July 5, 1938. P. O. DEROS 2,122,835

PILING CONNECTER

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Fig. 1.

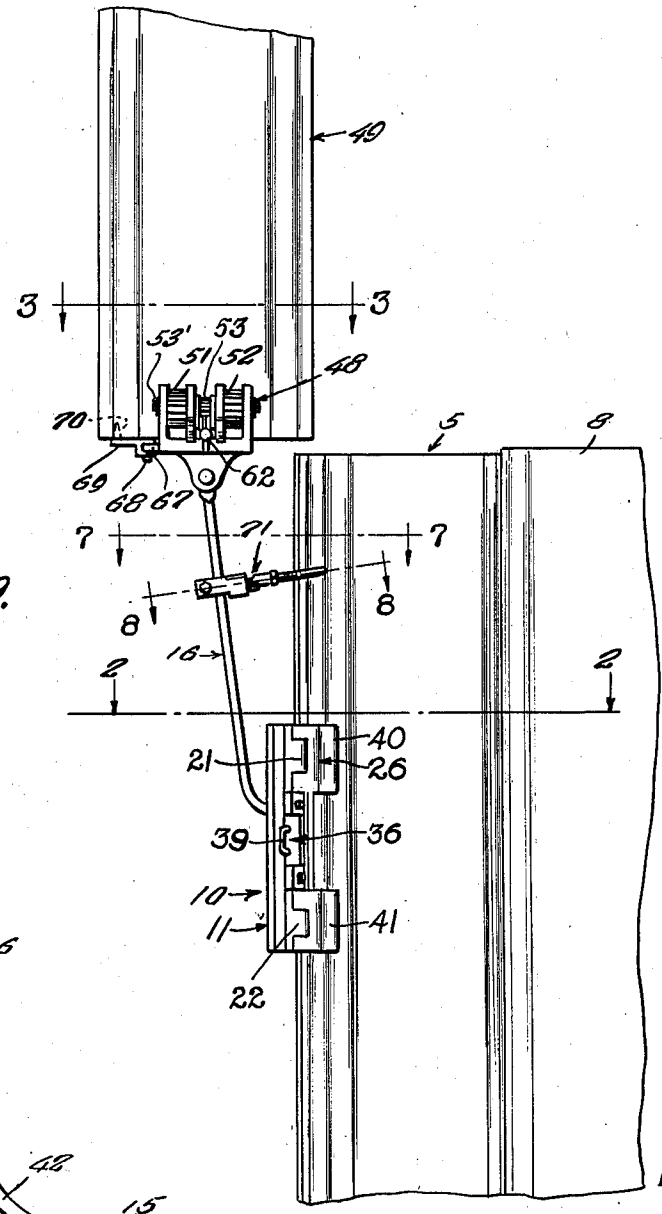
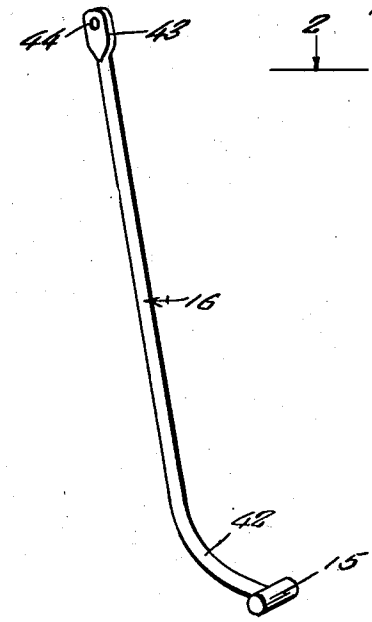


Fig. 9.



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Fig. 2.

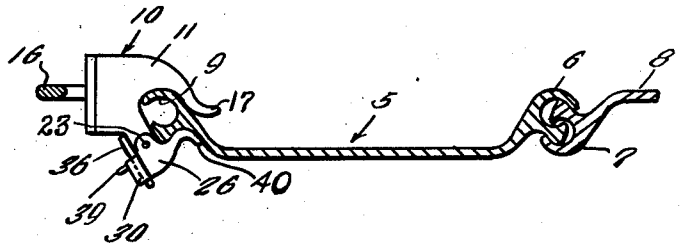


Fig. 3.

