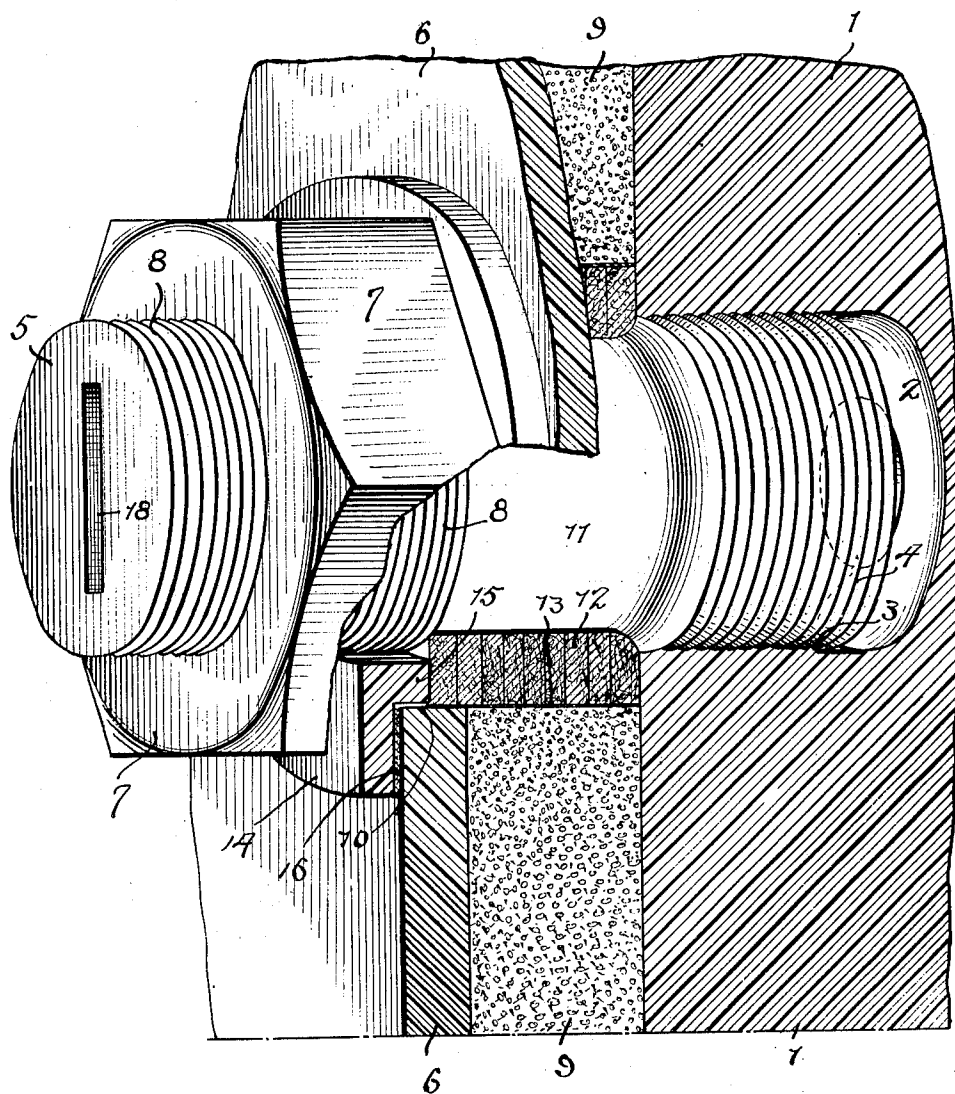


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APPLICATION FILED SEPT 24, 1919.

Patented Apr. 5, 1921.
2 SHEETS—SHEET 1.

Fig. 1



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2 SHEETS—SHEET 2.

Fig. 2.

