G. H. MERRILL.

TOGGLE BOLT.

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**1,084,284.** Patented Jan. 13, 1914.

Fig. 1.

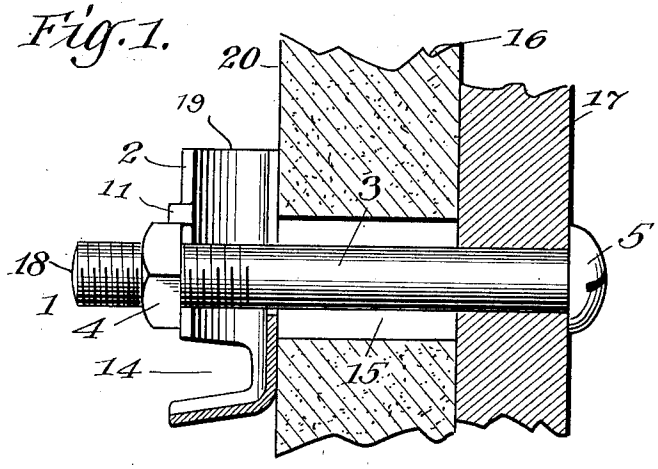



Fig. 5.

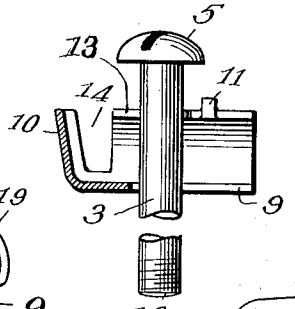



Fig. 2.

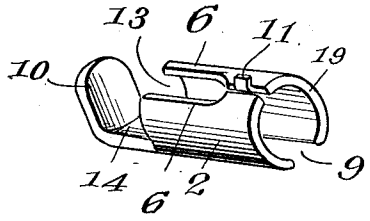



Fig. 3.

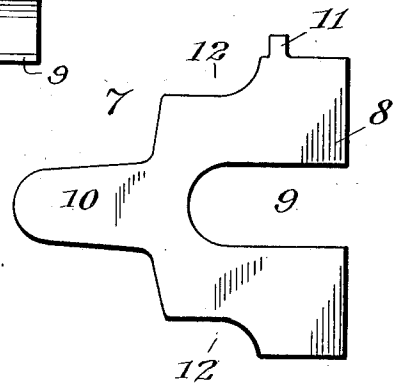
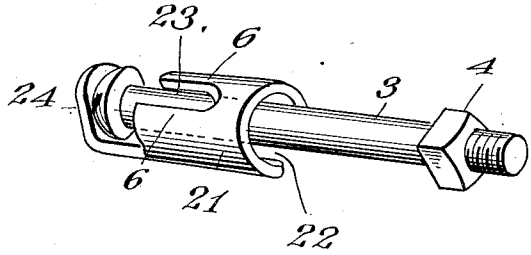



Fig. 4.




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## TOGGLE-BOLT.

1,084,284. Specification of Letters Patent. Patented Jan. 13, 1914.

Application filed July 20, 1912. Serial No. 710,606.

*To all whom it may concern:*

Be it known that I, GEORGE H. MERRILL, a citizen of the United States, and a resident of the town of Littleton, in the county of Grafton and State of New Hampshire, have invented certain new and useful Improvements in Toggle-Bolts, of which the following is a specification, taken in connection with the accompanying drawing, which forms a part of the same.

This invention relates to toggle bolts and more particularly to one which can be cheaply and economically manufactured either out of stamped sheet metal, which is the preferred construction, or made from a cylinder.

More particularly it comprises a toggle bolt which has a substantially cylindrical head, the diameter of which is but slightly greater than the diameter of the bolt with which it is to be used, thereby giving a neater appearance to the work and reducing the cost of drilling or otherwise forming the apertures in the support, through which the head of the toggle bolt is to be inserted, and relates further to certain details of construction which will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawing I have shown illustrative embodiments of my invention in which the same reference numerals refer to similar parts in the several figures.

Figure 1 is a vertical section through the head of my toggle bolt, the support and article supported, showing the nut and stem in side elevation; Fig. 2 is a detail perspective view of the preferred form of head; Fig. 3 is a plan view of the blank from which the head shown in Fig. 2 is made; Fig. 4 is a modification showing the head formed from a metal cylinder; and Fig. 5 is a vertical section through the head, showing the manner of assembling the stem when the head of the bolt is to coöperate directly with the head of the toggle.