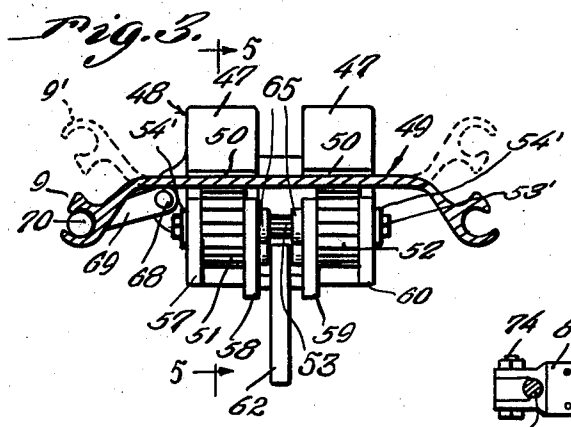
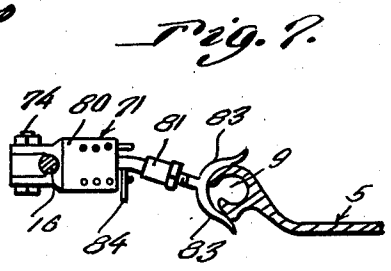


Fig. 7.



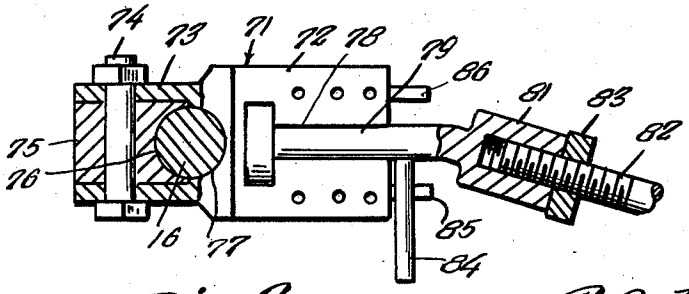


Fig. 8.

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PILING CONNECTER

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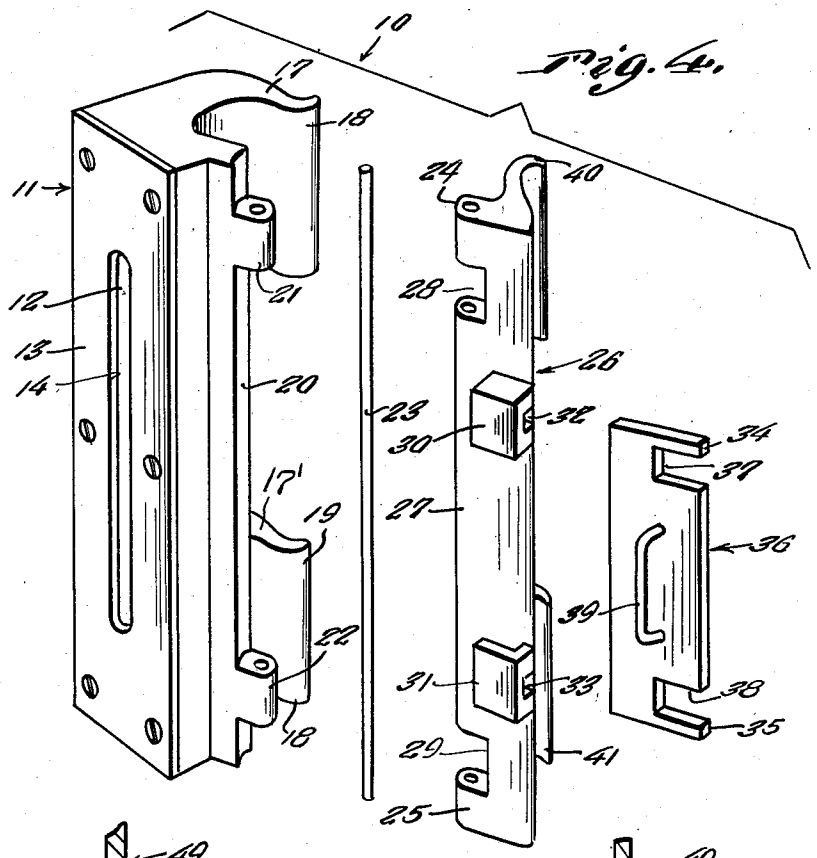


Fig. 4.