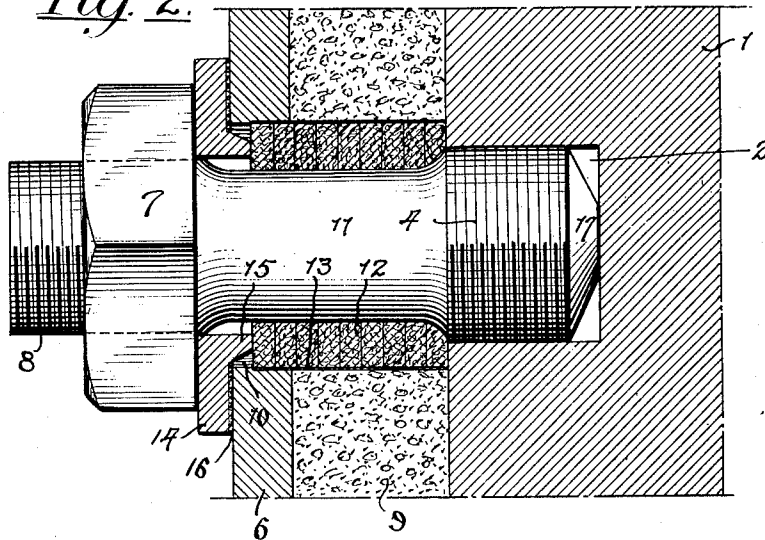
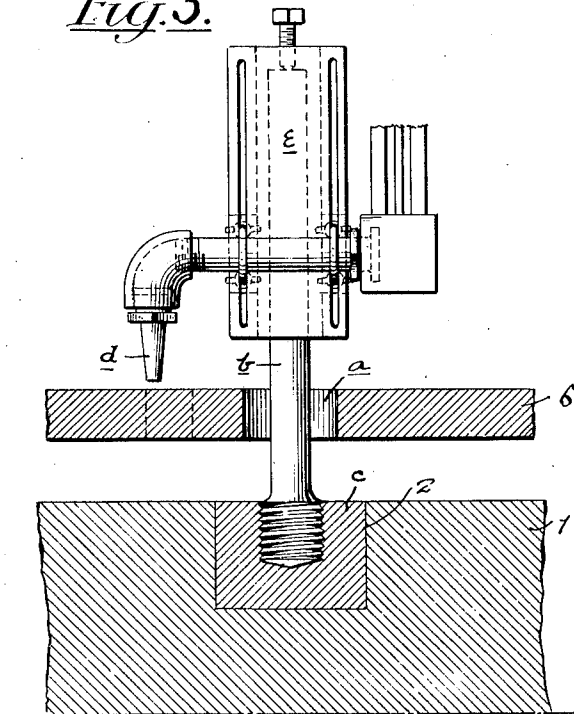


Fig. 3.



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UNITED STATES PATENT OFFICE.

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BOLT AND ITS INSTALLATION.

1,373,640.

Specification of Letters Patent.

Patented Apr. 5, 1921.

Application filed September 24, 1919. Serial No. 325,889.

To all whom it may concern:

Be it known that I, JOHN TAYLOR, a citizen of the United States of America, residing at 181 East 31st street, borough of Brooklyn, in the city of New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Bolts and Their Installation, of which the following is a specification.

My invention relates to bolts, and particularly to the installation of bolts for anchoring a heavy face plate to a supporting back plate, from which it is spaced, the object of my invention being to simplify and expedite the installation while at the same time affording a construction of such character that the bolt may be withdrawn without difficulty when occasion requires.

In the accompanying drawings—

Figure 1 is a broken perspective of portion of an installation in which my invention is embodied;

Fig. 2 is a vertical section therethrough; and

Fig. 3 is an elevation of the apparatus used in connection with the installation of the bolt.

In certain constructions it is desirable to secure a heavy face plate to a supporting back plate from which it is spaced, the intervening area being filled with concrete, cement or the like, and the installation being such that the bolt may be readily removed should occasion require. It has heretofore been customary in construction of this type to provide on the inner face of the heavy face plate 1, a recess or well 2, which is tapped at 3 to receive the threaded inner end 4 of the bolt 5. Before the face plate is positioned in front of the back plate 6 the latter is roughly apertured at *a* in register with the well 2 in the face plate, so that a pilot bolt *b* screwed into a plug *c* temporarily screwed into the well 2 in the face plate, may project out through the hole *a*. The hole in the back plate 6 is then reamed out accurately co-axial with the well 2 in the face plate and shouldered to receive a washer, the reamer being mounted and rotated upon the pilot bolt *b*. After the hole has been so formed in the back plate 6, the pilot bolt *b* is removed, a wooden spacing ring interposed between the shell and the face plate 1 concentric with the well 2, and the anchor bolt 5 then inserted through the hole thus formed in the back plate 6, and

through the wooden spacing ring and screwed into the tapped area 3 of the well 2. A nut 7 is then screwed down upon the outer threaded end 8 of the bolt 5 against a washer seated in the recess reamed in the back plate 6, so that the face plate 1, back plate 6 and spacing ring are firmly clamped together. Cement 9 is then poured into the space between the back plate 6 and face plate 1, which, after hardening, forms a strong and rigid reinforce between the back plate and the face plate. If no leakage of cement takes place at the joints between the wooden spacing ring and the face plate 1 and the back plate 6, and if the spacing ring has not cracked under the pressure so that it admits cement to its interior, it is possible to withdraw the bolt 5 through the spacing ring and face plate.

The method described is quite slow and expensive, and the joint more or less unreliable since leakage of the cement is quite apt to occur between the spacing ring and the plates 1 and 6, and thus prevent the withdrawal of the bolt when desired.

