United States Patent

[11] 3,594,973

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Continuation-in-part of application Ser. No. 676,286, Oct. 18, 1967, now Patent No. 3,471,980.

[54] **METHOD FOR DEVELOPING A MULTIPLE-POLE STAND**
4 Claims, 8 Drawing Figs.

[52] **U.S. Cl.** **52/741,** 52/38, 52/115, 52/632
[51] **Int. Cl.** **E04h 12/34,** E04g 25/04
[50] **Field of Search** 52/632, 115, 741, 38, 304, 7; 249/51; 61/51

[56] **References Cited**

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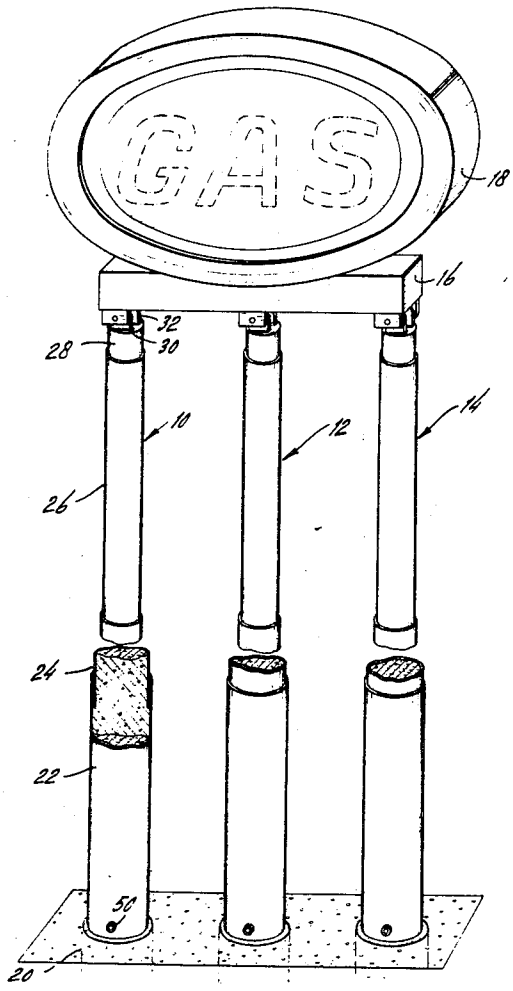
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975,135	11/1910	Kelsey et al.	249/51 X
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FOREIGN PATENTS

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Attorney—David H. Semmes

ABSTRACT: Telescoping columns, particularly a method for developing a plurality of telescoping forms as a rigid stand for a roadside sign, high tension wires or the like, by anchoring a plurality of forms to a rigid base and pumping the forms simultaneously with fluid concrete, so as to vertically telescope the forms above the rigid base.



