To all whom it may concern:

Be it known that we, DAVID H. QUINN and WILLIAM E. SWIFT, citizens of the United States of America, and residents of Boston, Massachusetts, and Lake Forest, Illinois, respectively, have invented a new and useful Improvement in Ground-Anchor Means, of which the following is a specification.

This invention relates to ground anchors for guy cables and the like.

The main objects of this invention are to provide, as a ground anchor, means for guiding the anchor posts so that they will enter the ground at the desired angle when they are being driven into anchoring position; to provide improved means for securing the posts together; and to provide improved fastening means for securing the guy cable to the anchor.

An illustrative embodiment of this invention is shown in the accompanying drawings wherein—

Fig. 1 is a top plan of a ground anchor embodying this invention, part of the anchor posts being broken away.

Fig. 2 is a side elevation of the same.

Fig. 3 is a central vertical section of the ground anchor.

Fig. 4 is an end view taken from the left of Fig. 3.

Fig. 5 is an end view taken from the right of Fig. 3.

Fig. 6 is a side view, on an enlarged scale, of one form of clamping means for fastening the guy cable to the anchor.

Fig. 7 is an elevation of one of the jaws of the clamping means shown in Fig. 6, the view being taken on the line 7—7 of Fig. 6.

Fig. 8 is an elevation of the other jaw of the clamping means, taken on line 8—8 of Fig. 6.

Fig. 9 is a bottom end view of the clamping means shown in Fig. 6.

Fig. 10 is a top end view of the clamping means shown in Fig. 6.

Fig. 11 is a central vertical section of the ground anchor, partly broken away, and showing a modified form of clamping means.

Fig. 12 is an enlarged side elevation of the driving cap.

Fig. 13 is a bottom plan of the same.

In the form shown, the ground anchor includes a guide member adapted to be supported on the ground and a pair of posts adapted to be driven into the ground through guideways formed in the guide member. The guide member includes a central brace part for rigidly connecting the posts, and a pair of detachable guide sections which are removable from the brace after the posts have been driven into anchoring position and secured to the brace part. The device also includes an improved form of clamp for securing a guy cable to the posts.

Referring to the drawings, the ground anchor includes a guide member 1 comprising separable parts coating to form guideways for a pair of posts 2, arranged for attachment to part of the guide member, and to which a guy cable 3 may be secured by an improved form of clamp 4. The device also includes a driving cap 5 constructed to protect the head ends of the bars from injury during the driving thereof and serve as a gage for preventing further driving of the posts after they have been located in proper position for attachment to the brace part of the guide member.

In the form shown, the guide member 1 comprises a central brace part 6 and a pair of separable sections 7 adapted to be detachably secured to the brace part on respectively opposite sides thereof by suitable fastening means, such as a bolt 8 extending transversely through the guide member.

The brace part 6, as illustrated, comprises a central web 9, and laterally extending flanges 10, arranged to form a pair of downwardly diverging guide ways 11 of triangular cross section for receiving the posts 2.

The sections 7 are of substantially identical construction and are in the form of plates having recesses 12 in their opposed faces for receiving the edges of the flanges 10. Formed in the plates 7 adjacent the recesses 12, are recesses 13 arranged to provide extensions of the guideways 11. The ends of the plates 7 project inwardly to form shoulders 14 for confining the draft bars 2 within the guideways 11.

The posts 2 are shown in the form of angle bars having their lower ends pointed, as shown at 16. In the posts, adjacent the upper ends thereof, are apertures 17 arranged to register with an aperture 18 formed in the central brace part 6, for receiving a locking bolt 19, which rigidly secures the posts to the brace part after the former have been driven into anchoring position.
The driving cap 5, as shown in Figs. 12 and 13, is in the form of a block, having a striking face 20 and an inclined lower face 21, provided with a pair of recesses 22 arranged at right angles to each other, for receiving the upper edges of the posts. The inner surfaces of the recesses 22 are substantially parallel to the striking face 20, as shown in Fig. 12, so that during the driving operation, the striking face 20 will be parallel to the upper edges of the post. The recesses 22 are arranged so that the lower face 21 of the driving cap comes in contact with the upper surface of the guide member to prevent further driving of the posts 2, after the aperture 17 has been located in register with the aperture 18 of the brace part 6. The driving cap 5 thus serves as a gage indicating the extent to which the posts should be driven in order to permit the insertion of the locking bolt 19.

