July 5, 1932. H. M. TAYLOR 1,865,546

EARTH ANCHOR

Filed Dec. 2, 1930 3 Sheets-Sheet 1

Fig. 1

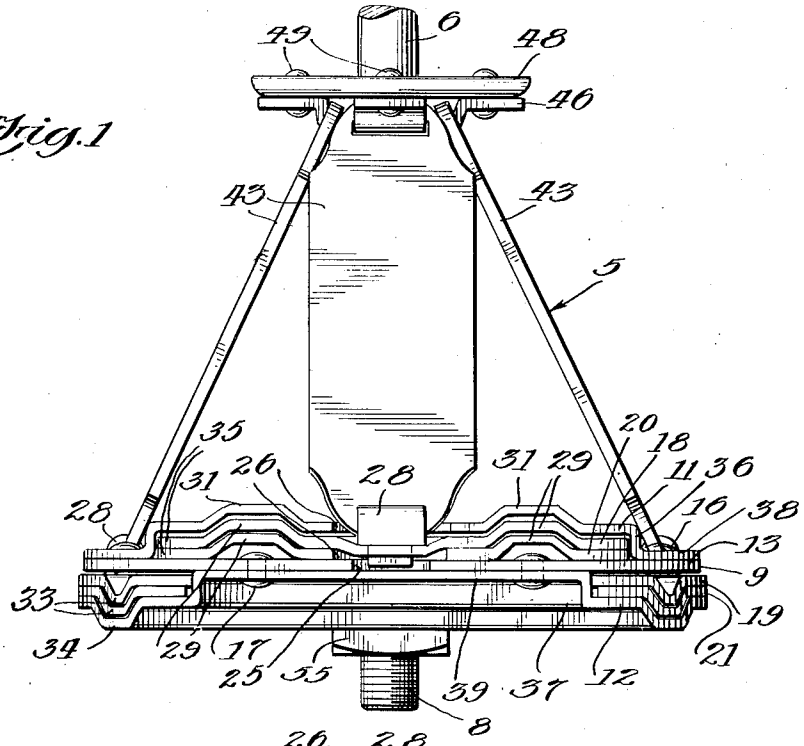
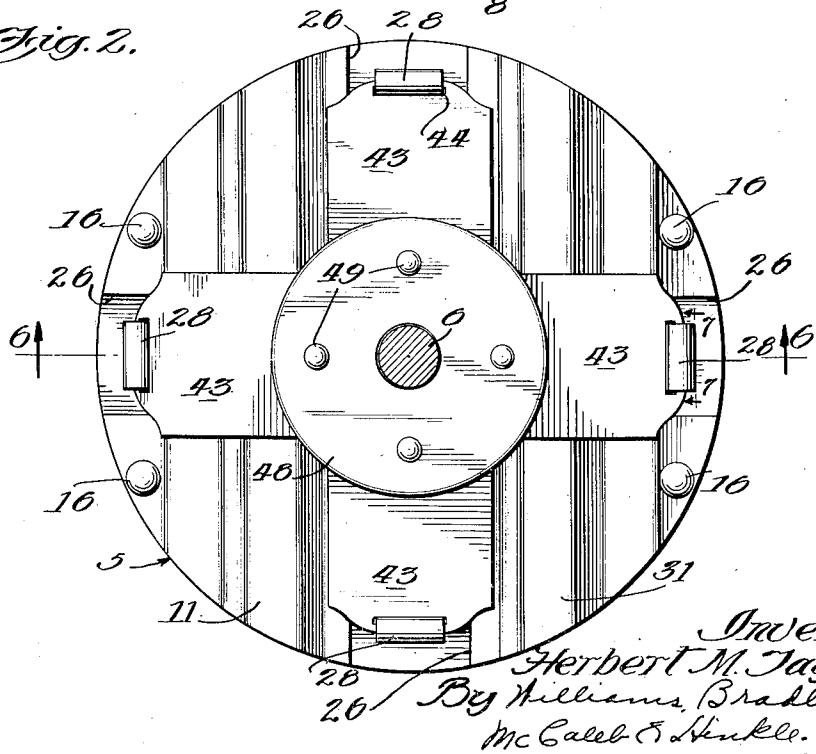


Fig. 2.



