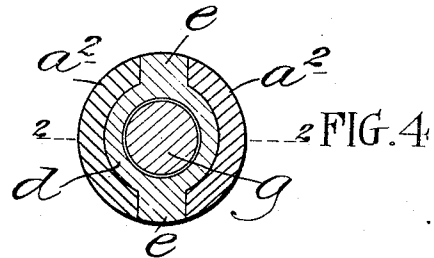
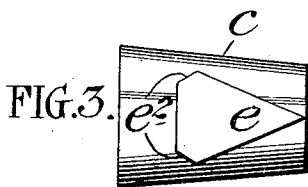
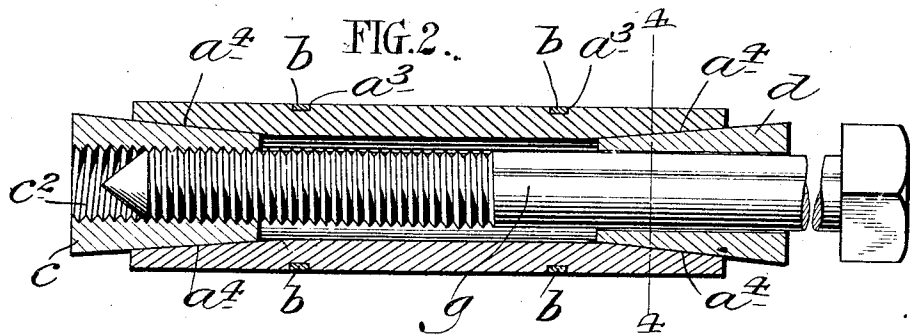
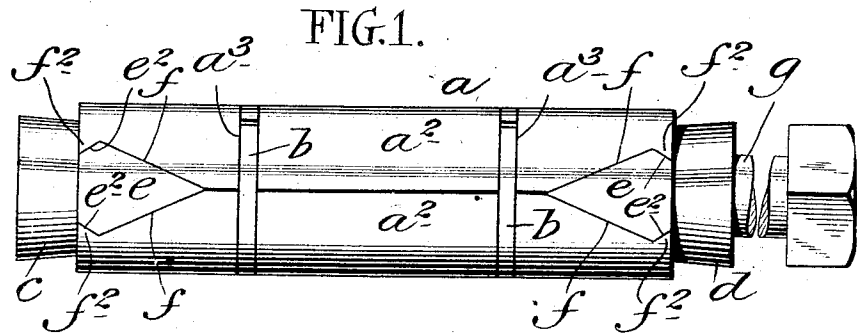


914,103.

Patented Mar. 2, 1909.



WITNESSES
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UNITED STATES PATENT OFFICE.

DAVID R. BERRY, OF PORT RICHMOND, NEW YORK.

EXPANSION-BOLT.

No. 914,103.

Specification of Letters Patent.

Patented March 2, 1909.

Application filed July 29, 1907. Serial No. 385,960.

To all whom it may concern:

Be it known that I, DAVID R. BERRY, a citizen of the United States, and residing at Port Richmond, in the county of Richmond and State of New York, have invented certain new and useful Improvements in Expansion-Bolts, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to expansion bolts for use in connecting or securing various kinds of work to cement or stone and for similar purposes; and the object thereof is to provide an improved device of this class, known as a machine screw expansion device, which is simple in construction, and by means of which a greater degree of expansion may be secured than is possible with devices of this class as usually constructed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Figure 1 is a side elevation of my improved expansion bolt; Fig. 2 a central longitudinal section thereof; Fig. 3 a side view of an expansion plug which I employ, and Fig. 4 a cross section on the line 4—4 of Fig. 2.

My invention belongs to the class of expansion plugs shown and described in U. S. Letters Patent No. 719426 dated February 3, 1903, and 729124 dated May 26, 1903, and in the practice of my invention I provide a sleeve or tube *a* composed of two similar longitudinal parts *a*², and the tube or sleeve *a*, as a whole, is provided with annular grooves *a*³ in which are placed open spring bands *b*.

The central bore of the tube or sleeve *a* is beveled out or enlarged to form conically tapered walls *a*⁴, and placed therein are tubular and conically tapered plugs *c* and *d* which are preferably of the same form and construction except that the central bore of the plug *c* is threaded as shown at *c*².

The expansion plugs *c* and *d* are provided on their opposite sides with V-shaped lugs *e*, the base portions of which are directed outwardly, and the base corners of which are beveled off as shown at *e*²; and formed in the opposite side end portions of the separate parts *a*² of the tube or sleeve *a* are V-shaped

recesses *f* adapted to receive the lugs *e* on the plugs *c* and *d* when said plugs are inserted into said tube or sleeve *a*.

