

No. 725,278.

PATENTED APR. 14, 1903.

S. S. NEWTON.

BOLT ANCHOR.

APPLICATION FILED OCT. 9, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

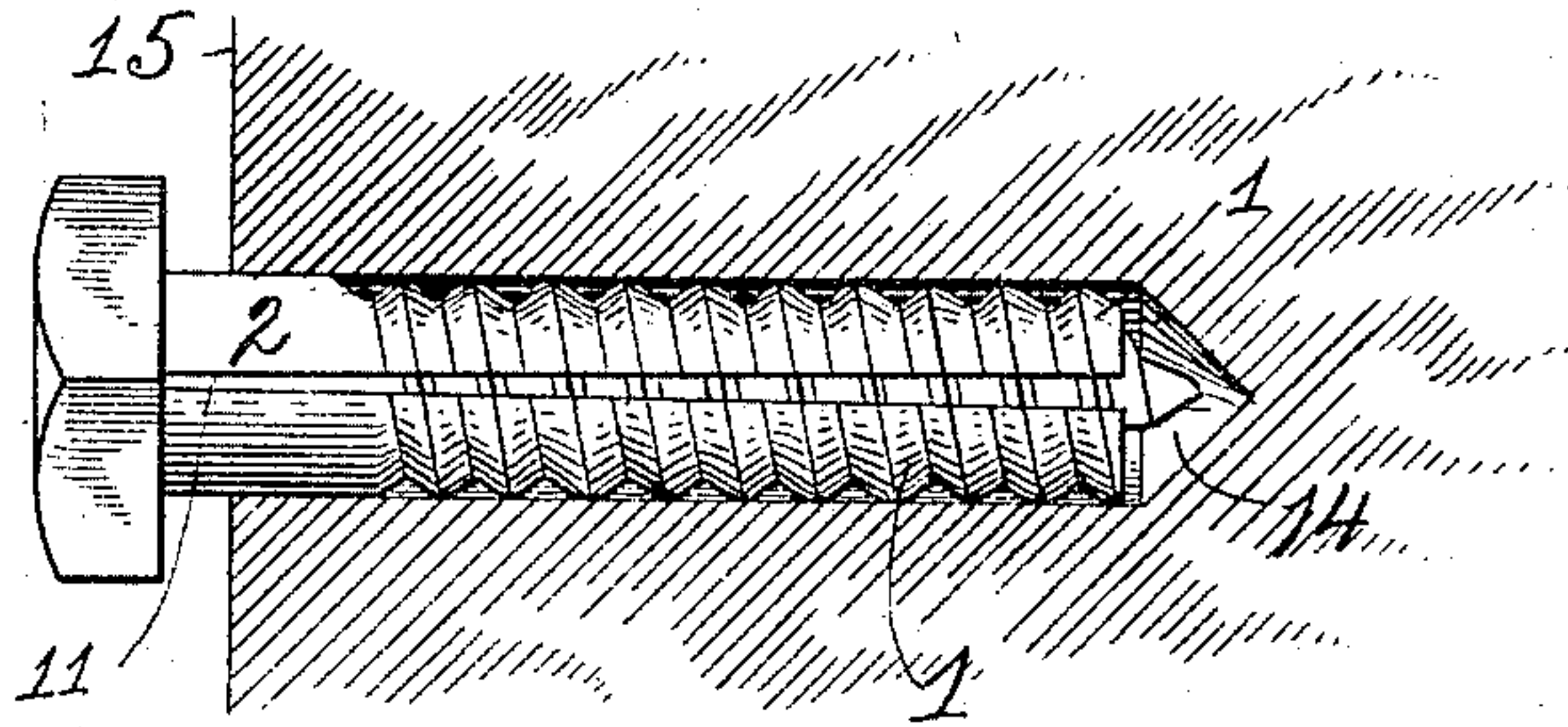


Fig. 2.

