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(54) **A method for driving a sheet pile wall**

Verfahren zum Eintreiben einer Spundbohlenwand

Méthode pour former une paroi de palplanches par enfoncement

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Description

The invention relates to a method for driving a sheet pile wall as defined in the first part of claim 1.

Such a method is known from NL-A-7908262. The detection pin used therein is in the form of a bolt having an enlarged foot that bears on the lower edge of the sheet pile portion surrounding the lock space. The detection line is fastened laterally to said enlarged foot.

The invention provides a method of the type above referred to which distinguishes from the well-known method by the features of the second part of claim 1.

The invention also relates to a sheet pile for use with the above method, said sheet pile having the features as defined in claim 3.

The invention will be hereinafter further described by way of example with reference to the accompanying drawing.

Fig. 1 is a perspective view showing how two adjacent sheet piles are entering into mutual engagement, wherein a detection pin of a known type is used;

fig. 2A is a cross-sectional view, along the line II-II in fig. 1, in which a second sheet pile, that "runs in the lock", is indicated by dash-dotted lines;

fig. 2B is a cross-section as shown in fig. 2A, in which dash-dotted lines designate a second sheet pile, which is about to "run out of the lock";

fig. 3 is a perspective view of a detection pin according to the invention, in the form of a sleeve that is clamped on the end of a steel wire cable, said detection pin being intended to be used as a substitution for the detection pin shown in fig. 1; and

fig. 4 is a cross-section through the lower end of a sheet pile and a detection pin of fig. 3 inserted therein.

In fig. 1 two trapezium-shaped sheet piles of a well-known design are illustrated in a diagrammatic manner and indicated by the reference number 1 and 2; the sheet pile 1 has already been driven to the desired depth into the ground, whereas the sheet pile 2 has to be driven further.

The sheet piles 1 and 2 have their longitudinal edges 1a and 2a respectively in mutual engagement in a well-known manner.

Along the free longitudinal edge 1a of the sheet pile 1, i.e. the longitudinal edge, which has to be brought into engagement with the adjacent longitudinal edge 2a of the next sheet pile 2 to be driven, there is provided a "lock space" 3. In the lower end of this lock space, which has a substantially triangular cross-section, a detection pin 4 is inserted and a detection line 6 is anchored in the lower end face of the pin 4. The detection line extends upwardly along the outer side of the lock space wall 1b (fig. 2). The detection pin 4 shown in fig. 1 is of a type according to the prior art above referred to. The detec-

tion pin according to the invention, which is intended to be substituted for the detection pin 4 in fig. 1, is shown in fig. 3 and 4 and is in the form of a metal sleeve 4' which is clamped on the distal end of a steel wire cable 6' functioning as a detection line. This sleeve 4' may be readily clamped onto the cable 6' by means of a simple clamping tool and is secured in the lock space 3 by means of one or more tack welds 5, which are provided via the lock space slit 3a.

Fig. 2A illustrates the case, in which the sheet pile 2 is "properly engaged" and will - while driving is continued - get with the lower end of its longitudinal edge 2a in engagement with the upper end of the detection pin 4 (4') as a result of which the latter will be finally expelled from the lower end of the lock space 3 of the pile sheet 1, while the tack weld(s) 5 are broken off. This situation can be observed above ground through the detection line 6 becoming slack.

Fig. 2B illustrates the case, in which the sheet pile 2 has partially "run out of the lock" and will - while continuing driving - remain just out of engagement with the detection pin 4 (4'), as a result of which the latter will remain within the lower end of the lock space 3 of the last driven sheet pile 1.

This situation can be observed aboveground through the detection line 6 being kept tensioned.

In the event the second sheet pile to be driven has a shorter length than the first driven sheet pile 1, so that the lower end of the second sheet pile will not reach the detection pin within the lock space of the driven sheet pile, the difference in length may be compensated by a filling rod of a corresponding length which is dropped into the lock space of the driven sheet pile.

