United States Patent

Loomis

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[54] **BOLT HOLE DRILLING JIG FOR ELEVATOR INSTALLATION**

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Related U.S. Application Data

[62] Division of Ser. No. 3,335, Jan. 16, 1970.

[52] **U.S. Cl.** **408/72**
[51] **Int. Cl.** **B23b 47/28**
[58] **Field of Search** ..... 408/72, 103, 241, 115; 33/180 R, 189

[56] **References Cited**

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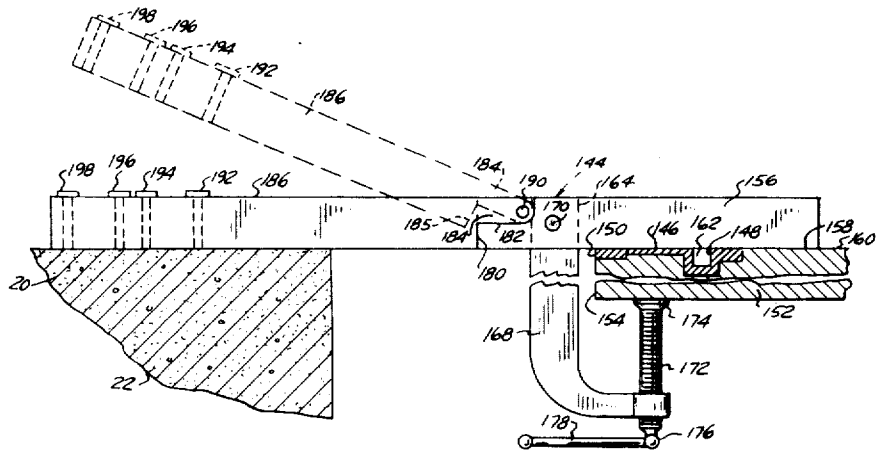
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Primary Examiner—Gil Weidenfeld
Attorney—Barthel & Bugbee

[57] **ABSTRACT**

This precision drilling jig has a base with a flat bottom surface adapted to rest upon the flat top surface of an elevator car sill and a locating rib fitting into a groove in the sill. An angle arm is secured to the forward portion of the base and extends downward therefrom beneath the car platform carrying the sill and has a clamping screw movable upward into clamping engagement with the car platform. Pivotally mounted on the forward portion of the base to swing upward from a horizontal position coextensive therewith is a drilling arm containing a plurality of precisely located holes in which are mounted drilling bushings for precisely guiding the drill which drills the bolt holes in the elevator shaft entrance sill footing of the building floor for the subsequent bolting thereto of two laterally-spaced unfolded Z-brackets to which in turn is bolted the stationary elevator shaft entrance door sill.