Inventor:
Herbert M. Taylor
By Williams, Bradbury,
McCaleb & Hinkle.
Attys.

July 5, 1932. H. M. TAYLOR 1,865,546

EARTH ANCHOR

Filed Dec. 2, 1930 3 Sheets-Sheet 2

Fig. 3.

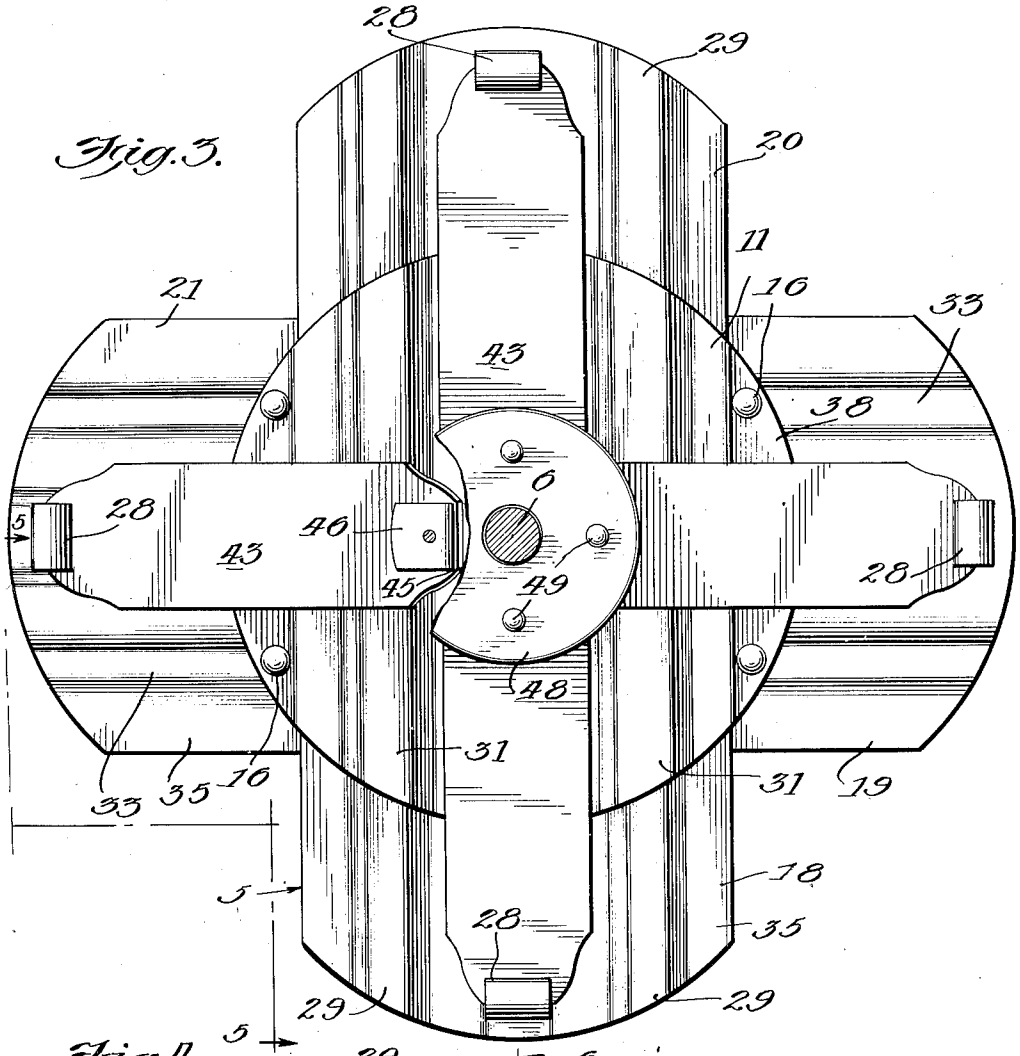


Fig. 4.

