Dec. 8, 1964 H. A. VAN NAME 3,159,898

REMOVABLE FORM FOR CONCRETE JACKET

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Fig. 1

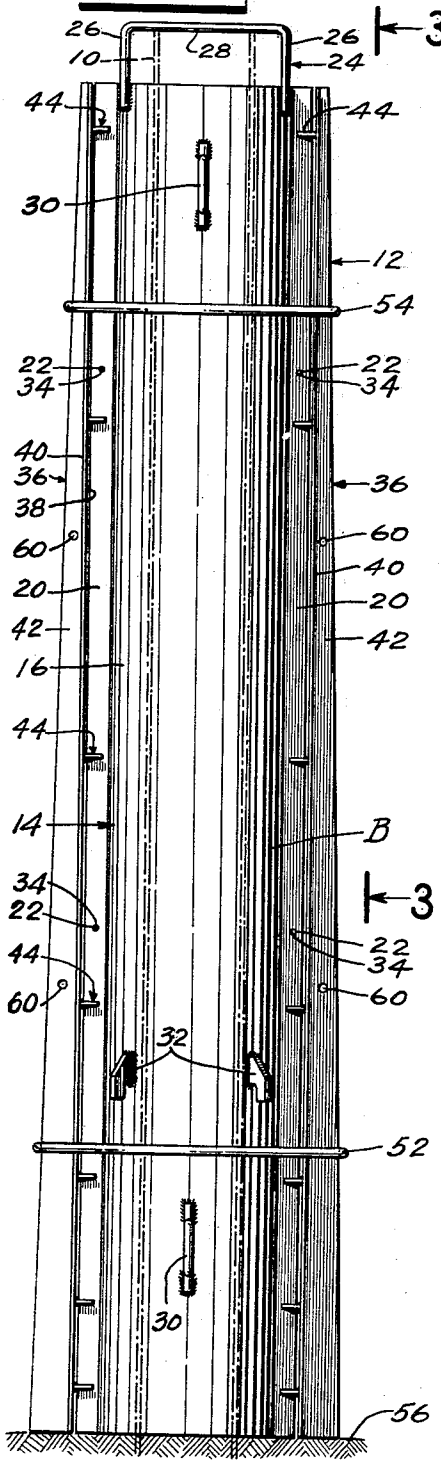


Fig. 2

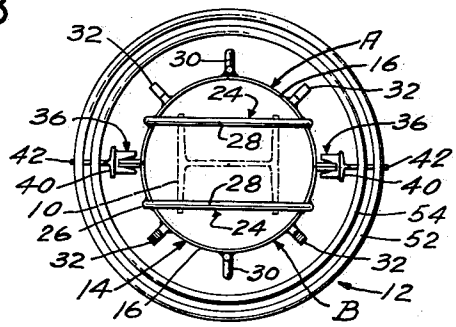
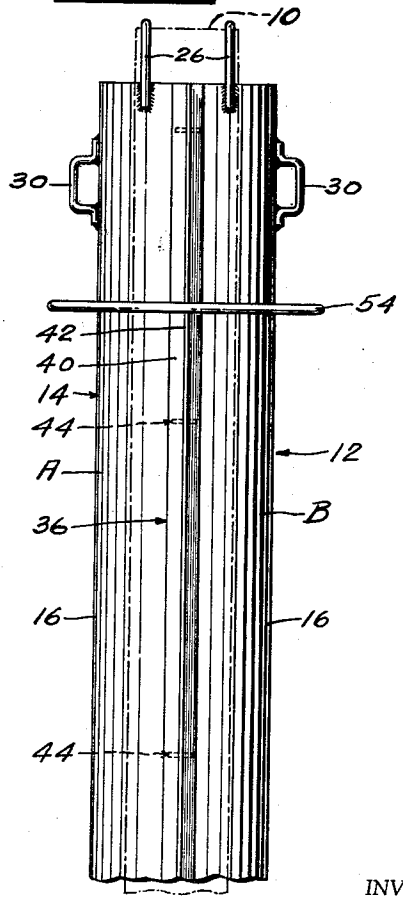