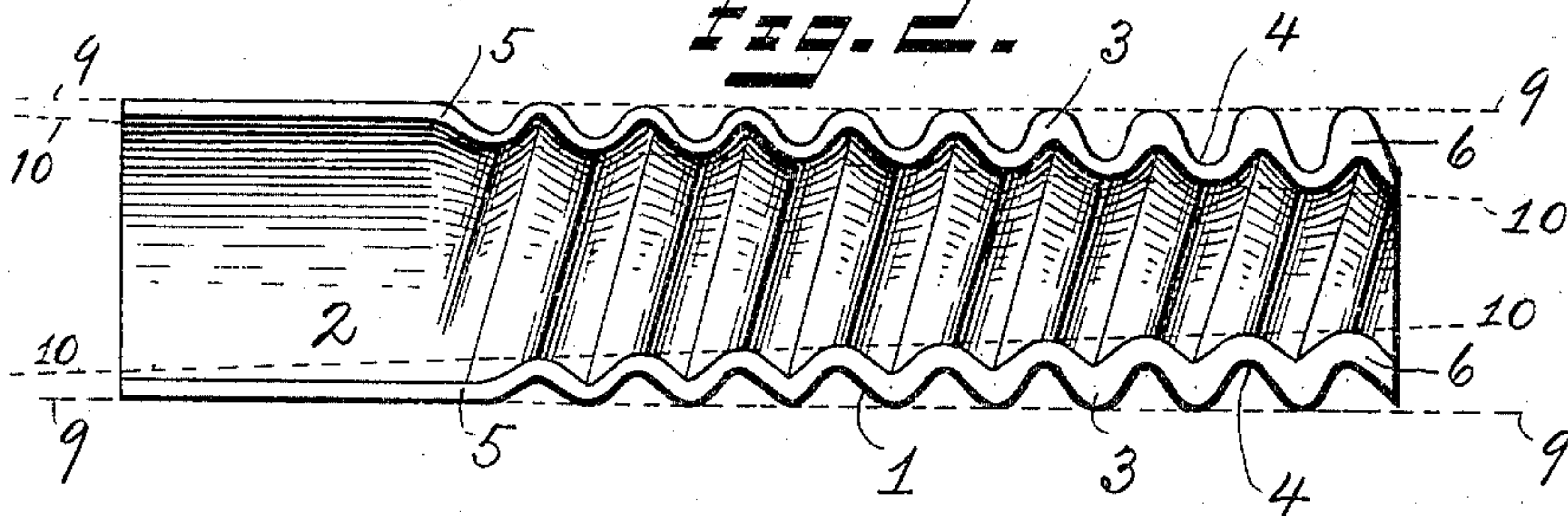


Fig. 3.

