

Nov. 25, 1947.

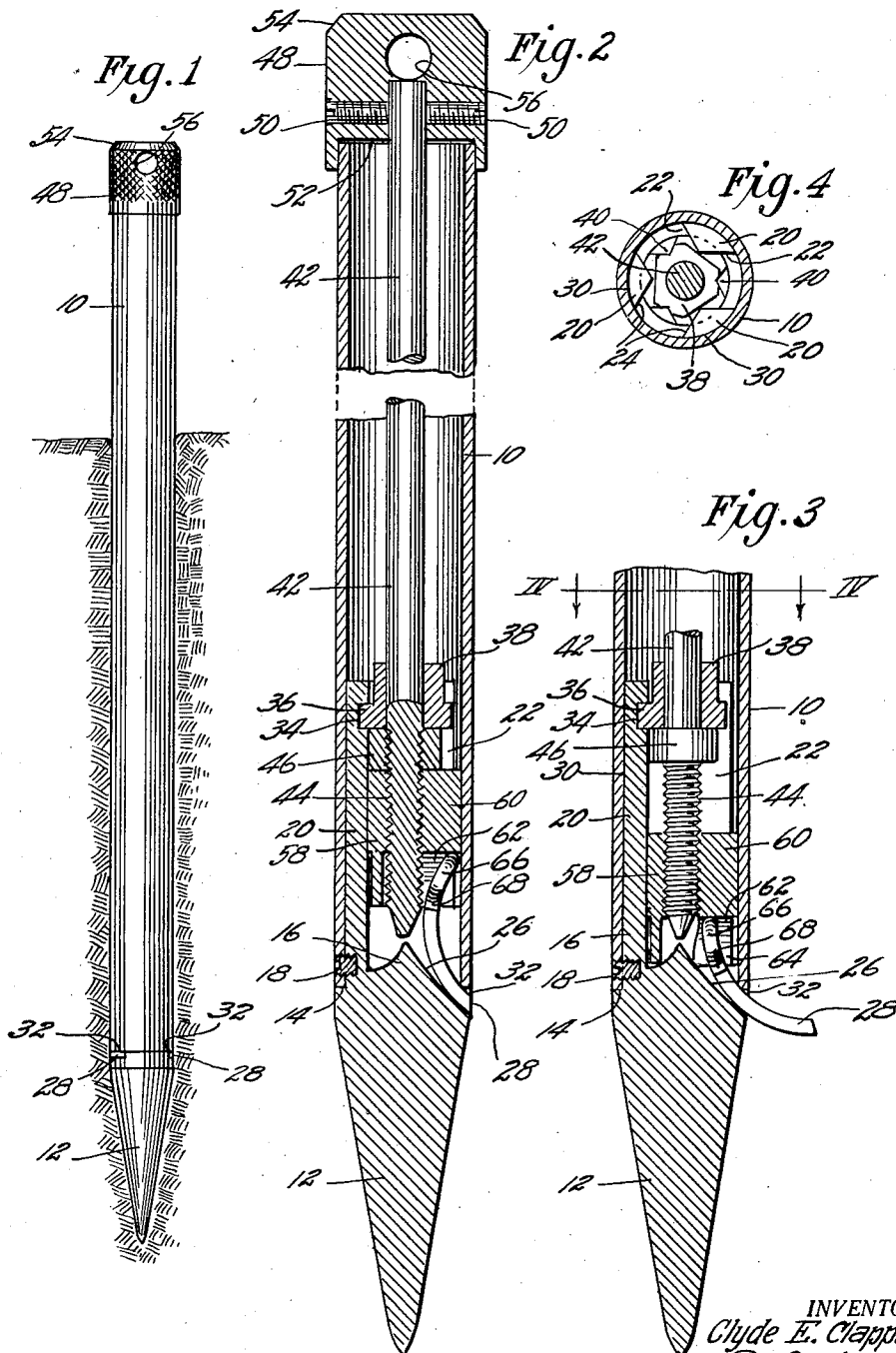
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2,431,609

