April 17, 1951 W. R. BRENNAN 2,549,287

TAPE LINE ANCHOR

Filed Oct. 17, 1949

FIG. 1.

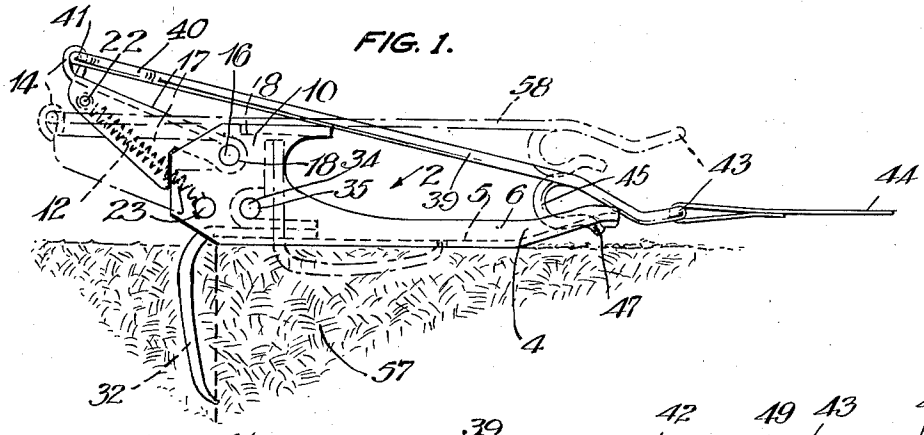


FIG. 2.

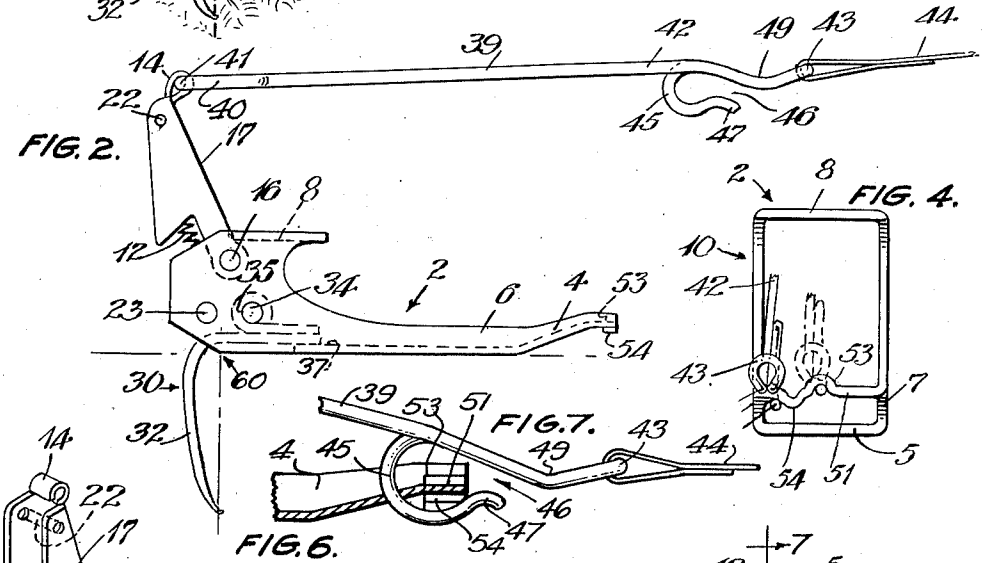


FIG. 4.

FIG. 7.

FIG. 6.