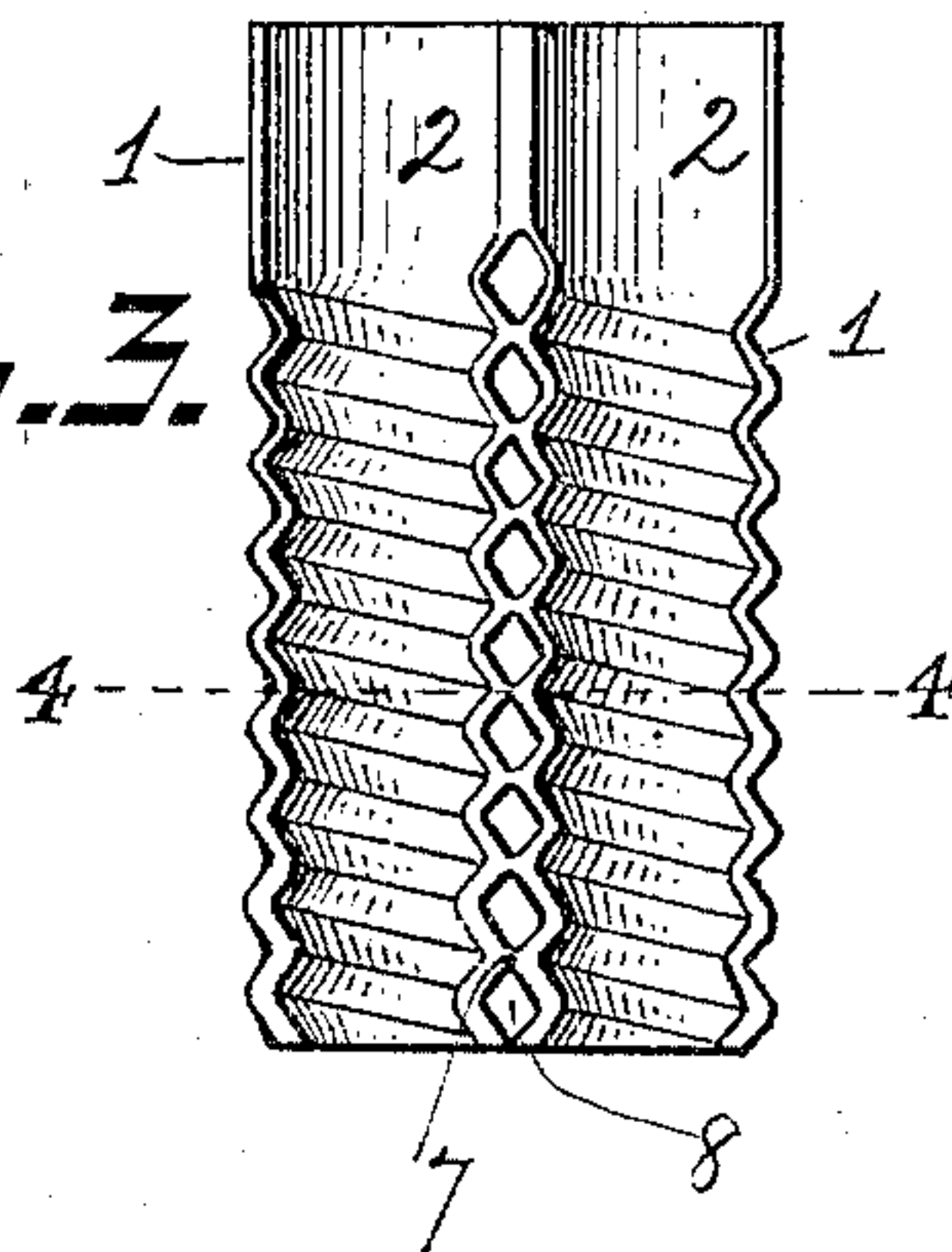
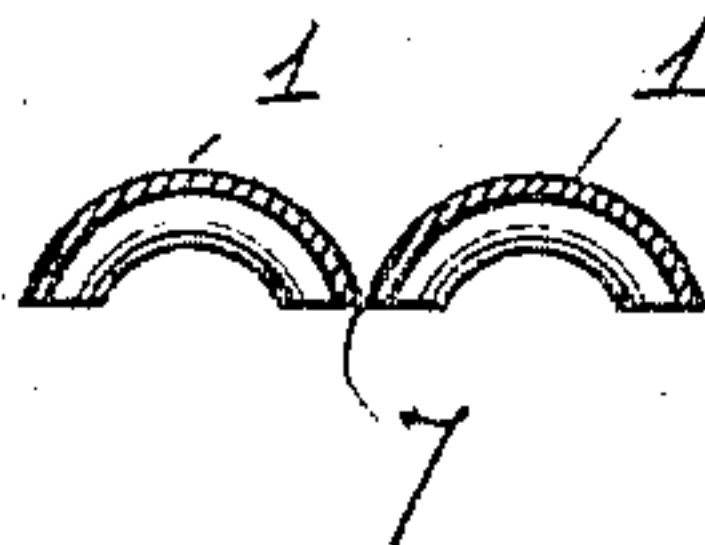


Fig. 4.



Witnesses.

J. B. McGiv.

M. Hyndman

Inventor.

Stephen S. Newton
By William R. Baird
His Attorney

No. 725,278.

PATENTED APR. 14, 1903.

S. S. NEWTON.
BOLT ANCHOR.

APPLICATION FILED OCT. 9, 1902.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 5.

