March 23, 1965 I. M. KESSLER 3,174,588

METAL LOCATING AND MARKING CAP FOR METAL SURVEYORS' STAKES

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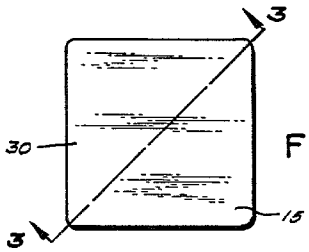


FIG. 2

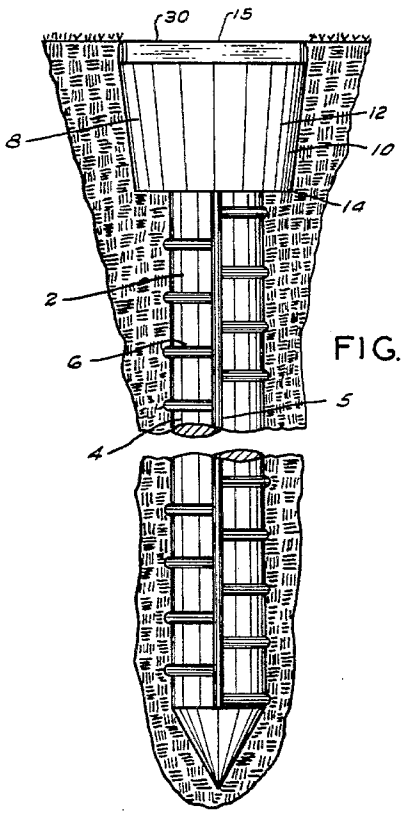


FIG. 1

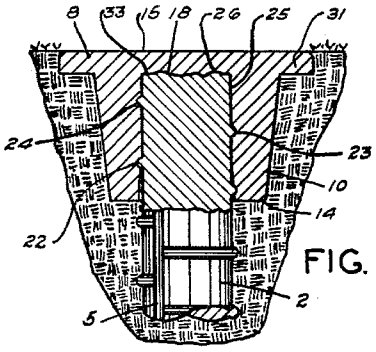


FIG. 3

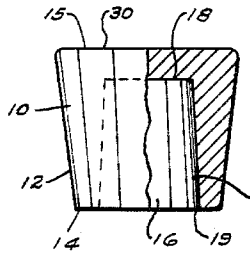


FIG. 5

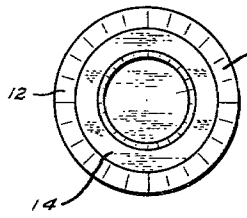


FIG. 4

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METAL LOCATING AND MARKING CAP FOR METAL SURVEYORS' STAKES

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1 Claim. (Cl. 189—21.3)

This invention concerns a metal survey stake marker. Heretofore survey stakes, for the most part, have been made from short lengths of pipe or tubing and markers were driven into the pipe after it had been driven into place. I have found however that short lengths of reinforcing steel having ridges and ribs on its outer surface provides a better survey stake than metal pipe or tubing. The problem of placing markers on the upper ends of these stakes however had not been solved and I have now discovered that a metal cap can be provided which is both easily attached and detached when necessary and can be used as a marker.

In view of the foregoing one of the objects of this invention is to provide a metal cap which can be driven onto the upper exposed end of a solid metal survey stake and will stay locked in place until it is desired to remove it.

Another object is to provide a cap for a solid metal survey stake which has a socket hole on its lower side with tapering sides so that when the cap is driven onto a steel survey marker stake the soft metal of the cap will be deformed somewhat and conform to the irregularities in the top end of the survey stake so that it will wedge in place when driven onto the stake.

Still another object is to provide a marker cap for metal survey stakes which has means for identification by its shape and which may receive identifying marks which are easily applied in the field.

Still another object is to provide a survey stake marker cap as above stated which has a tapering hole in its bottom face and means within the hole for retention of the top of the stake that will prevent its accidental removal and having a soft metal top that is adapted to receiving idenifying marks easily made in the field without heat or special tooling.

Other objects will appear hereinafter.

I attain the foregoing objects by means of the devices, parts and combinations of parts shown in the accompanying drawings, in which

FIGURE 1 is a side elevational view of a solid metal survey stake with my marking cap applied, as set in the earth;

FIGURE 2 is a plan view thereof;

FIGURE 3 is a mid-sectional view of the cap and upper portion of a solid metal survey stake; said section being taken substantially on line 3—3 of FIGURE 2;

FIGURE 4 is a bottom view of a modified form of cap; and

FIGURE 5 is a side elevational view of the modified form of cap shown in FIGURE 4 and shows the cap partially in mid-section.

