

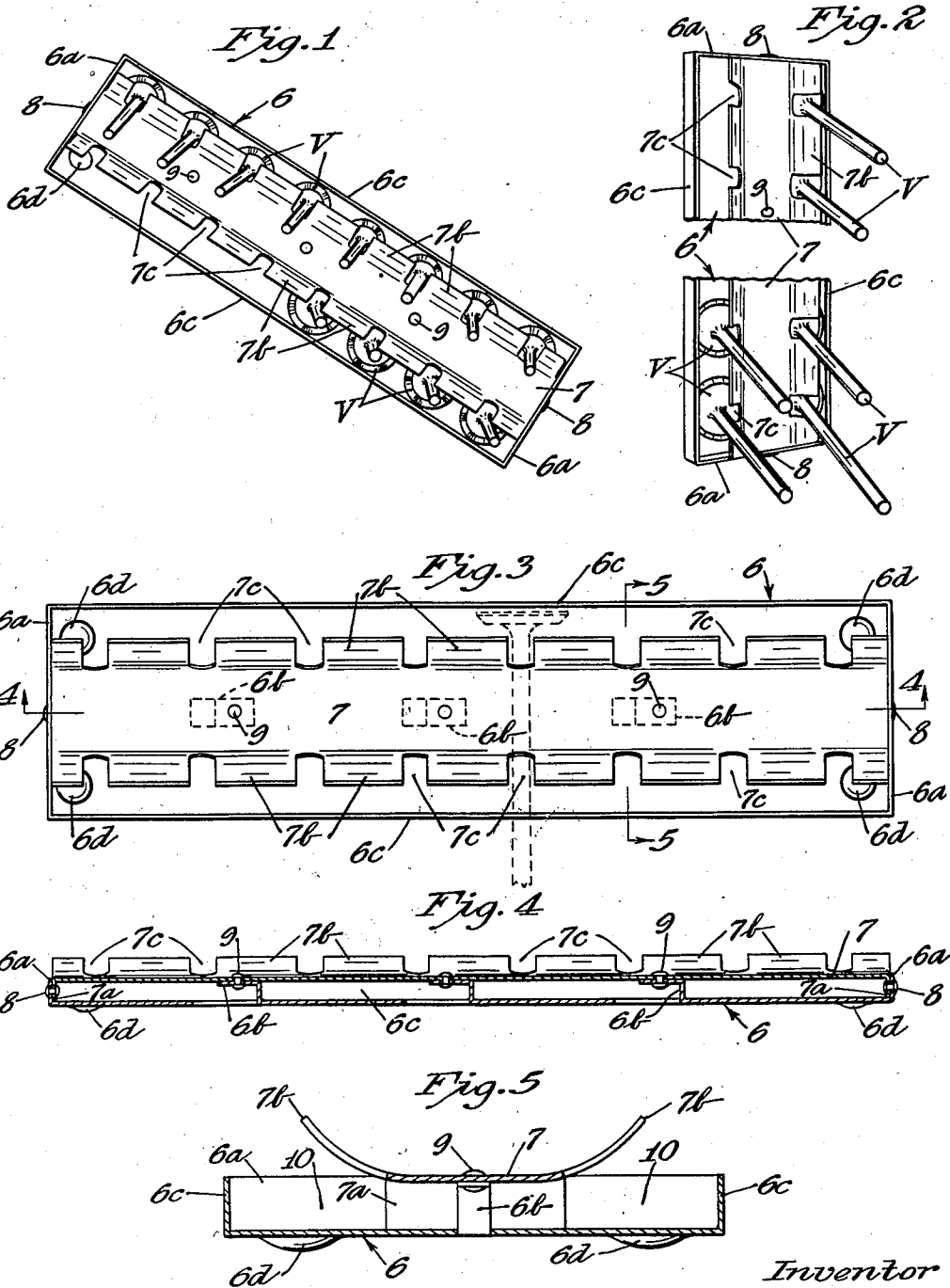
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CARRIER FOR POPPET TYPE ENGINE VALVES

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CARRIER FOR POPPET TYPE ENGINE VALVES

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5 Claims. (Cl. 206—1)

My invention relates to racks and trays for holding pluralities of objects and particularly to a carrier for poppet type engine valves.

In automobile repair shops various devices are used for holding valves which have been removed from an engine and keeping such valves in such an arrangement thereof that the respective valves may be identified with and returned to identically the same positions in the engine as they originally occupied. Most of the valve racks or trays used for this purpose are of a comparatively makeshift type, do not reliably resist dropping of the valves therefrom and are not so constructed to be set upon a work bench or the like in an upright position. One commonly used type of valve rack consisting merely of a board with one or more valve stem-receiving holes bored therethrough must be placed on props at its ends or held in a vise when it is to be disposed in an upright position.

