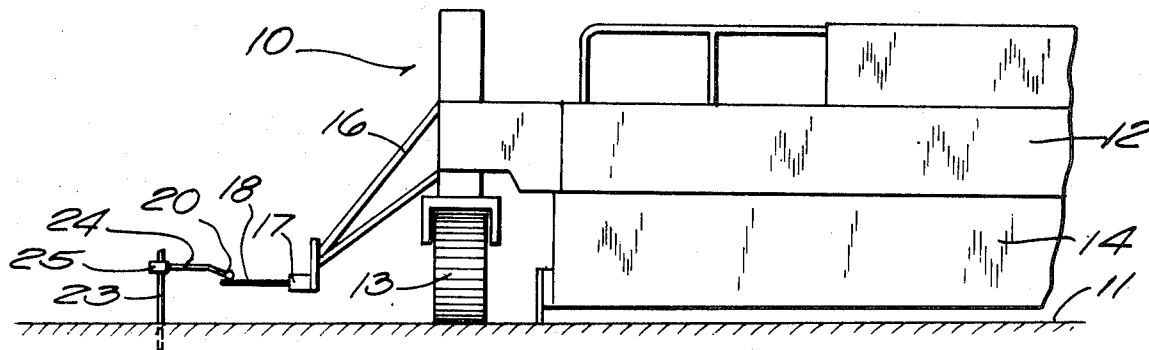
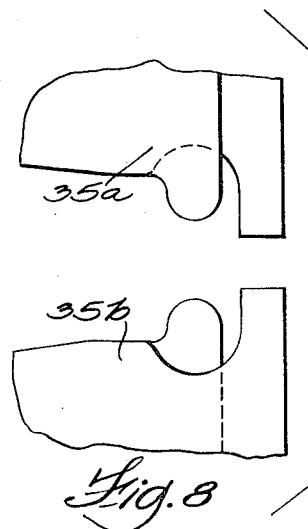
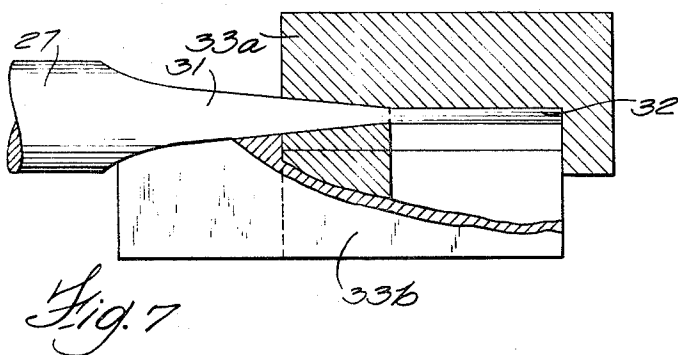
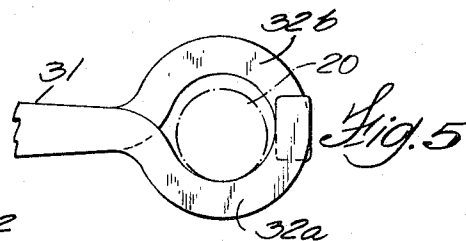
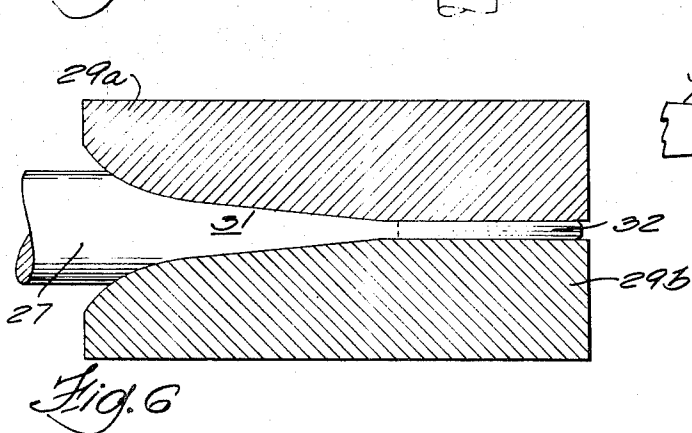
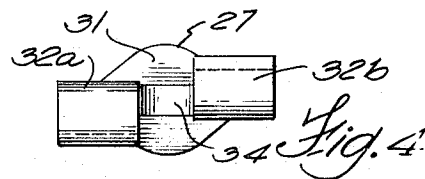
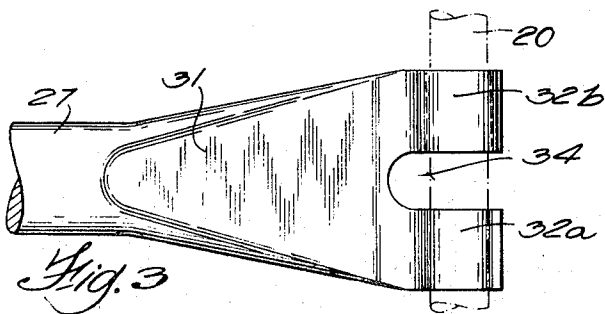
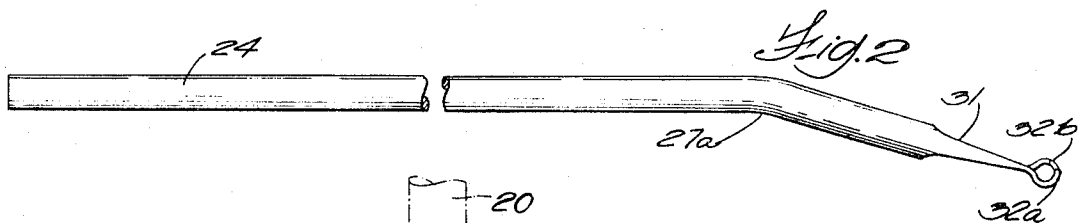
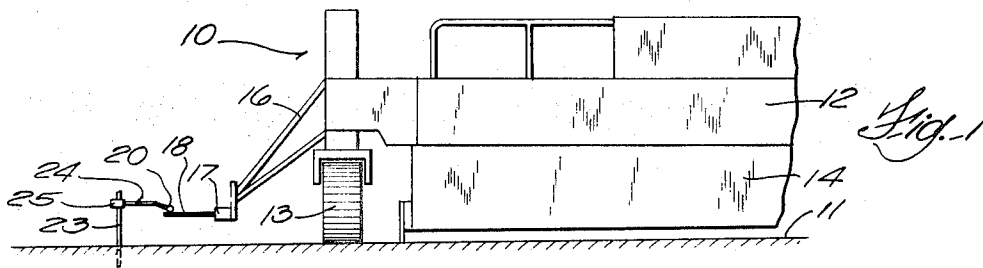