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SHEET 1 OF 3

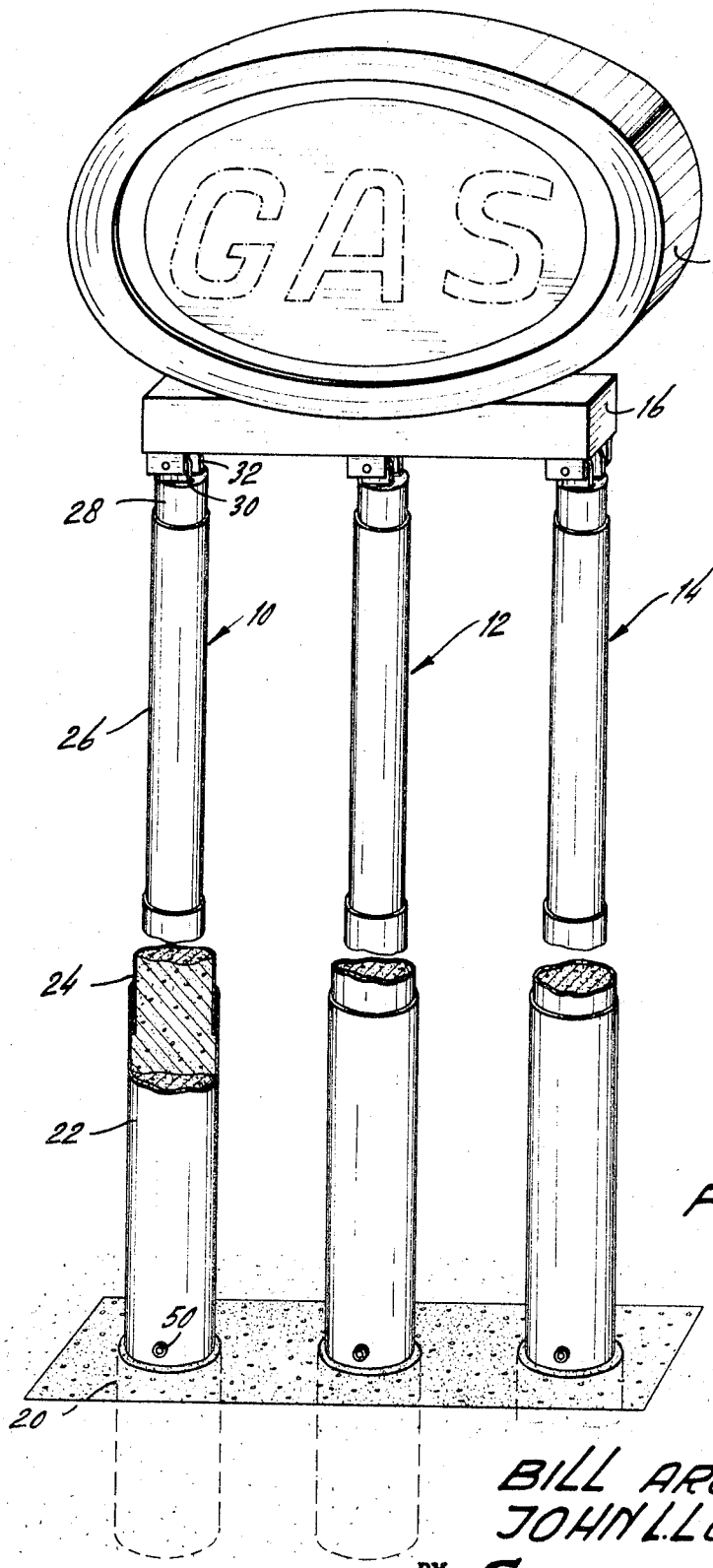


FIG. 1

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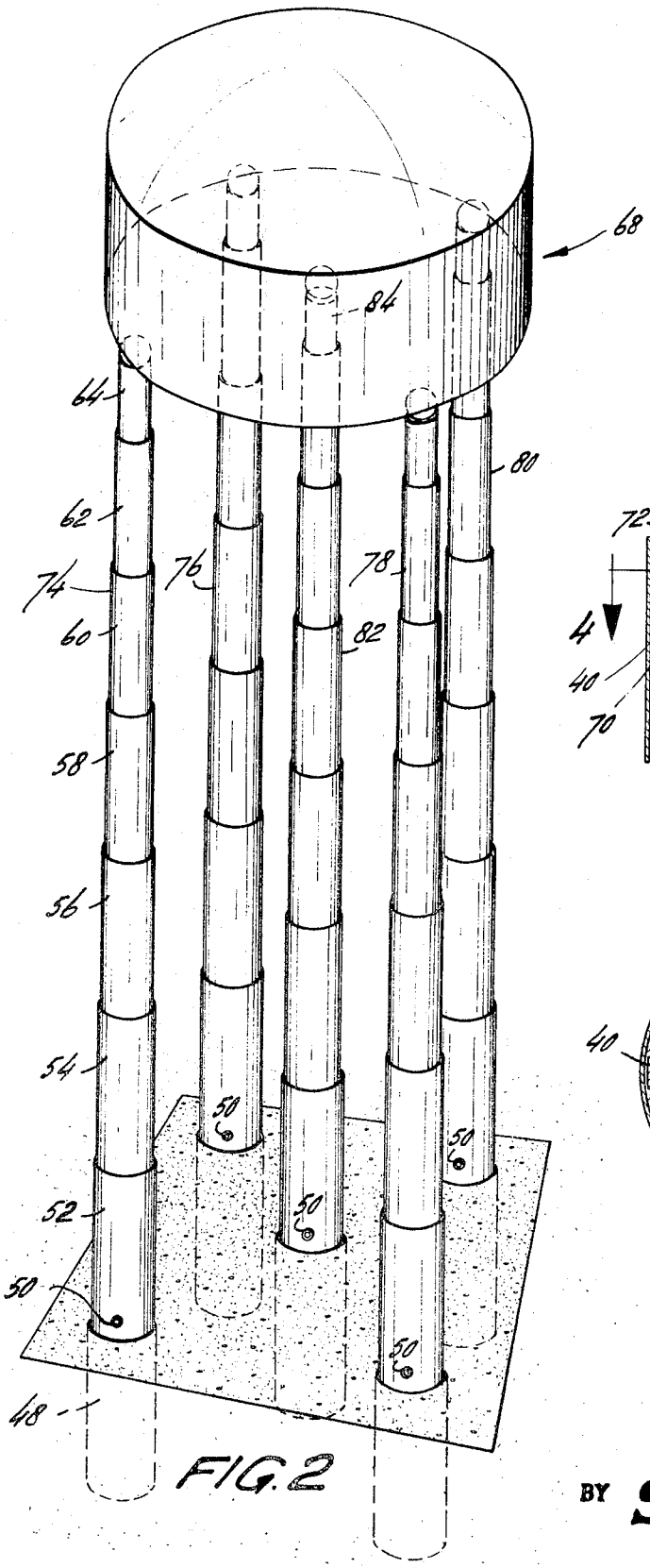