3 Claims, 2 Drawing Figures



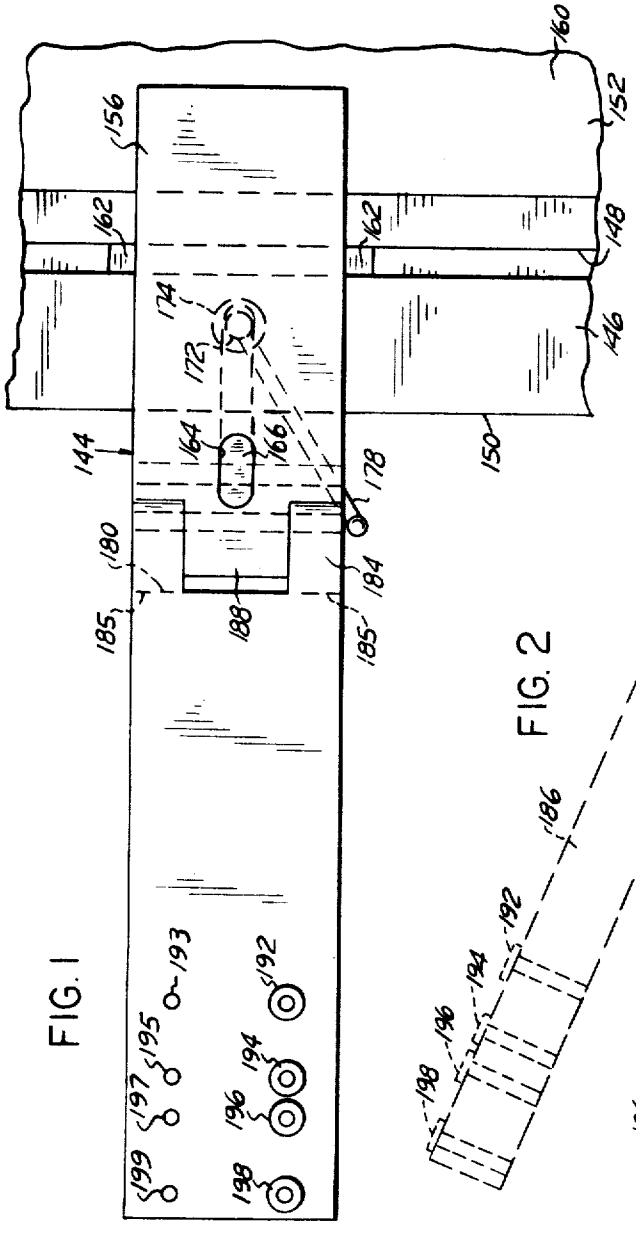


FIG. 1

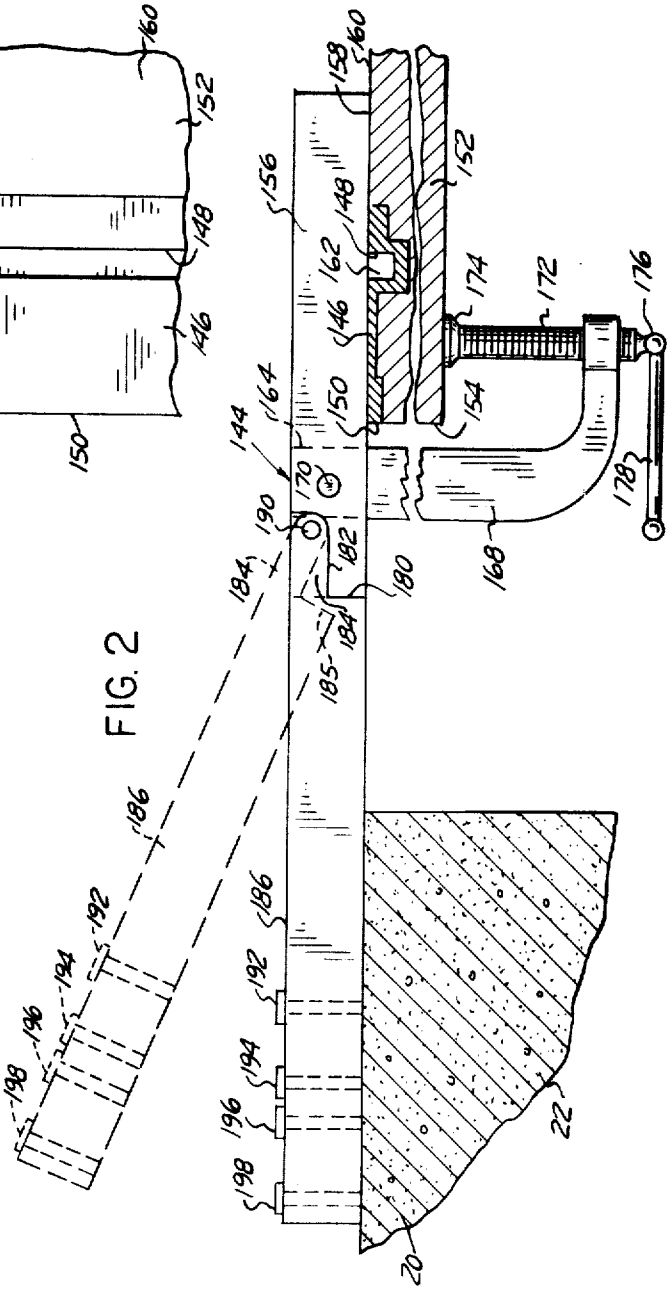


FIG. 2

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BOLT HOLE DRILLING JIG FOR ELEVATOR INSTALLATION

This is a division of my copending application, Ser. No. 3,335, filed Jan. 16, 1970 for Universal Elevator Shaft Entrance Construction.

SUMMARY OF INVENTION

This swinging drilling jig enables the drilling of the elevator shaft entrance sill footings in precisely-located positions to receive the bolts by which the shaft entrance sill supporting brackets are mounted, with reference to the location of the elevator car sill so as to provide a minimum yet adequate clearance therebetween. The drilling bushings of the drilling jig are mounted in a vertically-swinging arm so as to be capable of swinging upward out of the way when the elevator car is moved upward or downward in the elevator shaft.

In the drawing,

FIG. 1 is a top plan view of a swinging drilling jig, according to one form of the invention, shown as attached to a portion of an elevator car sill and supporting platform; and

FIg. 2 is a side elevation of the drilling jig shown in FIG. 1, with a portion of the elevator car sill and a portion of the elevator shaft entrance sill footing shown in vertical section, with the operating position of the drilling arm shown in solid lines resting upon the elevator shaft entrance sill footing, and with its partially raised position shown in dotted lines.

Referring to the drawing in detail, FIG. 1 shows an elevator shaft or hatchway entrance with a horizontal sill footing **20** forming a part of the building floor **22**, which is usually, and preferably, of reinforced concrete. The elevator shaft entrance footing **20** is to be drilled with two sets of laterally-spaced bolt holes in precisely-located positions for receiving the bolts by which two unfolded