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Seger

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[54] **QUICK ACTION NUT ASSEMBLY FOR SCREW TYPE JACKS**

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[52] **U.S. Cl.** ..... **74/424.8 A**

[51] **Int. Cl.** **F16h 1/18**

[58] **Field of Search** ..... 74/424.8 A, 459

[56] **References Cited**

UNITED STATES PATENTS

15,112	5/1921	Mason	74/424.8 A
463,301	11/1891	Brandner	74/424.8 A
950,431	2/1910	Bradford	74/424.8 A
1,065,801	6/1913	Hammers	74/424.8 A
2,654,567	10/1953	James	74/424.8 A X

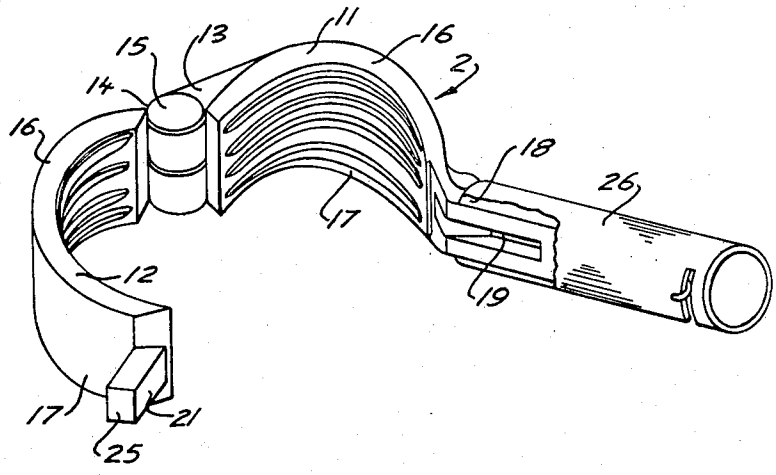
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[57] **ABSTRACT**

A quick action operating nut assembly for a screw of a screw type jack having a pair of hingedly interconnected complementally threaded nut halves swingable between an open position for receiving, or for removal from, the screw and a closed position for threadedly engaging the screw so that the nut assembly can be selectively applied to the screw at any desired position along its length. One of the nut halves has a radially extending arm and the other has a radially extending lug. A sleeve is slidably mounted on the arm moveable into and out of locking engagement with the lug when the nut halves are in a closed position.

3 Claims, 3 Drawing Figures



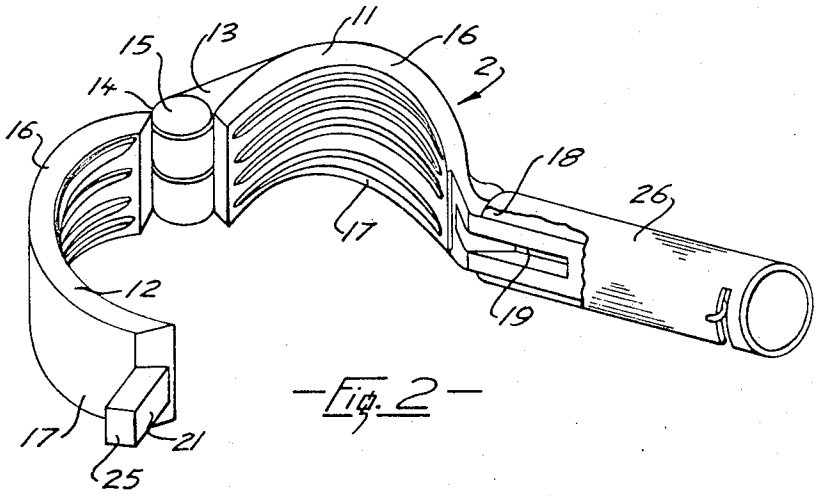


Fig. 2

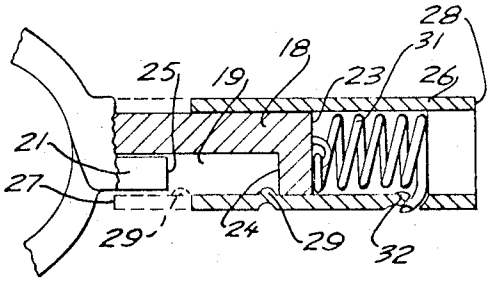


Fig. 3

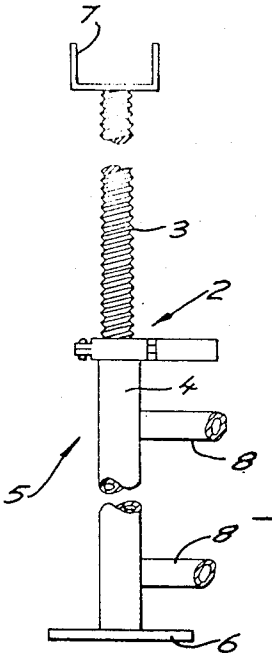


Fig. 1

QUICK ACTION NUT ASSEMBLY FOR SCREW TYPE JACKS

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to operating nut and screw assemblies for screw type jacks.

2. Prior Art

Screw type jacks, conventionally, are extended or retracted by manipulation of an operating nut threaded on a jack screw, the nut bearing on the top of a tubular leg, out of which the screw extends. Jacks of this type are extensively used as adjustable supports for slab work in concrete construction and are often interconnected in gangs, each gang of jacks being moveable as a unit.

