T. F. OLDROYD.

SELF LOCKING BOLT OR STUD.

APPLICATION FILED APR. 17, 1915.

1,172,825. Patented Feb. 22, 1916.

Fig. 1.

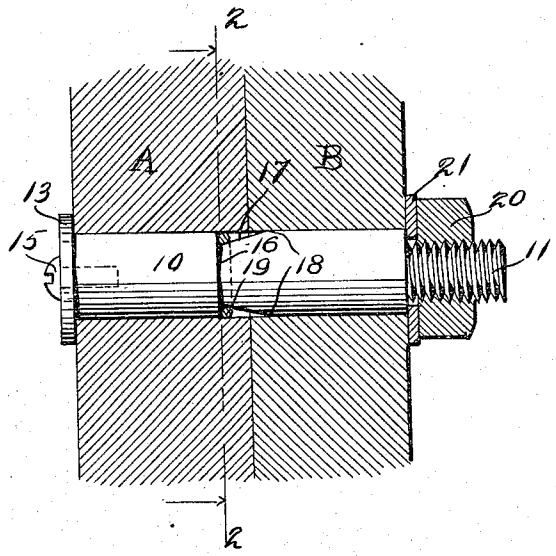



Fig. 3.

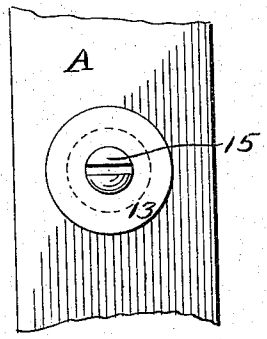



Fig. 2.

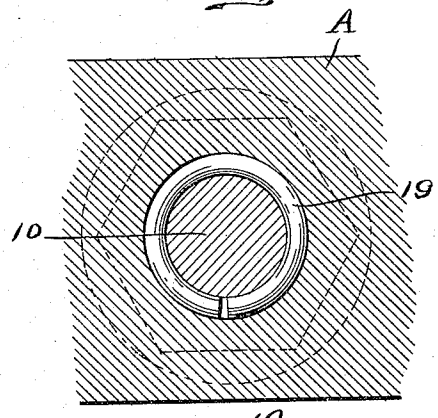



Fig. 4.

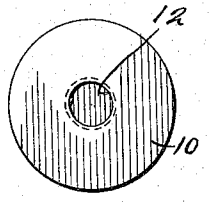
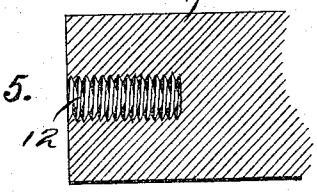



Fig. 5.




Witnesses

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# UNITED STATES PATENT OFFICE.

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## SELF-LOCKING BOLT OR STUD.

1,172,825. Specification of Letters Patent. Patented Feb. 22, 1916.

Application filed April 17, 1915. Serial No. 22,126.

*To all whom it may concern:*

Be it known that I, THOMAS F. OLDROYD, a citizen of the United States, residing at New London, in the county of New London and State of Connecticut, have invented certain new and useful Improvements in Self-Locking Bolts or Studs, of which the following is a specification.

My invention relates to certain new and useful improvements in self-locking bolts or studs.

The main object of the invention is to provide means to positively and effectually lock the bolt or stud structure to a greater degree than in existing devices, and in carrying into effect this main object, a servient object is to provide an improved form of bolt or stud structure that will coöperate with the locking means, in order to render an automatic actuation thereof and consequently assure the complete rigidity of the bolt or stud structure irrespective of the angle at which the same is disposed or of the varying conditions.

The above and other objects which will become apparent are accomplished by such means as are shown in their preferred form in the accompanying drawings, described in the following specification and then more specifically pointed out in the appended claims.

In the accompanying drawings wherein like characters designate like parts throughout the several views; Figure 1 is a fragmentary view illustrating my invention partly in elevation and in section. Fig. 2 is an enlarged transverse sectional view taken on line 2—2 of Fig. 1 in the direction indicated by the arrows. Fig. 3 is a rear face view of the device illustrated in Fig. 1. Fig. 4 is a front elevation of one end of the bolt or stud structure. Fig. 5 is a fragmentary view illustrating in detail the means for securing the head member thereto.

