July 29, 1969 F. G. SCHLOSSER 3,458,184

POSITIONER-ALIGNER STRUCTURE FOR ANCHOR BOLTS

Filed April 3, 1967

FIG. 1

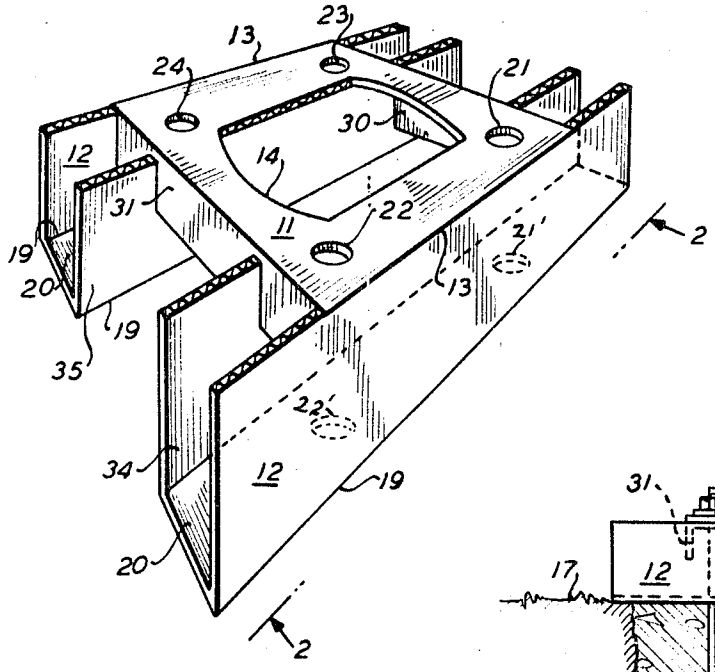


FIG. 2

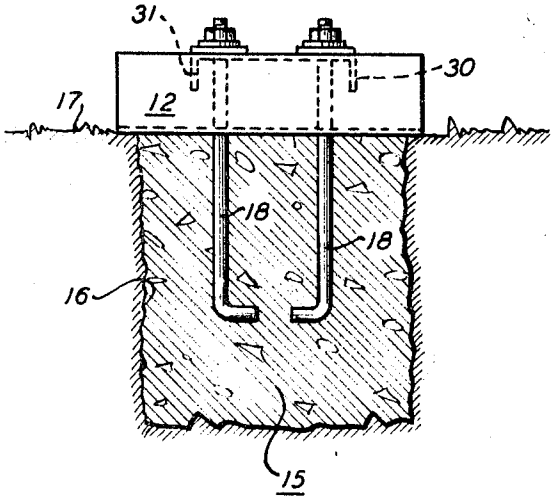
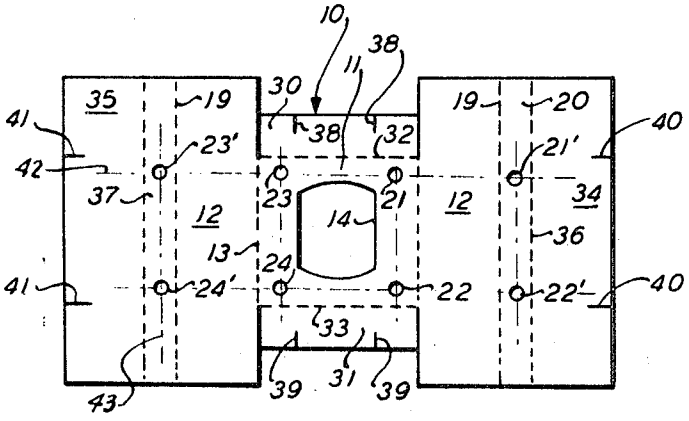


FIG. 3



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POSITIONER-ALIGNER STRUCTURE FOR ANCHOR BOLTS

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ABSTRACT OF THE DISCLOSURE

A positioner-aligner for holding anchor bolts in registered plumb position in an excavation at a grade, while the concrete is being poured and sets in the excavation, accurately positioning the bolts in true plumb relation, said aligner being formed of a flat planar sheet which may be folded to define the positioner-aligner and providing a strong and rigid structure.

This invention is concerned with the problem of securing lighting and traffic poles and other structural forms to grade surfaces. It is customary to provide an excavation at the site of proposed installation of the pole. Anchor bolts are keyed or secured to the grade on pouring cement into the excavation with the anchor bolts extending partially from the excavation.

Heretofore various makeshift arrangements were used for holding the bolts in place while the concrete is being poured and sets.

Heretofore, contractors used wood forms with holes therein or wire tied to hold the bolts in place. These methods are not always successful in that bolts are thereby not positioned accurately and sometimes they also cock at an angle so that they are no longer plumb. Such hit or miss methods are inaccurate and result in position misalignment on setting of the concrete. It is imperative, for most purposes, that the anchor bolts be accurately plumb and parallel to assure the true perpendicular alignment of the pole, etc. at the site.

This invenion assures the positioning of the anchor bolts precisely in the desired predetermined spaced relation and at the proper height above the grade and also assures their being so maintained and truly plumb while the concrete is being poured and sets.

Advantages of the device of the invention are:

(1) Material is cardboard and is very economical.

(2) Can be shipped flat.

(3) Folds into twin structural channel shapes which are rigid and strong.

(4) Bolt holes position bolts accurately at proper height above grade.

(5) Each bolt goes through two holes equally spaced and thus cannot cock off plumb while concrete is being poured.

