April 14, 1925.

J. A. THOMPSON

1,533,619

LATCH DEVICE

Filed July 1, 1922

Fig. 1.

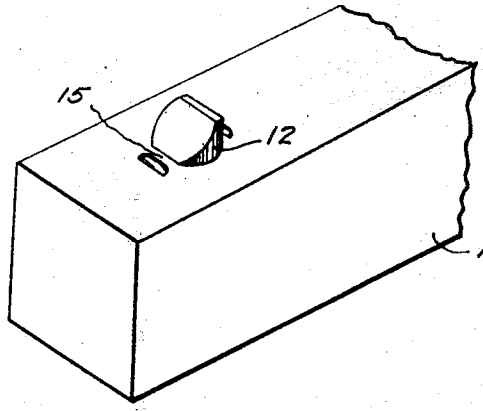


Fig. 2.

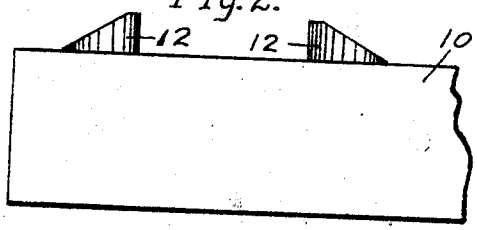


Fig. 3.

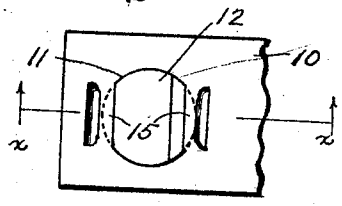


Fig. 4.

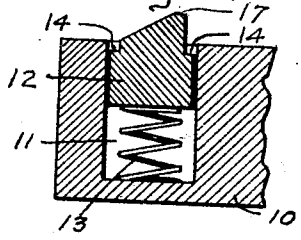


Fig. 5.

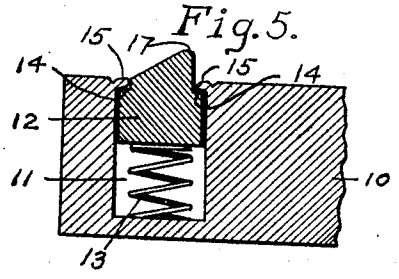
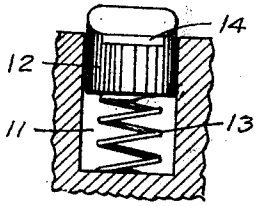


Fig. 6.



James Arthur Thompson, Inventor.

By Benjamin, Rodhouse & Lundy
Attys.

Patented Apr. 14, 1925. 1,533,619

UNITED STATES PATENT OFFICE.

JAMES ARTHUR THOMPSON, OF RUSHVILLE, ILLINOIS, ASSIGNOR TO GLADACRES INCORPORATED, A CORPORATION OF ILLINOIS.

LATCH DEVICE.

Application filed July 1, 1922. Serial No. 572,256.

To all whom it may concern:

Be it known that I, JAMES ARTHUR THOMPSON, a citizen of the United States, residing at Rushville, in the county of Schuyler and State of Illinois, have invented a new and useful Improvement in a Latch Device, of which the following is a specification.

My invention relates to a latching device, and more particularly to a structure of this character that is adapted for use in connection with a tool such as a wrench bar or handle for use with a detachable socket or sockets, although it will be understood that the latching structure herein disclosed may be employed in connection with any type of apparatus with which it may be incorporated.

Among the divers objects of my invention, the principal object is to provide a latching device wherein the latch pawl or bolt may be readily assembled with its seat in the handle or bar in which it is installed, and, when a latch bolt of cylindrical or round cross-section is employed the means for retaining said bolt and its manner of assembly will be such as to cause the same, when slightly displaced, to orientate so that the bolt will be returned to its normal position with respect to the other structure. With such a latch I am enabled to present an angular abutment or strap against which the removable element of the tool engages to form a positive stop therefor and prevent its slipping. Another object of my invention resides in the provision of a latching device that may be readily installed in a solid metal bar and retained in its holder against displacement by means of a flange or lip formed by upsetting the metal adjacent the edge of the opening or socket so as to form a burr or flange that overhangs the opening socket, whereby to retain the latch member in position and to cause its orientation when it becomes twisted. Another object of my invention is the provision of a device of this character wherein the beveled extended face of the bolt is so formed that it may be readily released by the operator to withdraw a tool or socket member retained on the bar without the use of special tools, by merely depressing or retracting the latch bolt and moving the edges of the retained member slightly over the adjacent portion of the latch bolt whereupon the socket or retained member holds the latch depressed while the socket or tool is being removed. I prefer to carry out my invention in substantially the manner hereinafter described, and as illustrated in the accompanying drawings, which disclose typical or preferred form of the embodiment of my invention.

In the drawings; Fig. 1 is a perspective of the end portion of a socket wrench bar or handle showing a single latching member incorporated thereon for the purpose of retaining the respective sockets in the bar.

