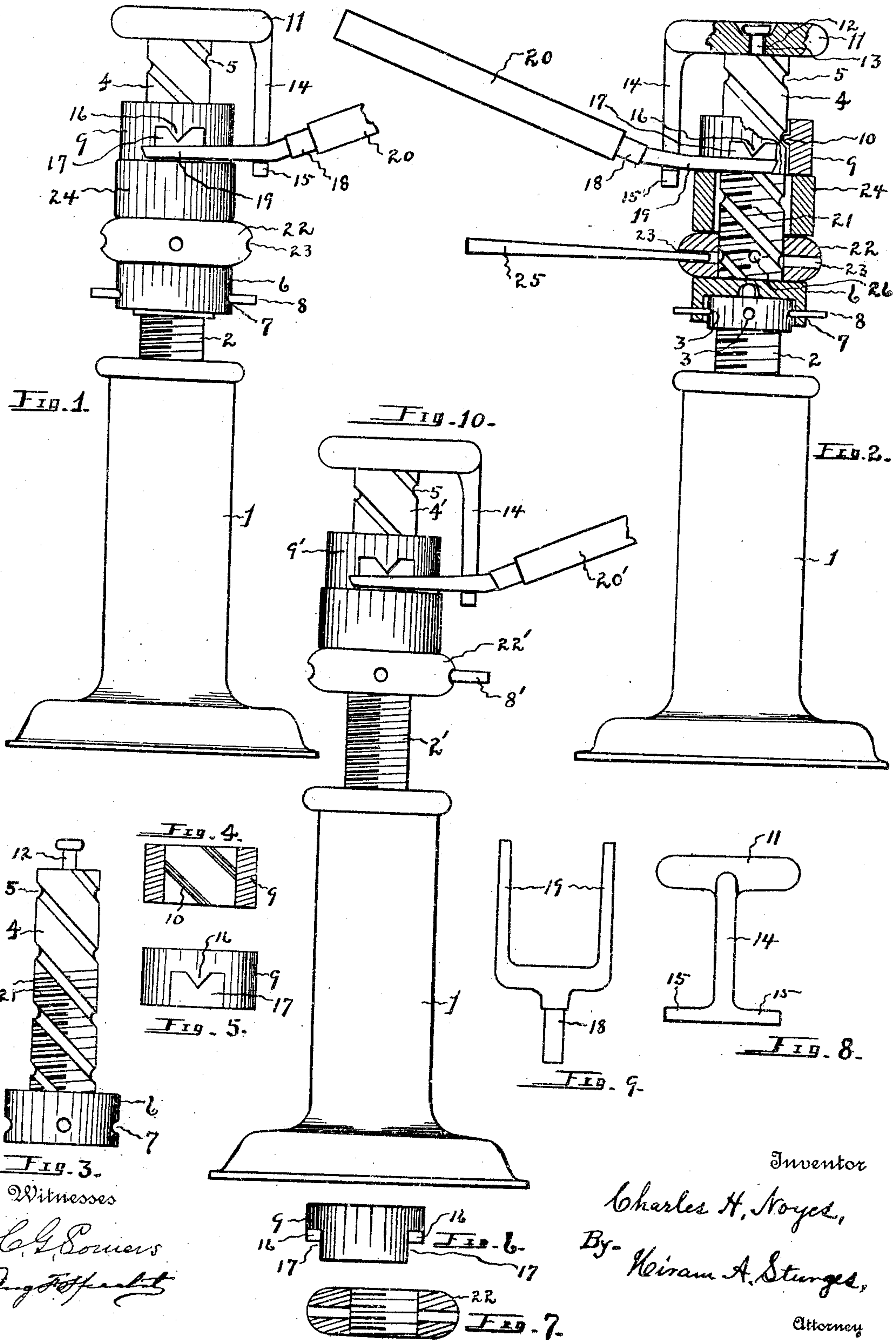


C. H. NOYES.
LIFTING JACK.
APPLICATION FILED JAN. 21, 1910.

959,157.

Patented May 24, 1910.



Witnesses
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Aug. 10, 1910

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UNITED STATES PATENT OFFICE.

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LIFTING-JACK.

959,157.

Specification of Letters Patent.

Patented May 24, 1910.

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To all whom it may concern:

Be it known that I, CHARLES H. NOYES, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification.