In the illustrative embodiment of this invention shown in the drawings, 1 is a toggle bolt including a head 2, a stem 3 and a nut 4. This stem 3 is ordinarily any suitable commercial form of bolt such as a stove bolt provided with an ordinary head 5. Either the nut 4 or the head 5 of the stem 3 can directly coöperate with the engaging surfaces 6, 6 carried by the head 2 of the toggle bolt. This head may be cut from a cylinder, as shown in Fig. 4, but is preferably made from stamped sheet metal. The blank 7, Fig. 3, comprises a body member 8 having an aperture 9, arm 10, and sometimes, though not necessarily, a small finger 11. The outer edges of the body member 8 are cut away at 12, 12. When the blank 7 is rolled or otherwise formed into substantially a cylinder, the cut away portions 12, 12 form the walls of a slot 13, Fig. 2, which is in the same plane with the slot 9. The arm 10 is bent up forming between it and the body member a pocket 14. When the finger 11 is employed, it is also bent up as shown in Fig. 2.

The diameter of the head 2 is made as small as possible to coöperate with the particular stem 3 with which it is to be used. This permits the toggle bolt to be inserted through an aperture 15 in the support 16 of minimum size. As this wall 16 is often metal, cornice work, masonry, terra cotta, brick, wire lathe, or other suitable support, it is very desirable that these apertures 15 be made as small as possible to save the additional expense of making a large opening through such material and besides it does not mar or mutilate the support 16 more than absolutely necessary.

By making the head 2 of the toggle bolt substantially cylindrical and of but little greater diameter than the stem or bolt with which it is to be used, it can be readily inserted within the aperture 15 which is ordinarily made by some circular boring instrument as for example a bit. My invention, however, is not to be limited by the relative diameters of the head and stem or bolt.

My toggle bolt may be assembled with either the head 5 of the stem being exposed on the exterior of the article supported 17, or with the nut 4 exposed, Fig. 4, as may be found expedient or desirable for the particular work. When the nut 4 is to be concealed, it is mounted within the pocket 14 of the head 2 and the screw threaded end 18 of the stem 3 is inserted through the mouth 19 of the head and screwed within the nut sufficient to hold it in position. The head 2 and the stem 3 are then inserted through the aperture 15 in the support 16 until the mouth 19 clears the inner surface 20 of the support, which will then permit the head 2 to assume a position at right

angles to the stem 3, the nut 4 moving from the pocket 14 to the engaging surfaces 6, 6 on the head 2, Fig. 1, in which position it straddles the aperture 13, permitting the article supported 17 to be firmly clamped and held to the support 16 simply by screwing up on the head 5 of the stem. When, however, the nut 4 is to be exposed, the parts are assembled by removing it from the stem 3 and passing the end 18 of the stem 3 through the apertures 13 and 9, Fig. 5, and then swinging the stem so that it will coincide with the longitudinal axis of the head (Fig. 4), in which position it is ready to be inserted through the aperture 15, the head again assuming a position at right angles to the stem, as soon as the mouth 19 has passed the surface 20 of the support, which will throw the head 5 out of the pocket 14 into engagement with the surfaces 6, 6 when the operation of clamping the member 17 can be accomplished, as previously described.

In some cases, though not necessarily, I employ the finger 11 so that when it engages with the nut 4 it will prevent the nut from rotating while the stem 3 is being screwed into the nut, Fig. 1.

The head of my toggle bolt may, if desired, be formed out of a metallic or other cylinder 21 within which are cut the slots 22 and 23 which are substantially the same as the respective slots 9 and 13, the arm 24 being formed from the same cylinder in an obvious manner.

Having thus described this invention in connection with several illustrative embodiments thereof to the details of which I do not desire to be limited except as required by the scope of the claims, what is claimed as new and what it is desired to secure by Letters Patent is set forth in the appended claims.

1. A toggle bolt comprising a cylindrical head of a uniform diameter throughout provided with a pocket near one end and with two slots of less width than the diameter of the cylinder, one extending from the pocket toward the other end of the head, and the other slot extending on the opposite surface of the cylinder head toward the pocket, said slots having portions which aline with each other and form engaging surfaces, and a bolt having a head and a nut either the nut or the head of the bolt being adapted to be received in the pocket in the cylindrical head and engage with the engaging surfaces.

2. In a toggle bolt, the combination of a substantially cylindrical head provided with an angular arm and with registering slots, and a bolt having a head and a nut, either the nut or the head of the bolt being adapted to coöperate directly with the said cylindrical head and contact with the angular arm.

3. In a toggle bolt, the combination of a substantially cylindrical head having an angular arm and registering slots, and a bolt having a head and a nut, said head having an upturned finger to coöperate with the nut and prevent its rotation, either the nut or the head of the bolt being adapted to coöperate directly with the head of the toggle bolt and contact with the angular arm.

4. As an article of manufacture a head for a toggle bolt comprising a substantially hollow cylindrical member provided with registering slots in its walls and with an upturned arm mounted near one end of the head.

5. As an article of manufacture a head for a toggle bolt comprising a substantially hollow cylindrical member provided with registering slots and with an upturned arm mounted at one end of the head and with an upturned finger located near one of the slots.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."