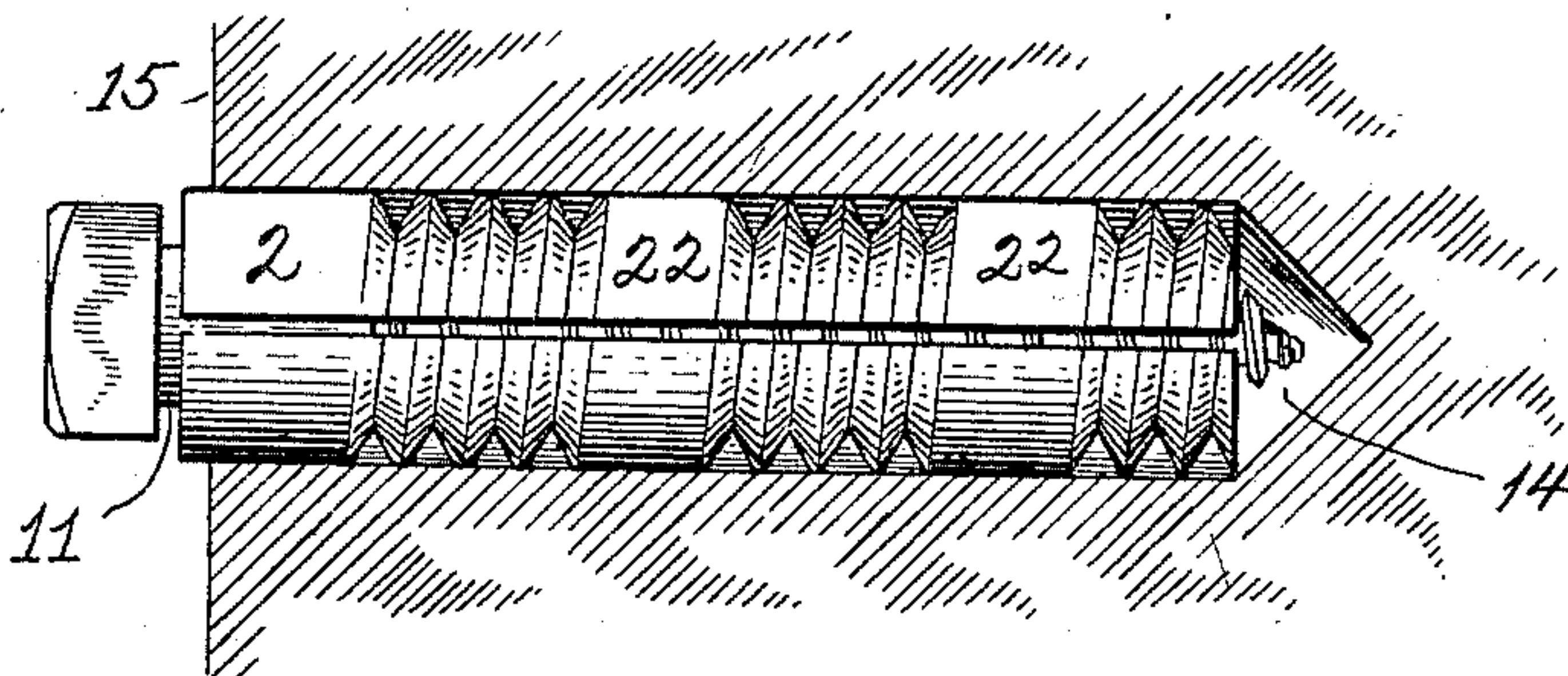


Fig. 6.

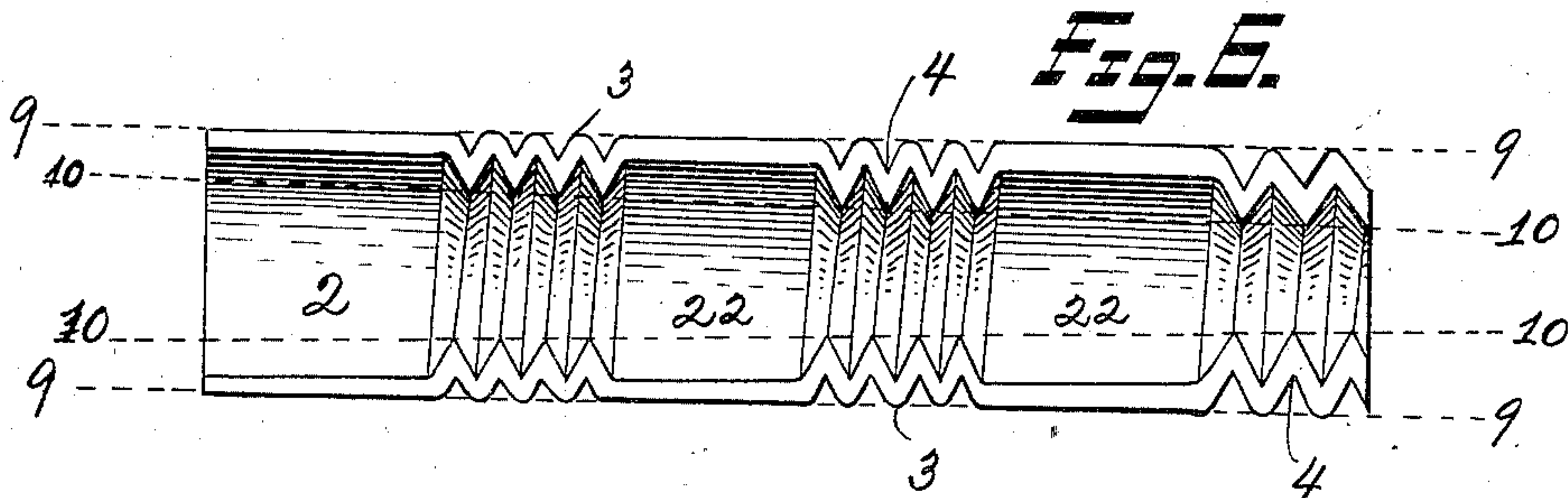


Fig. 7.