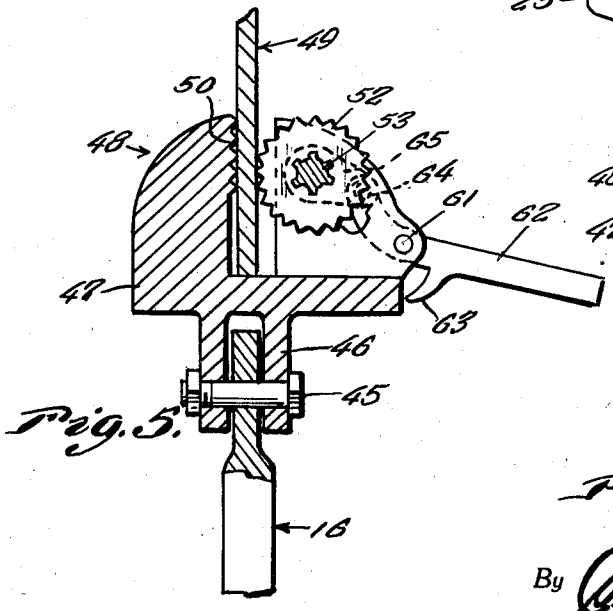


Fig. 5.

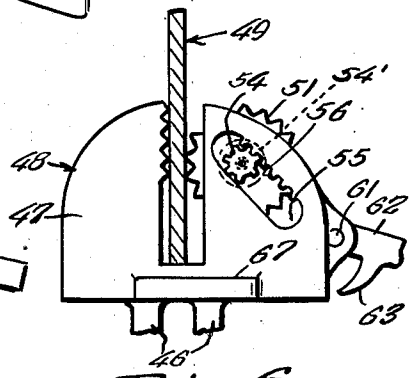


Fig. 6.

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UNITED STATES PATENT OFFICE

2,122,835

PILING CONNECTER

Peter O. Deros, Fulton, Ill.

Application August 13, 1936, Serial No. 95,890

7 Claims. (Cl. 61—63)

My invention relates generally to means useful in placing and setting steel piling, and particularly to a connecter arranged to be operatively connected to piling already set and to a piling section enabling hoisting and placing the next section of piling into place safely, quickly, and accurately, and an important object of my invention is to provide a simple, inexpensive, and easily operated arrangement of this character.

Another important object of my invention is to provide a connecter of the character indicated which is operatively connected to the piling section already set and to the next piling section to be placed, before said next piling section is hoisted, so that the operations of installing the connecter are simplified and made more convenient and safe.

Another important object of my invention is to provide connecter means of the character indicated above which includes flexible features which prevent interference with the hoisting means employed, and which positively tether the piling section being hoisted, so that the same cannot unduly sway in the wind or become displaced in a manner to require to be held or guided by hand by workers so as to subject the workers to danger of injury.

Other important objects of my invention will be apparent from a reading of the following description in connection with the drawings, wherein for purposes of illustration I have shown a preferred embodiment of my invention.

In the drawings:—

Figure 1 is a general fragmentary elevational view showing the device of the invention applied or connected to and between a piling section already set and a piling section not yet set but hoisted in an elevated position from which it is moved into engagement with the set piling section.

Figure 2 is a horizontal sectional view taken through Figure 1 approximately on the line 2—2 and looking downwardly in the direction of the arrows.

Figure 3 is a horizontal sectional view taken through Figure 1 above the lower end of the elevated piling section.

Figure 4 is a group perspective view of the slide structure which slidably engages the piling section already set.

Figure 5 is a transverse vertical sectional view taken through Figure 3.

Figure 6 is a transverse vertical sectional view taken through Figure 3 showing the left hand end in elevation.

Figure 7 is a horizontal sectional view taken through the guide rod and showing the guide in top plan.

Figure 8 is a horizontal sectional elevational view through the guide with the cover plate removed.

Figure 9 is a perspective view of the guide arm.

Referring in detail to the drawings, the numeral 5 generally designates an already set piling section which has its laterally directed double flange 6 engaged as shown in Figure 2 with the double flange 7 of the preceding piling section 8. On the remaining and opposite double flange 9 is slidably mounted so as to embrace the exterior surfaces thereof the slide of the present invention which is generally designated 10 and which is shown in detail in Figure 4.

The slide which is generally designated 10 comprises the main body portion 11 which is generally vertically elongated rectangular in form and has in one side a recess 12 which is closed by a slotted plate 13 which has a slot 14, the said plate 13 acting to confine the T-head 15 on the guide rod 16, so that the T-head may slide vertically along the body 11 while being connected thereto.