Fig. 2 is a longitudinal side elevation of a socket wrench bar or handle in which a pair of oppositely arranged latching members are installed.

Fig. 3 is a top plan of the structure illustrated in Fig. 1.

Figs. 4 and 5 are longitudinal vertical sections of the structure shown in Fig. 3, taken on line 3—3, Fig. 3, showing two steps in the assembly of the structure, Fig. 4 showing the parts prior to the upsetting of the metal around the socket, and Fig. 5 showing the metal upset and the latch retained.

Fig. 6 is a transverse section of the structure illustrated in Fig. 3.

In the drawings, which are diagrammatic for the purpose of illustration, similar reference characters have been employed to designate the same parts in the several views, and by reference to said figures, it will be observed the latch member is mounted upon a bar 10, adjacent one end thereof, the bar being what is known as the socket wrench handle, that is the common type of socket wrenches employed in automobile work wherein a number of suitably shaped pieces of metal having sockets of angular section are employed so that nuts and bolts of divers sizes may be conveniently operated upon by changing the sockets. Adjacent its end, bar 10 is provided with a transverse bore or seat 11 of a suitable depth and of an outline slightly larger than and corresponding with the cross-sectional shape of the latch bolt 12 to be employed in connection therewith. I prefer to employ a latch bolt 12 of cylindrical cross-section, as seen in Figs. 1 to 6 of the drawings, and to interpose a coil spring 13 between the inner end of the bolt and the bottom of the bore or seat 11 so that said spring exerts its pressure to force the bolt outwardly.

In the types of bolts shown in Figs. 1 to 6

of the drawings, I form a shoulder 14 upon the forward and rear segments of the bolt and the upper or extended edge of the bolt may be inclined obliquely, as shown in the drawings. After the bolt has been positioned in the seat upon the spring it is forced downwardly into the seat and the metal of the bar upon opposite sides of opening or recess 11 is upset to provide retaining flanges 15 that will engage respective shoulders 14 upon the bolt and prevent its removal from seat 11. When, through inadvertence, the bolt should be depressed or retracted and slightly rotated, the edge of the oblique portion will, by its engagement with one of the flanges 15 of the upset metal, cause the bolt to rotate upon its axis or orientate to its normal position with the oblique portion facing in the desired direction. If it is desired, however, to reverse the position of the oblique portion of the bolt the latter may be depressed into seat 11 and turned half way round, whereupon the upset flange will engage with the opposite shoulder on the bolt and retain it in this position.

As seen in Figs. 4 and 5 the apex of the oblique or inclined face of the end of the bolt is also inclined downwardly or beveled in the opposite direction, as at 17, so as to facilitate the removal of a socket from the bar or handle 10, and all that the operator need do is to depress the bolt until the wall of the socket can ride upon inclined portion 17, which will retain the bolt depressed, whereupon the socket may be slid off in an easy manner.

While I have herein illustrated and described the preferred manner of carrying out my invention, it will, of course, be obvious to others that the same may be modified without materially departing from the principles involved. I, therefore, desire it understood that all such changes are fully contemplated as coming within the scope of the appended claims.

What I claim is:

1. A latch device comprising a member having a cylindrical bore, a retractable latch bolt seated in said bore and having an oblique face upon its outer end extending in the same plane across said bolt, and an overhanging flange extending into the outer portion of the bore and overlapping the lowermost edge of the inclined portion of the bolt to retain the same in said bore, whereby said bolt is caused to orient to its normal position when displaced.

2. A latch device comprising a member having a suitable bore, a cylindrical latch bolt seated in said bore and having an oblique face upon its outer end extending in the same plane across said bolt, a spring back of said bolt and normally maintaining the same in extended position, and an overhanging retaining flange displaced from the edge of the bore and overlapping the inlined end of the bolt whereby when said bolt is moved out of relative normal position the engagement of the edge of the inclined portion thereof with said flange will cause the orienting of the bolt to normal position.

3. A latch device comprising a member having a suitable bore, a cylindrical latch bolt seated in said bore and having an inclined outer end, a shoulder formed upon opposite sides of said bolt, an overhanging flange extending into said bore and engaging said shoulder to retain the bolt within said bore, and a spring back of said bolt, whereby said bolt is caused to orient to its normal position when displaced, said structure so arranged that said bolt is adapted to be depressed in said bore and given a half turn to reverse the disposition of its inclined portion.

4. A latch device comprising a member having a cylindrical bore, a cylindrical latch bolt seated in said bore and having an inclined outer end, shoulders formed upon opposite sides of said bolt one of which is disposed at the lower edge of the inclined portion, overhanging flanges extending into said bore from diametrically opposite sides thereof and engaging said shoulders to retain the bolt within said bore, and a spring back of said bolt whereby said bolt is caused to orient to its normal position when displaced; said structure so arranged that said bolt is adapted to be depressed in said bore and given a half turn to reverse the disposition of its inclined portion.

Signed at Chicago, county of Cook and State of Illinois, this 28th day of June, 1922.

JAMES ARTHUR THOMPSON.