FIG. 2

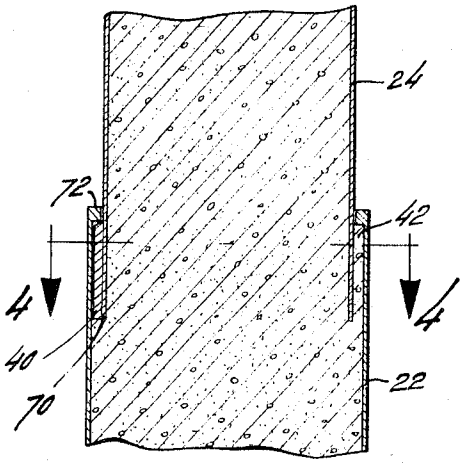


FIG. 3

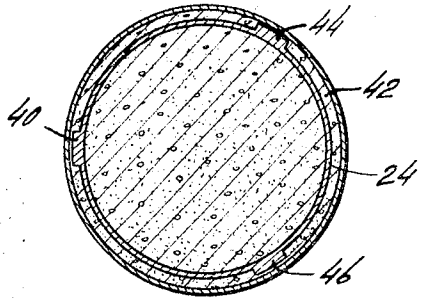


FIG. 4

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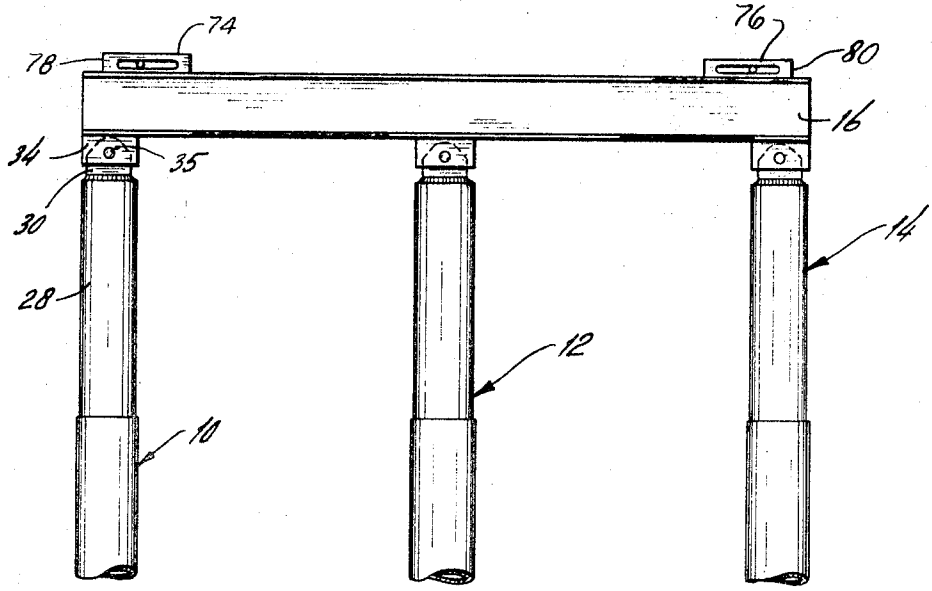


