No. 750,536. PATENTED JAN. 26, 1904.

C. H. HAGGERTY.

EXPANSION BOLT.

APPLICATION FILED FEB. 28, 1903.

NO MODEL.

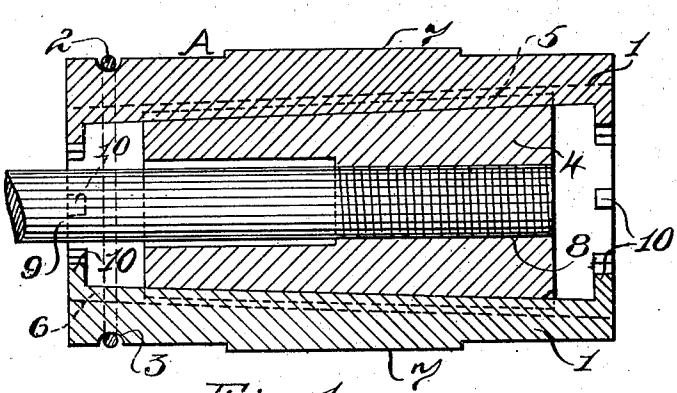


Fig. 1.

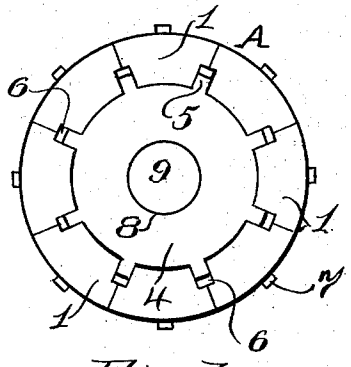


Fig. 3.

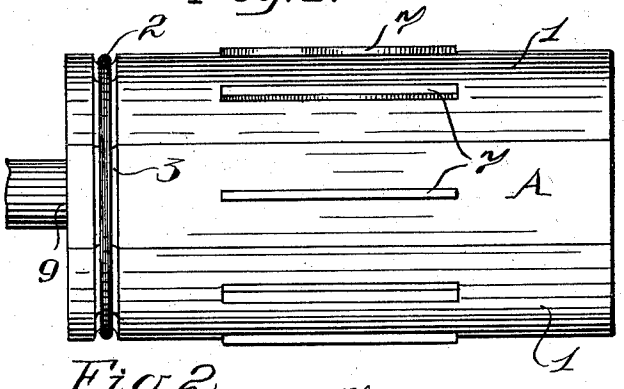


Fig. 2

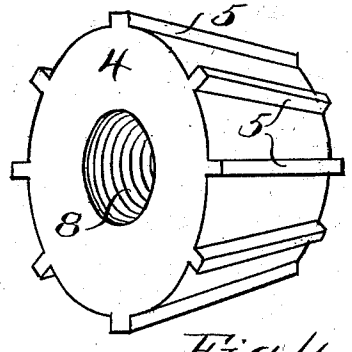


Fig. 4.

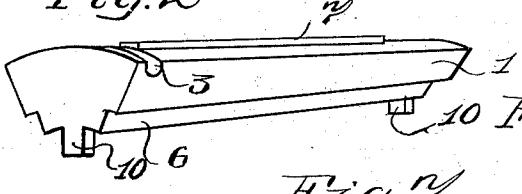


Fig. 5

Fig. 7.

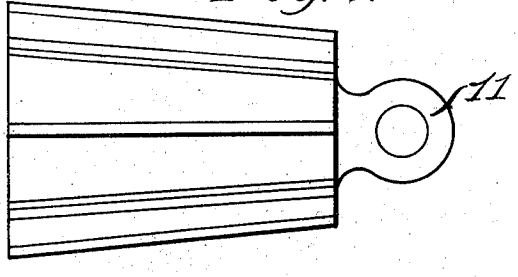
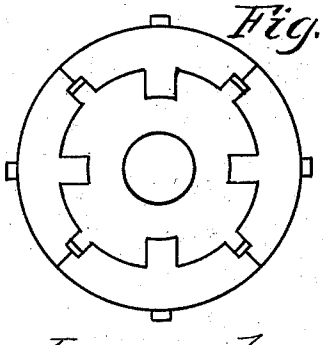


Fig. 6.



