

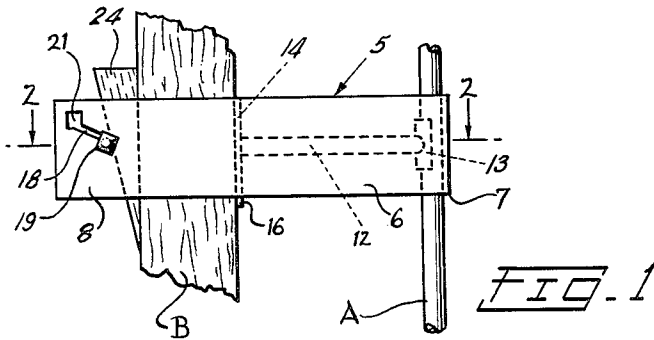
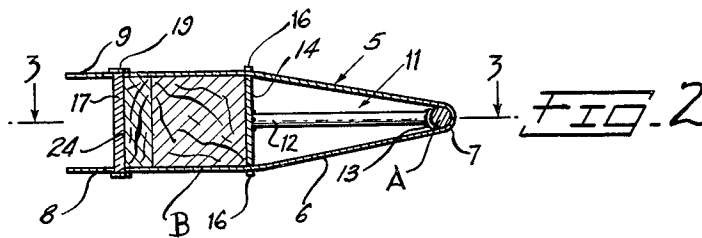
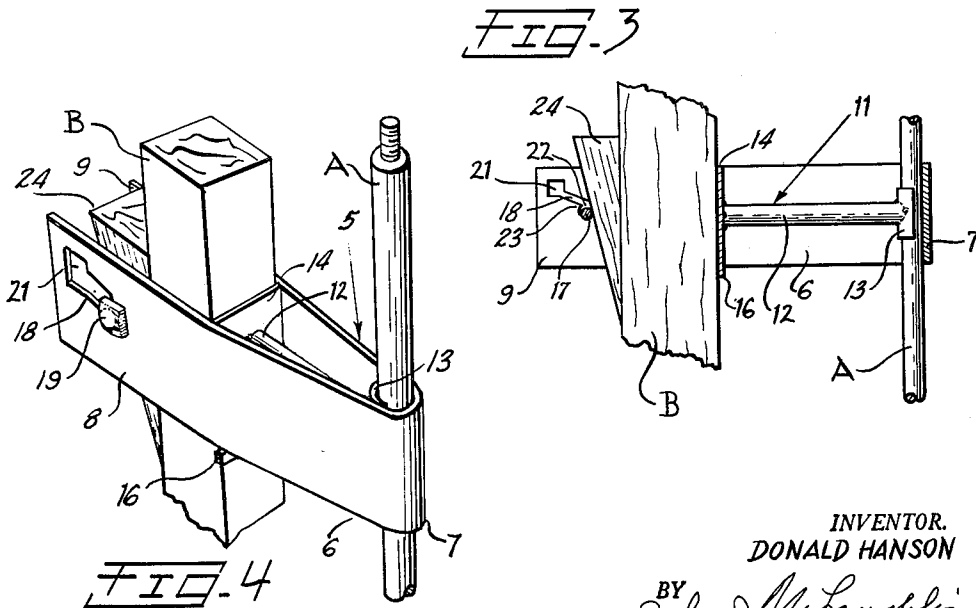
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JACK ROD SUPPORT

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## JACK ROD SUPPORT

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This invention is concerned with improvements in the art of using slip forms and their control by means of lifting jacks operating on jacking columns or jack rods as they are more popularly known. The invention relates more specifically to an improvement in the support of such jack rods in areas where they do not become imbedded in the concrete.

When relatively large poured concrete structures are produced, it is a common practice to utilize slip forms which are substantially continuously raised by power means during the concrete pouring operation. A common lifting mechanism comprises a plurality of pneumatic jacks, such as disclosed in Daly Patent No. 2,805,581, and patents cited therein, in which the jacks climb progressively upwardly on their jack rods and carry the slip forms with them. A continuous jack rod may be provided extending from the bottom to the top of the concrete structure. In any case, the jack rod almost always comprises a multiple of separate rods secured together end to end by suitably provided threads. The rods may be solid or in the form of pipe. Since they are relatively small in diameter they are subject to buckling or springing if not supported.

