Sept. 20, 1932. G. GOBER 1,878,579

TOGGLE BOLT

Filed Feb. 29, 1932

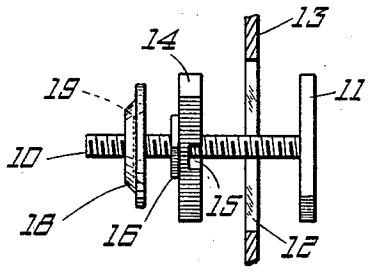


Fig. 1.

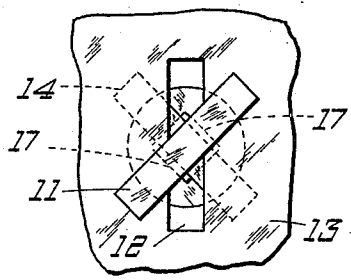


Fig. 2.

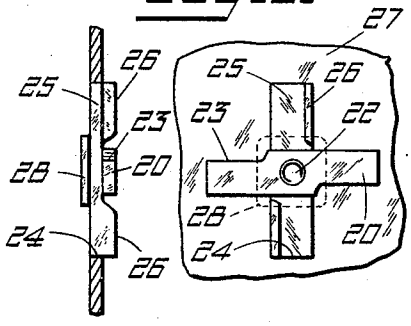


Fig. 3.

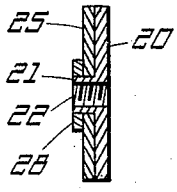


Fig. 4.

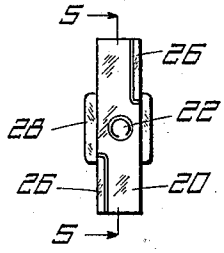
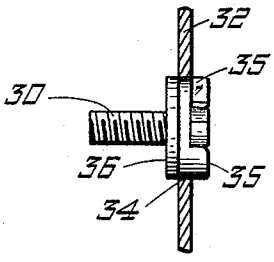
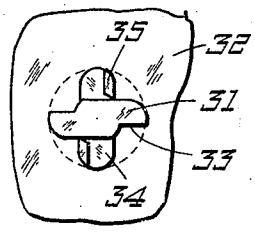


Fig. 5. Fig. 6.





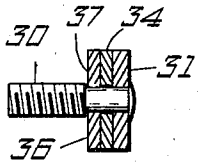


Fig. 7. Fig. 8. Fig. 9.

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Patented Sept. 20, 1932

1,878,579

UNITED STATES PATENT OFFICE

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TOGGLE BOLT

Application filed February 29, 1932. Serial No. 595,757.

This invention is a toggle bolt and has special reference to a toggle bolt for use on blind plates or sheets, where no access can be obtained to the inside of the plate or sheet and where the sheet is too thin to permit tapping for a stud.

In many cases it is found desirable to attach name plates and other devices to a surface in which the metal is too thin to permit tapping and where no access can be obtained to the rear surface. Such cases may occur where an illuminated sign has been installed and possibly an additional character is desired, or it may be desirable to attach a plate or device to the body of an automotive vehicle, in which the body plate is made of thin material, usually 26 or 28 ga. steel and no access can be gained to the inside of the plate without removing the cushioning material, lining and other supporting means.

It is for such purposes that the present invention was evolved..

The main object of the invention, therefore, is to provide a toggle bolt which is particularly adapted for providing securing means on blind sheets or plates, where the interior surface of the plate is not accessible.

Another object of the invention is to provide a bolt as outlined which is automatically locked against rotation when installed and which may be readily removed and replaced in the event of the breaking of a bolt or stripping of threads.

Other objects and advantages of the invention will become apparent as the following description is read on the accompanying drawing and in which similar reference characters are used to indicate similar parts throughout the several views and in which:

Fig. 1 is a longitudinal view of the bolt showing the plate in section.

Fig. 2 is a bottom end view of the bolt.

Figs. 3, 4, 5 and 6 are a modification of the invention showing in:

Fig. 3 a side view of Fig. 4.

Fig. 4 a plan view of a toggle nut which may be used with a standard bolt.

Fig. 5 a section taken on line 5—5 of Fig. 6.

Fig. 6 a folded view of the nut.