The base portions of the recesses *f* are provided with inwardly directed triangular projections *f*² adapted to overlap the inwardly beveled corners *e*² of the lugs *e* when the plugs *c* and *d* are inserted into the tube or sleeve *a* as shown in Fig. 1, and it will be understood that the spring bands *b* hold the separate parts *a*² of the tube or sleeve *a* together, and also hold the plugs *c* and *d* therein, but the said plugs may be forced outwardly or drawn inwardly into the position shown in Fig. 1 whenever desired by means of a screw bolt *g*, the shank of which is threaded to correspond with the thread in the plug *c*.

When the separate parts *a*² of the sleeve *a* are bound together by the springs *b* as shown in Fig. 1, the inwardly directed projections *f*² are separated by a considerable space, said space, in the form of construction shown, being equal to the wider end portions of the lugs *e*, and this is an essential feature of applicant's construction by reason of the fact that without this construction the plugs *c* and *d* cannot be inserted when the separate parts *a*² of the sleeve *a* are bound together by the springs *b* as shown in Fig. 1 without the exercise of great care and attention, and even with this the lugs *e* when the plugs *c* and *d* are inserted will force the parts *a*² of the sleeve *a* so far apart that the tension of the springs *b* will be destroyed and the successful assembling of the separate parts of the device therefore depends upon the space or spaces between the inwardly directed projections *f*² at the ends of the separate parts *a*² of the sleeve *a*.

The bolt *g*, in practice, is passed through the plug *d* and sleeve *a* into the plug *c*, and by turning said bolt to the right the plug *c* will be drawn inwardly and the corresponding portions of the separate parts *a*² of the tube or sleeve *a* will be forced outwardly in the manner of other devices of this class. By means of the inwardly beveled corners *e*² of the lugs *e* and the inwardly directed projections *f*² on the separate parts *a*² of the sleeve *a*, the plugs *c* and *d* may be held in position in said sleeve when the separate parts thereof are held together by the spring bands *b* without the use of the bolt *g*, and

said bolt may be inserted whenever desired and the plug *c* manipulated thereby as hereinbefore described, and by turning the bolt *g* to the left the plug *c*, or both of the plugs *c* and *d* may be forced outwardly, in which operation the separate parts *a*² of the tube or sleeve *a* will be forced apart.

In the use of an expansion bolt of this class a board, plate or similar device may be placed between the head of the bolt *g* and the adjacent plug *d*, and said plug be forced into the divided sleeve *a* in the same manner as the plug *c* and to the same extent; and in this way the separate ends of the sleeve will be forced apart exactly in the same manner and to the same extent, at both ends and a continuous bearing will thus be formed in the aperture or hole in which the expansion bolt is placed, or the head of the bolt *g* may bear on the adjacent plug *d* and produce the same result. With my improvement, however, a much greater expansion of the sleeve *a* may be provided than with devices of this class as usually constructed for the reason that the farther in the said plugs are drawn by turning the screw *g*, the greater will be the expansion of the said sleeve *a*, and the plugs may be drawn into said tube or sleeve to any desired extent.

One of the chief features of my invention is found in the shape of the lugs *e* on the plugs *c* and *d*, and in the shape of the recesses *f* in the opposite sides of the opposite end portions of the tube or sleeve *a* whereby the plugs *c* and *d* are locked in the opposite ends of the tube or sleeve *a* when said plugs are inserted into said ends.

My invention is not limited to the extent to which the bolt *g* is threaded nor to the exact form of the plug *d*, and various changes in and modifications of the construction described may be made within the scope of the appended claim without departing from

the spirit of my invention or sacrificing its advantages.

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

A device of the class described comprising a tube or sleeve *a* divided longitudinally into two similar parts *a*² and the central bore of which at the opposite ends thereof is beveled to form conically inclined walls *a*⁴, tubular conical plugs *c* and *d* adapted to be inserted into the opposite end portions of said tube or sleeve and provided at their opposite sides with V-shaped lugs *e* the base portions of which are directed outwardly, and the base corners of which are beveled off at *e*², the separate parts of said tube or sleeve being also provided in their adjacent side faces and near their opposite ends with V-shaped recesses *f* of the same dimensions as said lugs and the base portions of which are directed outwardly and provided with inwardly directed projections *f*² adapted to overlap the beveled corners *e*² of said lugs, one of said plugs being also interiorly threaded, and a screw threaded bolt *g* passed loosely through the other plug and through said tube or sleeve and into the screw threaded plug, said tube or sleeve being also provided with annular grooves *a*³, and open spring bands *b* placed therein, said projections *f*² at the outer ends of the lugs *e* being separated when the parts *a*² of the tube or sleeve *a* are bound together.

In testimony that I claim the foregoing as my invention I have signed my name in presence of the subscribing witnesses this 27th day of July 1907.

DAVID R. BERRY.

Witnesses:

A. R. APPLEMAN,
L. QUINN.