Fig. 3



INVENTOR.
HORACE AUSTIN VAN NAME
BY
Edw. S. Higgins
ATTORNEY

Dec. 8, 1964 H. A. VAN NAME 3,159,898

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Fig. 4

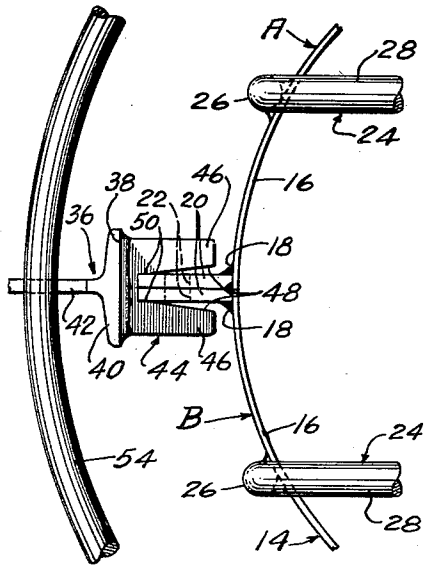


Fig. 6

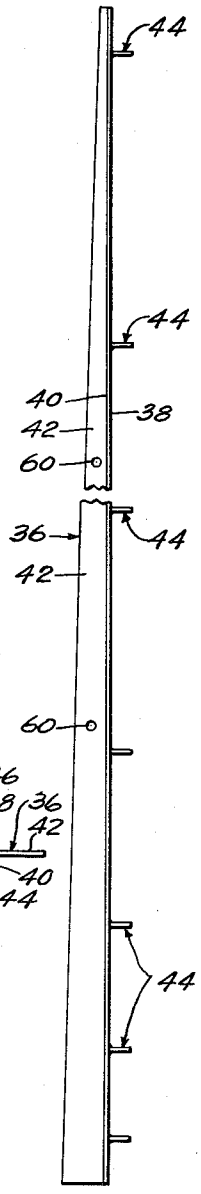


Fig. 7

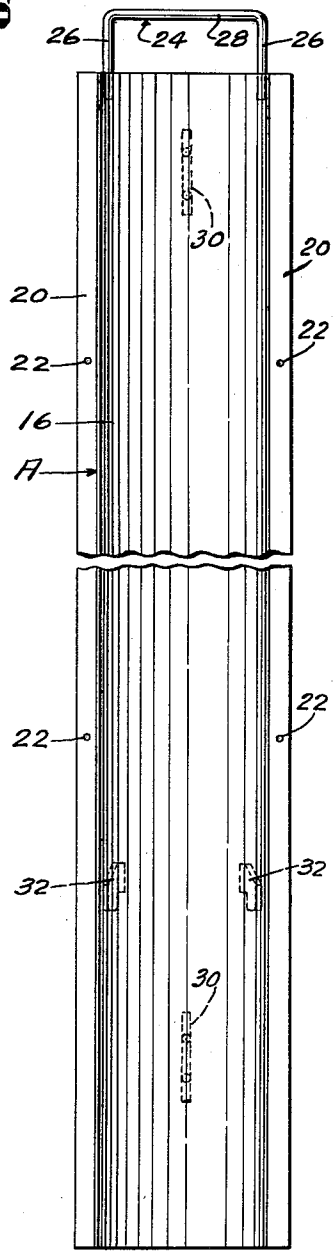


Fig. 5

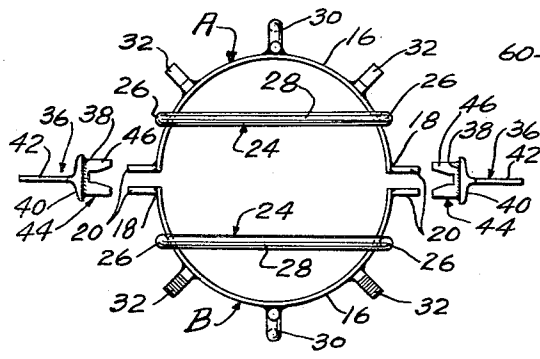
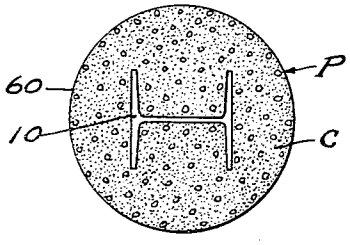


