

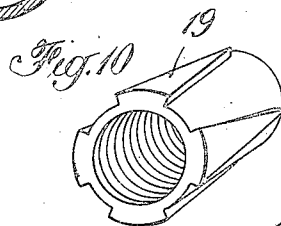
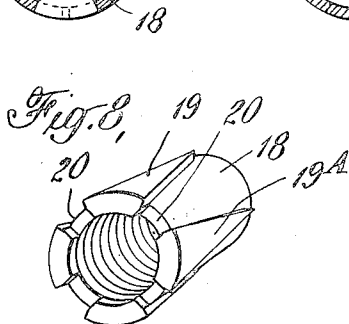
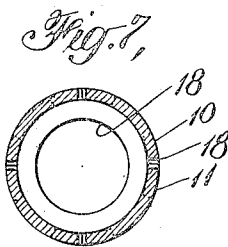
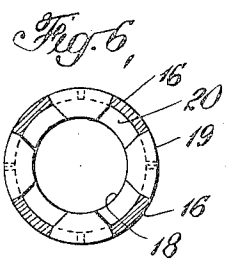
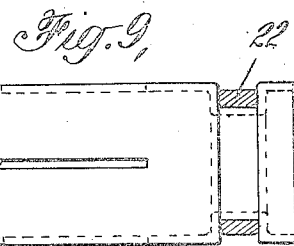
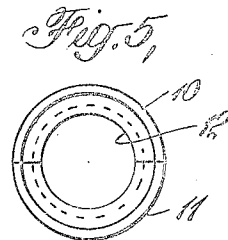
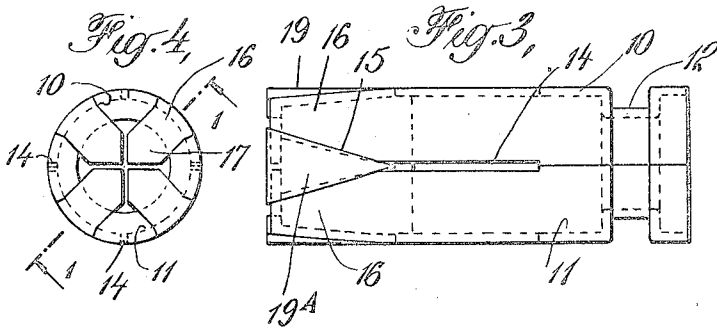
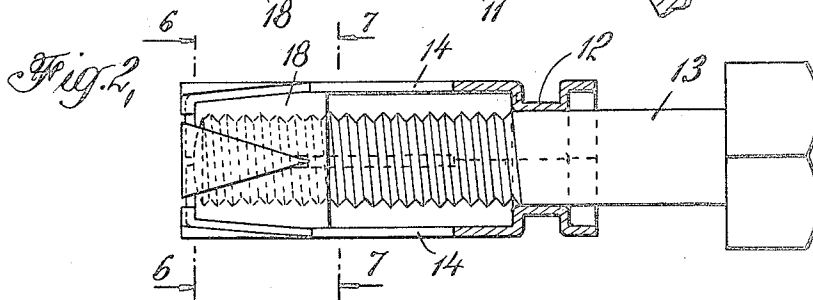
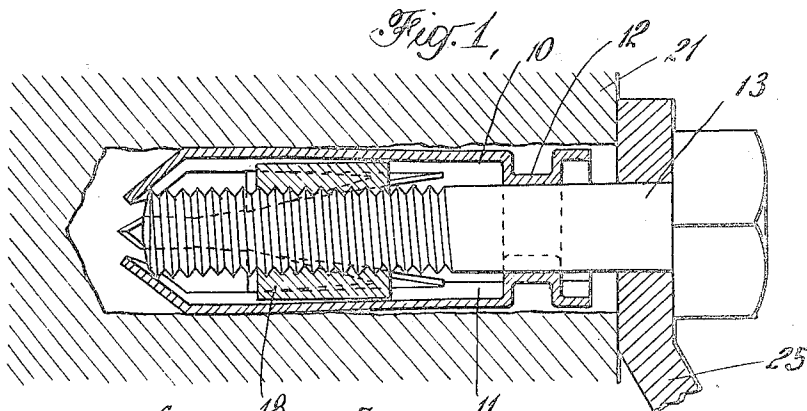
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1,471,911

R. E. OGDEN ET AL

BOLT ANCHOR

Filed July 22, 1921



Inventor
Ralph E. Ogden
Charles C. Robinson
By their Attorney
E. W. Marshall

UNITED STATES PATENT OFFICE.

RALPH EDWARD OGDEN, OF MOUNTAINVILLE, NEW YORK, AND CHARLES C. TOMKINSON, OF PLAINFIELD, NEW JERSEY, ASSIGNORS TO J. EDWARD OGDEN, OF MOUNTAINVILLE, NEW YORK.

BOLT ANCHOR.