FIG. 5

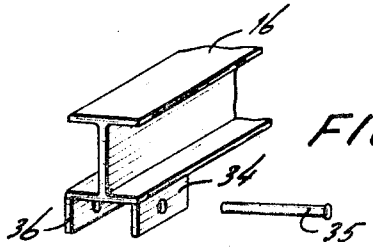


FIG. 8

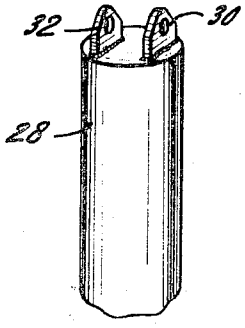


FIG. 6

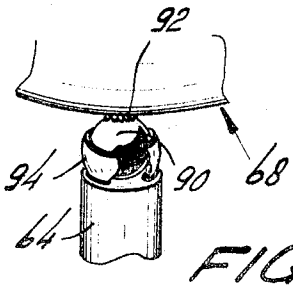


FIG. 7

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METHOD FOR DEVELOPING A MULTIPLE-POLE STAND

CROSS-REFERENCES TO RELATED APPLICATIONS

A continuation-in-part of Method for Developing a Column (Ser. No. 676,286), filed Oct. 18, 1967. Issued as u.s. pat. No. 3,471,980

In the parent application individual columns are developed by pumping of pressurized concrete into a plurality of column forms, each consisting of telescoping, interlocked sections, the base section of each form being anchored to a rigid base. In the present application two or more such forms are horizontally joined at their tops and simultaneously pumped. Pumping of the individual forms may be varied as a sighting to level indicates that the joining of the tops has fallen out of a horizontal plane.

BACKGROUND OF THE INVENTION

1. Field of the Invention

Concrete, particularly pumping of concrete into telescoping forms to develop rigid, longitudinal extending columns. Conventionally, utility poles and roadside sign stands consist of a plurality of interlocking sections welded to each other at great expense. There is an increasing popularity of use of such poles for signs supported at heights of 85—100 feet adjacent superhighways. The pole sections are conventionally welded to each other while horizontally disposed on the ground. After welding, the poles are vertically set in place by a crane or the like. As the poles are set vertically, the roadside sign may be lifted to the top where it is bolted onto the poles. Great vertical and horizontal alignment of the poles occur, since each pole is independently set. As a result, the levelling of the sign upon the misaligned poles can be time consuming and difficult.

2. DESCRIPTION OF THE PRIOR ART

Prior art inventors have used metallic vertically aligned forms for the pouring and setting of concrete as posts or columns. These forms have been bolted to a rigid base and locked with respect to each other. Kelsey (U.S. Pat. No. 975,135) is fairly typical of post or pole forms, consisting of cylindrical metal sections bolted one to another prior to pouring of concrete through the top. Rodgers (U.S. Pat. No. 883,569) provided a metallic unitary pole for casting of fence posts. Rodgers filled the pole from the upper end and removed the form after the concrete had set. Joelson (Sweden Pat. No. 212,189) relates to telescoping sections which are filled with concrete beneath a house foundation However, Joelson's sections are not interlocking and Joelson does not lock his base section in any manner or telescope his sections above a base. Lateral stability in Joelson is provided by the earth surrounding Joelson's sections 2 and 3. Joelson's base section 1 apparently rises vertically after sections 3 and 2 are essentially gravity filled with concrete.

SUMMARY OF THE INVENTION

According to the present invention, a multiple pole stand is developed by anchoring at least two telescoping forms of the type including a plurality of longitudinally aligned interlocking sections to a rigid base, horizontally joining the tops of the columns as a horizontal plane, then simultaneously pumping fluid concrete into each form, so as to vertically extend the sections above the base. As the concrete is set, a sign, high tension wire, or other implements may be affixed to the plane formed by the joined column tops. Modification of invention includes continuously levelling, while joining the section tops by measuring the plane of joining and, accordingly, varying pumping of concrete into respective forms.