An object of my invention is to provide a poppet valve carrier having respective portions thereof wherein valves may be placed without the need for projecting the stems of the valves through holes.

Another object is to provide such a valve carrier so constructed as to be placeable upon a horizontal supporting surface in an upright position when filled with valves.

Still another object is to provide such a valve carrier so constructed as to enable easy placement of valves therein and yet retain the contained valves against dropping therefrom even though the carrier is tilted at various angles or is carried by one end or a longitudinal edge thereof in depending position.

Yet another object is to provide a valve tray enabling easy viewing of the faces and stems of valves placed therein.

A further object is to provide such a valve carrier which may be constructed entirely of sheet material.

A still further object is to provide such a valve carrier of simple, light, compact and inexpensive construction.

These and other objects and advantages of the invention will more fully appear from the following description made in connection with the accompanying drawing, wherein like reference characters refer to the same parts throughout the views, and, in which:

Fig. 1 is a perspective general view showing an embodiment of my invention disposed in a plane inclined relative to both the vertical and the horizontal and containing a plurality of valves;

Fig. 2 is a broken perspective view showing the valve carrier of Fig. 1 disposed in a vertical plane and containing a plurality of valves;

Fig. 3 is a top view;

Fig. 4 is a longitudinal sectional view taken along the line 4—4 of Fig. 3 as indicated by the arrows; and

Fig. 5 is a transverse sectional view taken along the line 5—5 of Fig. 3 as indicated by the arrows.

Referring to the drawing, the embodiment of my invention illustrated thereby includes a flat topped base 6 which could be made of various materials but which I prefer to construct from relatively stiff sheet material such as sheet metal.

Above the base 6, I provide a valve head-retaining member 7 preferably of approximately the same length as the base 6 and of a somewhat lesser width. The member 7 is disposed above the base 6 in spaced, parallel transversely centered relation therewith and while this member 7 could be made of various materials I prefer to construct the same from relatively stiff sheet material such as sheet metal. While the base 6 and the member 7 could be of other shapes such as circular, oval or polygonal shapes and still constitute parts of a valve carrier constructed in accordance with my invention, it is my preference that these parts of my carrier be of relatively elongated rectangular shape as shown in the drawing.

Means is provided for maintaining the base 6 and the member 7 in the above described mutual relation and various arrangements of interconnecting structure for this purpose may be readily devised. For purposes of economy I provide, at each end of the base 6, an upwardly projecting integral flange 6a formed by bending an extension of the base upwardly, and, at each end of the member 7, an integral flange 7a projecting downwardly just inwardly of the corresponding one of the base flanges 6a and being formed by bending an extension of the member 7 downwardly. Each pair of corresponding flanges 6a and 7a are secured to each other by suitable means such as the rivets 8. Intermediate interconnections are provided, as shown in Figs. 3, 4, and 5, by cutting the base 6 to form tongues 6b, bending the tongues 6b upwardly and then horizontally so that the free ends thereof underlie portions of the member 7, and securing the free ends of the tongues 6b to the member 7 by suitable means such as the rivets 9.

The respective longitudinal marginal portions 7b of the member 7 are both bent upwardly to incline outwardly and somewhat upwardly as best

seen in Fig. 5 and may be bent to have a slight degree of curvature as shown. The respective spaces 10 running longitudinally of the device between the base 6 and the marginal portions 7b of the member 7 constitute valve head-receiving spaces or chambers as will be more apparent from description to follow. Each of the marginal portions 7b is provided with a longitudinally extending series of outwardly opening valve neck-receiving notches 7c as best shown in Figs. 3 and 4.

Upstanding valve-retaining flanges 6c are carried by the base 6 and are preferably formed integrally with the base 6 by bending lateral extensions of the longitudinal marginal portions of the base 6 upwardly as indicated in the drawing. The flanges are disposed in parallel, outwardly spaced relation with the marginal portions 7b of the member 7 so as to co-operate with the marginal portions of the base 6 and the member 7 by partially defining the valve head-receiving chambers 10 of the device. The upper edges of the flanges 6c are disposed at a level somewhat below the level of the free edges of the marginal portions 7b of the member 7 and may be situated at the same level as the central portion of the member 7, as shown, if desired.

To form feet for the base 6 circular portions 6d thereof near the respective four corners thereof may be pressed downwardly as indicated in Figs. 3 to 5 inclusive.