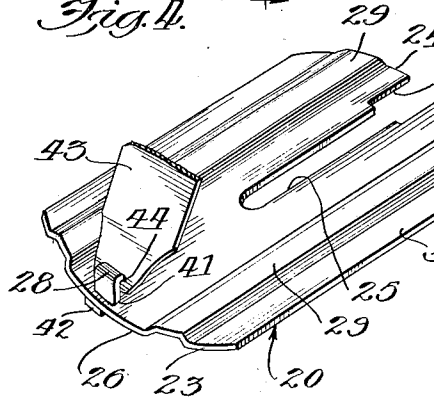
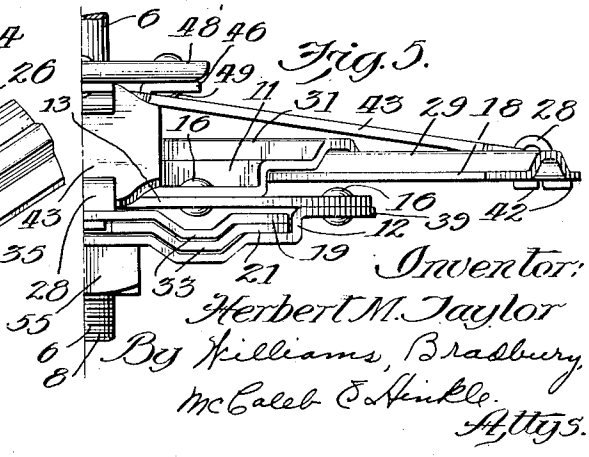


Fig. 5.



Inventor:
Herbert M. Taylor
By Williams, Bradbury,
McCaleb & Hinkle.
Attys.

July 5, 1932. H. M. TAYLOR 1,865,546

EARTH ANCHOR

Filed Dec. 2, 1930 3 Sheets-Sheet 3

Fig. 6.

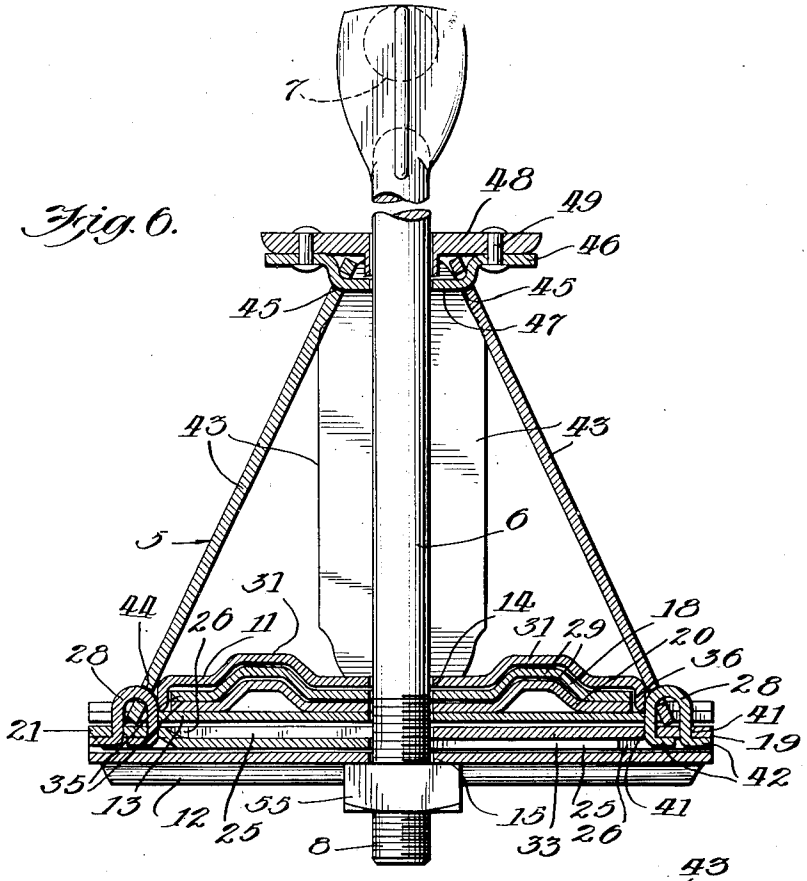


Fig. 8.