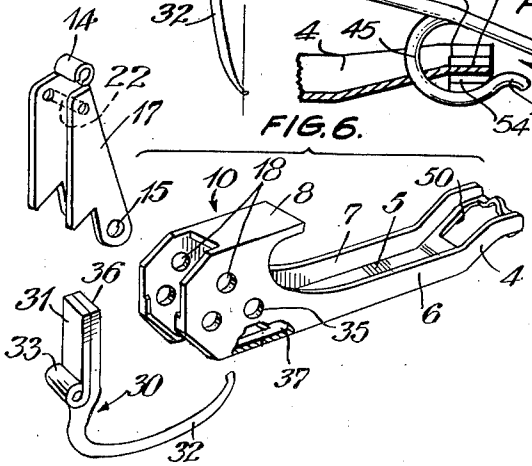


FIG. 5

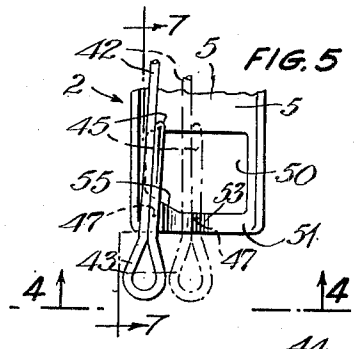
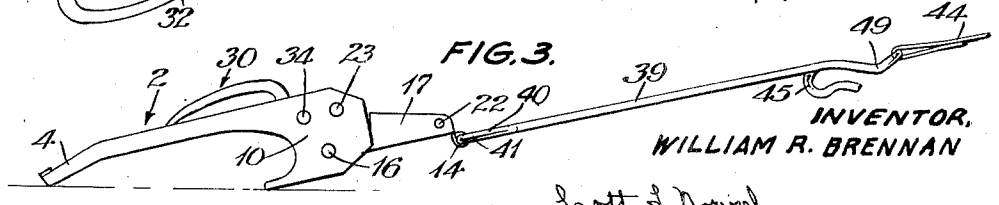


FIG. 3.



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TAPELINE ANCHOR

William R. Brennan, Phoenix, Ariz.

Application October 17, 1949, Serial No. 121,724

5 Claims. (Cl. 33—137)

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This invention pertains to tape line anchors.

One of the objects of the invention is to provide an anchor for the outer end of tape lines which may be easily attached to or hooked over the corners of buildings or similar objects and will maintain its hooked position so long as tension is maintained on the tape line, but upon release of tension will disengage or unhook so that a further pull on the tape will cause the anchor to assume a reversed position, end for end with respect to its engaging position, whereby it may be drawn through brush, shrubbery or other obstructions without snagging.

The second object is to provide a tape line anchor which has a hinged hook or prong which may be pressed into the earth, or similar substance, and will maintain its position therein so long as no tension is applied to the tape, but when the tension on the tape is applied and the tape is then given a slight pull, the device will assume a "set" position. So that thereafter, if the tape is released slightly, the mechanism will assume a disengaged position and the hook will be withdrawn from the soil, and thereafter turn end for end when the tape is reeled in, so that the body of the device can be easily drawn over obstructions such as weeds, rocks or the like without snagging or entangling.

Other objects appear hereinafter.

I attain the foregoing objects by means of the structure, construction, and arrangement of parts shown in the accompanying drawings in which:

Figure 1 is a side elevational view of the anchor as it would appear set in the earth with the parts in set position to permit the measuring tape to be drawn from the reel;

Figure 2 is a side view of this type of anchor with the parts in a position to dislodge it and remove it from the earth;

Figure 3 is a side view of the anchor turned end for end, after dislodgment and in a position to be drawn toward the operator;

Figure 4 is an end view of the anchor body showing the latching mechanism in cocked position, drawn on an enlarged scale;

Figure 5 is a plan view of the front end portion of the anchor body showing the latching mechanism cocked position; and

Figure 6, an exploded view of the anchor body case, and the working parts contained therein.

Figure 7 is a sectional side elevation of the front end portion of the latching mechanism taken substantially on line 7—7, Figure 5.

Similar numerals refer to similar parts in the several views.

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The anchor consists of, in general, case 2 which has a base plate 5 from which side plates 6 and 7 extend upwardly to form a channeled front portion 4, and a box portion 10, at the rear. This is enclosed by top plate 8.

