

No. 839,705.

PATENTED DEC. 25, 1906.

D. W. BENNETT.
EXPANSION BOLT.
APPLICATION FILED JAN. 25, 1906.

Fig. 1.

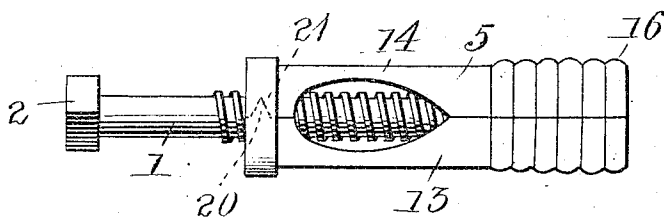


Fig. 2.

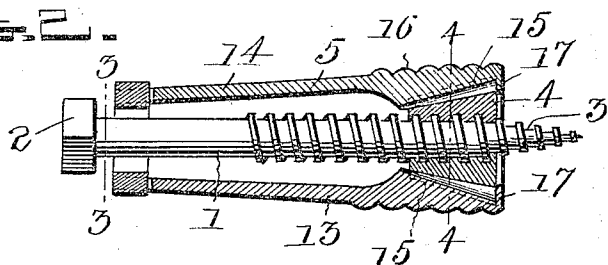


Fig. 3.

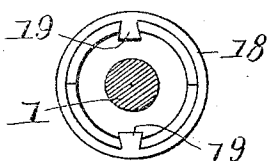


Fig. 4.

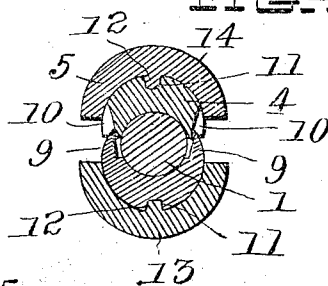


Fig. 5.

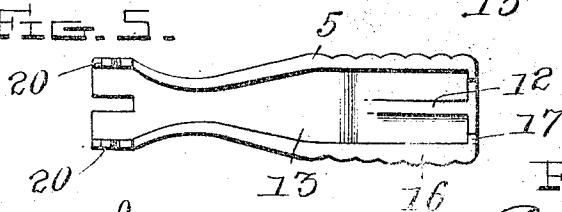


Fig. 6.

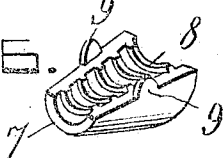
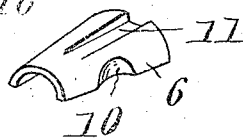


Fig. 7.



Witnesses

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EXPANSION-BOLT.

No. 839,705.

Specification of Letters Patent.

Patented Dec. 25, 1906.

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To all whom it may concern:

Be it known that I, DWIGHT W. BENNETT, citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Expansion-Bolts; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others killed in the art to which it appertains to make and use the same.

My invention relates to improvements in expansion-bolts; and it consists in the novel construction, combination, and arrangement of devices hereinafter described and claimed.

The object of the invention is to provide a simple, inexpensive, and practical device of this character in which the parts may be quickly expanded to any desired extent.

The above and other objects, which will appear as the nature of the invention is better understood, are accomplished by means of the construction illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the improved expansion-bolt, the parts being in their normal position. Fig. 2 is a longitudinal sectional view through the same, showing the parts expanded. Figs. 3 and 4 are transverse sectional views taken on the lines 3-3 and 4-4 in Fig. 2. Fig. 5 is a detail view of one of the half-sections of the expansible casing or cover, and Figs. 6 and 7 are similar views of the two half-sections of the expansion nut or head.

Referring to the drawings by numeral, 1 denotes a bolt having a head 2 at one end and a screw-threaded portion at its other end, which latter is tapered or pointed, as shown at 3. This tapered end of the bolt is adapted to be screwed into an expansion device consisting of a two-part nut or head 4, mounted within a sectional casing or covering 5. The nut consists of two similar semiconical half-sections 6, 7, which have in their opposing inner faces screw-threads 8 to receive the threads upon the end 3 of the bolt. The two half-sections 6, 7 of the nut are adapted to be held in alinement with each other and to be guided toward and from each other by providing upon the section 7 two projecting lugs 9, which are adapted to enter recesses 10,

formed in the other section 6, as clearly shown in Figs. 4, 6, and 7 of the drawings.