A much more expeditiously made and tighter joint is afforded by the present invention. As heretofore, the face plate has formed therein the usual tapped well 2, and the back plate 6 the usual pilot hole *a* through which the pilot bolt *b* projects. Instead of reaming out the hole in the back plate, however, I have found that the hole 10 may be formed with sufficient accuracy by the use of an oxy-acetylene torch *d* adjustably mounted on the pilot bolt by means of a saddle *e* free to rotate on the bolt. As will be noted, in the present construction the hole 10 is plain, being cut straight through the back plate 6 without a shoulder to support a washer, as is the usual practice. The diameter of this hole 10 is greater than that of the well 2 in the face plate.

Instead of using a wooden spacing plug between the base plate 6 and the facing plate 1, I spool tightly upon the reduced shank area 11 of the bolt a packing of marlin 12, or the like, which extends beyond the diameter of the bolt proper and is of an over-all diameter substantially that of the hole 10 in the back plate 6. When the bolt is inserted, this packing bears against the face plate 1 at one end of the winding and projects into the hole 10 in the back plate 6 at the other end of the winding. A washer 14 is interposed between the nut 7 and the back plate

6 and is provided with a flange 15, which projects into the hole 10 in the back plate and compresses the marlin winding 12, expanding it sufficiently at this point to form a cement-tight joint with the wall of the hole 10 in the back plate. The marlin is preferably wrapped with a sheath 13 of greased paper. If desired a gromet 16 of fabric impregnated with red lead, or the like, may be interposed between the washer 14 and the back plate 6, against which the washer bears.

It is customary to provide a bolt of this type with a head 17 at its inner end, which is bottomed against the inner end of the well 2. Inasmuch as the wells in the face plate 1 are of uniform depth, it is possible to predetermine the location of the marlin winding 12 on the bolt with accuracy, so that it bears firmly against the face plate 1 when the bolt is bottomed in its well 2 in the face plate 1. Moreover, the bearing of the marlin wrapping against the plate is formed by the action of the washer 14 when the latter is pressed against the winding by the nut 7.

I have found that when the cement 9 is poured between the plates 1 and 6, after the nuts 7 have been screwed down firmly, it is wholly excluded from the hole 10 in the back plate 6 by the marlin packing 12. Furthermore, after the nut 7 and washer 14 have been removed, it is possible to withdraw the bolt 5 without difficulty by applying a suitable tool to the slot 18 in its outer end, the bolt carrying with it, as it is drawn, the marlin winding, and in some cases the sheath 13 which surrounds it, and upon which the cement has set.

The marlin 12 may be wound on the bolt by any suitable spooling apparatus, the winding being done under sufficient tension to insure a well-compressed ring on the reduced shank of the bolt.

The details of the construction shown may be variously modified without departing from what I claim as my invention.

I claim—

1. A bolt threaded at its entering end, means at its outer end for screwing said bolt into a tapped member, and a spacer packing on the shank of the bolt intermediate its ends.

2. A bolt threaded at its entering end, means at its outer end for screwing said bolt into a tapped member, a spacer packing on the shank of the bolt intermediate its ends,

and means at the outer end of the bolt adapted to engage said spacer packing.

3. A bolt threaded at its opposite ends, a spacer packing on the shank of the bolt intermediate its ends, and means near the outer end of the bolt adapted to engage the packing.

4. A bolt threaded at its opposite ends, a spacer packing on the shank of the bolt intermediate its ends, and a draw-up member at the outer end of the bolt, together with a washer interposed between the draw-up member and the packing, said washer having a flange adapted to engage and expand the packing under the pressure of said draw-up member.

5. A bolt, in combination with a packing spooled on the shank of the bolt intermediate its ends.

6. A bolt, a packing surrounding the shank of the bolt intermediate its ends, and a sheath surrounding said packing.

7. A bolt, a packing surrounding the shank of the bolt intermediate its ends, and a lubricated sheath surrounding said packing.

8. A bolt having a fibrous packing wound on its shank between its ends, and a sheath serving to confine said packing and present a smooth, non-adherent exterior surface therefor.

9. For use in a bolt installation of the type described, a bolt threaded at its opposite ends, an intermediate plain shank, and a spacer packing wound on said shank.

10. For use in a bolt installation of the type described, a bolt threaded at its opposite ends, an intermediate plain shank of reduced cross section, and a spacer packing wound on said shank.

11. For use in a bolt installation of the type described, a bolt having a spacer packing wound on its shank between its ends, and a lubricating sheath wound on said packing.

12. A bolt having a spacer packing wound on the bolt shank between its ends.

13. A bolt having a spacer packing wound on the bolt shank between its ends, said packing having a diameter exceeding that of the exposed threaded end of the bolt.

In testimony whereof I have signed my name to this specification.

JOHN TAYLOR.