Because the jack rods lie between the slip forms, they become imbedded in the concrete as it is poured, and becomes part of its reinforcing structure, the preliminary setting of the concrete thereby normally providing a support for them. When a jack rod does not become imbedded in the concrete, as will occur, for example, when openings of any kind are provided, there is danger of its buckling with consequent loss of support for the slip forms. It is a common practice, therefore to provide a jack rod lacing support of timbers and braces within such an opening wherever it exists. While, in general, the present practice of constructing jack rod lacing supports in openings where the jack rod would normally be exposed has been technically effective, this practice has continued to be time consuming and relatively expensive.

The principal object of the present invention is to provide improved supporting means for jack rods.

Another object is the provision of a jack rod support which is quickly releasable mounted in jack rod supporting position and as quickly dismounted when it has served its purpose, so that it may be used in another location, and a relatively small number of such supports is sufficient for a relatively large project.

Still another object is the provision of jack rod support mechanism which may be quickly releasably clamped to a jack rod and contiguous supporting timber stud.

In securing the objects of the present invention and obviating the time and expense heretofore required, the framing of an opening by suitable bulkheads and the support of such bulkheads by conventional bracing members is carried out in accordance with conventional practices. Instead of utilizing conventional jack rod lacing support between the jack rod and a contiguous timber and between adjacent jack rods when such practice is indicated, the present invention provides semi-permanent clamping mechanism which engages by clamping action both the jack rod and a normally provided supporting timber stud. This stud is a part of the stationary frame support provided at the opening, and is not to be confused with the studs commonly associated with jacking yokes. Normally the supporting timber studs and the jack rods are parallel to each other and illustratively

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they are spaced apart slightly more than half the width of the lifting jack. The jack rod support clamping mechanism is constructed to a standard to facilitate rapid assembly and disassembly.

An illustrative embodiment of the invention, which has been found relatively inexpensive to build but still efficient in operation is shown in the accompanying drawings. In such drawings,

FIG. 1 is a fragmentary elevational view with the jack rod and supporting timber stud broken away;

FIG. 2 is a sectional view of the line 2—2 of FIG. 1;

FIG. 3 is a longitudinally sectional view taken on the line 3—3 of FIG. 2; and

FIG. 4 is a perspective view also showing the support attached to a jack rod and supporting timber.

Referring now to the drawings, the jack rod support comprises a generally U-shaped strap 5 with a triangular portion 6 and rounded apex 7 shaped to engage snugly around the jack rod A and integral parallel side plates 8 and 9 engaging on opposite sides of a supporting timber stud B. The drawings indicate the stud B to be symmetrical, such as a 4" x 4" wooden timber, but any suitable timber such as a 4" x 6" or other shape used in slip form work may be employed. A clamping support identified generally by the reference character 11 has an arm 12 with a jack rod engaging cap 13 at one end and a flat base 14 on the other end for engaging the supporting timber stud B. As appears particularly clear from FIG. 4, the base 14 extends entirely across the face of the stud B between the contiguous portions of the strap 5 and has a pair of projections 16 extending beyond the strap 5.

To clamp the jack rod support on the supporting timber stud B there is provided a wedge pin 17, which extends completely through diagonal slots 18 in the parallel side plates 8 and 9 of the strap 5. The wedge pin 17 has enlarged heads 19 which will pass through correspondingly shaped upper enlarged portions 21 of the diagonal slots 18, but the heads 19 prevent removal of the wedge pin 17 at any other position. The diagonal slots 18 terminate in bottom recesses 22 which provide shoulders 23, so that when a wedge 24 is driven between the timber stud B and the wedge pin 17, the wedge pin will be tightened against the shoulder 23 and there will be no tendency for the wedge pin to rise in the slots 18. This tightening action, of course, also clamps the jack rod A between the cap 13 and the rounded end 7 of the strap 5, and it also clamps the timber B between the base 14 and the face of the wedge 24.