The screws of each jack of each gang are usually in a retracted position when setting a gang in a position to support the concrete form work. Each of the operating nuts is then manipulated in turn to obtain the required extension of the screws. After the concrete has set the screws must then be retracted by again manipulating the operating nuts in order to obtain necessary clearance for the gang of jacks to be removed as a unit from beneath the newly poured concrete. Retraction of one foot or more is often necessary to clear beams, etc.

Manipulation of the nuts is a hand job and, as the screws are usually reasonably fine threaded, extension and retraction of the screws is a labourious, time consuming operation.

In order to reduce time required in extension and retraction of screws removable shims which can be positioned between the jack operating nuts and the jack legs have been used, however use of shims is not entirely satisfactory as shims, being separable components, are easily lost. Furthermore shims are often quite difficult to apply and are prone to accidental dislodgement when manipulating a nut. It is also usually necessary, to have variable shieves of different sizes and lengths.

SUMMARY OF THE INVENTION

The present invention provides an operating nut assembly for a screw jack which can be applied to or removed from a jack screw so that the nut assembly can be selectively positioned longitudinally of the screw to reduce amount of nut manipulation normally required to effect extension or retraction of the screw.

The operating nut assembly of the present invention includes a pair of hingedly interconnected complementally threaded nut halves which can be swung between open and closed positions so as to effect engagement with or disengagement from the screw, an arm extending radially from one of the nut halves, a lug extending radially from the other nut half, and a locking member slidably mounted on the arm for movement into and out of locking engagement with the lug when the nut halves are in a closed position.

A detailed description following related to the drawings gives exemplification of preferred embodiment of the invention which, however, is capable of expression in a structure other than that particularly described and illustrated.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is an elevation of a nut assembly of the invention shown in operating position on a screw jack,

FIG. 2 is a perspective of an operating nut assembly of the invention in an open position, portions being removed for clarity of illustration,

FIG. 3 is an enclarged central sectional view of a portion of the operating nut assembly shown in locked and unlocked positions.

DETAILED DESCRIPTION

FIG. 1

An operating nut assembly, generally **2**, of the invention is shown in operating position on a screw **3** which extends from a tubular leg **4** of a screw jack **5.** The jack leg conventionally has a base plate **6** and a saddle **7** is usually secured to the upper end of the screw for supporting beams and the like. The nut assembly which rotatably bears on the upper end of the jack leg can be rotated to effect extension or retraction of the screw relative to the leg. The jack **5** is often connected in a gang with other similar jacks, not shown, by braces or other known means.

FIGS. 2 and 3

The nut assembly **2** has a pair of complementary nut halves **11** and **12** having adjacent ends **13** and **14** which are hingedly interconnected for swinging movement on a hinge pin **15.** The nut halves are swingable between an open position, as shown in FIG. **2,** and a closed position as shown in FIG. **3,** and are internally threaded, the threads of each nut half complementing each other when the halves are in the closed positions. The threads terminate short of the bearing surfaces **16** and **17** of the nut halves so as to protect ends of the threads from damage.

The nut half **11** has a radially extending cylindrical arm **18** diametrically opposite the hinged end **13.** The arm has a longitudinal slot **19** for receiving, when the nut halves are in the closed position, a lug **21** which extends radially from the nut half **12.** The slot **19** terminates short of an outer end **23** of the arm in an end wall **24,** the end wall constituting an abuttment surface which is spaced from an outer end **25** of the lug when the nut halves are in a closed position.

A cylindrical sleeve **26,** which acts as a locking member and having an inner end **27** and an outer end **28,** has a slidable fit on the arm **18.** The sleeve, adjacent the inner end **27,** is indented to provide an inner projection **29** which acts as a detent engageable with the end wall **24** to limit outward movement of the sleeve on the arm.

As seen in FIG. **3** the sleeve is moveable between a release position, shown in solid outline, in which the inner end **27** clears the outer end of the lug, and a locking position, shown in broken outline, in which the lug is received within the inner end of the sleeve.

A tension spring **31** in the sleeve is connected at one end to the outer end of the arm and at an opposite end to an inwardly extending lip **32** adjacent an outer end of the sleeve and normally urges the sleeve to the locking position.

To apply the nut assembly **2** to the jack screw **3** the sleeve is moved to its release position, FIG. **3,** and the nut halves swung to an open position for receiving the screw. The nut halves are then swung together so that they threadedly engage the screw and the sleeve **26** is then released so that it automatically moves to its locking position under the influence of the spring **31.** The nut assembly can then be manipulated as a conventional nut to extend or retract the screw.

In order to remove the nut assembly from the screw the sleeve is pulled against the action of the spring **31** to its release position. Pressure against the nut halves automatically swing them to their open position so that the nut assembly can be removed from the screw to allow the screw to retract into the jack leg.

I claim:

1. An operating nut assembly for attachment to a screw of a screw type jack, the assembly comprising:

a. a pair of hinged, complementary threaded nut halves adapted to be swung between an open and a closed position so as to enable the nut assembly to be fitted to or removed from the screw,

b. an arm extending radially from one of the nut halves,

c. a lug projecting radially from the other nut half and extending parallel to the arm when the nut halves are in a closed position,

d. a sleeve mounted on the arm for longitudinal slideable movement into and out of locking engagement with the lug when the nut halves are in the closed position,

e. an abutment member on the arm for limiting slideable movement of the sleeve when the latter is moved out of locking engagement with the lug,

f. a spring extending between the sleeve and the arm for yeildably urging sleeve to the locking position.

2. An operating nut assembly as claimed in claim **1** in which the arm has a slot for receiving of the lug when the nut halves are moved to the closed position.

3. An operating nut assembly as claimed in claim **1** in which the threads of the nut halves terminate short of the side surfaces of the latter.

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