In the tapered outer faces of the half-sections 6, 7 of the nut are formed longitudinally-extending grooves or channels 11, which are adapted to engage longitudinally-extending ribs 12, formed in the inner faces of the two half-sections or members 13, 14 of the casing or covering 5. The tapered outer faces of the half-sections of the nut are adapted to be guided by said ribs in their sliding movement upon the inclined inner faces 15 of the outer ends of the casing-sections 13, 14, which latter are of substantially semicylindrical form, their outer ends being formed in their outer faces with transversely-extending ribs or corrugations 16.

The sections of the nut are prevented from slipping out of said end of the casing or covering by their engagement with inwardly-extending flanges 17, as clearly shown in Fig. 5 of the drawings. The inner ends of the half-sections or members 13, 14 of the casing 5 are loosely connected by a ring 18, which has at diametrically opposite points upon its inner face inwardly-projecting dove-tailed lugs 19, which fit in similar shaped slots or openings formed in said inner ends of the casing-sections 13, 14. The opposing edges of the latter are thus retained in engagement with each other, and endwise movement of one with respect to the other is prevented by forming upon the section 13 V-shaped projections 20, which are adapted to enter similar shaped notches or recesses 21, formed in the section 14.

The operation and advantages of the device will be readily understood from the foregoing description, taken in connection with the accompanying drawings.

It will be seen that when the parts are in the position shown in Fig. 1 of the drawings and the bolt 1 is screwed into the expansion-nut and casing the tapered end 3 of said bolt will force the sections 6, 7 of the nut and the sections 13, 14 of the casing apart and that as the rotation of the bolt is continued the nut will be drawn inward in the casing, so that its tapered outer faces will ride up upon the tapered inner faces 15 of the half-sections 13, 14 of the casing, and thereby expand the latter to a greater extent. This construc-

tion permits of a very wide range of expansion without detracting from the strength or efficiency of the device, and it provides a device of this character which is well adapted for the purpose intended.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as defined by the appended claims.

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

1. The combination of a bolt having a tapered screw-threaded end, an expansion-casing having an inclined inner face, and a longitudinally-divided nut in said casing having an inclined outer face to coact with the inclined inner face of said casing, substantially as described and for the purpose set forth.

2. The combination of a bolt having a tapered screw-threaded end, an expansion-casing consisting of loosely-connected sections having inclined inner faces, and a longitudinally-divided frusto-conical nut mounted to slide longitudinally upon the inclined faces of the sections of said casing, substantially as shown and described.

3. The combination of a bolt having a screw-threaded end, a two-section expansion-casing, opposing inclines or cams upon the inner faces of the sections of said casing, longitudinal ribs upon said inclined or cam

faces, means for loosely connecting the inner ends of said casing-sections, and a nut consisting of semiconical half-sections having longitudinal grooves to engage said ribs, substantially as described.

4. The combination of a bolt having a tapered screw-threaded end, an expansion-casing consisting of two semicylindrical half-sections, the inner ends of said sections being formed with coacting lugs and notches to prevent endwise movement of said sections with respect to each other, a ring surrounding said inner ends of said sections and having inwardly-projecting dovetailed lugs to enter similar-shaped slots in said casing-sections, inclines or cams upon the inner faces of the outer ends of said casing-sections, longitudinally-extending ribs upon said inclines or cams, stops at the outer ends of said casing-sections, an expansion-butt consisting of semiconical sections having grooves in their outer faces to engage said ribs, and a tongue-and-groove connection between the sections of said nut to retain them in alinement with each other, substantially as shown and described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

DWIGHT W. BENNETT.

Witnesses:

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BENJAMIN VAN SANT.