Witnesses:
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Inventor:
Charles H. Haggerty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 750,536. Patented January 26, 1904.

UNITED STATES PATENT OFFICE.

CHARLES H. HAGGERTY, OF BROOKLYN, NEW YORK.

EXPANSION-BOLT.

SPECIFICATION forming part of Letters Patent No. 750,536, dated January 26, 1904.

Application filed February 28, 1903. Serial No. 145,511. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. HAGGERTY, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Expansion-Bolt, of which the following is a specification.

This invention relates to that class of securing devices commonly known as "expansion-bolts." They are usually used for securing articles pertaining to machinery to walls or partitions which are of some hard substance, such as brick, cement, and the like.

One of the objects of this invention is to eliminate one great fault which exists in this class of devices—namely, that of slipping, due to the fact that they do not grip the surrounding medium through their entire length.

Another object is to provide a device of this class which can be fitted to several different sizes of openings by simply adding or deducting some of the segments which go to form a shell. It may here be stated that the openings in which these devices are inserted are usually drilled.

A still further object is to provide a cheap and efficient device which requires but little machine-work to fit it for use.

These and additional objects are accomplished in a manner to be hereinafter set forth.

In the drawings which form part of this specification, Figure 1 represents a longitudinal section of an assembled device, and Fig. 2 is a plan view thereof. Fig. 3 is a cross-sectional view of Fig. 1. Fig. 4 is a perspective view of the conical block which forms part of the device. Fig. 5 is a perspective view of one of the cylindrical segments of which the shell is formed. Fig. 6 is a modified form of the device formed of four sectors. Fig. 7 is a view having a modified form of a conical block using an eye integral with the block instead of a tapped hole for a securing means.

Before proceeding with a more detailed description it may here be stated that the device is adaptable to a variety of usages, such as anchoring means for engine-beds or other heavy machines; also, for an anchoring means for cranes, blocks and tackle, &c., when no means of support is obtainable excepting that which may be obtained by drilling a hole in a wall and inserting this device.

Specific reference being had to the accompanying drawings by the designating characters marked thereon, A represents in its entirety a shell formed by a plurality of cylindrical segments 1. The outer surfaces of the segments 1 are substantially parallel to the axis of the shell, and the inner surfaces are angularly disposed in reference to the said axis, thereby forming a tapered or conical bore. The segments are retained in this cylindrical form by a surrounding wire or strap 2, which wire is preferably held in a recess 3, provided in each one of the segments 1. A flat band may be used instead of wire. The recesses in this event would approximately conform to the shape of such strap. Fitted within the shell is a block 4. The periphery of the said block fits the conical bore of the shell A. Upon the periphery of the block 4 are the upstanding ribs 5, which are adapted to fit within slot 6 at the joints of the segments 1, the said segments being recessed at the edges adjacent to the inner surface of the segments, as shown. The segments 1 are also provided with ribs 7 upon their outer surface. The block 4 is provided with a tapped hole 8, in which a bolt 9 is adapted to fit. Upon each end of the segments 1 are inwardly-projecting lugs 10, which are for the purpose of preventing dislodgment of the block 4.

Fig. 6 illustrates a modified form of shell composed of sectors and adapted for walls of soft material. Such modification is within the scope of my invention.

By the use of a block, as illustrated by Fig. 7, the device may be used in cases where a vibratory rod is desirable. In such an event a hooked rod may be hung from the eye 11.

I do not limit the invention to expansion-bolts in particular.