In Figs. 1 and 2 a plurality of valves V are shown in association with my valve carrier in the positions thereof in which it is intended that valves be placed in my carrier. The valves are disposed with their heads lowermost and in the valve head-receiving chambers 10 of the device, their neck portions in respective ones of the valve neck-receiving notches 7c of the valve head-retaining member 7 and their stems projecting upwardly above the member 7. The heads are prevented from moving downwardly by the base 6, upwardly by the member 7 and outwardly by the flanges 6c. Portions of the member 7 defining the notches 7c adjoin the necks of the valves V to prevent movement of the valves inwardly or longitudinally of the device. The valves are placed in the carrier by positioning them with their heads in planes parallel to the marginal portions 7b of the member 7 and their necks in line with the notches 7c whereupon the valve heads may be slid over the flanges 6c into the valve head-receiving chambers 10. Release of the valves will then enable the heads to set flatly upon the base 6 with the stems projecting upwardly.

It should be apparent that the parts of the device are so arranged that, when proportioned in accordance with the dimensions of the valves to be placed therein, the device may be tilted and carried in various positions, as shown in Figs. 1 and 2, the valves, rather than fall out of the carrier, will tilt through a relatively small angle and be restrained from further movement by engagement of the heads and necks of the valves with various portions of the device.

Fig. 3 shows in dotted lines how a valve may be placed in a pair of laterally aligned ones of the notches 7c so that the valve may be easily rotated to facilitate inspection of the face and stem thereof. This manner of placing valves on my valve tray is particularly adapted to be employed with valves of particularly large size. Valves of ordinary size placed in my valve tray in the manner depicted in Figs. 1 and 2 may, of

course, be easily rotated to enable a view of all parts of the faces and stems thereof.

I have made full sized models of the above described valve carrier and have put the same to practical usage and found that valves will be reliably retained therein when the carrier is tilted to various angles or is carried by an end or a longitudinal edge in depending position.

It is apparent that I have invented a novel, simple, light, compact, and inexpensive valve carrier fully capable of fulfilling all of the objects hereinbefore set forth.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the various parts without departing from the scope of my invention.

What is claimed is:

1. A carrier for poppet type engine valves comprising, a flat base, a valve head-retaining member formed of flat material and disposed above said base in spaced, parallel relation therewith to co-operate therewith in forming a valve head-receiving chamber therebetween, structure rigidly interconnecting said base and said member, and an upstanding flange carried by said base and extending in parallel, outwardly spaced relation with an edge of said member to partially define said chamber, the upper edge of said flange being at a level generally approximating that of said member and the marginal portion of said member at said edge thereof being inclined outwardly and somewhat upwardly and having therealong a series of spaced, outwardly opening valve neck-receiving notches therein.

2. A carrier for poppet type engine valves comprising, a flat base, a valve head-retaining member formed of flat material and disposed above said base in spaced, parallel relation therewith to co-operate therewith in forming a valve head-receiving chamber therebetween, structure maintaining said member in said relation with said base, a marginal portion of said member being inclined outwardly and somewhat upwardly and having therealong a series of spaced, outwardly opening valve neck-receiving notches, and an upstanding flange carried by said base and extending parallel with the free edge of said marginal portion in outwardly spaced relation therewith to partially define said chamber, the upper limit of said flange being at a level somewhat lower than said free edge.

3. A carrier for poppet type engine valves comprising, a rectangular, flat topped base, a rectangular valve head-retaining member formed of relatively stiff sheet material and disposed above said base in spaced, parallel relation therewith to co-operate therewith in forming a valve head-receiving chamber therebetween, structure maintaining said member in said relation with said base, said member being less in width than said base and a longitudinal marginal portion thereof being inclined outwardly and somewhat upwardly and having therealong a series of spaced, outwardly opening valve neck-receiving notches, and an upstanding flange carried by said base and extending parallel with the free edge of said marginal portion in outwardly spaced relation therewith to partially define said chamber, the upper limit of said flange being at a level somewhat lower than said free edge.

4. A carrier for poppet type engine valves comprising, an elongated rectangular, flat topped base, an elongated rectangular valve head-retaining member of less width than said base

formed of relatively stiff sheet material and disposed above said base in spaced, parallel, transversely centered relation therewith to co-operate therewith in forming a pair of longitudinally extending valve head-receiving chambers between the respective longitudinal marginal portions of said base and corresponding respective marginal portions of said member, said marginal portions of said member each being inclined laterally outwardly and somewhat upwardly and each having therein a longitudinally extending series of spaced, outwardly opening valve neck-receiving notches, and a pair of upstanding

5 flanges carried by said base and extending parallel with the respective free edges of said marginal portions of said member in outwardly spaced relation therewith to partially define said respective chambers, the upper limits of said flanges being at a level somewhat lower than said free edges of said member.

10 5. The combination defined in claim 4, said base and said flanges being integrally formed of relatively stiff sheet material suitably bent to form the same.

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