This invention relates to improvements in lifting jacks, and has for its object, broadly, to provide an attachment, by use of which, the load or weight may be raised with greater speed and with less than ordinary force, and consists of the novel combination and arrangement of parts as hereinafter described and claimed, and as illustrated in the drawing, it being understood that minor details of construction may be omitted or changed except so far as limited by the appended claims.

In the accompanying drawing, Figure 1 is a vertical, side view of a lifting jack with my newly invented attachment mounted thereon. Fig. 2 is a view of the same parts shown in Fig. 1, the washer locking-member or hood and screw-head being in section; the bearing-head and collar being partly in section. Fig. 3 is a vertical, side view of the spirally grooved spindle. Figs. 4, 5 and 6 are views of the collar, Fig. 4 showing the same in section. Fig. 7 is a sectional view of the screw-head. Fig. 8 is a side view of the bearing-head. Fig. 9 is a plan view of the operating lever, used in connection with the collar. Fig. 10 is a vertical, side view of a lifting jack constructed by use of the same devices as shown in Figs. 1 and 2, except the hood or locking-member is omitted, the spindle being an integral part of the screw of the lifting jack, this modification being considered within the scope of the invention.

Referring now to the drawing for a more particular description, numeral 1 indicates the lower, interiorly-threaded portion or base, and 2 the screw of an ordinary lifting jack, the upper end or head of the screw being provided with the usual apertures 3, within which operating-levers (not shown) are usually inserted for rotating said screw. In order that screw 2 may be more easily, effectively and conveniently rotated, I provide an attachment which may be readily mounted thereon, and now to be described.

Numerals 4 and 5 indicate a spindle having spiral grooves 5 of greater pitch than the threads of screw 2, its lower end being secured to screw 2 by any suitable means, a

locking-member or hood 6 being shown for this purpose, said hood having openings 7, through which pins 8 may be thrust, said pins engaging within apertures 3 of the screw of the lifting jack, whereby, if the spindle be rotated, it will cause a rotation of screw 2. I provide any suitable means for rotating the spindle, and for this purpose a collar or sleeve 9 is shown, the same being provided with spiral tongues or lugs 10 adapted to be seated in grooves 5 of the spindle. A cap or bearing-head is indicated at 11; it is adapted to be seated loosely upon the upper end of the spindle and may be connected therewith by means of rivet 12, seated loosely in aperture 13 formed in cap 11, the head of the rivet preferably being countersunk, as shown. At 14 is indicated a supporting-arm preferably formed transversely upon and integral with cap 11, and having transverse prongs, bearing-lugs or supports 15 upon its terminal; and when the parts are assembled, arm 14 is disposed substantially parallel with the spindle, and prongs 15 are disposed adjacent to and between the terminals of the spindle, and adjacent to collar 9. Collar 9 is formed with a pair of downwardly tapered lugs 16; they are disposed opposite to each other, and are conveniently formed by cutting away the outer wall of the collar to form oppositely disposed recesses 17, the pointed or tapered lugs being disposed to overhang the recesses, and by use of lever 18 having the adjacent prongs 19, collar 9 may be forced upward, to cause a rotation of the spindle.

In practice, lugs 15 operate as a fulcrum for lever 18, and when handle 20 of the lever is swung downward, prongs 19 engage the pointed ends of lugs 16, and the collar is thereby moved upwardly; and since lugs 10 of the collar engage within spiral grooves 5 of the spindle, the latter will be partly rotated, thereby causing a partial rotation of screw 2 and causing said screw to ascend within base 1 of the lifting jack; and when handle 20 is swung upward, collar 9 will move or slide downward, by reason of its weight, and as is obvious the engagement of prongs 19 within recesses 17 will prevent a rotatable movement of the collar while the nut is rotating. By reason of the fact that the downwardly tapered lugs 16 are disposed at opposite sides of collar 9, the force of prongs 19, when lever 18 is swung downward, is applied to the collar in a manner

to prevent "binding" of the contacting parts, and lugs 10 move upward smoothly and without undue friction within grooves 5.

Where the load or weight to be elevated is unusually great, certain other or additional devices are employed. In addition to grooves 5, the lower part of the spindle is provided with threads 21, as indicated in Figs. 2 and 3. At 22 is indicated a large nut or screw-head, having transverse apertures 23 formed therein. Intermediate nut 22 and collar 9 is loosely seated on the spindle a washer or sleeve 24. If nut 22 is rotated, as by use of lever 25, it will cause the washer and collar 9 to be elevated, the collar thereby causing a rotation of the spindle; and since the spindle is connected with screw 2 by means of pins 8, said screw 2 will be elevated within base 1 of the lifting jack, and the load will be raised.

