Jan. 15, 1929. 1,699,272

C. H. BEHNKE

LATCHING MEANS

Filed June 29, 1925

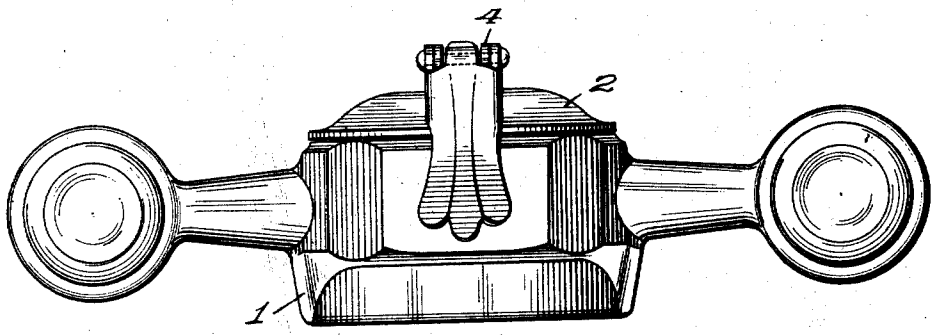


Fig. 1.

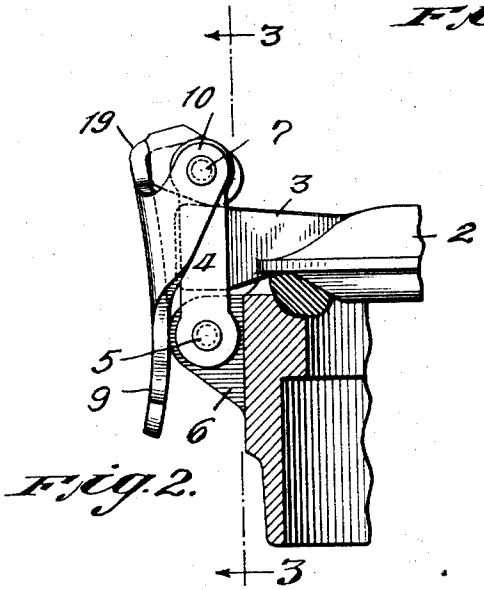


Fig. 2.

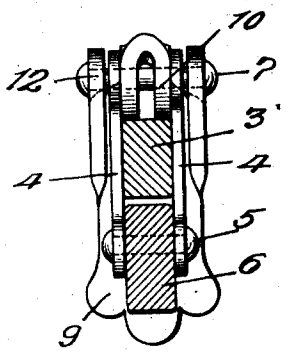


Fig. 3.

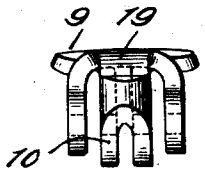


Fig. 4

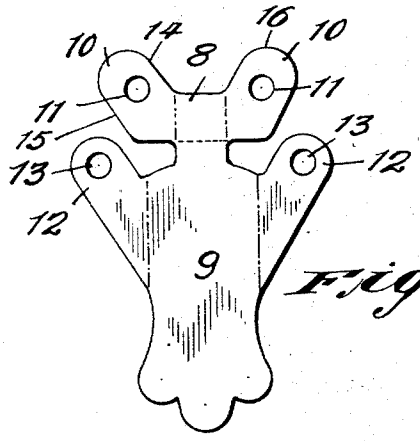


Fig. 5.

BY

INVENTOR
Cord H. Behnke
Mouis & Nolte
ATTORNEYS

Patented Jan. 15, 1929. 1,699,272

UNITED STATES PATENT OFFICE.

CORD H. BEHNKE, OF MASPETH, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE KINGSLEY-MILLER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

LATCHING MEANS.

Application filed June 29, 1925. Serial No. 40,201.

This invention relates to latch mechanism and is disclosed in connection with the radiator cap of an automobile. It may obviously be employed for securing other relatively movable members in fixed relation, however.

The principal object of the invention is to provide a metal latching or fastening member which can be made stronger and yet of lighter material than such members heretofore used for like purposes.

Other objects and advantages will hereinafter appear.

In the drawings:

Figure 1 is a front elevation of a radiator cap embodying the present invention;

Figure 2 is a fragmentary sectional side elevation of the same;

Figure 3 is a section on the line 3—3 of Figure 2;

Figure 4 is an end elevation of the latching member detached from the rest of the assembly; and

Figure 5 is a plan view of a died blank from which one of the latching members is formed.