The side of the body 11 opposite the plate 13 has a laterally outwardly and transversely extending pair of hook formations 17 and 17' which have curved lips 18 and 18', respectively. Attached to the edge on the body 11 or formed integrally thereon is the rib 20 which has vertically spaced hinge pin barrels 21 and 22, respectively, designed to accommodate the hinge pin 23.

The hinge pin 23 is arranged to pass through the hinge pin barrels 24 and 25 on the upper and lower ends respectively of the swingable member which is generally designated 26, and also through the bore of the elongated hinge pin barrel 27 which is disposed between the barrels 24 and 25 and spaced therefrom so as to define notches 28 and 29 in the edge of the member 26 for receiving the hinge pin barrels 21 and 22 on the body 11.

The swingable member 26 has on the same side thereof as the plate 13 of the body 11 the detent blocks 30 and 31 which have respective transverse openings 32 and 33 to receive the arms 34 and 35 on the sliding lock 36. Cut out portions 37 and 38 of the outer edge of the lock 36 define the arms 34 and 35. An operating handle 39 is arranged on the outer side of the rectangular plate which forms the lock.

When the hinge pin is in place and swingably connecting the body 11 and the swingable mem-

ber 26 in the relation exhibited in Figure 2, the lock plate 36 lies along the laterally outward side of the swingable member 26 and between the detent blocks 30 and 31 and along the laterally outward side of the rib 20, with the arms 34 and 35 engaged through the openings 32 and 33 in the said blocks 30 and 31, whereby swinging of the member 26 away from the hook formations 17 and 17' and from engagement with the side of the double flange 9 is positively prevented and the hold of the device on the piling section maintained. The laterally inward side of the swingable member 26 has a vertically spaced pair of curved lips 40 and 41 which conform to the curvature of the laterally outward side of the double flange 9 of the piling section as shown in Figure 2 in opposition to the elements 17 and 17'. With the hook-shaped members or elements 17 and 17' of the body 11 engaging with the laterally inward side of the double flange 9 of the piling section as shown in Figure 2, and with the curved lips 40 and 41 of the member 26 engaged with the opposite or laterally outward side of the double flange 9, as shown in Figure 2, and with the lock 36 in place, the only movement possible for the slide relative to the piling section 9 is a vertical sliding movement along the double flange 9.

The guide arm or rod which is generally designated 16 is straight for the major porton of its length but has on its lower end the laterally curved portion 42 at the end of which is located the cross-head 15 which is slidably connected in a manner already pointed out, with the body 11 of the slide 10. The opposite and upper end of the arm 16 is flattened as indicated by the numeral 43 and provided with a pivot receiving opening 44 which receives the pivot bolt 45 which is supported by and between ears 46 depending from the bottom of the L-shaped body 47 of the clamp which is generally designated 48 and which is utilized to clamp to the lower end of the piling section 49 which is to be put into place and set in conjunction with the already set piling section 5. The clamp body 47 is so arranged that the guide arm 16 will be substantially in the same plane as the piling section 49 when the clamp 48 is in place.

The L-shaped body 47 of the clamp has its standard portion provided with gripping teeth 50 to engage one side of the web of the new piling section as indicated in Figures 5 and 6 and also in Figure 3 in opposition to the pair of toothed gripping wheels 51 and 52 which are fitted on the toothed shaft 53 which has its opposite ends 54 movable in slots 55 which have their upper side formed with teeth 56 with which the teeth on the shaft 53 are meshed, said slots and toothed upper portions being provided in each of their pairs of supporting lugs 57, 58 and 59, 60 which rise from the base portion of the L-shaped body 48 in spaced relation to the standard portion which has the gripping teeth 50. A stud bolt 53' is threaded in each end of the toothed shaft 53 to hold in place a washer 54' which engages the outer side of the corresponding one of the supporting lugs 57, 60 to hold the toothed shaft 53 in place. Pivoted as indicated by the numeral 61 on and between the support lugs 58 and 59 is the operating lever 62 which is provided on its underside with the depending stop member 63 and on its inner end beyond the pivot 61 with the pivot 64 which connects with the outer end of a link 65 of a ratcheting arrangement operatively engaging the shaft 53 and adapted upon oscillation of the operating lever 62 to rotate the shaft 53 upwardly and along the angulated slots 55, so as to cause the wheels 51 and 52 to bite into the side of the web of the new piling section 49 in opposition to the teeth 50 on the standard portion of the body of the clamp, whereby the clamp 10 is firmly connected to depend from the lower end of the new piling section.