Similar numerals refer to similar parts in the several views.

Referring principally to FIGURE 1, numeral 2 indicates a metal survey marking stake of the type preferably used in connection with the present device.

It is to be noted that this stake is solid metal, preferably steel, and is cylindrical in shape and has its outer surface 4 provided with vertical ribs 5 at one or more side positions with semi-annular ribs 6 connecting the vertical ribs at intervals. This structure is used to prevent the accidental or unintentional withdrawal of the stakes from the ground so that a stake of comparatively small size only is sufficient. That is, a smooth stake, if not provided with predesigned roughness on its surface would not stay put in fixed position in the ground. The cap generally indicated by numeral 8 is made of soft metal, such as lead, alloyed with a small proportion of hardening metal, such as antimony, but not to such an extent as to render the alloy brittle. Aluminum also can be used for this purpose. The body 10 of the cap is made generally in the shape of a rounded plug having its outer surface 12 converging towards the bottom end 14. The top 15 is flat.

Centrally disposed in the bottom 14 of the plug there is a hole 16 which has upwardly converging side walls 17. The hole terminates at a flat end wall 18.

The hole is round and is made to approximate the rounded size of the stake 2. At its lower end 19 the hole is slightly larger than the general diameter of the stake. Since the walls taper and converge upwardly the side walls of the hole are approximately the same size as the outer diameter of the ribs 6 at a point just above the lower end of the hole. Thus, the rib 22, FIGURE 3, is approximately the diameter of the hole 16 at about one-quarter inch above its bottom opening. On the other hand the rib 23, nearer the end of the hole is a comparatively tight fit within the hole and causes the ribs 22 and 24 to wedge into the hole to such an extent that some of the metal of the side walls of the hole is scraped or gaulded or deformed. The smooth surface 25 of the stake wedges into the upper end 26 of the hole until, as the cap is driven onto the stake, the upper end of the stake is completely wedged into the hole 16 and some of the soft metal of the cap is deformed to allow the stake to extend to the bottom of the hole and seat on the end wall 18, as shown in FIGURE 3.

The outer portion of the top of the cap body may be smooth, as shown in FIGURE 5. However, to afford an easy way of identification the top portions 30 of the caps may be made square as shown in FIGURES 2 and 3. In this case, there is a slight overhang or rim 31 at certain portions of the top. In the examples shown, the square corners extend somewhat and protrude over the smooth tape-in walls 12 of the body of the plug.

In use, the stake 2 is first driven into the ground, at the proper place to be marked, and its top end left protruding a short distance. In conducting this operation the upper end of the steel stake may be slightly peened over. This leaves the upper edges 33 of the outer surface of the stake somewhat roughened and this aids in making the cap fit tightly upon the stake. Next the cap is placed in position and driven onto the stake until the end of the stake fits against the inner wall 18 of the cap. This seats the stake well within the taper of the cap and since the metal of the cap is deformed, a tight fit is attained so that the cap cannot be removed without positive intentional movement.

The top of the cap may then be marked with identifying indicia which may be either scratched, cut or driven into the soft metal of the flap top 15.

Obviously other substances such as plastics that have the same characteristics as metal may be used for the material of the cap.

I claim:

A locating and marking stake for surveyors comprising a hard metal substantially cylindrical stake body having diametrically opposed longitudinal ribs and a plurality of longitudinally spaced circumferential ribs extending at least partially around the body between the longitudinal ribs, and a one-piece marking cap for said stake body having an imperforate upper portion and a substantially circular body of soft malleable metal material with a flat bottom, said cap body having a blind hole

in its bottom extending centrally upwardly and having an upwardly converging peripheral wall surface, the exterior surface of the marking cap body converging downwardly to the bottom edge whereby the thickness of the body of malleable metal reduces from the upper end of the blind hole to the bottom end thereof, said hole being disposed to wedge said cap on the top of said stake body with the taper of the soft malleable metal body facilitating deformation thereof at least partially around the ribs for locking the cap to the stake body when the upper portion of the cap is struck with a driving implement, said upper portion having a flat top and being constructed of soft malleable metal to receive impressed indicia.

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