Hudis

[45] Oct. 9, 1973





STRINGLINE HOLDER

BACKGROUND OF THE INVENTION

Stringline holders for roadway construction are used in great numbers and must be of rugged construction and of low cost. In particular the end of the holder which directly engages the stringline should be of nominal dimensions, if possible, so that the sensor engaging the stringline is not appreciably displaced as it passes the holder. Alternatively, if the operator of the machine chooses instead to deactivate the sensor while it passes the holder, the holder should not be of such a size that some considerable amount of time is required of the operator for this interval.

For roadway paving, a stringline is generally required for both sides of the roadway and generally it is required that the line be supported every 25 feet. Up to and over 1 mile of paving may be completed in an extended working day so that placing and removing 422 holders each day is required. Thus, such holders must be of low cost as well as rugged construction.

SUMMARY OF THE INVENTION

A stringline holder of integral, low-cost construction includes oppositely swaged and curled ends of nominal thickness whereby the sensor of a roadway construction machine operating along the stringline may readily pass the holder. The end of the holder comprising a soft iron rod is flattened at its end and then notched to form separate parts which are oppositely curled to receive and hold the stringline. The metal of the end section is work hardened so that the holder is especially rugged.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

FIG. 1 shows in part a roadway construction machine in front elevation and following a stringline carried by one of a series of stakes and holders.

FIG. 2 is a side elevation of the holder.

FIG. 3 is an enlarged plan of the end section of the holder.

