

July 14, 1964

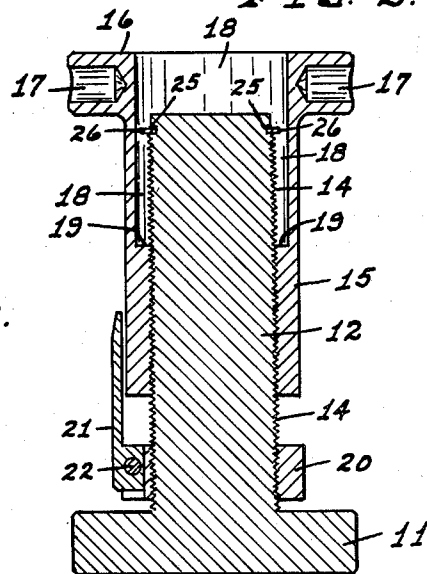
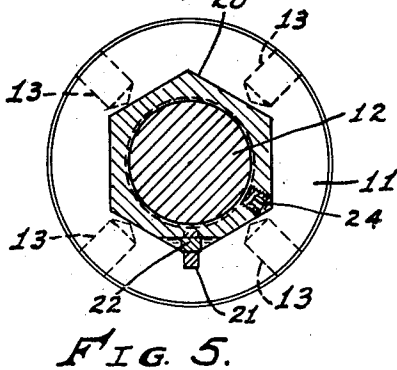
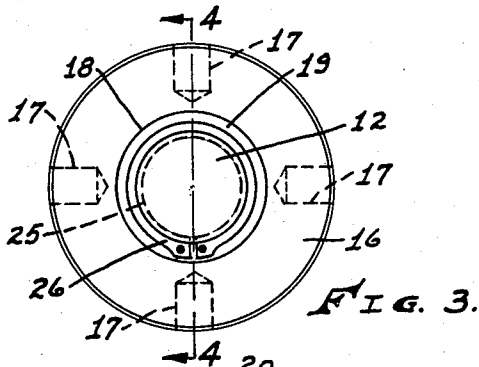
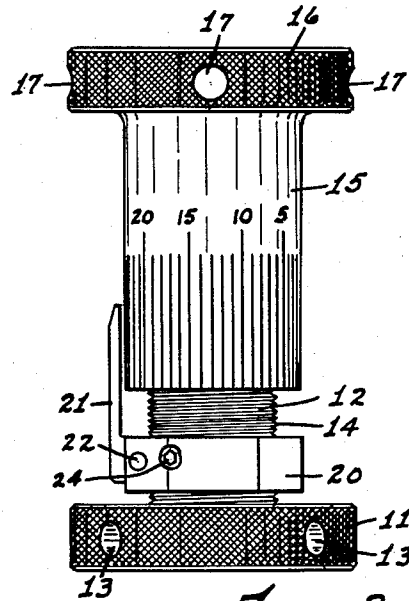
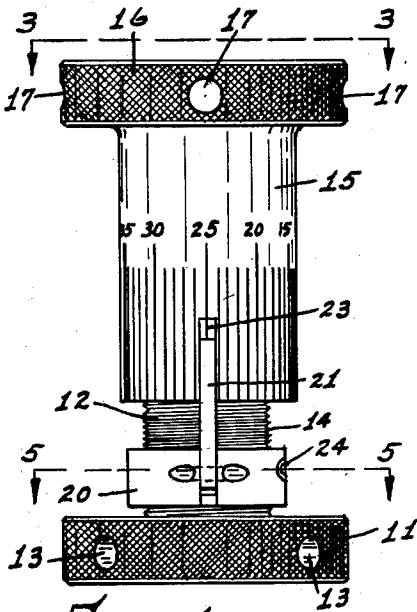
W. BLOMMEL

3,140,547

HEEL JACKS

Filed Oct. 18, 1961

2 Sheets-Sheet 1



WILLIAM BLOMMEL,
INVENTOR.

BY *Donald E. Windle*
ATTORNEY.