Fig. 7 is a side view of another modification of the invention.

Fig. 8 is an end view of Fig. 7.

Fig. 9 is a section taken on the vertical center of Fig. 7.

The invention consists of a bolt 10 provided with an integral elongated head 11 adapted to pass through an aperture 12 in a plate 13.

The locking member 14 is freely mounted on the bolt 10 and also elongated and adapted to fit in the aperture 12, and has a transverse slot 15 formed in the bottom surface which is adapted to receive the bolt head 11 transversely and prevent rotational movement thereof. Integral with or secured to the top of the locking member 14 is a member 16, the edges 17 of which project to cooperate with the outer surface of the sheet to prevent its passing through the aperture, the locking member exclusive of member 16 being thicker than the plate 13, so as to extend through the plate to cooperate with the head 11.

A nut 18 is threadedly cooperative with the bolt 10 and has a recess 19 formed therein to clear the member 16.

The device is installed by passing the head 11 through the aperture 12 which has been previously formed in the sheet, setting the locking member 14 in the aperture, then drawing the bolt out and turning it until the head 11 seats in slot 15, after which the nut 18 is drawn down tight.

The modification shown in Figs. 3 to 6 is adaptable for use with standard bolts or machine screws and is a toggle nut, consisting of a base member 20 having an integral hub 21 centrally tapped as at 22 to receive a standard bolt or screw and recessed as shown at 23 and adapted to pass through the aperture 24 in the plate. The cooperating member 25 is rotatably mounted on the hub 21 and has integral ears 26 formed thereon to cooperate with the recessed portions 23 of the base member 20 and is adapted to fit within the aperture 24 in plate 27. A flange member 28 is secured on hub 21 and retains member 25 on the hub, prevents this member from passing through the aperture, and

provides means for rotating the base member 20 transversely of the aperture 24.

The installation of this device requires the provision of an elongated aperture, after which the members are aligned as shown in Fig. 6 and inserted through the aperture, member 25 fitting within the aperture and retained by the flange 28 from passing through, while member 20 clears the other side of the plate and is turned until the sides of member 20 cooperate or are stopped against further rotation by ears 26.

Another modification shown in Figs. 7, 8 and 9 is similarly operable to the previously described nut but is formed integral with the bolt 30, the head 31 being elongated and adapted to pass through the elongated aperture in plate 32, and being recessed as at 33, being similar in form to member 20 except as to the hub. Locking member 34 is provided with ears 35 and is adapted to fit within the aperture in plate 32 with the ears 35 projecting to cooperate with member 31, and is rotatably mounted on the bolt 30. A collar 36 is suitably mounted and retained by a shoulder 37 on the bolt 30.

This device is merely inserted in the plate aperture with the head 31 extending through the aperture and member 34 disposed within the aperture, and the bolt rotated until the head 31 is stopped by ears 35.

Having described an operative device and various modifications thereof, it will be understood that variations in construction and arrangement of parts which are consistent with the appended claims may be resorted to without detracting from the spirit or scope of the invention or sacrificing any of the advantages thereof.

I claim:

1. In combination with a threaded element, an elongated first member adapted to be passed through an aperture in a plate, an elongated second member adapted to fit into said aperture and provided with means for retaining said elongated first member in transverse relation to the major axis of the second member and means for preventing passage of said second member through said aperture.

2. In combination with a threaded element and a plate provided with an elongated aperture, first means adapted to pass through said aperture and substantially coextensive therewith and second means adapted to be retained in said aperture and provided with means for retaining said first means in a position transverse to the major axis of said elongated aperture.

3. A toggle bolt comprising a bolt provided with an elongated head adapted to pass through a substantially coextensive aperture in a plate, an elongated locking member adapted to fit in said aperture and provided with means for retaining said head transversely to the major axis of the locking member and means adapted to prevent said locking member from passing through said aperture.

4. In combination with a plate having an elongated aperture formed therein; bolt securing means for said plate comprising a threaded element, engaging means adapted to pass through said aperture and engage the plate when turned transversely and retaining means non-rotatable in said aperture and adapted to retain said engaging means in transverse relation thereto and provided with means engaging the front of the plate for preventing the passage of the retaining means through the aperture.

In testimony whereof I affix my signature.

GEORGE GOBER.