When employing the jack rod support of the present invention, the concrete pouring and utilization of the slip forms may be continued exactly in accordance with conventional practices, including the placement of framing bulkheads at openings and placement of the conventional timber supports for such bulkheads. As soon as the jack has progressed upwardly a sufficient distance above the bottom of an opening to provide enough working room, the strap 5 is placed around the jack rod A and on opposite sides of a contiguous supporting timber stud B, the wedge pin 17 inserted in the slots 18, the clamping support 11 placed in position, and the wedge 24 inserted and driven down to produce a clamping action. If there should be any tendency for downward movement, the entire device moves as a unit because of the projections 16, so that it is impossible for the parts to become dissociated during an attaching operation. The projections 16 also assist in holding the sub-assemblies 5 and 11 in temporary assembled position until the wedge pin 17 and wedge pin 24 are inserted and the latter tapped down to produce an effective clamping action. It should be noted that the shape of cap 13 and the rounded portion 7 of strap 5 are such that the jack rod is supported substantially completely around

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its circumference. Similarly, the base 14 and wedge 24, together with subtending portions of the flat sides 8 and 9 of strap 5, provide very firm clamping attachment to stud B. By placing the supports of the present invention at spaced intervals, and where indicated alternating from one stud B to another for a single jack rod, a very firm and effective support is provided.

While the jack rod support illustrated and described is effective for the purpose, the device may take various forms within the scope of the invention. In the form shown, the strap 5 is inexpensively formed, by a stamping and bending operation using suitable strip steel. The member 11 is also suitably formed by welding the base 14, rod 12 and cap 13 together. The wedge 24 may be any suitable material shaped to retain its position when wedged between the timber stud B and wedge pin 17. While the equivalent of the members 5 and 11, regardless of the form which they may take, are essential to the practice of the invention, the hinge pin arrangement may vary considerably. This pin may be considered the equivalent of providing strap means on three sides of the stud, with wedge means for clamping the stud B and rod A together against the intervening clamp support 11.

While the timber stud B has been referred to as a commonly used portion of the framing support, and is utilized in the present invention for releasably clamping the jack rod to it, in any instance in which it were not standard to an operation, it can be employed in accordance with the present invention to impart sufficient stiffening to a jack rod to prevent buckling.

The invention has been shown and described in detail so that those skilled in the art will understand the manner of practicing the same, but the scope of the invention is defined by the claims.

I claim:

1. In a jack rod support a clamping support having a rounded cap at one end to engage a jack rod and a base at its opposite end to engage a timber stud, and a strap shaped intermediate its ends to engage around a jack rod and having parallel side plates to lie on opposite sides of a stud and project therefrom said projecting portions having slots for receipt of a wedge pin, said slots having enlarged portions for passing the head of a wedge pin and pin retaining portions, and a wedge pin with heads shaped to pass said enlarged portions.

2. The combination defined in claim 1 wherein said slots are diagonal, said enlarged portions are at an upper outward portion of the slots, and said slots provide shoulders at a lowermost portion against which said pin engages

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when a wedge is driven between said pin and the adjacent face of the stud.

3. In a jack rod support a strap shaped intermediate its ends to engage around a rod and having generally parallel end portions dimensioned to lie on opposite sides of a stud of rectangular cross section and project therefrom in combination with bridging means between said strap projecting portions and spaced from the stud, and a clamping support between the rod and stud including a rod, a base engageable against the stud and a rounded cap engageable against the jack rod, said base having a pair of projections below the strap and extending beyond the position of said strap.

4. Jack rod supporting clamp mechanism for supporting a jack rod at an opening in a concrete structure during the pouring of concrete using power jack controlled slip forms, which clamp mechanism comprises the combination of a strap shaped intermediate its ends to engage around a jack rod, sides defining a triangular portion with the said jack rod engaging portion at the apex of said triangular portion, and parallel side members forming a continuation of the triangular portion, said parallel side members adapted to lie on opposite sides of a stud adjacent to the jack rod and project therefrom, said projecting portions having slots with a widened portion to pass the head of a wedge pin and a shoulder against which the wedge pin is adapted to engage, a headed wedge pin engageable in said slots in the projecting sides of the strap, and a clamping support having a rounded cap engageable against the jack rods at a point opposite to that at which the said strap engages, and a base engageable against the said stud at a side thereof opposite to the wedge pin, said base having a pair of side positioning projections extending beyond the said parallel side members forming a part of the strap, whereby a wedge may be driven between the wedge pin and stud to place the said strap in tension and the clamping support in compression to thus grip both the jack rod and stud and temporarily support the jack rod.

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