Fig. 11



INVENTOR.
HORACE AUSTIN VAN NAME
BY
Edw. S. Higgins
ATTORNEY

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Fig. 8

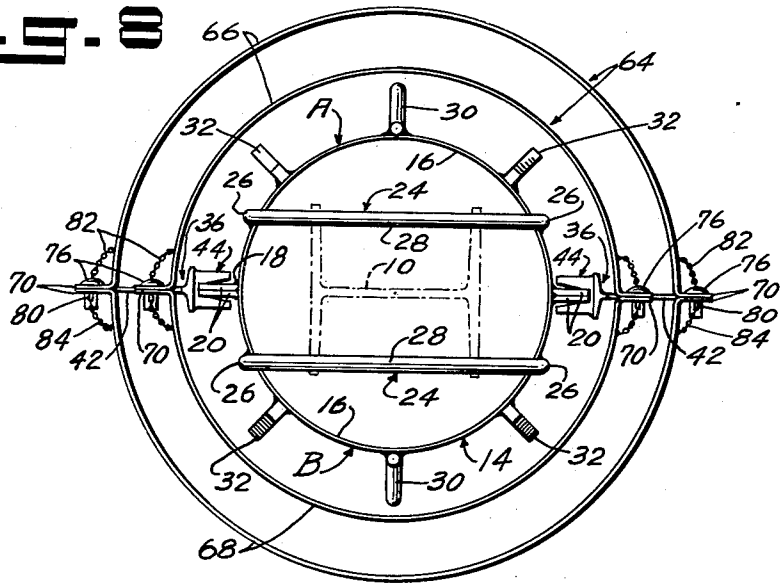


Fig. 9

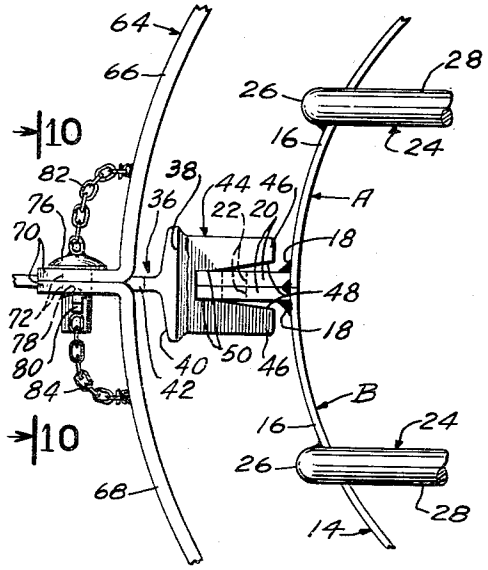
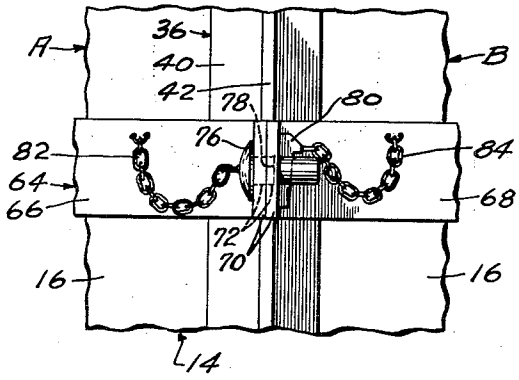


Fig. 10



INVENTOR.
HORACE AUSTIN VAN NAME
BY
Edw. S. Higgins
ATTORNEY

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3,159,898

REMOVABLE FORM FOR CONCRETE JACKET

Horace Austin Van Name, West Brighton, Staten Island 10, N.Y., assignor of one-half to John J. Dougherty, Cedar Grove, N.J.

Filed July 25, 1962, Ser. No. 212,339
3 Claims. (Cl. 25—118)

This invention relates generally to the manufacture of piles and more particularly to a removable steel form for a concrete jacket of a composite pile.

Piles are used to support or to form foundations for structures such as buildings, wharves, piers, tanks, bridges, conduits and the like, by inserting the piles into or through the yielding surface strata far enough to obtain a solid support for the principal structure. A composite steel and concrete pile structure is ordinarily used for this purpose.