Claims

1. A method for driving a sheet pile wall by successively driving sheet piles (1, 2), of which the profiled longitudinal edges (1a; 2a) are slidably engaging one another, into the ground, wherein sheet piles (1, 2) are driven, which are provided below, at the free longitudinal edge (1a; 2a), with a detection pin (4') inserted axially from below into a lock space (3) confined by said longitudinal edge (1a; 2a), the lower end of said pin (4') being connected to a detection line (6') extending upwardly along the outer side of the lock space (3), characterized in that use is made of a detection pin in the form of a sleeve (4') that is clamped on the distal end of a steel wire cable (6') functioning as a detection line, said sleeve (4') being secured in the lock space (3) by a break-connection (5).
2. A method according to claim 1, characterized in that the break-connection is effected by providing one or more tack welds (5).

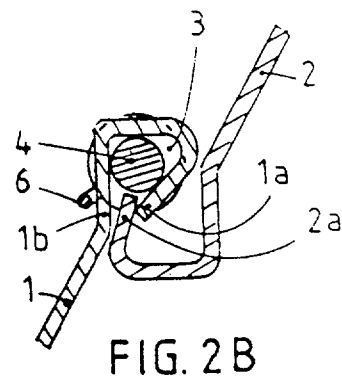
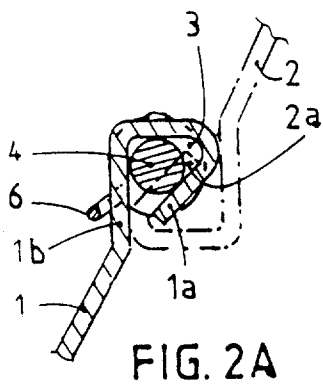
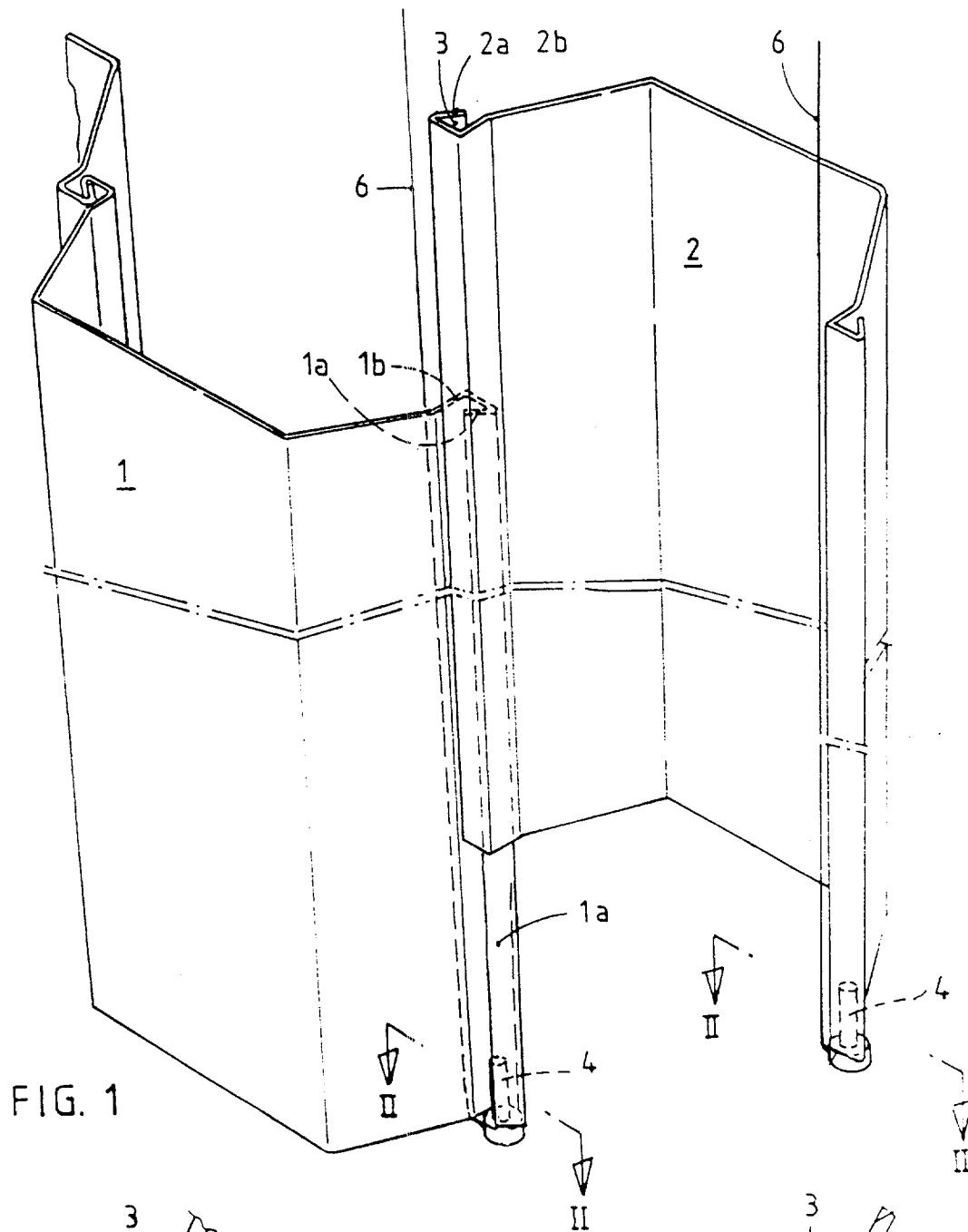
3. Sheet pile, the profiled longitudinal edges (1a; 2a) of which confine a lock space (3) for engagement with the longitudinal edge (2a; 1a) of an adjacent sheet pile, a detection pin (4') being axially inserted within the lower end of the lock space (3) along one of the longitudinal edges (1a; 2a), said detection pin (4') having its lower end connected to a detection line (6'), characterized in that use is made of a detection pin in the form of a sleeve (4) that is clamped on the distal end of a steel wire cable (6') functioning as a detection line, said sleeve (4') being secured in the lock space (3) by one or more tack welds (5).

