

A. C. BARRETT.
EXPANSION BOLT.
APPLICATION FILED MAR. 6, 1914.

1,109,955.

Patented Sept. 8, 1914.

Fig. 1.

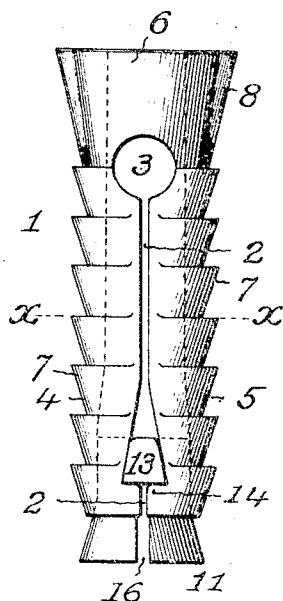


Fig. 2.

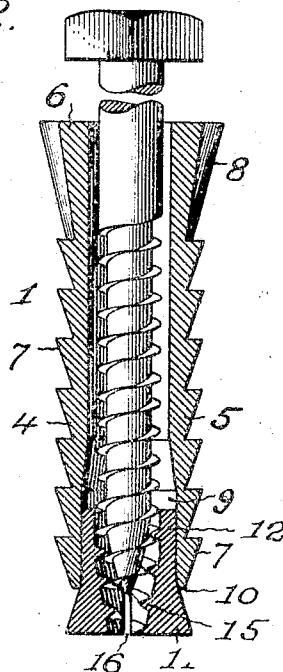


Fig. 5.

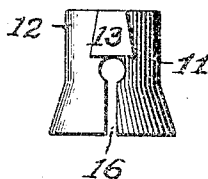


Fig. 3.

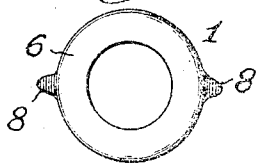


Fig. 4.

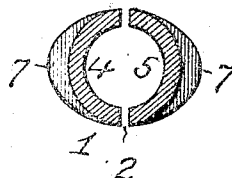
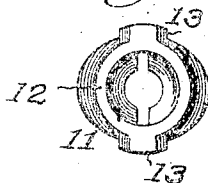


Fig. 6.



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UNITED STATES PATENT OFFICE.

ARTHUR C. BARRETT, OF CHICAGO, ILLINOIS.

EXPANSION-BOLT.

1,109,955.

Specification of Letters Patent.

Patented Sept. 8, 1914.

Application filed March 6, 1914. Serial No. 322,819.

To all whom it may concern:

Be it known that I, ARTHUR C. BARRETT, a citizen of the United States of America, and a resident of Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Expansion-Bolts, of which the following is a specification.

This invention relates to that class of expansion bolts which forms the subject matter of my prior Patent No. 1,090,900, dated March 24, 1914, and has for its object to provide a simple and efficient structural formation and combination of parts whereby the same are adapted for use in connection either with an ordinary lag-screw, or with a machine screw, at the will of the user, and with which an increased range of expansion of the rear portion of the expanding sleeve is conveniently and effectively attained, all as will hereinafter more fully appear.

Figure 1, is a side elevation of an expansion bolt embodying the present improvement. Fig. 2, is a central longitudinal section of the same, with an ordinary lag-screw in process of introduction. Fig. 3, is a front end elevation. Fig. 4, is a transverse section on line $x-x$, Fig. 1. Fig. 5, is a side elevation of the expander nut, detached. Fig. 6, is a front elevation of the same.

Similar reference numerals indicate like parts in the several views.

As represented in the drawings, the tubular expanding sleeve or member 1, is formed with central longitudinal slits 2 extending from the rear end of the sleeve, the major length of the sleeve and ending in terminal eyes or orifices 3, as shown. The said slits divide the sleeve 1 into two counterpart branches 4 and 5, which are integrally connected together at their outer ends by an enlarged and tapering tubular head 6, as fully set forth in my prior application for Patent Serial No. 821,354, filed February 27, 1914.