In the manufacture of a composite pile having a concrete jacket, it is customary to use a sectional form in order that the form can be readily removed from the jacket. Heretofore, the sections of the form have been bolted together, making it a very difficult and costly operation to remove the form.

It is a principal object of the present invention to eliminate such a difficult and costly operation by providing a sectional form that is readily separated and retracted.

Another object of the present invention is to provide a form for shaping a concrete jacket of a composite pile that is readily assembled and disassembled.

A further object of the invention is to provide a form for shaping a concrete jacket of a composite pile that is economical to manufacture and is highly efficient for the purposes intended.

The objects heretofore set forth and others hereinafter appearing are achieved in accordance with the present invention by providing a steel form having a sectional body with means for aligning the sections and with readily removable means for clamping the aligned sections to each other.

Accordingly, a feature of the invention is the employment of a sectional body with flanges having means for aligning the sections.

Another feature of the invention is the employment of elongated clamping bars adapted to coact with flanges on the sections of the body.

Yet another feature of the invention is the employment of clamping rings coacting with elongated clamping bars, the rings being readily attached and detached.

For further comprehension of the invention and of the objects and advantages thereof reference will be had to the accompanying drawings and to the appended claims as well as to the description thereof to follow.

In the accompanying drawings forming a material part of this disclosure:

FIG. 1 is a side elevational view of a steel form for a concrete jacket of a composite pile embodying one form of my invention shown in position to receive concrete.

FIG. 2 is a top plan view of the parts of FIG. 1.

FIG. 3 is a fragmentary view similar to FIG. 1 as seen from the line 3—3 of FIG. 1.

FIG. 4 is an enlarged top plan detail view of a joint.

FIG. 5 is a top plan view of the top of the form preparatory to joining the sections of the form.

FIG. 6 is a side elevational view of a clamping bar, parts being shown broken away.

FIG. 7 is an elevational view of a section of the form, looking toward the inside thereof, parts being shown broken away.

FIG. 8 is a view similar to FIG. 2 on an enlarged scale showing a modified form of clamping ring.

FIG. 9 is a view similar to FIG. 4 of a joint embodying the modified ring of FIG. 8, on an enlarged scale.

FIG. 10 is a view of the joint of FIG. 9 as seen from the line 10—10 of FIG. 9.

FIG. 11 is an end view of the composite pile.

Referring in detail to the various views of the drawings, a form for forming a concrete jacket for a composite pile P is shown in FIG. 1 in position over an H-shaped bearing pile beam 10, the form being designated generally by the reference numeral 12. The form 12 is composed of steel and includes an elongated cylindrical body 14 formed of two sections A and B. The sections are of similar construction and dimensions and each comprises a semi-circular body portion 16. A flat bar is radially disposed along each long edge thereof and is welded thereto as indicated at 18 providing a flange 20 therealong. Each flange 20 is formed with spaced holes 22. At one end, the top end as viewed in FIGS. 1 and 7, an inverted U-shaped hanger 24 has the ends of its legs 26 welded to the exterior surface of the top end of the body portion 16, with its bight portion 28 spaced upwardly from the top edge of the body portion. The bight portion spans the space at the top of the body portion as seen in FIG. 5. A pair of spaced handles 30 is fixed on the outer surface of the body portion 16, one adjacent the top and the other adjacent the bottom in aligned relationship. A pair of transversely aligned hooks 32 is fixed on the outer surface of the body portion intermediate the ends thereof as best seen in FIG. 1. The inner surface of the body portion is smooth and unobstructed.

In assembling, the body portions 16 of the sections A and B are positioned face to face with their perforated flanges 20 in side by side relation with the holes 22 in register. A tapered pin is forced through the aligned holes forming a tight joint and aligning the body portions and holding them temporarily against displacement. The pins are designated 34 in FIG. 1.

In accordance with the invention, an elongated steel clamping bar 36 is forced laterally over each of the joints. The clamping bar comprises an elongated body with a flat side 38 and a slightly curved side 40. A flat flange 42 is formed on the curved side 40 at the center, extending the length thereof. The outer long edge of the flange 42 tapers downwardly and outwardly as viewed in FIG. 1. At spaced intervals along the flat side 38 of the body of the bar 36, a series of bifurcated lugs 44 are formed and extend radially and laterally thereof. The inner edges of the bifurcations 46 of the lugs have tapered edges 48 continuing into straight edges 50 forming a square inner slot. The tapered edges guide the clamping bars onto the lugs so that the square outer edges of the flanges interlock with the square inner slot of the lug as best seen in FIG. 4.