ANCHOR STAKE

Filed Dec. 22, 1945

2 Sheets-Sheet 1



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Fig. 5

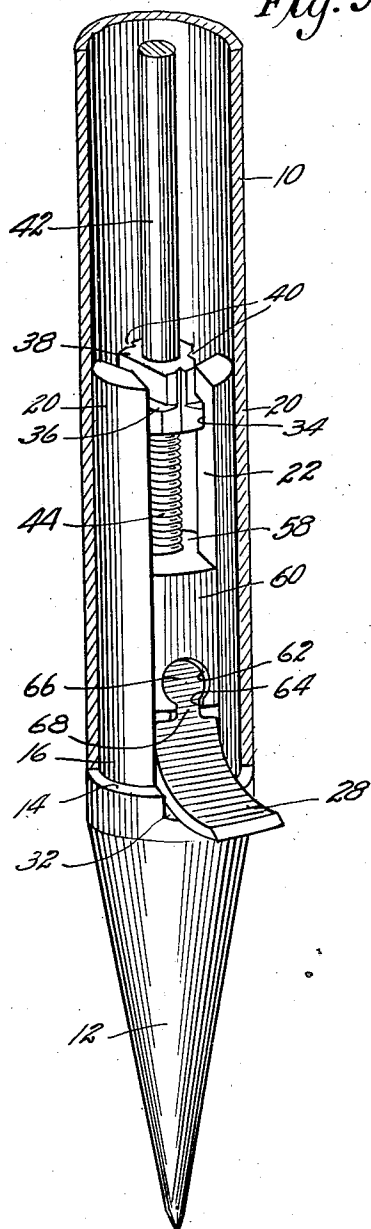


Fig. 8

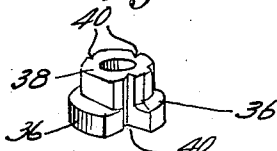


Fig. 7

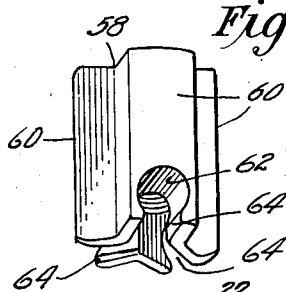
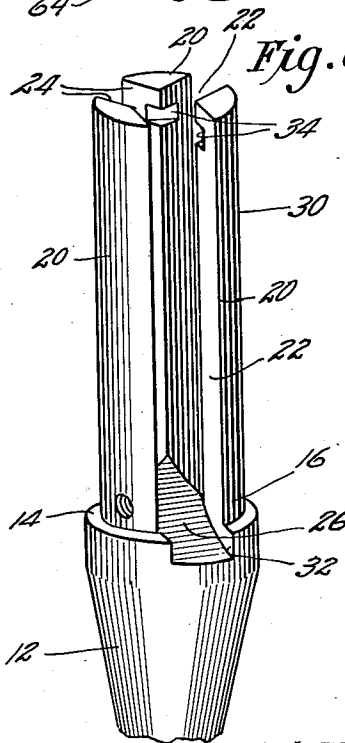


Fig. 6



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UNITED STATES PATENT OFFICE

2,431,609

ANCHOR STAKE

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Application December 22, 1945, Serial No. 636,792

5 Claims. (Cl. 189—92)

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This invention relates to improvements in anchor stakes and has for its general object a device of this kind which can be driven into the ground, anchoring by means of transverse, adjustable flukes, then when desired, the stake may be withdrawn by retracting the flukes into the stake and pulling it from the ground.

One of the first objects of the present invention is the provision of an anchor stake having means for forcing a series of arcuate flukes into the earth at substantially right angles to the axes of the embedded stake whereby there will be no tendency to raise the post upwardly as the flukes are being set and whereby the stake will thereby be securely anchored in the ground.

Another object of the invention is to produce a stake structure wherein the flukes and the fluke operating means are so interrelated that the fluke heads are adapted to move transversely of the stake as the flukes are being set and whereby the stake and fluke operating means are manually operable from above the ground level.

Other objects are simplicity and compactness of construction, ease and efficiency of operation and adaptability for many and varied uses.