In the accompanying drawings I have illustrated my invention in connection with suitable supports A and B with the view of facilitating a concise illustration of its construction and mode of operation. It is to be recognized that my invention is readily applicable to structures of different types.

In reducing my invention to practice, a shank structure 10 is provided, which carries at one end, a reduced exteriorly threaded extension 11 while the other end is provided with an interiorly screw threaded recess 12. When my invention is to be used simply as a temporary fastening a detachable head member is preferably employed in connection therewith in order to facilitate its removal when desired. In the accompanying drawings I have shown the device used as a temporary fastening and in consistence therewith a detachable head member is employed. The head structure shown consists of a circular disk 13 which has a central aperture formed therein for receiving an exteriorly screw threaded member 15. The fastening member 15 is readily operable within the correspondingly formed recess 12 so that the head member may be easily and quickly removed or positioned in place.

In adapting the shank structure for use in coöperation with suitable fastening means, the same is first cut circumferentially to form an abrupt shoulder 16. From the lower terminus of the shoulder the adjacent wall of the shank structure is cut slanting as at 17 so that it will gradually taper from a point 18 of the shank, inwardly as shown. A circular fastening member 19, the ends of which are normally out of engagement as shown, is arranged about the constricted portion of the shank adjacent the shoulder 16. This fastening member is preferably formed of a highly resilient material in order to contract and expand in accordance with the varying positions of the shank structure. It is readily apparent that during the insertion of the shank in the suitable coincident apertures the fastening member will lie against the collar 16 and will not impede the movement of the shank in that direction. However, after the shank is in an operative position the fastening member will with the coöperation of the tapering portion of the shank, positively and effectually prevent its return movement. For instance if the shank is forced toward the left in Fig. 1 the adjacent tapering portion 17 thereof will co-act with the resilient fastening member 19 and force the same downwardly beyond the periphery of the shank into biting engagement with the interior bore of the aperture in the structure A. After the removal of the head member, it will be appreciated that the shank can be withdrawn from the apertures in a direction to the right in the drawing.

In connection with my invention I have illustrated certain fastening means 20 and a

washer 21 to facilitate the description thereof and to portray the usual position of the device when in practical use. It is to be understood therefore that this fastening means and washer does not fall within the scope of the invention and that the same may be varied in accordance with the existing conditions.

From the foregoing it will be readily apparent that my invention is very simple in construction and consists of a few parts which may be manufactured at an exceedingly low cost.

In reducing my invention to practice I find that the form referred to herein as the most practical and preferred embodiment is the most efficient; but realizing that certain conditions will necessarily vary in concurrence with the adoption of my device, I desire to emphasize the fact that various minor changes in details of construction and proportion of parts may be resorted to when required without sacrificing any of the advantages of my invention as defined in the appended claims.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a device of the character described a shank structure, a head member detachably connected to one end of said shank structure, said shank provided with a tapering cut-out portion intermediate its ends, said cut-out portion forming an abrupt shoulder, and an expansible ring in said cut-out portion and normally lying flush with the periphery of said shank, for the purpose specified.

2. In a device of the character described, a shank structure, a head member arranged at one end thereof, a shoulder provided intermediate the ends of said shank, the perimetral edge of said shoulder being flush with the periphery of said shank and locking means engaging said shoulder and normally flush with the periphery of said shank, substantially as described.

3. In a device of the character described, a shank structure, said shank structure provided with a tapering cut-out portion, said cut-out portion forming an abrupt shoulder intermediate the ends of said shank, and expansible means engaging said shoulder and normally flush with the periphery of said shank, substantially as described.

4. In a device of the character described, a shank structure, a head member arranged at one end thereof, said shank provided with a tapering cut-out portion, said cut-out portion forming an annular shoulder intermediate the ends of said shank, and resilient means engaging said shoulder, said means being normally flush with the periphery of said shank, substantially as described.

5. In a device of the character described, a shank structure, a head member arranged at one end thereof, said shank structure provided with an annular cut-out portion, said cut-out portion forming an annular shoulder intermediate the ends of said shank structure, the perimetral edge of said shoulder being flush with the periphery of said shank structure, and locking means engaging said shoulder normally flush with the periphery of said shank structure, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS F. OLDROYD.

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