Z-brackets (not shown) are to be mounted for supporting, in turn, the elevator entrance sill (not shown) at a minimum yet adequate clearance with respect to the elevator car sill **150**. Such precision is required so that the elevator car sill **150** will pass sufficiently close to the doorway entrance sill (not shown) to prevent the occurrence of an unsightly and possibly dangerous gap therebetween and yet have adequate clearance relatively thereto. For this purpose, the present invention provides a precision swinging drilling jig **144** which is shown in FIGS. **1** and **2**. This drilling jig is adapted to be precisely and firmly secured to the elevator car sill **146** and elevator car platform **152** with reference to a longitudinal groove **148** formed precisely in the car sill **146** at a definite distance from the front edge **150** of the car sill **146**, which is mounted on the car platform **152** with its front edge **150** aligned with front face **154** of the platform **152**. The drilling jig **144** is provided with a base **156** which has a flat bottom surface **158** adapted to engage and rest upon the correspondingly flat top surface **160** of the elevator car sill **146**. Secured to the base **156** and projecting downward therefrom is a transversely-disposed locating rib **162**, the opposite ends of which project beyond the opposite sides of the base **156**. Formed in the base **156** near the forward end thereof is a bore **164** (FIG. 1) of rounded-end rectangular cross-section in which the correspondingly-shaped upper end **166** of a right-angled clamping arm **168** is secured as by a cross pin **170**

(FIG. 2). The lower end of the clamping arm **168** is bored and threaded to receive a clamping screw **172** having at its upper end a clamping pad **174** and at its lower end a head **176** to which is attached an operating handle **178**.