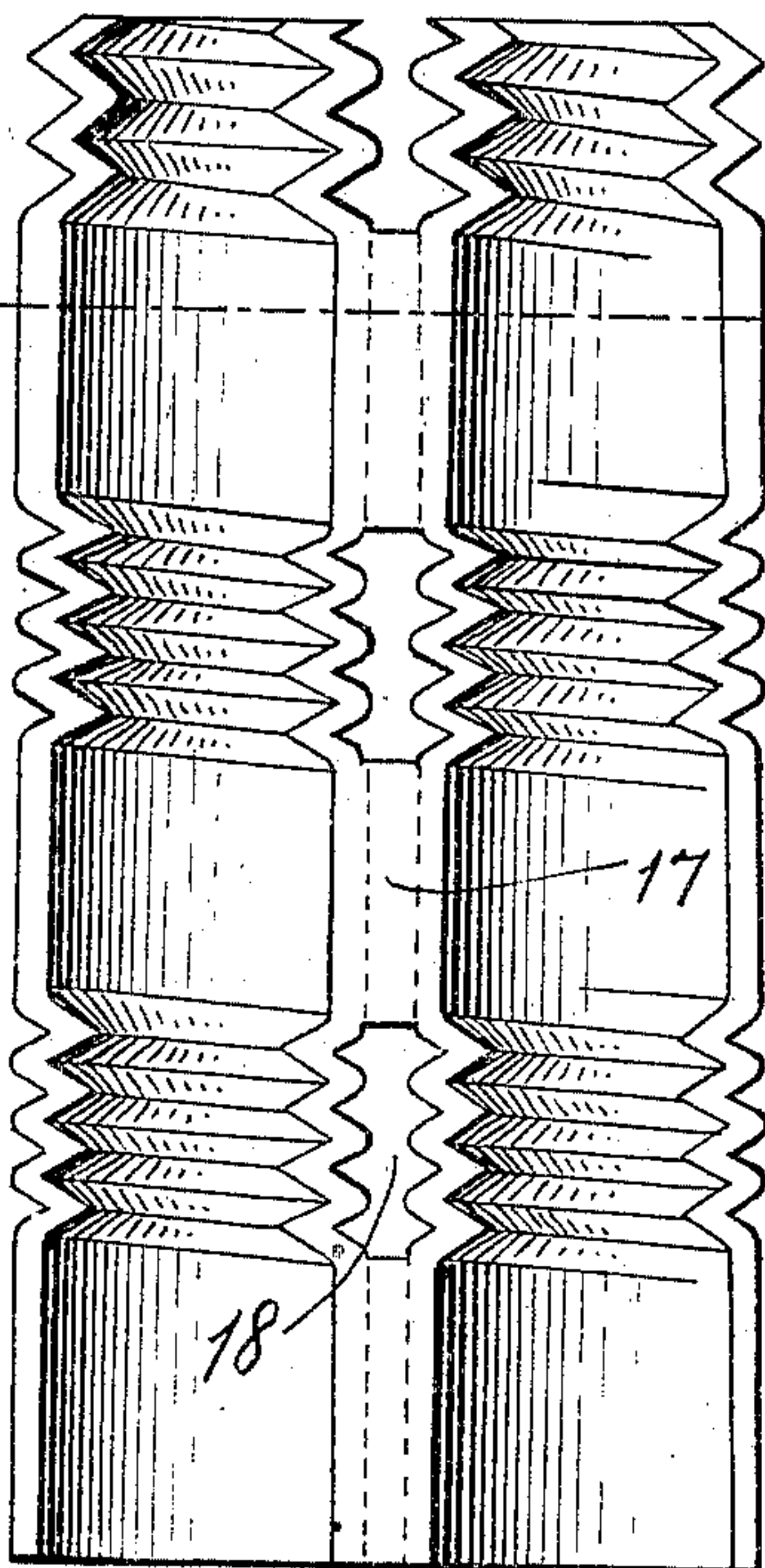


Fig. 9.