A fulcrum lever 17 is formed of sheet metal and has a channel section which encloses spring 12, a transvers thimble bearing 14 at its outer end, and transverse bearing holes 15 at its inner end. This lever is pivotally attached within the box portion 10 of case 2 by a pin 16 which passes transversely through holes 18 in the case and holes 15 in the lever. Its forward swinging motion is stopped by contact of its upper face with the rear end of plate 8.

Spring 12 is attached at its outer end, to a transverse pin 22 extending through the outer part of lever 17, and at its inner end to a pin 23 passing through the lower outer end portion of the case. The spring normally lies in the channel of lever 17 which protects it. Its tension urges lever 17 to swing downward and outward, or rearward, relative to case 2.

Engaging hook 30 is supported on a plate 31 which extends, generally, at right angles to its prong portion or shank 32. This prong portion is curved to conform to an arc generated from a radius which has its center at the front end, or toe 4, of case 2. Plate 31 is provided with a transverse thimble bearing 33 disposed near its juncture with prong 32. A bearing pin 34 extends through holes 35 in case part 10 and hook bearing 33. The bottom adjacent face 36 of plate 31 contacts the bottom plate 5 of case 2 to afford a stop for the hook and prevent its rearward hinging movement past the vertical position shown in Figures 1 and 2. The rear portion of base plate 5 is cut away as indicated at 37 to permit the hook structure to hinge to the folded position shown in Figure 3 and by dotted lines in Figure 1.

A latch bar 39 is made of stiff wire and has an eye 40 at its rear end with a transverse portion 41 journalled in bearing 14 of lever 17. At the forward end of its shank 42 an eye 43 is formed to receive tape 44. After eye 43 is shaped the material is bent to form latch hook 45 which has an opening 46 partially closed by an inwardly curved point 47. A clearing bend 49 is formed just to the rear of eye 43.

The front end 4 of body 2 is raised somewhat, the base 5 is punched to provide hole 50, and a stop bar 51 formed. A hump 53 is made in the middle of this stop bar to receive hook 45 and a depressed portion 54 forms a hook detent to the

left of this hump as viewed from the front end, (Figure 4) to yieldably detain hook 45 on the left side of bar 51. On the same side the inner edge of stop bar 51 is beveled forward and toward its center to form a latch hook shifting slide 55.

When the device is used to anchor a measuring tape in earth 57, latch bar 39 is drawn forward so that fulcrum lever 17 is drawn partially up and tension drawn on spring 12. Hook 45 is then engaged over stop bar 51, as shown in Figures 4, 5, and 7, so that the left side of the bar is engaged within the opening 46 of the hook and with the point 47 engaging under and in front of the front edge of bar 51. To maintain this position the bar 39 is drawn to the left side of bar 51 (as shown in Figure 4), and since this springs the bar slightly, it is maintained in this position by detent 54. Lever 17 pulls the outer end of bar 39 downward while its shank 42 rocks on the forward edge of plate 8 and the point 47 of hook 45 engages under the wide left side of plate 51 and presses upward. The point 47 is bent upward sufficiently so that it engages under the front edge of bar 51. The opening 46 is sized so that this left portion of bar 51 is pinched between the lower face of bend 49 and point 47 and the hook 45 is thus both frictionally retained on bar 51 and its point engaged under and in front of the front edge of bar 51 so that it resists any rearward pull of lever 17 when in this cocked position. In this condition the parts are said to be cocked.