With these objects in view as well as other objects which will appear during the course of the specification, reference will now be had to the drawings wherein

Figure 1 is a side elevation of an anchor stake, embedded in the earth and embodying this invention.

Fig. 2 is an enlarged, longitudinal, fore-shortened sectional view of the stake with the flukes shown in the retracted position.

Fig. 3 is a similar view to the lower portion of the stake shown in the extended position.

Fig. 4 is a cross sectional view taken on line IV—IV of Figure 3.

Fig. 5 is a perspective view of the lower portion of the stake with the casing in section and with the flukes extended.

Fig. 6 is a fragmentary perspective view of the conical driving point and associated parts.

Fig. 7 is a perspective view of the fluke operating nut.

Fig. 8 is a perspective view of the screw abutment sleeve.

Throughout the several views like reference characters refer to similar parts and the numeral 10 designates a stake casing or tubing shown as circular in cross section and provided at its lower extremity with a substantially conical driving point 12 which is shouldered at 14 to receive the lower end of casing 10 for firm abutment

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thereagainst. The shanks 16 of point 12 extend upwardly to fit snugly into the body of the housing and the point is securely fastened therein by means of a screw 18. The upper portion of shank 16 is slotted at equally spaced intervals to form like tongues 20 having adjacent parallel side walls 24 to present like grooves 22. At the lower portion of each of these grooves the shank 16 is curved from the center downwardly and outwardly to form walls 26 to serve as guides and bearings for the curved body of the flukes 28 as they are moved to and from the retracted position as hereinafter described.

It will be noted that the lower edge of casing 10 which is continuous and in a plane perpendicular to the axis of the casing 10 is positioned above the lower extremity of groove 22 to present openings 32 therebelow through which the flukes 28 are adapted to be extended and retracted. The outer walls 30 of the tongues 20 snugly fit the inner wall of casing 10. The inner edge of each of said tongues 20 is notched in like manner at 34 adjacent their respective upper ends to receive the shoulder 36 of the sleeve abutment 38 which is longitudinally grooved at 40 to permit the positioning of said sleeve between the tongues 20 whereby it may be turned through an arc sufficient to move the shoulder 36 of said sleeve into the notches 34 whereby the sleeve and tongues are interlocked against relative longitudinal movement.

A rod 42 disposed axially in casing 10 extends through sleeve 38 to a point adjacent the curved walls 26 and is threaded at 44 below the underside of sleeve 38 to receive a stop nut 46 which rests against the sleeve 38. The upper end of rod 42 extends past the upper end of casing 10 and is provided with a driving cap 48 which is secured thereto by means of set screws 50. Cap 48 is recessed at 52 to receive the upper end portion of casing 10 therein to receive the driving blows as the stake is being driven into the ground. Driving cap 48 is beveled at 54 and has a transverse hole 56 to receive any suitable operating rod, not shown, for rotating rod 42 to move the flukes to and from the extended position and also to receive the anchoring cable.

A fluke carrying and operating nut 58 mounted on the threaded portion 44 of rod 42 is secured in casing 10 against rotation by lugs 60 which are adapted for longitudinal adjustment in grooves 22. The lower extremity of each lug 60 is radially recessed at 62 to form a substantially cylindrical opening having a relative narrow neck opening 64. A fluke 28 is arcuate in form

and has a relatively thin, substantially cylindrical head 66 joined to the body of the fluke by a narrow neck 68. This cylindrical head is adapted to be moved sideways into recess 62 with its neck 68 positioned in the neck opening of the recess 64 to allow a slight rocking movement of the fluke and a sliding movement of the fluke head radially in said recess. Since the head 66 substantially fits recess 62 and is too large to pass through neck opening 64 the fluke is carried by the nut as the nut is moved up and down on rod 42.

Referring to Figures 2 and 3 it will be noted that the fluke 28 is of such a radius that when it is in the retracted position shown in Figure 2 the head of the fluke will rest against the inner wall of casing 10 and the lower end will be flush with the outer wall of the casing as the intermediate portion of the fluke is substantially in contact with the body of rod 42. Furthermore, it will be noted that when the fluke is extended as shown in Figure 3 the head 66 will have moved radially in recess 62 to a point adjacent the rod. It is quite apparent that by so constructing and operating the fluke, in a given size stake, it may be extended a maximum distance thus increasing the holding efficiency of the stake.