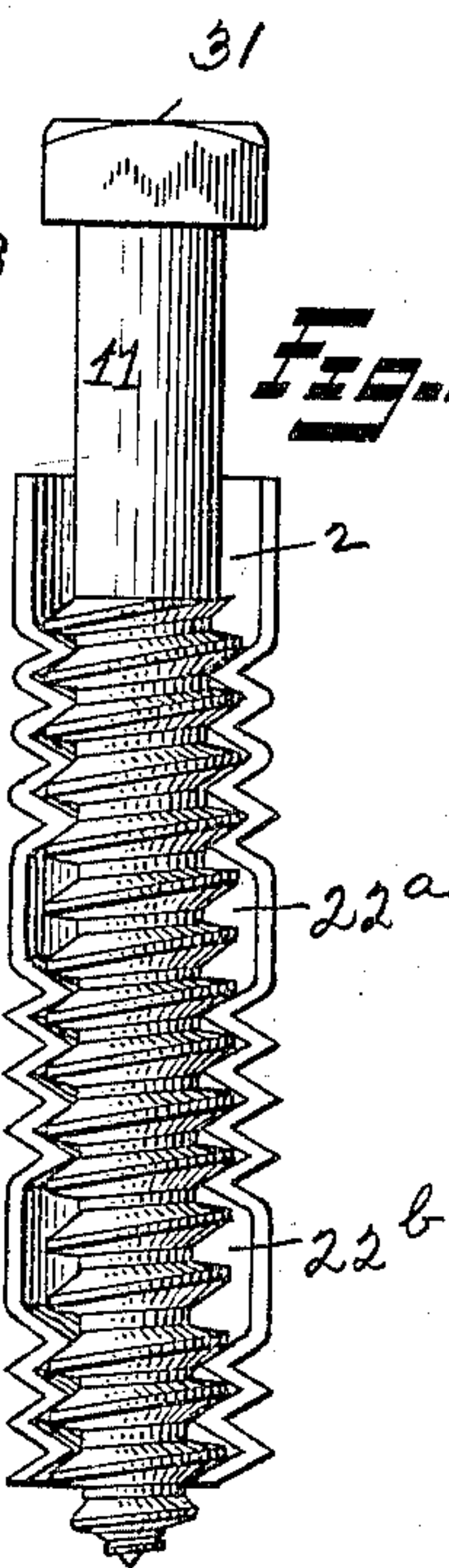
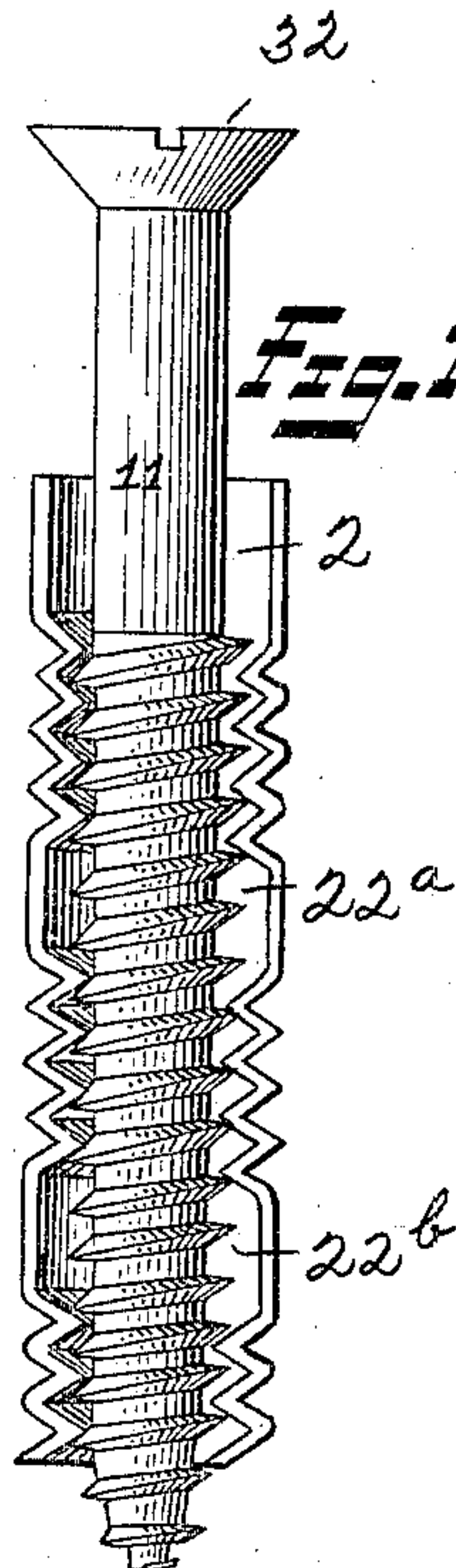


Fig. 10.