Patentansprüche

1. Verfahren zum Eintreiben einer Spundbohlenwand, indem aufeinanderfolgend Spundbohlen (1, 2) in den Boden eingetrieben werden, deren profilierte Längskanten (1a; 2a) gleitend ineinandergreifen, wobei Spundbohlen (1, 2) verwendet werden, die unten an der freien Längskante (1a; 2a) mit einem achsial von unten in den von der Längskante (1a; 2a) begrenzten Schlossraum (3) gesteckten Überwachungsbolzen (4') versehen sind, von welchem Bolzen (4') das untere Ende mit einer an der Aussenseite des Schlossraumes (3) entlang nach oben laufenden Überwachungsleine (6') verbunden ist, dadurch gekennzeichnet, dass ein Überwachungsbolzen in Form einer auf dem unteren Ende eines als Überwachungsleine funktionierenden Drahtseils (6') geklemmten Buchse (4') verwendet wird, welche Buchse (4') im Schlossraum (3) durch eine Sollbruchverbindung (5') gehalten wird.
2. Verfahren nach Anspruch 1, dadurch gekennzeichnet, dass die Sollbruchverbindung durch eine oder mehrere Heftscheissungen gebildet wird.
3. Spundbohle, deren profilierte Längskanten (1a; 2a) einen Schlossraum (3) zum Eingriff mit der Längskante (2a; 1a) einer angrenzenden Spundbohle begrenzen, wobei ein Überwachungsbolzen (4') in achsialer Richtung in das untere Ende des Schlossraumes (3) an einer der Längskanten (1a; 2a) gesteckt ist, welcher Überwachungsbolzen (4') mit seinem unteren Ende mit einer Überwachungsleine (6') verbunden ist, dadurch gekennzeichnet, dass ein Überwachungsbolzen in Form einer auf dem unteren Ende eines als Überwachungsleine funktionierenden Drahtseils (6') geklemmten Buchse (4) verwendet wird, welche Buchse (4') mittels einer oder mehrerer Heftscheissungen (5) im Schlossraum (3) fixiert ist.

