanism 22 corresponding generally in type and mode of operation to the valve mechanism disclosed in specific detail in Hueber Patent No. 1,978,634, dated October 30, 1934.

A triangular cupped housing 23 having a flange 25 normally resting upon the shoulder 20 is provided with an outer convex face 26 and its triangular shape is defined by rounded corners 27, 28 and 29. The housing 23 and the wall or flange 19 provide a substantially dust proof chamber for the valve mechanism. The corner 29 extends downwardly and the other two corners 27 and 28 are disposed substantially in horizontal alignment at the upper portion of the windshield cleaner motor. Each portion of the flange 25 joining the corners is curved slightly outwardly with the exception of opposite flattened flanged portions 30 disposed immediately below the corners 27 and 28. Beads 32 are pressed inwardly or formed in opposed relation on the inner surface of the flattened, flanged portions 30. The flange 25 at and adjacent to the portions 30 is resilient to such extent that it may be sprung outwardly, and this characteristic of resiliency is utilized in securing the housing upon the valve surrounding wall 19.

As best shown in Fig. 5 the outer portion of each lug 18 is provided with a rounded surface 33 and with a notch 35 adjacent the shoulder 20. By pressing the housing over the lugs 18 the beads 32 will ride over the surfaces 33 to snap into the notches 35, and the edge of the flange 25 will then rest snugly upon the shoulder 20. By reference to Fig. 2, it will be observed that the vertical distance from the lugs 18 to the corners 27 and 28 or the top of the housing 23 is much less than the distance from the lugs 18 to the corners 29 or bottom of the housing. Thus by manually grasping the housing in the manner illustrated by an operator's hand 36 in Fig. 4, outward force can be exerted upon the lower corner 29 with considerable lever advantage to spring the beads 32 from the notches 35 over the rounded surfaces 33 of the lugs. In this instance the housing itself serves as a lever of the second class that has its fulcrum at the upper portion of the shoulder 20, and force is applied at the corner 29 to spring the beads 32 from the notches 35. The lever ratio in performing this operation is approximately two to one. Another advantage of this construction lies in the fact that the housing can be firmly fitted upon the shoulder without causing an appreciable break in the smoothness of the surface contour from the motor wall to the housing. Projections or indentations for the application of tools are not necessary.

The chamber defined by the wall or flange 19 is thus readily closed and opened by the cupped housing 23. While this housing is described as being triangular in shape, it is obvious from the illustration that it might with reason be considered as substantially pentagonal. The precise contour can be varied without departing from the spirit or restricting the utility of the present invention. The plane in which the two pairs of interlocking parts 32, 35 are located is intermediate the apex 29 and the point of fulcrum where the opposite flange portion has its edge bearing on the shoulder 20. The two pairs of interlocking parts divide the perimeter of the housing flange 25 into portions of unequal lengths. The lesser perimetrical portion above

the plane of said two pairs of interlocking parts contains the point of fulcrum, whereas the greater perimetrical portion, below said plane, has a part (29) which is spaced from such plane a distance greater than the spacing of the point of fulcrum therefrom in the opposite direction. This construction provides an increased mechanical advantage which facilitates the removal of the housing or cover from the chamber.

Although only one form of the invention has been shown and described in detail, it will be apparent to those skilled in the art that the invention is not so limited, but that various changes may be made therein without departing from the spirit of the invention or from the scope of the appended claims.

I claim:

1. In a windshield cleaner motor provided with valve chamber, a wall having a shouldered seat substantially surrounding the valve chamber, a substantially triangular housing having an endless flange normally fitted over the valve chamber upon the shouldered seat, lugs having notches therein extending integrally from the motor beyond the seat, the flange of the housing being provided with beads normally sprung into engagement with the notches of the lugs for yieldably and removably securing the housing upon the motor, said beads being disposed adjacent two of the corners of the triangular housing and remote from the third corner of the housing, whereby the housing may fulcrum on the side opposite to such third corner in applying force to said third corner.

2. A chamber having a wall thereabout, a housing of cupped form having a wall encircling flange, said wall and said flange having two pairs of yieldably interlocking parts cooperating for removably securing the housing over the chamber at points perimetrically spaced about the flange of the cupped housing, said two pairs of interlocking parts dividing the perimeter of said flange into two perimetrical portions, the edge of the flange in one perimetrical portion providing a point of fulcrum for raising the housing when the latter is pried from the chamber wall at a point in the other perimetrical portion, said other perimetrical portion having a pry engaging part extending a distance from one side of the plane of said two pairs of interlocking parts greater than the spacing of the point of fulcrum from the opposite side of the plane whereby an increased mechanical advantage is obtained.

3. A chamber having a wall thereabout, a substantially triangular housing of cupped form having marginal flange portions, said wall and said flange portions having two pairs of yieldably interlocking parts cooperating for removably securing the housing over the chamber at circumferentially spaced points, those of the interlocking parts on said flange portions being disposed closer to two corners of the triangular housing than to the third corner thereof, whereby the housing may fulcrum on the side flange portion opposite to such third corner to give a lever advantage for facilitating disengagement of the interlocking parts when prying the housing from off the chamber at said third corner.

WILLIAM PAULUS.