Witnesses.

J. B. McGirr.
M. Friedman

Fig. 8.



Inventor.

Stephen S. Newton
By William R. Baird
His Attorney

UNITED STATES PATENT OFFICE.

STEPHEN S. NEWTON, OF NEW YORK, N. Y., ASSIGNOR TO FREDERICK C. PALMER, OF BROOKLYN, NEW YORK.

BOLT-ANCHOR.

SPECIFICATION forming part of Letters Patent No. 725,278, dated April 14, 1903.

Application filed October 9, 1902. Serial No. 126,392. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN S. NEWTON, a citizen of the United States, and a resident of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Bolt-Anchors, of which the following is a specification.

My invention relates to bolt-anchors; and its novelty consists in the construction of the parts, as will be more fully hereinafter pointed out.

In the drawings, Figure 1 is a side elevation of one of my improved bolt-anchors in place in a cavity in a wall and surrounding a bolt. Fig. 2 is an enlarged plan view of a semicylindrical section of such an anchor. Fig. 3 is a plan view of two sections of such an anchor when they have been stamped out of one piece of metal. Fig. 4 is a transverse section on the plane of the line 4 4 in Fig. 3. Fig. 5 is a side elevation of one of my improved bolt-anchors provided with non-corrugated or non-fluted portions in place in a cavity in a wall and inclosing a bolt. Fig. 6 is an enlarged plan view of a semicylindrical section of this form of my bolt-anchor provided with walls of varying thickness. Fig. 7 is a plan view of two sections of such a bolt-anchor, each provided with non-corrugated portions and stamped out of one piece of metal. Fig. 8 is a transverse section on the plane of the line 8 8 in Fig. 7. Fig. 9 is a plan view of a section of the bolt-anchor, in which is shown placed a bolt the threads of which engage the corrugated portions thereof. Fig. 10 is a similar view of the same section, in which is shown placed a screw the threads of which are more numerous for the same length than those of the bolt shown in Fig. 9 and which threads also engage the corrugated portions thereof.

In the drawings, 1 represents one of the sections of which my improved bolt-anchor is composed. It consists of a strip of suitable metal which has been pressed or cast into the form shown—namely, that of a semicylindrical body provided for the greater portion of its length with corrugations or flutings and also provided with a smooth or non-corrugated portion 2 near its outer end. The

corrugations or flutings consist of alternate elevations 3 and depressions 4, formed by squeezing, pressing, or casting the metal in any of the usual methods well known. 55

I have represented in Fig. 2 one of the sections of my bolt-anchor, in which the thickness of its wall gradually increases from the outer end at 5 toward the inner end at 6.

In Fig. 3 I show sections of a bolt-anchor 60 in which the wall is of substantially uniform thickness throughout. Either form of wall may be employed; but where heavy bolts are to be used and the cavities into which they are to be secured are large the sections the 65 walls of which are thicker at their inner ends are to be preferred.

The sections of which the walls are of uniform thickness are preferably made by stamping them out of sheet metal. The result of 70 such an operation is shown in Figs. 3 and 4. Where this is done, the die employed will leave small joining-strips 7 7 7 between adjacent elevations on the different sections and will cut out small portions of metal which 75 filled the spaces 8 8 8 before the metal was stamped out.

Whether the walls of the sections be of uniform or of varying thickness, the corrugations are preferably made deeper toward the inner 80 end of the anchor, as shown in Fig. 2. In fact, the best form to employ, in my opinion, is such that when the sections are assembled into tubes the outer edges of all of the elevations of the corrugations shall be tangent 85 to the circumscribed cylinder, as indicated by the dotted lines 9 9, 9 9, and the inner edges of all of the depressions of the corrugations shall be tangent to the frustum of the inclosed cone, as indicated by the dotted lines 90 10 10, 10 10.