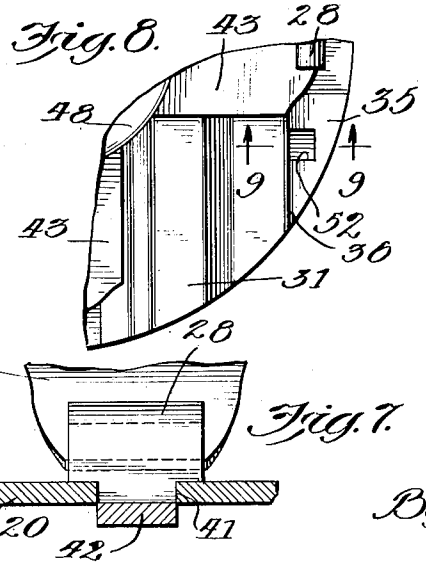
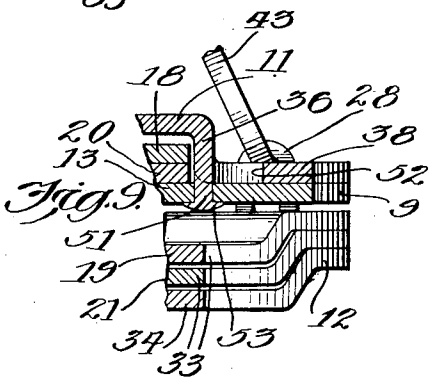


Fig. 7.

Fig. 9.



Inventor:
Herbert M. Taylor:
By Williams, Bradbury,
McCaleb & Hinkle, Attys.

Patented July 5, 1932 1,865,546

UNITED STATES PATENT OFFICE

HERBERT MUNRO TAYLOR, OF TORONTO, ONTARIO, CANADA, ASSIGNOR TO ALBERT B. CHANCE, OF CENTRALIA, MISSOURI

EARTH ANCHOR

Application filed December 2, 1930. Serial No. 499,585.

My present invention relates to earth anchors and more particularly to anchors of the expansible type.

An object of my invention is the provision of an improved commercial expansible anchor which is an improvement over that shown in the Patent 1,546,327 issued to me as inventor on July 14, 1925.

Another object is the provision of an improved expansible anchor which is more quickly and economically manufactured and assembled than the anchors of the prior art and which is capable of withstanding greater strains.

Another object is the provision of an expansible anchor of the class described comprising means for more effectively housing and guiding the extensible flukes and improved means for actuating the flukes to their anchoring position.

Other objects and advantages will become apparent from the following description.

In the accompanying drawings,

Fig. 1 is a side elevation of my improved anchor;

Fig. 2 is a top plan view of that shown in Fig. 1;

Fig. 3 is a top plan similar to Fig. 2 with the anchor in expanded condition;

Fig. 4 is a perspective view of one of the flukes with a fragment of the toggle link connected thereto;

Fig. 5 is a side elevation of a portion of that shown in Fig. 3 and is taken on the line 5—5 thereof;

Fig. 6 is a vertical section taken on the line 6—6 of Fig. 2;

Fig. 7 is a fragmentary section taken on the line 7—7 of Fig. 6;

Fig. 8 is a fragmentary plan view of a modification of my invention; and

Fig. 9 is a fragmentary section taken on the line 9—9 of Fig. 8.