The invention is shown as applied to a radiator cap of well known form. The radiator cap comprises a body 1 which may be secured in place upon a radiator neck by means of locking screws (not shown), and a cover or closure 2 hingedly mounted on the body for swinging movement between positions to open and close the filling opening of the radiator neck. At the side of the cap opposite the hinge provision is made of means for securing the cover in closed position. Such means comprises a cam projection 3 on the cover 2 and a cooperative latch device on the cap body 1. This latch device consists of a pair of parallel links 4 pivotally mounted by means of a hinge pin 5 upon a lug 6 on the cap body 1, and a cam fastening member 8—9 pivoted on said links by means of a pivot pin 7 carried by the links.

The construction as thus far described is well known but the cam latching member 8—9 disclosed herein is of novel construction. This latching member 8—9 is a stamping and comprises a body part 8 and a handle part 9 bent substantially at right angles to the body part. Cam ears 10 located at opposite sides of the body part and having circular openings 11 therein are bent inwardly from the body part at opposite sides thereof, the openings 11 being brought into alignment by such bending. Supporting ears 12 having circular openings 13 are also bent inwardly from the handle part 9 into position to align the openings 13 with each other and with the openings 11 in the cam ears 10 as seen in Figures 2, 3 and 4. The cam ears 10 are positioned to lie inside the links 4 and the supporting ears 12 are positioned to lie outside said links. The pivot pin 7 is passed through the openings 11 and 13 and through circular openings in the links 4 and has its ends upset or enlarged for retaining it in place.

The ears 10 are formed with flat face portions 14 located at a short distance from the centre of the pivot pin 7, flat face portions 15 located at a greater distance from the centre of the pivot pin 7 and curved eccentric cam face portions 16 joining portions 14 and 15. When the cover is swung to closed position, the handle 9 is swung into line with the links 4 and the latch may then be moved to position the cam ears 10 over the projection 3. The handle 9 is then swung downward, rotating the cam ears against the projection 3 to the holding position shown in Figures 1, 2 and 3. The rotation of the latching member 8—9 forces the cover downward, causing it to compress a rubber packing ring positioned in a seat of the body 1.

The provision of the supporting ears 12 is an important feature of the present invention. As cam latching members of the type disclosed have been constructed heretofore the force exerted upon the handle in pressing the latching member to fastening position has been borne and transmitted entirely by the shoulder formed at the junction of the body and handle portions. This shoulder was the weakest part of the member, due to the strain imposed by bending it in the course of manufacture. This shoulder if unsupported is required to be strong because it is located at a very short distance from the fulcrum of the latching member. It has been necessary, therefore, to form such latching members of heavy metal in order to prevent rupturing at the shoulder under the strain of operation.

By providing supporting ears 12 in the present construction the shoulder 19 is rein-

forced and substantially relieved of bending strain. This enables the latching member 6 to be made stronger and yet of thinner stock than similar members heretofore employed.

It is a further point that the thin cam ears 10 are substantially spaced from one another they being preferably spaced as far apart as the links 4 permit. This spacing tends to prevent localization of the strain transmitted to the shoulder 19 and to reduce twisting of the latching member which might result from slight variations in the manufacture of the same. This guarding against twisting strains further reduces the likelihood of rupturing the shoulder 19.

Variations may be resorted to within the scope of the invention and parts of the improvements may be used without others.

What I claim is:

1. In a latching device a metal latching member comprising a handle portion, a body portion, ears bent in from said handle portion, cam means bent in from said body portion, said ears and said cam means having aligned openings, and a pin passed through said openings and affording a pivotal support for the latching member.

2. The combination with two relatively movable elements of means for latching them together against relative movement, comprising a yoke carried by one of said elements, a projecting member on the other of said elements embraced by the yoke, and a metal latching member pivoted on the yoke and comprising a body portion, a handle portion projecting angularly therefrom, cam means bent in from the body portion and supporting ears bent in from the handle portion the cam means and supporting ears having aligned openings and means passed through said openings for connecting the latching member to the yoke.

3. In a radiator cap, the combination with a closure element and a supporting element, on which said closure element is hinged, of a projection on one of said elements, and a latch on the other of said elements cooperative with the projection, said latch comprising a pivoted yoke including a pivot pin and a metal latching member, the latching member comprising inbent cam means and inbent supporting ears both mounted on the pivot pin.

4. The combination with two relatively movable elements, of means for latching them together against relative movement, comprising a projecting member on one of said elements, a cooperating latching member carried by the other element, and a pin pivotally supporting said latching member, said latching member being a stamping and comprising cam ears bent inwardly and supported on said pin, said cam ears being substantially spaced from one another to assure wide and even distribution of the strain upon the latching member.

In testimony whereof I have affixed by signature to this specification.

CORD H. BEHNKE.