It will be seen, by the arrangement last described, that a slight power only is required for operation, as compared with lever-power applied directly to screw 2. While more time may be required, comparatively, for operation by this last arrangement, it is available and useful in many situations, and especially for raising heavy loads.

While washer 24 could perhaps be dispensed with, its function is to fill the space between collar 9 and nut 22. It operates as a stop when the collar slides downwardly upon the spindle. Threads 21 are formed upon that part of the spindle between hood 6 and the collar, and when nut 22 is employed for raising loads, washer or sleeve 24 communicates the force thereof to collar 9, the spiral lugs of said collar then engaging spiral grooves 5. The washer is also useful since it causes the collar to be supported in a position so that prongs 19 may reliably engage within recesses 17 of the collar, when it is desired to use lever 18 for rotating the spindle.

Fig. 10 illustrates a modified form of the invention, wherein screw-head or nut 22', by use of pin 8' which may enter opening 26 (Fig. 2) of the spindle, will be non-rotatable; the spindle 4' and screw 2' being integral. If handle 20' is swung downwardly, collar 9' will be forced upward, and the spindle and screw 2' will be rotated; and the same functions will be discharged by the several parts as already described. The lifting jack may be constructed in the first instance in accordance with the structure shown in Fig. 10; and the structure illustrated in Figs. 1 and 2 for connecting with screw 2, may be conveniently attached to lifting jacks already in use, and will be useful for the purposes described. For lifting exceptionally heavy loads or weights, pin 8' may be removed, and by causing a rotation of nut 22', collar 9' may be elevated, where-

upon screw 2' of the lifting jack will be elevated, the same as above described.

Having fully described structural parts and their uses, a further explanation of operation is not considered necessary.

What I claim as my invention and desire to secure by Letters Patent is,—

1. An attachment for lifting jacks, comprising, in combination with the screw of the lifting jack, a spindle removably secured to said screw and having a spiral groove formed thereon of greater pitch than the threads of the screw; a collar mounted upon and having a lug in engagement with the spiral groove of the spindle; and means to move the collar longitudinally of said spindle.

2. An attachment for lifting jacks, comprising, in combination with the screw of the lifting jack, a spindle removably secured to said screw and formed with spiral grooves of a greater degree of pitch than the threads of the screw; a bearing-head loosely seated upon the spindle and provided with a supporting-arm; a collar mounted upon and having lugs engaging the grooves of the spindle; a lever arranged to engage said supporting-arm and said collar, the operation being that a movement of said lever causes a movement of the collar longitudinally of the spindle.

3. In devices for the purpose described, the combination with the screw of a lifting jack, of a threaded spindle removably mounted upon said screw and provided with a spiral groove having a greater pitch than the threads of the screw, a rotatable nut mounted upon the threaded part of said spindle, a collar arranged above the nut said collar being mounted upon and having a lug seated in the spiral groove of the spindle, said collar being movable longitudinally of the spindle by the rotatable movement of said nut.

4. In devices for the purposes described, the combination with the screw of a lifting jack, of a spindle provided with threads adjacent to one of its ends said spindle being removably mounted upon said screw and having spiral grooves of a greater degree of pitch than the threads of the screw; a rotatable nut mounted upon the threaded part of said spindle, a sleeve seated upon said rotatable nut and circumscribing the threaded part of said spindle, a collar mounted upon the spindle and disposed outwardly of said sleeve said collar having lugs engaging the spiral grooves of said spindle, and means to prevent a rotatable movement of said collar during the rotatable movement of said nut.

5. An improvement in lifting jacks, comprising in combination with the upright screw of the jack, a spirally grooved spindle disposed in alinement with and connected with said screw, a cap seated upon the ter-

minal of said spindle and provided with a
downwardly extending supporting-arm, a
collar mounted upon said spindle adjacent
to said supporting-arm and provided with
5 lugs upon its interior wall engaging within
the grooves of the spindle and having
downwardly projecting lugs upon its ex-
terior wall; a lever member arranged to
have a seating upon said supporting-arm
10 and to make engagement with the down-
wardly projecting lugs of said collar, said

lever adapted to have a downwardly swing-
ing movement to cause an upward move-
ment of the collar and a rotatable move-
ment of said screw.

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In testimony whereof I have affixed my
signature in presence of two witnesses.

CHARLES H. NOYES.

Witnesses:

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