A horizontal ear 67 at the left hand end of the clamp body 47 has therein a pivot 68 which passes through bifurcations on a link 69 which has on its radially outward end a vertical riser 70 which is arranged to engage between the double flanges 9 of the piling section as indicated in Figure 3; or between the double flanges 9', as shown in Figure 3, in the event that the double flanges are offset to one side rather than the other, the link 69 being swingable to the necessary position and engageable between the double flanges, to enable quickly and accurately centering the clamp on the lower end of the new piling section.

The guide which is generally designated 71 and which is vertically adjustable along the guide rod 16 comprises the body portion 72 which has the bifurcated end 73, the bifurcations of which are traversed by the clamping bolt 74. This bolt also traverses the guide rod clamping block 75 which has at its inner end a curved formation 76 for engaging the side of the guide rod 16, as shown in Figure 8, to press the guide rod into the concavity 77 between the bifurcations; and thereby enabling clamping the guide 71 on the guide rod 16 in the desired position. One side of the body 72 has therein a T-shaped depression 78 to rotatably receive the T-shaped member 79, and a closure plate 80 attachable to the said side of the body 72 is arranged to enclose the rotatable member 79 and retain the same rotatably connected to the body 72.

The axially outward end of the member 79 has an obtusely angulated socket 81 in which is threaded the guide fork 82, and a lock nut 83 on the shank of the guide fork is arranged to engage the end of the socket 81 to lock the guide fork in an axially adjusted position. The guide fork includes at its axially outward end the oppositely curved arms 83 whose inner sides have a curvature proper to slidably engage the outer sides of the double flange 9 of the already set piling section 5 as indicated in Figure 7. The shank portion of the member 79 has thereon a handle 84 which laterally projects therefrom and is arranged to be utilized to swing the angulated socket toward one side or the other according to the lateral displacement of the double flange to be engaged by the arms 83 of the guide. A stop 85 and a stop 86 projecting from the body 72 of the guide are arranged to support the handle 84 in its opposite side positions, as indicated in Figure 8.

The device of the invention is employed by first attaching the slide 10 to the double flange of the already set piling, then attaching the clamp 48 to the lower end of the next and new piling section, and then adjusting the position and extension of the guide 71 on the guide rod 16 so that as the new piling section 49 is lifted by the crane or the like, the same will travel in a vertical line substantially parallel to the already set section. When the lower end of the new section 49 has been elevated to a point slightly above the upper end of the already set section 5, the device having been properly adjusted, the new section may then be lowered so as to engage its double flange with the free double flange of the already

set piling section, and the new section further lowered until it is in fully depressed position and properly engaged and interlocked with the already said section. Just before the new section has reached its lowest point, the clamp 48 is removed, so that the new section may be set into its final position without further manipulation. Simply sliding the lock 36 to the right in Figure 4 will disengage it from the rib 20 so as to permit the swingable member 26 to be swung away from engagement with the double flange of the already set piling section, whereupon the slide 10 may be completely removed from the piling section. Manipulation of the operating lever 62 of the clamp will simply withdraw the clamping wheels 51 and 52 from engagement with the web of the new section 49, whereupon the clamp may be removed from the new section. It is believed obvious that the guide arm 16 and guide 71 keep the new section properly positioned relative to the already set section during the hoisting operations and during the initial stages of the joining of the two sections, wherein their double flanges are interlocked. The next new section may be similarly assembled to the newly set section in an exactly similar manner, simply by transferring the slide, the guide, and the clamp in the manner already pointed out and turning the clamp upside down.

Although I have shown and described herein a preferred embodiment of my invention, it is to be definitely understood that I do not desire to limit the application of the invention thereto, and any change or changes may be made in the materials, and in the structure and arrangement of the parts, within the spirit of the invention and the scope of the subjoined claims.

What is claimed is:—

1. A device for use in assembling a new piling section to an already set piling section, said piling sections having flanges to be interlocked by telescoping them to connect the piling sections together, said device comprising a slide having means for slidably gripping the flange of the set piling section, a guide rod pivotally connected at its lower end to said slide, a guide carried by said guide rod and having second means for slidably gripping the last mentioned flange above said slide, and a clamp pivotally connected to the upper end of said guide rod, said clamp being arranged to clamp on the lower end of said new piling section.