The construction in which the walls of the anchor are of uniform thickness is by a requirement of the Patent Office divided out of this application and made the subject-matter of an application for Letters Patent of the United States filed by me on the 23d day of December, 1902, Serial No. 136,419. 95

I have shown the sections 1 1 provided with non-corrugated portions 2 2 at their outer 100 ends. I prefer this form where bolts are to be anchored, because it is adapted best to en-

gage the smooth shank 11 of such bolts; but the sections may be made without such portions without departing from the principle of my invention. I have also shown the sections 5 of the bolt-anchors as being semicylindrical in cross-section. It is obvious that they may be of any segmental, curved, or substantially flat form, provided that when a sufficient number are assembled they constitute, substantially, a surrounding envelop or sleeve 10 for the bolt, which will anchor it in place.

In Fig. 1 I show a bolt-anchor of my construction in place in a cavity 14 of a wall 15, the sections 11 having been expanded by the 15 forward rotation of the bolt completely to fill the cavity and the bolt being thus firmly held in place. I have also shown the corrugations or flutings of the sections 11 in spiral form, and this is the form which I prefer. If 20 any other than a spiral form is employed—for instance, a series of annular flutings—the threads of the bolts will cut across the depressions of the corrugations. This in some cases would be desirable, especially where an 25 unusually firm grip were desired; but commonly it would not be necessary.

In Figs. 5 to 10, inclusive, I have illustrated a modified form of my bolt-anchor. In this form the non-corrugated or non-fluted portions 22 are not only provided at the outer 30 ends of the anchor-sections, but are provided at portions 22 intermediate the corrugated or fluted portions; otherwise the construction of the anchor-sections is the same as heretofore described. The purpose of providing 35 these non-corrugated portions is to enable the same series of sections to be used with bolts having a different number of threads to the inch. For example, in Fig. 9 I show a 40 bolt 31, having a certain number of threads to the inch. So far as engaging with the spiral corrugations of the section in which it is placed is concerned these corrugations might be continued past the intermediate 45 non-corrugated portions 22^a and 22^b. In Fig. 10, however, I show the same section with the non-corrugated portions 22^a and 22^b intermediate the corrugated portions and engaging a screw 32, having a greater number 50 of threads to the inch. The threads of this screw engage the corrugated portions to a certain extent about as readily as the bolt 31 engaged the same corrugated portions; but a point is soon reached at which the threads of 55 the screw 32 would cross the corrugations if they were continued. I therefore interrupt the corrugations and substitute the non-corrugated portions 22^a until I reach a point where the spiral corrugations again coincide 60 substantially with the slope of the threads of the bolt 32. This I continue until I reach the

point 22^b, where I have to again substitute a non-corrugated portion. It will thus be seen that I can use the same bolt-anchor section when it is provided with non-corrugated portions intermediate the corrugated portions 65 with bolts or screws provided with a different number of threads to the inch.

What I claim as new is—

1. A bolt-anchor consisting of a plurality of 70 sections each composed of transversely corrugated or fluted metal, the walls of which gradually increase in thickness toward their inner ends and forming, when assembled, a corrugated tube tapering internally toward 75 its inner end and each provided with a smooth non-corrugated portion at its outer end.

2. A bolt-anchor consisting of a plurality of sections each composed of spirally corrugated or fluted metal, the walls of which gradually 80 increase in thickness toward their inner ends, and forming, when assembled, a spirally-corrugated tube tapering internally toward its inner end, and each provided with a smooth 85 non-corrugated portion at its outer end.

3. A bolt-anchor consisting of a plurality of sections each composed of alternately corrugated and non-corrugated portions.

4. A bolt-anchor consisting of a plurality of sections each composed of alternately spirally- 90 corrugated and non-corrugated portions.

5. A bolt-anchor consisting of a plurality of sections each composed of alternately corrugated and non-corrugated portions and forming, when assembled, a tube adapted to receive a bolt. 95

6. A bolt-anchor consisting of a plurality of sections each composed of corrugated and non-corrugated portions and stamped simultaneously out of one piece of metal. 100

7. A bolt-anchor consisting of a plurality of corrugated or fluted sections each made of metal and forming, when assembled, a tube, the outer edges of the corrugations being substantially tangent to the circumscribed cylinder and the inner edges of the same being 105 substantially tangent to the frustum of the inclosed cone.

8. A bolt-anchor consisting of a plurality of sections each composed of spirally-corrugated 110 and non-corrugated portions and forming, when assembled, a tube, the corrugated parts of which are adapted to engage with the threads of bolts having a different number of threads to the inch. 115

Witness my hand this 7th day of October, 1902, at the city of New York, in the county and State of New York.

STEPHEN S. NEWTON.

Witnesses:

HERMAN MEYER,
M. HYNDMAN.