In the use of the stake the operator checks to see that the flukes are fully retracted as shown in Figure 2, he then drives the stake into the ground, preferably in the direction of the pull that is to be applied to the stake. When the stake is set at the desired depth the head 48 is rotated to force the flukes outwardly to engage the earth adjacent the stake. It will be noted that the flat face of the fluke is so positioned that it presents a maximum resistance to the removal of the stake, furthermore, the fluke will be secured against vertical rocking since it is snugly fitted between casing 10 and the curved wall 26. With the three flukes equally spaced about the stake, the stake will have a holding power many times greater than when the stakes are retracted. To remove the stake the operator simply retracts the flukes and pulls the stake from the ground.

I claim:

1. An anchor stake comprising a casing having a rigidly attached driving point at its one end and a rotatably mounted driving cap at its other end, an operating rod disposed axially in said casing with its one end fixed to said cap and mounted adjacent its other end in a sleeve carried by said point, threads formed at the lower end portion of said rod, an operating nut mounted on the threaded portion of said rod, means to prevent rotation of said nut in said casing, means to prevent axial movement of said rod relative to said casing, flukes transversely slidably carried by said nut and operable to and from a position beyond said casing as said rod is rotated in said casing.

2. An anchor stake comprising a casing having a driving point at its one end and a driving cap at its other end, a rod disposed axially in said casing and rotatably mounted intermediate its ends in a sleeve carried by said point and fixed at its upper end to said cap, tongues extending upwardly from said point to form radial grooves, threads formed in the lower portion of said rod, an operating nut mounted on said threaded rod for longitudinal movement therealong, lugs formed on said nut to engage said tongues whereby the nut is secured against rotation, flukes carried by the

lower portion of said nut with their outer ends in register with openings formed through said driving point, whereby when said rod is rotated said flukes will be moved substantially radially to and from the outer periphery of said casing.

3. An anchor stake comprising a casing having a rigidly attached driving point at its one end and a rotatably mounted driving cap at its other end, an operating rod disposed axially in said casing with its upper end fixed to said cap and rotatably mounted by said point intermediate its end, threads formed in the lower end portion of said rod, an operating nut operatively mounted on the threaded portion of said rod, means to prevent rotation of said nut in said casing, means carried by said rod to prevent axial movement of said rod relative to said casing, a plurality of equally spaced flukes slidably carried by said nut and operable to and from a position beyond said casing as said rod is rotated in said casing.

4. An anchor stake comprising a casing having a removably attached driving point at its one end and a rotatably mounted driving cap at its other end, a radially grooved shank integral with said point to engage the inner end of said casing, an operating rod disposed axially in said casing with its upper end fixed to said cap and its lower end portion rotatably mounted in a sleeve adjustably mounted in the said grooved shank, threads formed adjacent the lower end portion of said rod, a radially notched nut operatively mounted on the threaded portion of said rod to engage said grooved shank to prevent rotation of said nut in said casing, means carried by said rod to prevent axial movement of said rod relative to said casing, a plurality of circumferentially spaced apart flukes slidably mounted in recesses formed in the lower portion of said nut and operable to and from a position within said casing as said rod is rotated in said casing.

5. An anchor stake comprising an elongated casing, a driving point extending below said casing and having a tongued shank fitted into the lower end of said casing fixed thereto, the tongues of said shank having notches in the inner sides thereof, a driving cap at the top end of said casing, an operating rod disposed axially in said casing with its one end fixed to said cap and rotatably mounted intermediate its ends in a sleeve having a flange engaging the notches formed in the tongues of said shank to secure said sleeve and shank against relative longitudinal movement, threads formed on the lower portion of said rod, an operating nut mounted on the threaded portion of said rod, lugs on said nut to engage the tongues of said shank to prevent rotation of said nut within said casing, and flukes carried by said nut and operable to and from outwardly beyond said casing as said rod is rotated in said casing.

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