Application filed July 22, 1921. Serial No. 486,743.

To all whom it may concern:

Be it known that we, RALPH EDWARD OGDEN, a citizen of the United States, and a resident of Mountainville, town of Cornwall, Orange County, and State of New York, and CHARLES C. TOMKINSON, a citizen of the United States, and a resident of Plainfield, county of Union, and State of New Jersey, have invented certain new and useful Improvements in Bolt Anchors, of which the following is a specification.

This invention relates to bolt anchors and more particularly to anchors of the character employed in walls of brick, stone or cementitious material, not adapted to directly receive a threaded bolt.

One of the objects of the invention is to provide a shield comprising a plurality of sections and a nut for expanding the shield having means for retaining the sections together.

Another object of the invention is to provide a sectional expansion shield and an expanding nut having portions adapted to interlock said sections thereby retaining them against separation.

Another object of the invention is to provide a bolt anchor that will be simple in construction, efficient in operation and may be economically manufactured.

Further objects of the invention will appear as the description proceeds.

The objects of the invention are attained in the embodiment illustrated by a shield preferably formed of sheet metal stamping and having notches or slots constructed and arranged to receive projecting portions of the expanding nut and having fingers formed by the slots and bent inwardly and cooperating with the notches and the projections on the nut to lock the sections of the shield against separation.

Referring to the drawings.

Fig. 1 is a sectional elevation of a portion of a wall having an opening therein and anchoring means, constructed in accordance with the invention, expanded in the opening.

Fig. 2 is a sectional elevation of the bolt anchor before the expansion of the shield.

Fig. 3 is an elevation of the expansion shield.

Fig. 4 is an end elevation of the rear end of the shield.

Fig. 5 is an end elevation of the opposite end of the shield.

Figs. 6 and 7 are sectional elevations taken substantially on lines 6—6 and 7—7 respectively of Fig. 2.

Fig. 8 is a perspective view of the nut used in connection with the shield shown in Figs. 1—7.

Fig. 9 is a view similar to Fig. 3 but showing the shield with a spring clip for securing the sections together, and

Fig. 10 is a perspective view of another form of nut embodying my invention.

The expansion shield is preferably formed from sheet metal of uniform thickness and is divided longitudinally throughout its length into sections 10 and 11. If desired these sections may be pressed inwardly as shown at 12 to form a support and guide for the bolt 13, but it will be noted that no split ring or retaining means is required in the construction about to be described.

The sections 10 and 11 are slotted longitudinally as shown at 14, the front ends of these slots being tapered as shown at 15 to form fingers or tines 16 and the tapered portions 15 also form V-shaped notches between the fingers. The ends of the fingers or tines are bent inwardly as shown at 17 in a direction toward the longitudinal axis of the shield and as shown in Fig. 4 the ends of these fingers extend approximately to the axis of the shield and form an abutment for a bolt.

The nut 18 which is threaded on the bolt 13 is approximately cylindrical and is provided on its outer surface with V-shaped projections 19 and 19^a adapted to be positioned in the V-shaped notches formed in and between the shield sections. The end of the nut at the base of the projections 19 and 19^a also has notches or recesses 20 formed between the projections. These recesses receive the bent over ends 17 of the fingers 16 and thus retain the sections against lateral separation. In Figs. 2 and 3 the nut is shown in position in the shield with the projections 19 extending into the notches and the fingers extending into the recesses 20. From the showing in Figs. 4 and 6 it will be seen that the fingers 15 and ends 16 thereof extend through the notches or recesses 20 of the nut at an angle to each

other and converge below the ends of projections 19 of the nut. In this way lateral separation of the sections is prevented. Referring particularly to Fig. 3, it will be noted that the outer surfaces of the projections 19 lie in a cylinder having a diameter equal to the diameter of the outer periphery of the shield.

It will be seen that the ends 17 of the fingers project into the notches or recesses 20 and retain the sections of the shield against separation and in engagement with the nut. No additional retaining means such as a spring clip is therefore required. The projections 19^A serve to spread the ends of each section apart on expansion and the other projections 19 on the nut serve to separate the sections on expansion and to spread the adjacent fingers.

The bolt anchor above described operates as follows. When the bolt 13 has been inserted through an opening in an object 25 to be secured, the bolt is threaded into the nut 18 within the shield. The shield is then inserted into the opening in the wall 21 and upon the initial rotation of the bolt the end of the bolt will abut against the inturned ends 17 of the fingers 16. Any longitudinal movement of the bolt is therefore prevented and the nut 18 will travel along the bolt. As the nut travels along the bolt the projections 19 and 19^A on the nut will spread the fingers 16 forcing them into engagement with the wall of the opening in which the anchor is inserted.

In the form of the invention shown in Figs. 9 and 10 the end of the nut is not recessed and therefore the projections 19 serve merely as expansion members. A split ring 22 is used to retain the sections together.

