

Dec. 11, 1956

J. ALGER

2,773,470

SURVEYOR'S STAKES

Filed Sept. 29, 1954

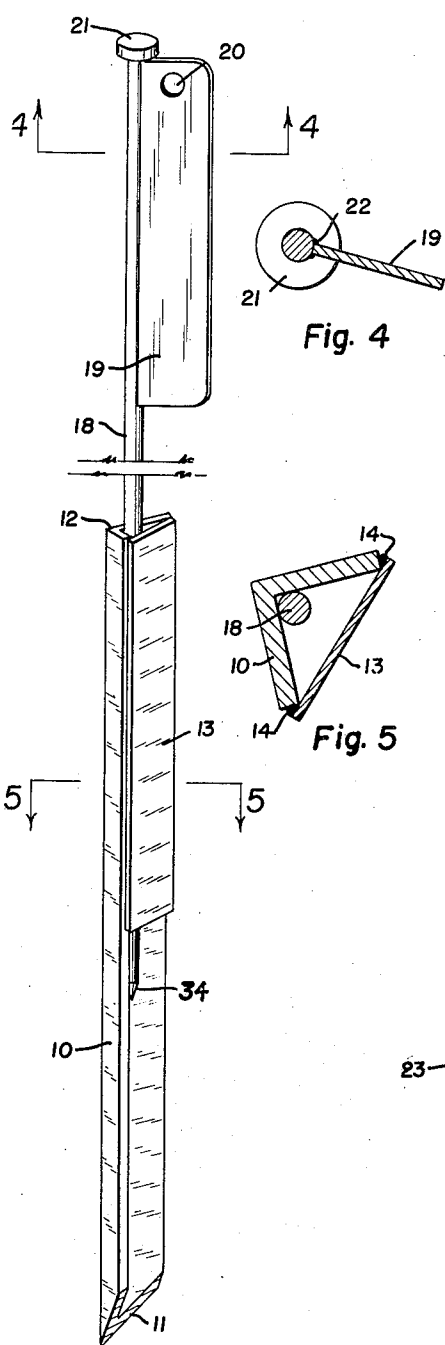


Fig. 1

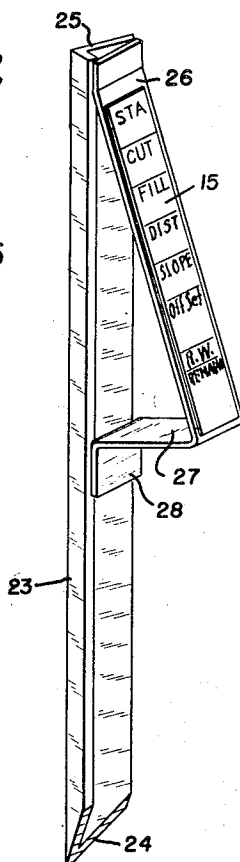


Fig. 2

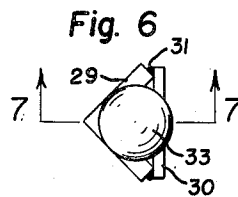


Fig. 6

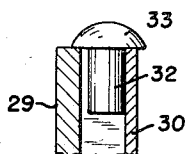


Fig. 7

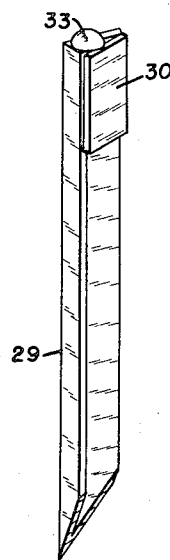


Fig. 3

16	STA	15
	20	
17	CUT	
	.6'	
	FILL	
	DIST	
	20'	
	SLOPE	
	Off Set	
	RW	
	REMARKS	

Fig. 8

INVENTOR.
John Alger
BY
[Signature]
ATTORNEY

1

2,773,470

SURVEYOR'S STAKES

John Alger, Lakewood, Colo.

Application September 29, 1954, Serial No. 459,159

6 Claims. (Cl. 116—114)

This invention relates to a surveyor's stake and is more particularly designed for highway survey work. Highway survey stakes are usually made from wood and are so damaged on each job that they cannot be retained for use on succeeding jobs, thus the cost of stakes on highway survey work is exceedingly high.

The principal object of this invention is to provide a highly effective and economical metal stake which will be highly efficient for highway work and which can be used repeatedly so as to eliminate constant replacement costs.

Another object of the invention is to provide a grade stake for highway surveying upon which the grade marks and other instructions can be quickly and easily placed and upon which the marks will be easily visible to the grader operators.

A further object is to provide a grade stake for highways with an improved and easily used signal flag to indicate to the graders the positions of the various stakes so that they will not be plowed out or covered over and to provide a flag of this type which will be exceedingly substantial so that it may be repeatedly used.

A further object is to provide a grade stake of the type usually known as "blue top" stakes such as used for the finish grading with means which will allow a grader blade to pass over the stake without pulling, tilting or breaking the stake.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is a perspective view of one form of the improved surveyor's stake illustrating it with an improved signal flag in place thereon;

Fig. 2 is a similar view of a second form of the improved stake;

Fig. 3 is a similar view of a third form of the improved stake;

Fig. 4 is a horizontal cross-section looking upwardly on the line 4—4, Fig. 1;

Fig. 5 is a similar cross-section looking downwardly on the line 5—5, Fig. 1;

Fig. 6 is a top view of the stake of Fig. 3;

Fig. 7 is a vertical, fragmentary section, taken on the line 7—7, Fig. 6; and

Fig. 8 illustrates an indicating card designed to be applied to the improved stakes.