The periphery of the expanding sleeve 1, is preferably of the same configuration as that shown in my prior Patent No. 1,090,900, and provided with a series of teeth or serrations 7, having a triangular form longitudinally, while in a transverse direction the said teeth or serrations 7 have a semi-circular form at the base and a semi-elliptical form at the crown, as shown in Fig. 4. And the tubular connecting head 6 has an enlarged and tapering form as is provided

with diametrically disposed longitudinal holding ribs 8, adapted to afford a convenient and correct positioning of the expanding sleeve 1 in the mouth of the wall orifice as described in detail in my aforesaid Patent No. 1,090,900.

Similarly to my aforesaid patented construction, the interior of the sleeve 1 consists of a smooth bore, which near its rear end is formed into an enlarged cylindrical counter-bore 9, which in turn is formed with a flaring rear end portion 10.

The expansion nut 11, is of an elliptical form at its rear end and tapers forward to the mid length of the nut and merges into the cylindrical forward portion 12 of the nut. Said cylindrical forward portion 12, is adapted to fit in and be guided longitudinally in the enlarged cylindrical counter bore 9 of the sleeve 1.

13 are lateral lugs or projections arranged at opposite sides of the periphery of the expander nut 9 and adapted to have movement in the tapering rear portions of the slits 2 in the sleeve 1, and with a view to prevent accidental dislodgment of the expander nut, the rear ends of said tapering portions of the slits 2 are provided with meeting lugs 14, which act as rear stops for the lugs 13, as fully set forth in my aforesaid Patent No. 1,090,900.

In the present improvement the bore of the expander nut 11 is of a cylindrical form, and unthreaded, as in my former patented construction, while the rear portion of the bore is made tapering and provided with screw-threads 15, as shown in Fig. 2. And in connection with such tapering form of the rear portion of the bore of the expander nut 11, a material part of the present invention involves the formation of said nut with central longitudinal slits 16, which extend from the rear end of said nut to a point in front of the tapering rear portion of the bore of said nut, and preferably up to the rear walls of the lateral lugs 13, as shown.

The above described construction permits of the use of either an ordinary lag-screw as shown in Fig. 2, or the use of an ordinary machine screw, as shown in my former patented construction. And in either case, the operation of rotating either form of said screws rearwardly into place, will cause a lateral expansion of the split portion of the nut 11, which expansion in addition to the expansion of the sleeve branches 4 and 5,

due to the forward movement of the tapering portion of said nut, is adapted to attain an extended range of expansion of the rear portion of the sleeve 1.

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

1. The combination of a longitudinally split sleeve having a bore the rear end of
10 which is outwardly flared, and an expander nut having a tapering periphery engaging said rear end of the sleeve and formed with longitudinal slits extending to near its forward end, the said nut having a tapering
15 screw-threaded bore adapted to coact with the correspondingly formed point of a lag-screw to effect an expansion of said nut as the lag-screw is screwed into place, substantially as set forth.

20 2. The combination of a longitudinally split sleeve having a bore the rear end of which is outwardly flared, and an expander nut having a tapering periphery engaging said rear end of the sleeve and formed with
25 longitudinal slits extending to near its forward end and with lateral lugs having movement in the slits between the branches of the sleeve, the said nut having a tapering screw-threaded bore adapted to coact with
30 the correspondingly formed point of a lag-screw to effect an expansion of said nut as

the lag-screw is screwed into place, substantially as set forth.

3. The combination of a longitudinally split sleeve having a bore the rear end of
35 which is outwardly flared, and an expander nut having a cylindrical forward end, a tapering rear end and a bore having a cylindrical forward portion and a tapering screw-threaded rear portion, the said nut
40 being formed with longitudinal slits extending to near its forward end, substantially as set forth.

4. The combination of a longitudinally split sleeve having a bore the rear end of
45 which is outwardly flared, and an expander nut having a cylindrical forward end, a tapering rear end, and a bore having a cylindrical forward portion and a tapering screw-threaded rear portion, the said nut being
50 formed with longitudinal slits extending to near its forward end, and with lateral lugs having movement in the slits between the branches of the sleeve, substantially as set forth.
55

Signed at Chicago, Illinois, this 28th day of February, 1914.

ARTHUR C. BARRETT.

Witnesses:

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IVA L. CRANE.