A round steel clamping ring 52 is slipped over the tops of the outer tapered edges of the flanges 42 of the clamping bars 36 and forced by a tool downwardly thereover to a point adjacent the bottom end of the clamping bars. Another steel clamping ring 54 of smaller diameter is slipped over the top of the clamping bars and forced downwardly over the clamping bars to a point adjacent the top of the form as seen in FIG. 1. The rings clamp the clamping bars tightly in position thereby holding the sections A and B of the form in fixed position. When the rings are in clamping position, the aligning pins 34 may be removed from the holes 22 in flanges 20 by a tool.

In use, the H-beam 10 is driven down into bedrock at the surface 56, and the assembled form is lowered and centered on the H-beam. The bottom of the form rests on the surface 56 and the bight portions 28 of the hangers 24 are seated on the flanges 58 of the H-beam. Then the water in the form is pumped out. The concrete C

s next poured into the form 12 around the H-beam and llowed to set. After the concrete has set and the jacket as been formed as indicated at 60 in FIG. 11, the form 2 can readily be removed from the jacket by first removng the rings 52 and 54 by means of hooks on cables or he like. The clamping bars 36 may be readily pried oose from the flanges 20 by a tool and the bars lifted upardly by means of hooks or the like hooked into the oles 60. Next the flanges 20 of the body portion 16 an be pried apart by a suitable tool and the body porons 16 lifted upwardly by means of hooks or the like ngaged around the hooks 32. The handles 30 on the ody portions 16 may be used for manipulating the body ortions in any desired manner.

In FIGS. 8 to 10, inclusive, a modified form of clampng ring 64 is illustrated. The ring 64 comprises a circuar body formed of two sections 66 and 68 of flat bar teel, each section being arcuate in shape and having a adial flange 70 formed integrally at each end edge. A entral hole 72 is formed in each flange. The flanges re aligned and a headed pin 76 inserted through the ligned holes. The shank of the pin is formed with a ransverse hole 78 therethrough to receive a headed apered key or bolt 80 to releasably lock the flanges toether. A chain 82 has one end fastened to the head of he pin and its other end anchored to the ring section 66, nd a similar chain 84 has one end fastened to the bolt 80 nd its other end to the section 68. The chains prevent oss of the pin and key or bolt.

This construction of ring 64 permits ready disassemling of the ring as it is merely necessary to remove the olts 80, remove the pins 76 and pry the flanges 70 apart.

While I have illustrated and described the preferred mbodiments of my invention, it will be understood that arious changes in details of construction might be made /ithout departing from the principle of the invention nd I desire to be limited only by the state of the prior rt and the appended claims.

I claim:

1. A form for a concrete jacket of a composite pile omprising an elongated hollow cylindrical body with anges extending the length of the long edges thereof, longated clamping bar members extending the length f the flanges and in engagement therewith, said clamping

bar members having tapering outer edges, a plurality of bifurcated lugs carried in longitudinally spaced relationship by said clamping bar members, the bifurcations of said lugs having tapered inner edges continuing into straight inner edges, said straight inner edges adapted to interlock with the outer edges of the flanges, and clamping rings removably and slidably mounted on the tapering edges of the bar members to clamp the bar members onto the flanges.

2. The form as defined in claim 1 wherein said clamping rings are of a sectional construction, said rings having radial flanges on their end edges in aligned relation, said flanges having aligned holes, a headed pin in said aligned holes, said pin having a transverse hole in its shank, a removable headed bolt in the hole in the shank, and chains with one end anchored to the sections of the rings adjacent the radial flanges thereof, and the other end anchored to the headed pin and headed bolt.

3. The form as defined in claim 1 including a pair of spaced inverted U-shaped hangers fastened to one end of the body, the bight portions of the hangers protruding outwardly of said one end adapted to seat on a protruding H-beam, and hooks on the body to receive tools for lifting the body.

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MICHAEL V. BRINDISI, *Primary Examiner.*

ROBERT F. WHITE, *Examiner.*