A preferred form of clamping means 4, as shown in Figs. 1, 3, 5, and 6, comprises a pair of jaws 23 and 24 having centrally located apertures 25 and 26, respectively, for receiving the locking bolt 19. The jaw 25 is provided with a bearing surface 27 of triangular cross section to conform to the cross section of the angle bar posts 2, and the jaw 24 is provided with a boss 28 forming a bearing surface for a nut 29 carried by the bolt 19. The opposed faces of the jaws 23 and 24 are recessed, as shown in Figs. 7 and 8, to provide a substantially U shaped seat 30 for the guy cable 3. Formed on the jaw 23, at the base of the seat 30, is a knob 31 forming a cleat around which the guy cable is looped. The locking bolt 19 is also provided with a bearing block 32 or 33 mounted between the head of the bolt and the adjacent angle bar, as shown in Figs. 10 and 11.

In operation, the brace part 6 and guide sections 7 are temporarily bolted together by means of the bolt 8 and placed upon the ground in the position shown in Figs. 1 and 2. The posts 2 are then separately driven into the ground through the guideways 11, with the driving cap 5 loosely supported on the upper end of the post. When the post has been driven downwardly sufficiently to locate the aperture 17 in register with the aperture 18, the driving cap 5 rests upon the upper surface of the bearing member 1 to prevent further driving of the post. When both posts have been driven into anchoring position, the locking bolt 19 is inserted through the brace 6, clamping device 4, and posts 2 and after the guy cable has been inserted between the jaws 23 and 24, the nut 29 is tightened to secure the posts 2 and brace part 6 together. The bolt 8 is then withdrawn to permit the side plates 7 to be removed from the device for use in laying other anchors.

The modified form of clamping means shown in Fig. 11 comprises a hook 33, which is apertured to receive the locking bolt 19, and which is provided with a triangular bearing surface 34 for engagement with the angle bar.

This description and the drawing have been mainly directed to a specific embodiment of this invention, but it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

We claim:
1. Ground anchor means comprising a guide having guideways formed thereon, in combination with posts adapted to be driven into the ground and guided by said ways, said guide including separable sections removable from said posts after the same have been driven.
2. Ground anchor means comprising a guide having divergently inclined guideways formed thereon, in combination with posts adapted to be driven into the ground and guided by said ways, said guide including separable sections removable from said posts after the same have been driven.
3. Ground anchor means comprising a guide including a brace and a pair of sections adapted to be detachably secured to the brace on respectively opposite sides thereof, said brace and sections coacting to form guideways, and a pair of posts fitting said guideways and adapted to be driven into the ground through said ways, and means for securing said posts and brace together independently of said sections.
4. Ground anchor means comprising a guide having oppositely disposed V-shaped ways formed therein, said ways being divergently inclined and arranged to guide the driving of anchor posts into the ground, and a pair of sections adapted to be detachably secured to said guide on opposite sides thereof, said sections being formed to provide extensions of said V-shaped ways and having inwardly projecting parts arranged to form shoulders for confining the posts within said guideways.
5. Ground anchor means comprising a guide having guideways formed therein, in combination with posts adapted to be driven into the ground and guided by said ways, a clamp for securing a guy cable to said posts, said clamp including a pair of jaws having opposed faces recessed to form a seat for part of the cable, and a cleat formed on one of said jaws at one end of said seat.
6. Ground anchor means comprising a guide having guideways formed thereon, in combination with posts adapted to be driven into the ground and guided by said ways, and a driving cap adapted to be loosely supported on the upper end of said bars, said
guide having a part arranged to form a stop for limiting the downward movement of said cap.

7. Ground anchor means comprising a guide having guideways formed thereon, in combination with posts adapted to be driven into the ground and be guided by said ways, said guide and posts having apertures arranged to receive a locking bolt, and a driving cap adapted to be loosely supported on the upper end of said posts, said cap being arranged so as to rest upon said guide for preventing further driving of the posts when said apertures are located in register.

Signed at Chicago this 1st day of July, 1922.

DAVID H. QUINN.
WILLIAM E. SWIFT.