Pursuant to the invention, strength and rigidity are obtained from inexpensive, weak, non-rigid materials such as cardboard, by folding into structural shapes that resist bending and are stiff because of the beam action inherent in shapes of this nature.

The positioner-aligner of this invention may be stored flat in quantities, in limited space, and may be readily fabricated at the site to interlock and accurately assemble the bolts at precisely the desired position and spacing at the grade during the concrete pouring operation and setting operation and may thereafter be readily disengaged from the bolts and restored to flat, foldable position for storage or reuse.

The drawings, illustrating procedures and devices useful in carrying out the invention, and the description

below, are exemplary only of the invention, which shall be deemed to cover all other devices and procedures coming within the scope and purview of the appended claims.

In the drawings, wherein similar reference characters indicate like parts:

FIG. 1 is a perspective view of a positioner-aligner embodying my invention,

FIG. 2 is a side elevational, partly sectional view, showing the structure as used and holding anchor bolts in registered plumb position in an excavation at a grade, while the concrete is setting, and

FIG. 3 is a top plan view of the said positioner-aligner in initial, planar form, prior to being folded to its FIGS. 1 and 2 structural form.

Pursuant to the invention, the positioner-aligner is fabricated of a flat planar sheet **10** which may be made of various lengths and heights for various sized bolt circles and mounting configurations. The sheet **10** may be made of any readily foldable material, scored or ruled to define a center web portion **11** and side portions **12** extending from the center web portion, preferably along parallel score lines **13** so as to be readily foldable downwardly to form the sides **12** (FIG. 1). The center web portion has a concrete pouring opening **14** formed therein medially for the pouring of concrete **15** (FIG. 2) therethrough and into the excavation **16** at the grade **17** at the site at which a pole or other structure is to be secured, by anchor bolts **18** to be positioned, by the positioner-aligner of this invention, in parallel plumb spaced and predetermined relation to the grade **17**, during the pouring and setting of the concrete **15**.

Portions **12**, after being so folded downwardly into parallel spaced relation, defining the side walls (FIG. 1) are re-entrably inwardly foldable as at **19** (FIGS. 3 and 1) to define bottom flanges **20** parallel to the center web portion. Said center web portion and bottom flanges have aligned apertures **21–21′**, **22–22′**, **23–23′**, **24–24′**, to receive and maintain the bolts **18** positioned in plumb aligned spaced relation while the concrete is so poured through aperture **14** and sets. The center web portion has extended end flanges **30**, **31** formed thereon intermediate the side wall portions, preferably foldable along score lines **32**, **33**, to fold the end flanges **30**, **31** downwardly (FIG. 1) and define end walls. Complementary interlocking means are preferably provided on the end flanges and side walls. The side portions **12** may be extended beyond the bottom flange portion thereof to define inner side walls **34**, **35** on folding said extended portions upwardly and parallel to the side wall portions **12**, preferably along the score lines **36**, **37**. The inner side walls **34**, **35** are thus foldably upwardly parallel to the side wall portions **12** and in spaced relation thereto and have registration engagement with end walls **30**, **31**. Any suitable interengaging means may be provided for interlocking the inner side walls and the end walls—for example (FIG. 3) by providing slitted portions **38**, **39** on the end walls for interlocking reception of the inner side walls **34**, **35**.

If desired, the end walls may be received in the slotted portions **40**, **41** of the inner side walls **34**, **35** or said slitted portions **40**, **41** may be complementary to the slitted portions **38**, **39** of the end wall flanges **30**, **31**.

As the bolts pass through the aligned apertures **21–21′**, **22–22′**, **23–23′**, **24–24′**, they are held true and parallel and cannot go off plumb while the concrete is being poured and set. The web portion **11** is essentially keyed to the dual beam body structure, forming, with the parts **34**, **20**, **12** one longitudinal beam, and the parts **12**, **20**, **35** a second longitudinal beam in a structure which may be made of light, relatively weak materials, form-

ing, when assembled, a structure of inherent strength and accuracy of alignment.

It will thus be seen that the device of the invention may be made of a relatively inexpensive, non-rigid material, readily foldable to twin U-shaped spaced structural shapes, resisting bending and inherently stiff, strong and rigid.

While the foregoing disclosure of exemplary embodiments is made in accordance with the Patent Statutes, it is to be understood that the invention is not limited thereto or thereby, the inventive scope being defined in the appended claims.

I claim:

1. A positioner-aligner structure for holding anchor bolts for poles in registered plumb position in an excavation at a grade while concrete is poured into and sets in the excavation, around the bolts, the positioner-aligner comprising:

a pair of parallel upwardly opening, generally U-shaped beam sections, each having a generally flat bottom wall, each of said bottom walls being apertured to receive the anchor bolts,

a web section provided with medial concrete pouring aperture,

means for positioning said web section with portions thereof extending across said upwardly opening beam sections,

said portions of said web section being supported on said beam sections in generally parallel relation to said bottom walls thereof and being provided with anchor bolt receiving apertures overlying and aligned with the bolt receiving apertures in said bottom walls.

2. In a positioner-aligner structure as set forth in claim 1,

said positioner-aligner structure being unitarily formed of a sheet of bendable material, and

said web section positioning means comprising means on said web section for interengagement with said beam section.

3. In a positioner-aligner structure as set forth in claim 2,

said interengagement means on said web section including spaced, downwardly extending flap portions extending transversely of the side wall portions of said beam sections, said flap portions and said side wall portions being provided with complementary interlocking slitted portions.

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52—127, 699; 248—174; 249—85, 207