BRIEF DESCRIPTION OF THE DRAWINGS

In FIG. 1 there is illustrated a roadside sign, positioned and supported according to the present method;

FIG. 2 illustrates a water tower positioned and supported according to the present method;

FIG. 3 is a fragmentary, vertical section, showing the interlocking of telescoping sections in a single form;

FIG. 4 is a transverse sectional view, taken along section line 4–4 of FIG. 3;

FIG. 5 is a fragmentary elevation of the three column tops joined by a horizontal support beam;

FIG. 6 is an enlarged and exploded fragmentary perspective, showing the joining of a column top to the support beam; and

FIG. 7 is an enlarged fragmentary perspective of the rotatable ball socket connection between the telescoping form top section and a water tank; and

FIG. 8 is a perspective view of the support beam.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In FIG. 1 there is illustrated a roadside sign **18**, supported upon multiple columns **10**, **12**, and **14** joined at their tops by horizontal support beam or crossmember **16**.

The individual columns are comprised of individual, interlocking telescoping sections **22**, **24**, **26** and **28**. The bottom section **22** may include a concrete pumping gate **50** and is locked into a base section **20** which extends downwardly into the ground. Top section **28** includes a pair of vertically upstanding ears **30** and **32** which, as illustrated in FIG. **6**, may be connected to beam **16** lugs **34** and **36** by a pin **35**.

As illustrated in FIGS. **3** and **4**, the interlocking sections may be stabilized by a plurality of radially extending splines or skirtlike elements **40**, **44**, and **46** connected to the bottom skirt **70** of the smaller diameter section. The skirtlike elements abut the top flange **72** of the bottom larger diameter section, as the telescoping sections are extended. In the peripheral interstices **42** intermediate the splines fluid concrete is pumped and set, thus stabilizing the telescoping sections in vertical alignment.

In FIG. **2** the method is practiced wherein individual columns, **74**, **76**, **78**, **80**, and **82** include plural telescoping sections **52**—**64**. The larger diameter section having concrete gate **54** is locked into rigid base **48** which extends into the ground. The top section **64** may have a concave seat **94** engaging ball **92** welded to tank **68**, so as to accommodate rotatably the curvature of the water tank during pumping. The water tank balls **90** welded as at **92** may be seated in identical concave seats **94** at the top of the outer forms **74**, **76**, **78**, and **80**. The intermediate form **82** having a cylindrical top section **84** may be extended vertically by pumping of concrete into the outer forms. After the concrete has set in the outer forms, form **82** may serve as the vertical water conduit, gate **50** regulating the flow of water.

As illustrated in FIG. **5**, the level of the support beam **16** may be measured visually and pumping of the individual columns may be varied, as the sighting discloses misalignment of the support beam. Alternately, as illustrated in FIG. **5**, a pair of micro or mercury switches **74** and **76** may be attached to channel **16** secured to column tops **70** and **72**. As the switches detect a variation in level, signals are transmitted through wires **78** and **80** connected to the concrete pump to effect variations in pumping of the forms. Manifestly, the tops of the individual poles will be level when the telescoping sections have been fully extended. In the instances where three or more poles are desired as a support for a stand, the exterior poles may be pumped with concrete and longitudinally distended while the intermediate pole **12** is telescoped without pumping. For example, in FIG. **1** as the concrete is distended in the exterior poles **10** and **14**, the intermediate pole **12** may be pumped with concrete.

I claim:

1. Method for developing a multiple pole stand comprising:

A. anchoring to a rigid base at least two telescoping forms of the type including a stationary bottom member encompassing a plurality of longitudinally aligned, interlocking telescoping sections;

B. pivotally joining the tops of said forms with a crossmember;

C. simultaneously pumping fluid concrete into said bottom members and into said forms, so as to vertically extend said telescoping sections above said bottom members;

D. maintaining fluid pressure within said forms, so as to rigidize said sections upon the setting of the concrete with respect to said base; and

E. measuring the level of the tops of said forms and varying pumping of said concrete into respective forms, so as to maintain said crossmember in a desired plane interconnecting said form tops.

2. Method for developing a multiple-pole stand as in claim 1, wherein said measuring is done by visual sighting.

3. Method for developing a multiple-pole stand as in claim 1, wherein said measuring is done by a mercury switch governing said pumping into respective forms.

4. Method for developing a multiple-pole stand as in claim 1, wherein there are at least three forms horizontally joined at their tops by a horizontal member and an intermediate form, including delaying pumping of fluid concrete into said intermediate form, until the telescoping of said outer forms by pumping of fluid concrete has extended said forms vertically.