FIG. 4 is an enlarged end view of the holder.

FIG. 5 is an enlarged side view of the curled portions of the holder.

FIG. 6 shows in section the dies which initially form the holder.

FIG. 7 shows the dies which trim and notch the holder.

FIG. 8 shows the dies which curl the ends of the holder.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The roadway working machine 10 operating on grade 11 is shown in part and includes the frame 12 and traction unit 13. The tool 14 is carried by frame 12 which is vertically adjustable for adjusting the elevation of the tool.

The rigid outrigger 16 which extends from the machine carries the control box 17. The lightweight sensor or wand 18 extending from control box 17 is rotatably biased upwardly to maintain contact with the stringline 20 which may be a taut wire, a nylon cord or the like.

A control system, not shown, operates to elevate the frame 12 and tool 14 when the end of sensor 18 is in a relatively upward position and to lower the frame and tool when the end of sensor 18 is in a downward posi-

tion. The directional control of machine 10 is also provided by other sensors engaging the stringline.

The stringline is usually provided with supports which are spaced in the order of 20 - 25 feet. Each support includes a stake driven into the ground, a clamp, and a holder. As shown in FIG. 1, the stake 23 is set vertically in the ground some approximate distance from the proposed roadway and the holder 24 which is adjustably secured to stake 23 by the clamp 25 projects horizontally toward the roadway to support the stringline at a given and constant distance above and away from the edge and surface of the desired roadway. Stake 23 and clamp 25 can be of any known construction.

According to the present invention, holder 24 is constructed entirely from a single unfinished drawn soft iron rod 27 cut to an approximate length. The end of rod 27 is first flattened between dies 29a and b to form the tapered proximal portion 31 and the flattened distal portion 32. The distal portion 32 is then trimmed at its end and indented by the upper and lower dies 33a and b to form the notch 34.

The end of the rod is then placed between the dies 35a and 35b to form the two oppositely curled distal parts 32a and 32b which are separated by the notch 34. Parts 32a and 32b are curled about an imaginary transverse cylinder so that their ends overlap as shown in FIG. 5. The rod 27 is then bent and its surface finished to form the completed holder 24.

The stringline 20 is mounted in each holder 24 by holding a portion of the stringline at an angle and inserting it in notch 34 and then pulling the stringline taut so that it is held laterally and respectively upward and downward by the curled parts 32a and 32b.

The rod 27 or completed holder 24 is bent at 27a so that the minor length of the holder including the formed end section extends downwardly at a slight angle. The purpose of the bend is merely to assure that the end of sensor 18 in moving along the underside of the stringline does not contact the rod. However, the sensor does pass over the lower curled part 32a and a vertical sensor, not shown, which provides directional control, also passes both curled parts 32a and 32b. These parts are of relatively nominal thickness but because of their integral, formed construction, they are not subject to breaking as in handling the holders prior to and after their installation.

I claim:

1. A holder for the rigid support of a stringline which is to serve as a guide for a sensor rod as used in roadway construction and the like comprising a metal rod having at one end a formed section integral therewith, the proximal portion of said section being of tapered width and thickness, the tapered portion being of increasing width and decreasing thickness toward the distal portion of the section, the end section being notched such that the distal portion comprises separate parts, the separate parts being oppositely curled approximately 180° about an imaginary cylinder having an axis intersecting at right angles the center line of the formed section, the distance between the curled parts of the distal portion of the end section allowing a stringline to be freely interposed therebetween and the inner diameters of the curled parts allowing the stringline to be drawn tight along the axis of the imaginary cylinder for the support of the stringline by the holder, the proximal tapered portion being of substantially uniform cross-

3

section, the thickness of the distal portion being substantially less than the diameter of said imaginary cylinder whereby the sensor rod may readily pass the holder without interference, wherein the rod is bent such that the minor length thereof including the formed end section has a downward slope while its major length is horizontally disposed and adapted to be adjustably secured

4

to a stake.

2. The holder of claim 1 which comprises a drawn ductile metal rod, the end section being formed by swaging and curling between complementary dies, the end section being thus work-hardened by such forming.

* * * * *

10

15

20

25

30

35

40

45

50

55

60

65