All forms of the improved stake are formed from conventional, structural steel angle iron. An angle $\frac{3}{4}$ " x $\frac{3}{4}$ " x $\frac{1}{8}$ " has been found to be satisfactory. The angle irons can be cut in various lengths to provide stakes of any desired length and for any desired use including the

2

relatively short "blue top" or final purpose stakes. In Fig. 1, the angle iron has been cut to provide a preliminary survey stake 10. It is cut on a bias at its lower end to provide a pointed extremity 11 and at right angles at its upper end to provide a flat upper or driving extremity 12.

A metallic marker strip 13 is welded or otherwise secured along its two vertical edges, as indicated at 14 in Fig. 5, to the two legs of the angle iron of the stake 10 so that the upper extremity of the marking strip 13 will align with the driving extremity 12 of the stake. The stake can be used as usual with the various surveyor's instruction marks marked in chalk or pencil on the marking strip 13. It is preferred, however, to cement, with water-proof cement, a marking card 15, see Fig. 8, onto the marking strip 13.

The card 15 is imprinted, as indicated at 16, with spaces and headings to receive the usual grading instructions. The surveyor fills in these spaces as indicated at 17.

With the usual wooden survey stake, it is often necessary to insert a wooden lath alongside the stake to indicate its position. These laths are very unstable and become knocked over and lost. As a result, the stake cannot be located and must be reset. With this improved stake, however, a metal signal rod 18 replaces the usual wooden lath. The signal rod 18 is provided with a pointed extremity 34 adapted to be inserted in the triangular pocket formed by the angle of the stake 10 and the facing strip 13, as shown in Figs. 1 and 5. The rod 18 may be of any suitable length to project upwardly so as to be easily visible.

A metallic signal flag 19 is welded or otherwise secured, as indicated at 22, longitudinally of the upper extremity of the rod 18. The flag 19 is formed with a hanging opening 20 which allows a plurality of the signal rods and flags to be suspended from a suitable carrying ring. The rod may be provided with an enlarged driving head 21.

An alternate form of the improved stake is illustrated at 23 in Fig. 2. It also consists of a length of standard angle iron cut off at its bottom to form a pointed extremity 24 and at right angles at its top to provide a driving extremity 25. An angularly bent indicating strip 26 is welded at its top across the legs of the angle adjacent the driving extremity 25, thence extends outwardly and downwardly to provide an inclined surface for receiving the information card 15, thence extends inwardly, as indicated at 27, and downwardly, as indicated at 28, to a second welded attachment across the legs of the angle of the stake 23.

The uses and functions of the alternate form of stake are similar to these of the previously described form, however, the angularly bent indicating strip 26 places the information card 15 at a more convenient angle to be viewed by the grader. It also forms a handle for holding or removing the stake or for hanging a plurality of stakes from a supporting ring.

A second alternate form of the improved stake is indicated at 29, in Fig. 3. This form is similar to the first previously described forms except that it is of less length and is provided with a relatively small plate 30 welded, as shown at 31, or otherwise secured across the legs of the angle adjacent the driving extremity of the stake. This form is to replace the usual "blue top" grading stakes which are usually formed from wood and have their tops colored with blue chalk to indicate the exact finish level of the grading.

In this form the shank 32 of a rivet round head 33 is inserted in the socket formed by the angle iron of the stake 29 and the plate 30. The rounded top of this rivet indicates the finished grade plane and a grader

3

blade can strike the rounded head of the rivet and ride thereover without damaging, pulling or bending the stake. When the grading is finished, the rivets 33 can be lifted from place and a hooked instrument hooked in the stake beneath the plate 30 and withdraw the stakes from beneath the roadway.

While a specific form of the improvement has been described and illustrated herein, it is to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

1. A surveyor's stake comprising: a length of structural angle iron; an inclined lower extremity on said length forming a point at the intersection of the two legs of the angle iron, the upper extremity of said length being cut at right angles to form a flat driving extremity; and a metallic strip extending longitudinally of said length adjacent said driving extremity and being secured at its sides to the two legs of the angle iron to form a triangular socket at the upper extremity of said stake.

2. A surveyor's stake as described in claim 1 having a marking card supported on the face of said strip.

3. A surveyor's stake comprising: a length of structural angle iron; an inclined lower extremity on said length forming a point at the intersection of the two legs of the angle iron, the upper extremity of said length

4

being cut at right angles to form a flat driving extremity; a metallic strip extending longitudinally of said length adjacent said driving extremity and being secured at its sides to the two legs of the angle iron to form a triangular socket at the upper extremity of said stake; and a signal rod inserted in said triangular socket and extending upwardly from said stake.

4. A surveyor's stake as described in claim 3 having a relatively flat, rigid signal flag secured to and projecting from said rod adjacent its upper extremity.

5. A surveyor's stake as described in claim 4 having a driving head formed on said rod and having an opening formed through said flag for suspending said flag and said rod.

6. A surveyor's stake as described in claim 1 in which the lower extremity of said metallic strip extends away from said length of angle iron, and in which means are provided between said strip and said angle iron acting to maintain said lower extremity in spaced relation to said angle iron.

References Cited in the file of this patent

UNITED STATES PATENTS

343,365	Daniels	June 8, 1886
1,745,303	Lance	Jan. 28, 1930
2,660,822	Hargus	Dec. 1, 1953