From the above specification it will be seen that a simple and practical construction of the bolt anchor has been provided and a construction having a minimum number of parts. Furthermore, it will be evident that the structure described may be economically manufactured and will be efficient in operation.

Although one specific embodiment of the invention has been illustrated and described, it will be understood that the invention is capable of modification and that changes in the construction and in the arrangement of the cooperating parts may be made without departing from the spirit or scope of the invention as expressed in the following claims.

What we claim is:

1. In combination, an expansion shield comprising a plurality of sections, each section having a notch therein spaced from the longitudinal edges thereof and a nut having portions disposed within said notches.

2. In combination, an expansion shield comprising a plurality of sections, each section having a V-shaped notch therein spaced

from the longitudinal edges thereof and a nut having portions disposed within said notches.

3. In combination, an expansion shield comprising a plurality of sections, each section having a notch therein intermediate its longitudinal edges, said sections having registering notches at their edges and a nut having projections disposed in said notches.

4. In combination, a shield having longitudinal slots forming separated tapered fingers, the ends of said fingers being bent inwardly toward the longitudinal axis of the shield, and a nut having portions extending into and disposed within said slots.

5. In combination, an expansion shield comprising a plurality of sections, each section having a V-shaped notch therein intermediate its longitudinal edges, said sections having registering notches at their edges and a nut having projections disposed in said notches.

6. In combination, a shield having a plurality of V-shaped notches therein, the points of the notches extending in a direction toward the outer end of the shield, said shield also having inturned fingers formed by the notches and a nut having projections adapted to fit in said notches.

7. In combination, a shield comprising a plurality of sections, and a nut having means for engaging said sections and retaining the sections against separation.

8. In combination, a sectional shield having a plurality of fingers and a nut having means for engaging said fingers and retaining the shield sections against separation.

9. In combination, a sectional shield having a plurality of tapered fingers and a nut having means for engaging said fingers and retaining the shield sections against separation.

10. In combination, a sectional shield having a plurality of tapered, inwardly bent fingers and a nut having means for engaging said fingers and retaining the shield sections against separation.

11. In combination, a sectional shield having tapered fingers at one end thereof and a nut having recesses receiving and retaining said fingers.

12. In combination, a sectional shield having tapered, inwardly bent, fingers at one end thereof and a nut having recesses receiving the fingers and wedge shaped projections fitting between and adapted to spread said fingers.

13. In combination, a shield having longitudinal slots forming separated, tapered fingers, and a nut having portions receiving said fingers and portions extending into and fitting said slots.

14. In combination, a shield having longitudinal slots forming separated tapered fingers, the ends of said fingers being bent

inwardly toward the longitudinal axis of the shield, and a nut having recesses receiving the bent ends of the fingers and retaining the sections on the nut.

5 15. In combination, a sectional shield having inwardly bent fingers at one end thereof and a nut having projections extending between the fingers and recesses between the projections receiving and retaining the
10 fingers.

16. In combination, a sectional shield having longitudinally extending, separated, inwardly bent fingers and a nut having recesses for receiving and retaining said
15 fingers.

17. In combination, a sectional shield having longitudinally extending, separated, inwardly bent fingers and a nut having recesses in one end for receiving and retaining said fingers.
20

18. In combination, a shield having a plurality of V-shaped notches therein, the points of the notches extending in a direction toward the outer end of the shield,
25 said shield also having inturned fingers formed by the notches and a nut having projections adapted to fit in said notches, and having recesses receiving said fingers.

19. In combination, a sectional shield
30 having a plurality of tapered fingers and a nut having recesses for receiving said fingers and retaining the shield sections against separation.

20. In combination, a sectional shield having inwardly extending end portions and a nut in said shield having recessed portions receiving the inwardly extending portions of said sections.
35

21. In combination, a sectional shield having inwardly extending end portions, a nut
40 having projections extending between said portions of the shield and having recesses between the projections receiving the inwardly extending portions of the shield.

22. In combination, a sectional shield having inwardly extending end portions, a nut
45 having wedge-shaped projections extending between said portions of the shield and having recesses between the projections receiving the inwardly extending portions of the shield.
50

23. In combination, a cylindrical sectional shield having inwardly extending end portions, a nut having projections extending between said portions of the shield and
55 having recesses between the projections receiving the inwardly extending portions of the shield, the outer surface of the nut projections being disposed in the cylindrical surface of the outer shield surface.
60

24. In combination, a cylindrical sectional shield having inwardly extending end portions, a nut having wedge-shaped projections extending between said portions of the shield and having recesses between the
65 projections receiving the inwardly extending portions of the shield, the outer surface of the nut projections being disposed in the cylindrical surface of the outer shield surface.
70

In witness whereof we have hereunto set our hands this 12th day of July, 1921.

RALPH EDWARD OGDEN.
CHARLES C. TOMKINSON.

Witness:

I. B. MOORE.