My improved anchor, designated as a whole by numeral 5, is adapted to be secured to a guy rod 6 having an eye 7 adapted to receive a cable and is provided with a threaded end 8. The anchor comprises a housing 9 including a top plate 11, a bottom plate 12 and a partition element 13. The top and bottom plates 11 and 12 are preferably substantially circular in outline and corrugated to stiffen the same and more particularly to accommodate the corrugated flukes which are housed and guided therebetween. The plates are provided with central apertures 14 and 15 adapted to receive the guy rod 6. The plates are permanently secured to the partition element 13 by rivets 16 and 17, thereby forming two compartments, one above and one below the partition element 13, for housing the extensible flukes 18, 19, 20 and 21 and providing engaging surfaces which guide the flukes through their range of movement.

All the flukes are of substantially similar construction and are substantially rectangular with rounded ends 23 and 24, as shown in Fig. 4, in order that they may be concealed in the housing 9 when in their inner position. For the purpose of holding the flukes in proper alignment while being extended, they are provided with slots 25 extending from one end to slightly beyond the center so that they may embrace and be guided by the guy rod 6. The slots 25 are widened near the ends of the flukes at 26 to provide space for the clips 28 where they are secured to the opposite ends of the adjacent flukes in each pair so that the flukes may be moved to such a position that their ends substantially align with the peripheral edge of the housing 9.

The flukes 18 and 20 are provided with raised longitudinally extending corrugations or ribs 29 which rigidly reinforce the same and which are accommodated in corresponding corrugations or ribs 31 extending transversely of the top plate 11. The flukes 19 and 21 are similarly provided with complementary longitudinally extending depressed corrugations or ribs 33 which are accommodated by the depressed transverse corrugations 34 in the bottom plate 12. The corrugations are of such size that they are adapted to nest with one another whereby the corrugations of the housing provide guiding means for the flukes as they are moved radially. The flukes additionally comprise marginal flanges 35 each of which engage and have sliding contact with similar flanges on an adjacent fluke. The edges of the marginal

flanges 35 are guided by the vertical flanges 36 and 37 on the top and bottom plates respectively, which are provided with horizontal flanges 38 and 39 by which the top and bottom plates are held to the partition element 13 through the medium of rivets 16 and 17.

The flukes are each provided adjacent one end with a pair of slots 41 which receive the legs 42 of clips 28 which are bent onto the bottom of the flukes for holding the clips firmly in position. The toggle links 43 are relatively wide and rigid and are provided adjacent their lower ends with slots 44 through which the clips 28 pass for hingedly joining the links to the outer ends of the flukes. The upper ends of the links 43 are provided with slots 45 through which pass radial extensions 46 on a spider 47, which pivotally connect the upper ends of the links 43 to the crosshead 48, being secured thereto by rivets 49.

The crosshead 48 is adapted for sliding movement on the guy rod 6 for moving the flukes radially to their extended position shown in Figure 3, and from that shown in Figure 2, and vice versa.

In Figures 8 and 9 is shown a modification in which the depending flange 36 on the top plate 11 is provided with an extension 51 struck from the horizontal flange 38, leaving an aperture 52. The lower extremity of the downward extension 51 is riveted over onto the bottom of the partition element 13 at 53 to firmly hold the housing together as a unit without the employment of rivets such as those designated by numeral 16 in Figure 2.

The operation of my improved anchor is similar to that of the anchors disclosed in the prior art and particularly in my patent above mentioned, the anchor being attached to a guy rod by passing the guy rod through the portions of the anchor and securing the nut 55 on the threaded portion 8 of the rod, below the bottom plate. The anchor may then be inserted in a hole in the earth while the parts are in the position shown in Figure 1. By tamping upon the crosshead 48, force will be transmitted through the toggle links 43 to the flukes which will be forced outwardly into the walls of the hole to firmly anchor the device in position. The toggle links not only enable the extension of the flukes, but also reinforce the flukes after they have been extended and prevent the ends from buckling downwardly when force is exerted upwardly on the guy rod 6.

The bottom plate protects the flukes from pressure from beneath so that they may slide more easily and the top plate protects the flukes from fallen earth from above the anchor and prevents earth falling into the housing so that the flukes may be again withdrawn into the housing 9 and the anchor as a unit withdrawn from the earth by exerting an upward force on the crosshead, which forces inwardly radially on the flukes through the medium of the links 43. The links 43 provide great reinforcement of both pairs of flukes, which extend radially in opposite directions and each pair at right angles to the other pair in superposed parallel planes.

