

No. 710,534.

Patented Oct. 7. 1902.

C. H. STEWARD.
EXPANSION BOLT.

(Application filed Feb. 18, 1902.)

(No Model.)

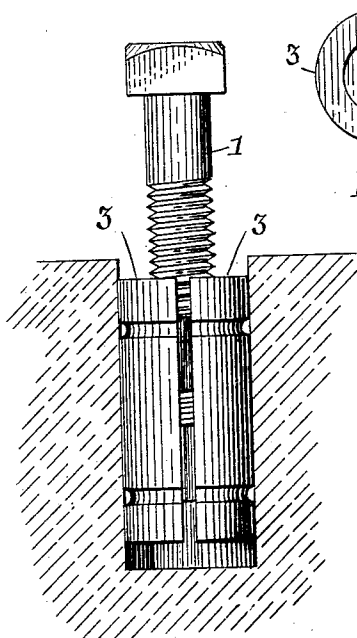


Fig 1.

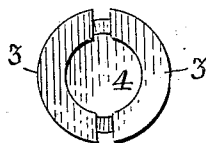


Fig 3.

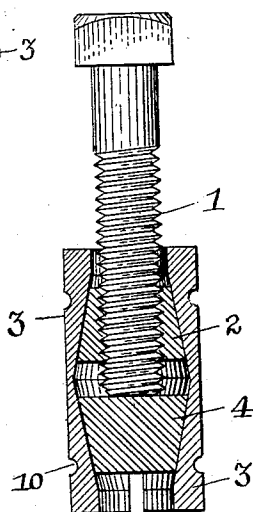


Fig 2.

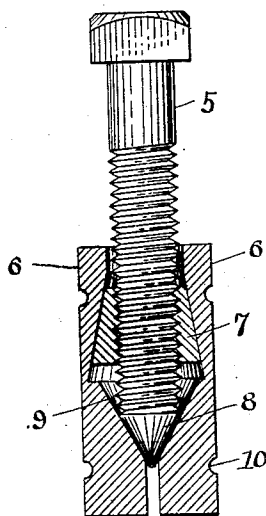


Fig 4.

Witnesses:
Edw. W. Vaill Jr.
Chas. S. Bunnell

Inventor,
Charles H. Steward
by H. M. Feltz,
Attorney

UNITED STATES PATENT OFFICE.

CHARLES H. STEWARD, OF PHILADELPHIA, PENNSYLVANIA.

EXPANSION-BOLT.

SPECIFICATION forming part of Letters Patent No. 710,534, dated October 7, 1902.

Application filed February 18, 1902. Serial No. 94,612. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. STEWARD, a citizen of the United States, and a resident of the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Expansion-Bolts, of which the following is a specification.

This invention relates to new and useful improvements in expansion-bolts, and has for its object the production of a device of simplified construction, improved operation, and efficiency in the result produced.

In general the nature of the invention consists in providing the conical or frustum shaped wedges which in connection with a threaded bolt or rod are adapted to expand two semicylindrical blocks, whereby the parts are held within a recess or opening.

For a full and complete description of this device reference may be had to the following specification and to the accompanying drawings, in which—

Figure 1 is a side elevation of one form of a bolt and my expansion-nut, the same being shown held in place in a cylindrical recess. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a bottom view, and Fig. 4 is a longitudinal sectional view, of a modified form.

In the figures the numeral 1 indicates an ordinary screw-threaded bolt; but its equivalent in the form of a threaded rod or hook may be used.

2 is a wedge or frustum shaped internally-threaded block, through which the bolt 1 passes, entering at the smaller end and coming out at the larger end.

4 is a wedge or frustum shaped block similar in form to the block 2, but solid.

3 3 are semicylindrical blocks or shells having internal recesses which when placed together form tapering openings corresponding in shape and size to the frustum-shaped blocks. These openings are longer than the blocks and have their larger ends abutting toward the central parts of the shells.

It will be seen that when the parts are assembled, as shown in Figs. 1 and 2, and placed in a suitable opening by turning the bolt so as to force the same inward the frustum-shaped blocks will be forced apart and the shells thereby wedged in position.

Fig. 4 illustrates a modified form, in which the block 4 is done away with and the end of the bolt or rod 8 made frustum-shaped. A similar frustum-shaped opening 9 is made in the shells to coöperate with the end of the bolt. In other respects this form is the same as that first described. 10 10 are grooves adapting the shells to take a better hold upon the surface of the recess.

Among other advantages it will be apparent that this expansion-bolt consists of a less number of smaller parts than those heretofore produced, is more inclosed by reason of the direction of the tapering portions, and the forces are more perfectly balanced and distributed.

Slight changes in form and details may be made by those skilled in the art without departing from the spirit of my invention—as, for example, a plurality of external shells may be used, the number not being limited to two; but

What I claim as my invention, and desire to protect by Letters Patent, is—

1. An expansion-nut for bolts, &c., comprising wedge-shaped members, shells having internal recesses tapering from the center toward the ends, said members adapted to coöperate with said recesses to expand said shells and means for forcing said members apart, substantially as described.

2. An expansion-nut for bolts, &c., comprising a threaded member, a threaded wedge-shaped member, a wedge, and shells having internal recesses tapering from the center toward the ends, said threaded wedge-shaped member and wedge adapted to coöperate with said recesses to expand the shells, substantially as described.

3. An expansion-nut for bolts, &c., comprising a threaded member, two wedge-shaped members, shells having internal recesses tapering from the center toward the ends, said members adapted to coöperate with said recesses to expand the shells, substantially as described.

4. An expansion-nut for bolts, &c., comprising a threaded member, an internally-threaded wedge-shaped member, a wedge, and shells having internal recesses tapering from the center toward the ends, said internally-threaded member and said wedge adapted to coö-

erate with said recesses to expand the shells, substantially as described.

5 5. An expansion-nut for bolts, &c., comprising a threaded member, an internally-threaded frustum-shaped member, a solid frustum-shaped member and shells having internal recesses tapering from the center toward the ends, said members adapted to cooperate with said recesses to expand the shells, substantially as described.

10 6. An expansion-nut for bolts, &c., comprising a threaded member, an internally-threaded frustum-shaped member adapted to be carried by said threaded member, with the

larger end of the former toward the end of the latter, a solid frustum-shaped member, its larger end adapted to abut the end of the threaded member, and shells having internal recesses tapering from the center toward the ends, said members adapted to be inclosed in and to cooperate with said recesses to expand the shells, substantially as described. 15 20

In witness whereof I have hereunto set my hand this 17th day of February, A. D. 1902.

CHAS. H. STEWARD.

Witnesses:

ARTHUR E. NITZSCHE,
EDW. W. VAILL, Jr.