The forward end **180** of the base **156** is notched out at **182** near its opposite sides to receive and provide clearance for the integral tongues **184** of a vertically-swinging drilling jig arm **186**, with stop shoulders **185** thereon adapted to abuttingly engage the forward end **180**. The tongues **184** are spaced apart laterally from one another so as to lie on opposite sides of the nose portion **188** of the base **156** formed between the notches **182**. The tongues **184** and the nose portion **188** are drilled to receive a pivot pin **190** for the arm **186** which is drilled precisely at four different locations in two spaced rows to receive drilling bushings **192**, **194**, **196** and **198** in one row and bushings **193**, **195**, **197** and **199** in the other row to drill right-hand or left-hand door openings respectively. The drilling bushings **194** and **198** are used when the elevator car sill **146** has a single guide groove **148** for a single door **140** as shown in FIG. **2**. Where the elevator car has double doors (not shown) and the elevator car sill **146** consequently has double parallel guide grooves **148**, the drilling bushings **192** and **196** are used to drill the bolt holes **29** and **31**. The drilling jigs **144** are used in pairs and located on the elevator car platform by a template (not shown) prepared for the particular installation and afterward discarded.

In the installation of the elevator shaft entrance sill (not shown), the two drilling jigs **144** are positioned by a suitable template (not shown) in their proper locations on the car platform **152** and secured by their clamping screws **172** to the elevator car sill and platform **152** with their locating ribs **162** in the car sill guide groove **148**. When the elevator car is to be moved upward or downward between floors, the jig arms **186** are swung upward out of the way in the direction of the dotted lines in FIG. **8**, but preferably into a vertical or backwardly-tilted position. In use, the arms **186** are swung downward until their stop surfaces **185** engage the forward end **180** of the base **156**. The installer inserts the drill of a suitable portable drilling appliance through the proper drilling bushings **192**, **196** or **194**, **198**, depending upon whether the entrance construction **10** has a single track sill or a double track sill for single or double sliding doors respectively or through the bushings **193**, **197** or **195**, **199** for a door opening of the opposite hand. After having drilled the bolt holes in this manner for one of the Z-brackets (not shown), the installer then places a pair of the Z-brackets with their bolt holes in alignment with the bolt holes, inserts bolts therein and bolts the two Z-brackets firmly and fixedly in their intended positions. He then moves the elevator car to the next floor **20** of the building, repeats the above-described drilling operations there, and bolts down the next pair of Z-brackets, and so on, repeating these operations at each of the remaining floors of the building in that particular elevator shaft. Once the two drilling jigs **144** have been clamped in their proper positions on the elevator car platform **152**, it is self-evident that they do not need to be removed therefrom until the completion of the installation of all the Z-brackets in that particular shaft. The

above-described procedure is then repeated, shaft by shaft, until the installation of all Z-brackets for all floors of all elevator shafts of the building has been completed. The remainder of the installation is then carried out, as set forth in detail in my co-pending application, Ser. No. 3,335 filed Jan. 16, 1970 referred to above.

I claim:

1. A bolt hole drilling jig for removable attachment to the platform structure of an elevator car for guiding the drilling of sill support bracket bolt holes in the building floor adjacent the doorway, said drilling jig comprising

a base adapted to rest upon the elevator car platform structure and having a clamping device secured to said base and adapted to engage the platform beneath the same,

and a drill guide arm pivotally attached to said base and extending outwardly away from said base and clamping device for swinging upward relatively thereto and having drill guide holes extending through the outer end portion of said arm remote from said base and clamping device.

2. A bolt hole drilling jig for removable attachment to the platform structure of an elevator car for guiding the drilling of sill support bracket bolt holes in the building floor adjacent the doorway, said drilling jig comprising

a base adapted to rest upon the elevator car platform structure and having a clamping device secured to said base and adapted to engage the platform beneath the same,

and a drill guide arm pivotally attached to said base for swinging upward relatively thereto and having drill guide holes extending therethrough,

said base on the under side thereof having downwardly-projecting jig-locating means adapted to interfit with a cooperating locating recess on the elevator car platform structure.

3. A bolt hole drilling jig, according to claim 2, wherein said jig-locating means includes an elongated member, and wherein the locating recess is an elongated groove adapted to snugly receive said elongated member.

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