I have illustrated and described herein the preferred form of my invention and it will be understood by those skilled in the art that it is susceptible of modification without departing from the principal of the invention. I therefore desire to avail myself of such modifications to the extent that they come within the scope of the appended claims.

I claim as my invention:

1. In an earth anchor in combination a housing comprising top and bottom plates, and a partition element between said plates forming therewith superposed compartments disposed in parallel planes and at an angle to each other, said top and bottom plates including offset horizontal flanges permanently fixed to said partition element, flukes arranged in the compartments and links connected therewith for extending the flukes radially from said housing.

2. In an earth anchor in combination a housing comprising top and bottom plates, and a partition element between said plates forming therewith superposed compartments disposed in parallel planes and at an angle to each other, said top and bottom plates including offset horizontal flanges permanently fixed to said partition element, flukes arranged in the compartments, links connected therewith for extending the flukes radially from said housing, and guiding flanges on said housing extending along the edges of said flukes.

3. In an earth anchor in combination a housing comprising top and bottom plates, and a partition element between said plates forming therewith superposed compartments disposed in parallel planes and at an angle to each other, said top and bottom plates including offset horizontal flanges permanently fixed to said partition element, flukes arranged in the compartments, links connected therewith for extending the flukes radially from said housing, and complementary internesting corrugations on said housing and on said flukes for stiffening and guiding said flukes.

4. In an earth anchor in combination a housing comprising top and bottom plates, and a partition element between said plates forming therewith superposed compartments disposed in parallel planes and at an angle to each other, said top and bottom plates including offset horizontal flanges permanently fixed to said partition element, flukes arranged in the compartments, links connected therewith for extending the flukes radially from said housing, complementary internesting corrugations on said housing and on

said flukes for stiffening and guiding said flukes, and guiding flanges on said housing extending along the edges of the flukes.

5. In an earth anchor in combination a housing comprising a substantially flat partition element having a substantially circular periphery, a top plate spaced from said partition element across the greater portion of its width and including a flat central portion, parallel transverse upwardly pressed corrugations on opposite sides of said central portion, horizontal flanges extending laterally from said corrugations, vertical guiding flanges on the edges of said horizontal flanges, marginal securing flanges engaging said partition element and fixed thereto whereby a compartment is formed above said partition element, a bottom plate fixed adjacent its edges to said partition element and forming therewith a second compartment, corrugations and guiding flanges on said bottom plate, flukes arranged in the compartments and including corrugations inter-nesting with the corrugations in said plates, the edges of said flukes extending laterally to adjacent said guiding flanges, and links connecting with said flukes for extending the flukes radially from the compartment.

6. In an earth anchor in combination a housing comprising a substantially flat partition element having a substantially circular periphery, a top plate spaced from said partition element across the greater portion of its width and including a flat central portion, parallel transverse upwardly pressed corrugations on opposite sides of said central portion, horizontal flanges extending laterally from said corrugations, vertical guiding flanges on the edges of said horizontal flanges, marginal securing flanges engaging said partition element and fixed thereto whereby a compartment is formed above said partition element, a bottom plate fixed adjacent its edges to said partition element and forming therewith a second compartment, corrugations and guiding flanges on said bottom plate, flukes arranged in the compartments and including corrugations inter-nesting with the corrugations in said plates, the edges of said flukes extending laterally to adjacent said guiding flanges, links connecting with said flukes for extending the flukes radially from the compartment, the corrugations on said bottom plate extending at right angles to the corrugations on said top plate, a guy rod extending vertically from said housing, a cross head reciprocably mounted on said guy rod, and means pivotally fixing said cross head to said links for actuating the same.

In witness whereof, I hereunto subscribe my name this 25th day of November, 1930.

HERBERT MUNRO TAYLOR.