Revendications

1. Procédé d'entraînement d'une paroi de palplanches, par entraînement successif de palplanches (1, 2) dont les bords longitudinaux (1a; 2a) profilés s'engagent par coulisement les uns contre les autres, dans le sol, dans lequel les palplanches (1, 2) sont entraînées, palplanches pourvues, en partie inférieure, au niveau du bord longitudinal (1a; 2a) libre, d'une tige de détection (4') insérée axialement par le dessous dans un espace de verrouillage (3) confiné par ledit bord longitudinal (1a; 2a), l'extrémité inférieure de ladite tige (4') étant reliée à un câble de détection (6') s'étendant vers le haut le long du côté extérieur de l'espace de verrouillage (3), caractérisé en ce que l'on utilise une tige de détection se présentant sous la forme d'un manchon (4') qui est serré sur l'extrémité distale d'un câble de fil d'acier (6') servant de câble de détection, ledit manchon (4') étant fixé dans l'espace de verrouillage (3) au moyen d'une connexion à rupture (5).
2. Procédé selon la revendication 1, caractérisé en ce que la connexion à rupture est réalisée en effectuant une ou plusieurs soudures par points (5).
3. Palplanche, dont les bords longitudinaux (1a; 2a) profilés confinent un espace de verrouillage (3) destiné à l'engagement contre le bord longitudinal (2a; 1a) d'une palplanche adjacente, une tige de détection (4') étant insérée axialement dans l'extrémité inférieure de l'espace de verrouillage (3) le long de l'un des bords longitudinaux (1a; 2a), ladite tige de détection (4') ayant son extrémité inférieure reliée à un câble de détection (6'), caractérisée en ce que l'on utilise une tige de détection se présentant sous la forme d'un manchon (4) qui est serré sur l'extrémité distale d'un câble de fil d'acier (6') servant de câble de détection, ledit manchon (4') étant fixé dans l'espace de verrouillage (3) par une ou plusieurs soudures par points (5).



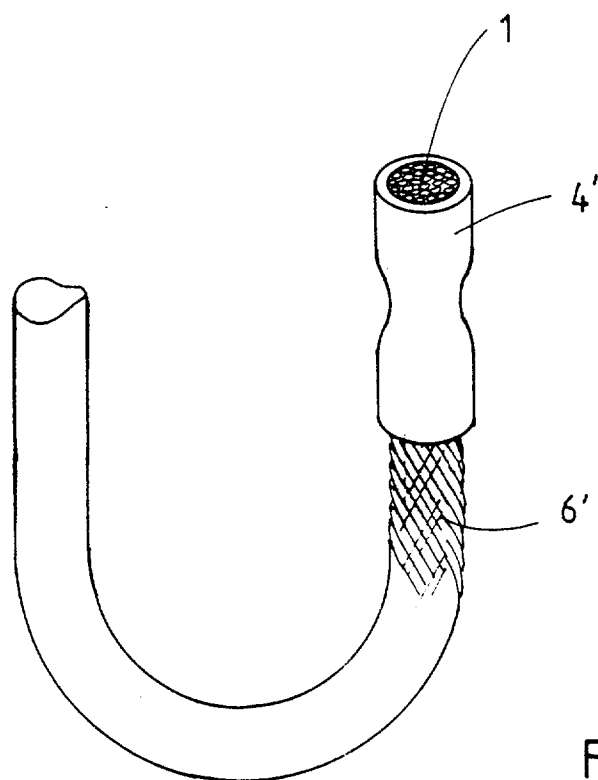


FIG. 3

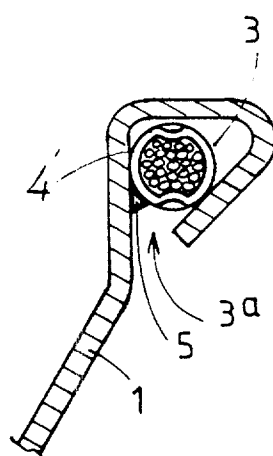


FIG. 4