2. In combination with a new piling section and an already set piling section, a device for use in assembling a new piling section to an already set piling section, said piling sections having flanges to be telescoped to connect the piling sections together, said device comprising a slide having means for slidably gripping the flange of the set piling section, a guide rod pivotally connected at its lower end to said slide, a guide carried by said guide rod and having second means for slidably gripping the last mentioned flange above said slide to keep the guide rod in the same plane as the set section, and a clamp connected to the upper end of said guide rod, said clamp being arranged to be clamped on the lower end of said new piling section, and horizontal pivot means connecting said clamp and the upper end of said guide rod and permitting swinging of said clamp only in the plane of said guide rod and the already set section and on a horizontal axis.

3. A device for use in assembling a new piling section to an already set piling section, said piling sections having flanges to be interlocked by telescoping them to connect the piling sections together, said device comprising a slide having means for slidably gripping the flange of the set piling section, a guide rod pivotally connected at its lower end to said slide, a guide carried by said guide rod and having second means for slidably gripping the last mentioned flange above said slide, and a clamp pivotally connected to the upper end of said guide rod, said clamp being arranged to clamp on the lower end of said new piling section, the first mentioned means comprising a body portion engageable with one end of the flange of the set section, a swingable member connected to said body portion and engageable with the opposite side of the flange, and a lock for locking said swingable member in operative position.

4. A device for use in assembling a new piling section to an already set piling section, said piling sections having flanges to be interlocked by telescoping them to connect piling sections together, said device comprising a slide having means for slidably gripping the flange of the set piling section, a guide rod pivotally connected at its lower end to said slide, a guide carried by said guide rod and having second means for slidably gripping the last mentioned flange above said slide, and a clamp pivotally connected to the upper end of said guide rod, said clamp being arranged to clamp on the lower end of said new piling section, the first mentioned means comprising a body on said guide rod and an extensible element thereon having spaced arms engaging opposite sides of the flange of the already set piling section.

5. A device for use in assembling a new piling section to an already set piling section, said piling sections having flanges to be interlocked by telescoping them to connect the piling sections together, said device comprising a slide having means for slidably gripping the flange of the set piling section, a guide rod pivotally connected at its lower end to said slide, a guide carried by said guide rod and having second means for slidably gripping the last mentioned flange above said slide, and a clamp pivotally connected to the upper end of said guide rod, said clamp being arranged to clamp on the lower end of said new piling section, said clamp comprising a body including a base engageable under the lower end of the new piling section, a toothed standard rising from said base and engageable with one side of said new piling section, and clamping means on said base including toothed wheel means engageable with the opposite side of said new piling section in opposition to said toothed standard for locking said clamp on the piling section.

6. A device for use in assembling a new piling section to an already set piling section, said piling sections having flanges to be interlocked by telescoping them to connect the piling sections together, said device comprising a slide having means for slidably gripping the flange of the set piling section, a guide rod pivotally connected at its lower end to said slide, a guide carried by said guide rod and having second means for slidably gripping the last mentioned flange above said slide, and a clamp pivotally connected to the upper end of said guide rod, said clamp being arranged to clamp on the lower end of said new piling section, said clamp comprising a body including a base engageable under the lower end of the new piling section, a toothed standard rising from said base and engageable with one side of said new piling section, and clamping means on

said base including toothed wheel means engageable with the opposite side of said new piling section in opposition to said toothed standard for locking said clamp on the piling section, said clamping means including manual operating means for engaging and disengaging said toothed wheel means with the piling section.

7 A device for use in assembling a new piling section to an already set piling section, said piling sections having flanges to be interlocked by telescoping them to connect the piling sections together, said device comprising a slide having means for slidably gripping the flange of the set piling section, a guide rod pivotally connected at its lower end to said slide, a guide carried by said guide rod and having second means for slidably gripping the last mentioned flange above said slide, and a clamp pivotally connected to the upper end of said guide rod, said clamp being arranged to clamp on the lower end of said new piling section, said clamp including a pilot link having a portion engageable with one of the flanges of the new piling section for the purpose of centering said clamp on said new piling section initially and during the use thereof.

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