Hook 30 is then folded outward with shank 32 substantially at right angles to body base plate 5. This toe 4 is then placed on the ground and the shank 32 inserted into the earth with a downward rocking motion until it attains the position shown in Figure 1. Tape 44 is then drawn off the reel (not shown) in the usual manner. The anchor remains in place and in cocked condition as the user approaches the place where the measurement is to be taken. When this is reached the user pulls lightly on the tape to move hook 45 from cocked position to set position indicated by dotted lines as indicated in Figures 4 and 5, and by solid lines in Figure 1. This pull on the tape is not sufficient to disturb hook 30 because it is in the direction of the bend of its point, but it is sufficient to pull hook 45 fully onto bar 51 so that the bottom of the bend of the hook bears against the shifting bevel slide 55. This slide shifts the hook to the center of bar 51, and hook 45 rests in hump 53. Downward tension of lever 17 pulls the outer end of bar 39 down, its shank 42 rocks or fulcrums on the forward edge of plate 8, and hook point 47 is held upward in hump 53. The parts are then said to be in "set" condition, as shown in Figure 1 and will remain in this condition only as long as tension is maintained on tape 44, in a direction away from the anchor. This condition is maintained while and until the measurement is taken. Thereafter the tape is released. When this is done, spring 12 pulls fulcrum lever 17 down and draws bar 39 to the rear so as to disengage hook 45 from bar 51. It first springs up to the free position shown by dotted lines 58, Figure 1, and may then be further raised as tape 44 is drawn toward the user. Motion of the tape draws bar 39 to the right as shown in Figure 2, and the upward extended position of lever 17 places the bar in a position so that it easily draws hook 30 out of the earth as it rocks forward on its toe 4, and withdraws hook 30 from the earth on the radius of curvature of shank 32. As soon as hook 30 disengages, further pulling on the tape causes the anchor body 2 to turn end for end and trail behind bar 39, as shown in Figure 3. Hook 30 then folds down and will not snag on obstructions, and bend 49 fends weeds and the like from hook 45, so that the entire anchor may be drawn over the ground, over obstructions, through branches of trees, weeds and the like without hanging up, as the tape is reeled in.

The above described operation pertains particularly where the tape is used for making measurements on the surface of the ground. Where measurements are to be made horizontally along the vertical surface of a wall the anchor is attached to a corner 60, Figure 2, and hook 45 engaged in the "set" position, because tension must be maintained on the tape to keep hook 30 in position on the wall. After the measurement is taken the tension on the tape is released and the same retrieve or reeling-in procedure used. The user need not walk toward the place where the anchor was affixed, nor retrace his steps over the distance measured.

From the foregoing it will be seen that I have provided an efficient tape anchor which will enable one man to take measurements quickly and accurately which heretofore required two men.

I claim:

1. A tape line anchor for temporarily securing the outer end of a measuring tape in soil, or the like, comprising in combination, a case having a flat bottom, a slightly upturned front end having a transverse stop bar with a raised hook engaging hump in its middle and a hook detaining portion at one side thereof provided with a shifting slide, and a box-like rear portion; a fulcrum lever hinged in said box-like portion of said case and arranged to swing from a raised position over said case body to a rearwardly extending position substantially alined with said case; a spring operative between said case and said fulcrum lever adapted to normally urge said lever to said rearward extended position; a latch bar, hinged to the outer end of said fulcrum lever having an eye to receive a measuring tape at its forward end, a clearance bend to the rear thereof, and a forwardly opening hook below and to the rear of said bend, said latch bar being arranged to extend over said case fulcruming on said box-like portion and with its hook adapted to temporarily engage over and under the hook detaining portion of said case latch bar, and to be resiliently detained thereon so that forward motion of said hook will contact it with said shifting slide and move it to a position within said hook engaging hump; and a soil engaging hook hinged to the rear portion of said case and arranged to swing from a downwardly extending engaging position, to a forwardly extending folded position.