The operation of the device is as follows: After assembling the device by surrounding the block 4 with the segments 1 and then wrapping a wire 2 around the segments it is inserted into an opening in a wall or other place, such opening being cylindrical of course. By screwing the bolt 9 into the block

4 until the head of the bolt reaches a stop, which may be the article to be held, and then continue to turn the bolt the block 4 will be drawn forward, and owing to the tapered bore the shell A will be expanded, thrusting the projections 7 into the surrounding medium, thus preventing the shell from turning, the ribs 5 upon the block 4 acting to prevent the said block from turning. It is obvious that the block can be drawn forward until a desired tension is obtained.

The wire 2 may be dispensed with without departing from the scope of the invention.

Having described my invention, what I claim, and desire to cover by Letters Patent, is—

1. In an anchoring device, a shell formed by a plurality of sections independent of each other; the said sections held against disassemblage by surrounding wires or straps, the outer surface of the said sections being substantially parallel with the axis of the shell, and the inner surfaces angularly disposed with reference to the said axis, thereby forming a tapering bore, the outer surface of the said sections being provided with upstanding projections adapted to secure the shell against movement, and a block adapted to fit the tapering bore of the shell, together with means whereby the block can be drawn forward thereby expanding the shell.

2. In an anchoring device, a shell formed by a plurality of sections independent of each other; the said sections held against disassemblage by surrounding wires or straps, the outer surface of the said sections being substantially parallel with the axis of the shell, and the inner surfaces angularly disposed with reference to the said axis, thereby forming a tapering bore, the outer surface of the said sections being provided with upstanding projections adapted to secure the shell against movement, and a block adapted to fit the tapering bore of the shell, the said block provided with a tapped hole in which a bolt can be inserted, whereby the block can be drawn forward, thereby expanding the shell.

3. In an expansion-bolt, the combination of a cylindrical shell, formed by a plurality of cylindrical segments, independent of each other; the said segments held against displacement by a surrounding wire retained in a recess therefor, the outer surfaces of the said segments substantially parallel to the axis of the shell, and the inner surfaces angularly disposed in reference to the said axis, thereby forming a tapering bore; the outer surfaces of the segments being provided with an upstanding projection, thereby holding the shell against rotation, the edges adjacent to the inner surface of the segments recessed throughout their length, as shown, and a conical block adapted to fit the tapered bore of the shell; the said block provided with upstanding ribs, adapted to fit within the said recessed edges of the segments, and a threaded hole within the said block, adapted to receive the threaded end of a bolt or rod, for the purpose set forth.

4. In an expansion-bolt, the combination of a cylindrical shell, formed by a plurality of cylindrical sectors independent of each other; the said sectors secured against displacement by a surrounding wire or strap retained in a recess therefor; the outer surface of said sectors substantially parallel with the axis of the shell, the inner surface angularly disposed in reference to the said axis, thereby forming a tapering bore; upstanding projections upon the outer surface of the sectors acting to prevent a rotary movement of the shell; the sectors recessed at the edges adjacent to the inner surface, as shown; and a block adapted to fit the conical bore of the shell, upstanding ribs upon the periphery of the said block, adapted to fit within the recessed edges of the sectors, and an eye, integral with the said block, in which a hook may be inserted for the purpose set forth.

5. In an expansion-bolt, the combination of a cylindrical shell formed by a plurality of cylindrical segments, independent of each other, secured against displacement by a surrounding wire or strap retained in a recess therefor; the outer surface of said segments substantially parallel to the axis of the shell; the inner surface angularly disposed in reference to said axis, thereby forming a tapering bore, upstanding projections upon the outer surface of the segments, acting to prevent rotary movement of the shell; the edges adjacent to the inner surface of the segment recessed throughout their length, as shown, inwardly-projecting members upon the ends of the said segments, acting to prevent dislodgement of the block, and a block adapted to fit the tapering bore of the shell, upstanding ribs upon the periphery of the said block, adapted to fit within the recessed edges of the segments, and means whereby the block may be drawn forward, thus expanding the shell, for the purpose set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses this 27th day of February, 1903.

CHARLES H. HAGGERTY.

Witnesses:
E. A. JARVIS,
JOHN PLATT.