2. A tape line anchor, comprising in combination, a case having a flat bottom, a channelled front portion with an upturned front end, and a box-like portion at the rear end, a stop bar formed at the front end adjacent an opening in said bottom, having a centrally positioned upward hump, a downwardly extending detent adjacent thereto, and a forward and inward slanting shifting slide along its rear edge; a fulcrum lever hinged to said box-like case portion adapted to swing from a substantially upright position to a rearwardly extending horizontal position; a spring operative between said lever and said case normally urging said lever to said rearward horizontal position; a latch bar hinged to the outer end of said lever, having an eye at its outer end adapted to receive a measuring tape,

and an outward opening hook on its underside adapted to engage over and under said stop bar and remain in cocked position on the side thereof having said shifting slide, and to engage in said stop bar hump, in set position, after being disengaged from cocked position by a forward pull on its tape receiving eye so long as forward urge is maintained on it, by pull on said eye, sufficient to overcome the rearward urge of said spring on said fulcrum lever; and an engaging hook hinged to said case whereby it will swing from an extended position substantially at right angles to said case bottom forward to a folded position substantially parallel thereto.

3. A tape line anchor for temporarily securing the outer end of a measuring tape in soil or the like, comprising in combination, a case having a flat bottom, a slightly upturned front end having a transverse stop bar with a raised hook engaging hump in its middle and a hook detaining portion at one side thereof provided with a shifting slide, and a boxlike rear portion; a fulcrum lever hinged to the rear of said boxlike portion of said case and arranged to resiliently extend rearwardly from said case; a latch bar hinged to the outer end of said lever having a tape eye and an outward opening hook having an inwardly curved point partially closing the opening of said hook at its free end and adapted to extend forward over said case body and temporarily engage said hook in cocked position under the front edge of the hook detaining portion of said stop bar, said hook then being positioned so that a forward pull on its tape eye will engage it with said shifting slide and move it centrally to set position, with said hook engaging in said bar hump where it will be retained so long as a forward pull is maintained on said bar and hook sufficient to overcome the rearward urge of said fulcrum lever; and a soil engaging hook hinged to the rear portion of said case and arranged to swing from an outwardly extending engaging position to a forward position parallel with said case bottom; said engaging hook having its soil engaging shank curved in an arc having its radius centered at the front end of said case, to aid in the insertion into and removal of said engaging hook from the soil.

4. A tape line anchor for temporarily attaching the outer end of a measuring tape to a wall corner, or the like, comprising in combination, a case body having a flat bottom, a channeled front portion having a transverse latch bar at its front end and a box-like rear portion; a forwardly hinging engaging hook extending downward from said bottom, a fulcrum lever hinged at one end to the rear of said case having spring means to resiliently urge it to a rearwardly extending position, a latch bar hinged to the free end of said fulcrum lever adapted to receive a tape at its outer free end, and to fold forwardly over said case body and engage said latch bar at the front end thereof and maintain said engagement so long as forward tension is maintained thereon by said tape, and to disengage therefrom by rearward urge of said fulcrum lever when said forward tension is temporarily released, said latch bar then being positioned above said case body so that forward pull on said tape will be transmitted to the rear end of said case through said fulcrum lever whereby it will be turned end for end and said engaging hook released.

5. A tape line anchor for temporarily securing the outer end of a measuring tape in soil or the like, comprising in combination, a case having a flat bottom, a slightly upturned front end having a transverse stop bar with a raised hook engaging hump in its central portion and a depressed portion forming a hook detent at one side thereof provided with an angular centrally trending shifting slide on its inner edge and a boxlike rear portion; a fulcrum lever hinged to said boxlike portion of said case and arranged by spring means to resiliently extend rearwardly from said case rear end; a latch bar hinged to the outer end of said lever having a tape eye and an outward opening hook having an inwardly curved point at its free end adapted to extend forward over said case body and engage said hook in cocked position on the hook detaining portion of said stop bar with the hook point engaging under and in front of said hook bar; said hook being positioned so that a forward pull on its tape eye will bring it into engagement with said shifting slide and move it centrally to set position with said hook engaging in said bar hump so long as a forward pull is maintained on said stop bar sufficient to overcome the rearward urge of said fulcrum lever; and a soil engaging hook hinged to the rear portion of said case and arranged to swing from a downwardly extending engaging position to a forward folded position parallel with said case bottom.

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