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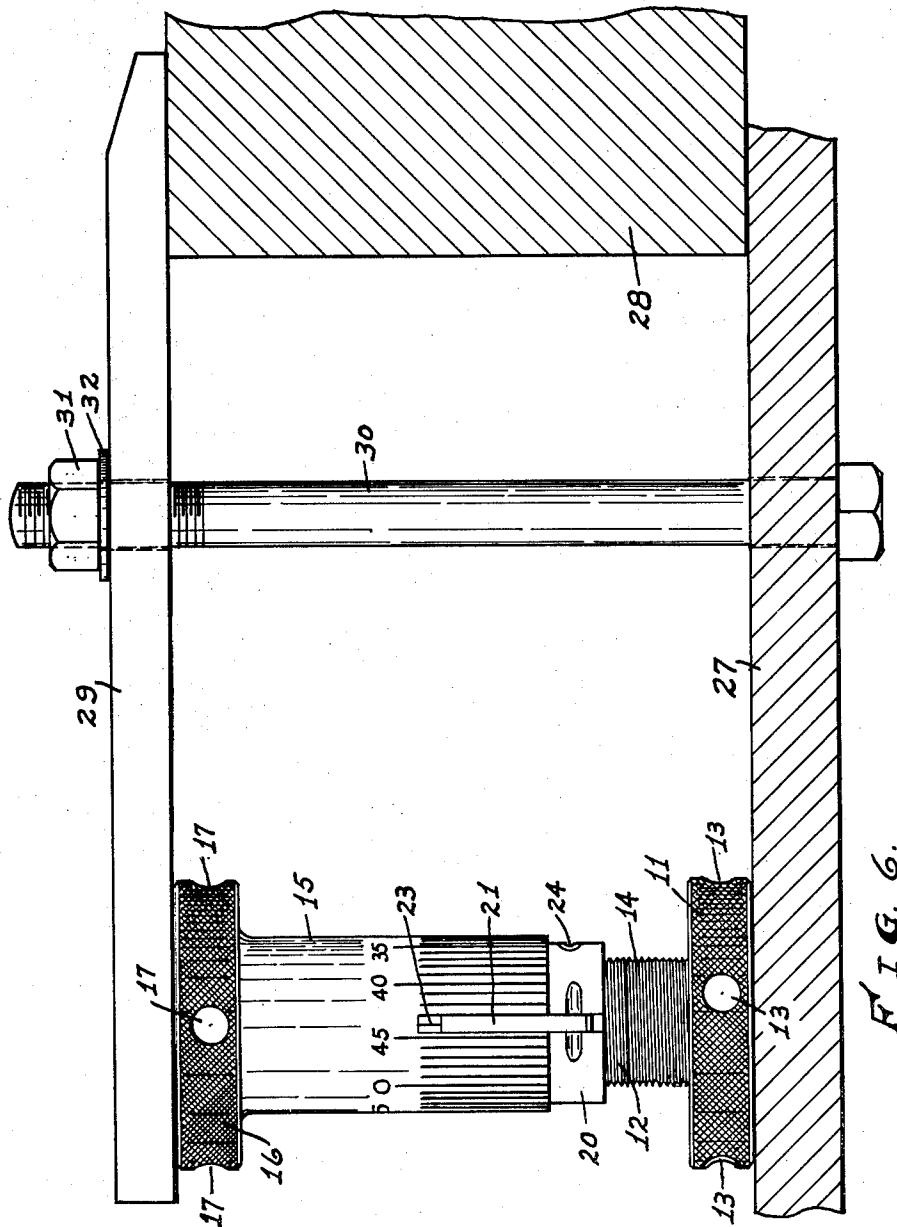
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WILLIAM BLOMMEL,
INVENTOR.

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ATTORNEY.

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3,140,547

HEEL JACKS

William Blommel, R.R. 5, Connersville, Ind.

Filed Oct. 18, 1961, Ser. No. 145,839

1 Claim. (Cl. 33—164)

The present invention relates to heel jacks used primarily for leveling and holding work on tables for punch presses, planers, and other related machines.

I am aware that jacks, as such, are comparatively old in the art. The previous jacks have been limited in their use and provide no means in connection therewith for determining precisely the relation of one jack with another.

The principal object of the invention is the provision of a heel jack which embodies precision means for determining the adjustment thereof.

A second object is the provision of a heel jack having means incorporated therein preventing excessive elongation thereof.

A third object is the provision of means providing a starting point from which the jack may be precisely adjusted.

Another object is the provision of a device providing means of calibrated adjustment to the height thereof.

Further objects and particular advantages of the invention will become more apparent in the course of the following description, and that which is new will be pointed out in the appended claim.

In order that the invention and the operation thereof may be more fully understood and appreciated, I will now take up a detailed description thereof in which the same will be more fully set forth, reference being made to the accompanying drawings forming a part hereof, in which:

FIGURE 1 is an elevational view of a heel jack embodying the features of the invention.

FIGURE 2 is a right side elevation of the jack.

FIGURE 3 is a top plan view of the jack, taken from line 3-3 of FIGURE 1.

FIGURE 4 is a detail vertical section through the jack, taken on line 4-4 of FIGURE 3.

FIGURE 5 is a detail cross section through the jack, taken on line 5-5 of FIGURE 1.

FIGURE 6 is a detail drawing showing one use of the device.

Like characters of reference designate like parts throughout the several views of the drawings.

In order that the construction of the invention may be more fully understood, I will now take up a detailed description thereof, in which the same, together with the operation thereof will be more fully and comprehensively set forth.

Referring now to the drawings in detail, numerals 11 designate the base member of the jack. Numerals 12 designate the threaded post which may be formed integrally with the base as shown or the same may be a separate member threaded or otherwise suitably secured into the base 11. The outer periphery of the base has a knurled surface to provide a non-slip gripping surface. The base further has a plurality of holes or cavities 13 formed therein for the reception of a suitable rod (not shown) in holding or in turning the base when the same is under load. The threaded post has threads 14 formed thereon with it being preferable that there be twenty threads per inch to provide the necessary calibrated micrometer adjustment in the raising and lowering of the head member or sleeve 15 of the device. With the post being provided with twenty threads per inch of height, the thread pitch is fifty-thousandths of an inch, the advantage of which will be hereinafter set forth.

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The head member of the jack comprises the internally threaded sleeve 15 having a bearing plate 16 formed integrally with the upper end thereof. The lower end peripheral surface of the sleeve is divided into calibrations of fifty equal spaces, with each of the calibrations representing one one-thousandth of an inch. The upper end portion or bearing plate 16 has its peripheral surface knurled to provide a gripping surface therearound, with there being a plurality of holes or cavities 17 formed therein for the reception of a suitable rod (not shown) in turning the head when the jack is under load pressure. The upper end portion of the head member is provided with a counterbore 18, as shown in FIGURES 3 and 4, the purpose of which will be more fully set forth hereinafter. A shoulder 19 is provided in the head at the lower termination of the counterbore 18.

A threaded nut 20 is provided and is normally positioned near or at the lower end of the threaded post 12, as shown in FIGURES 1, 2 and 4. The nut 20 may be adjusted to any desired height on the post 12. An indicator finger 21 has its lower end portion mortised into the surface of the nut 20 and is secured therein by means of the pin 22. The upper end portion of the indicator finger 21 has a match line 23 scribed thereon, as shown in FIGURE 1. A set screw 24 is threaded through the nut 20 and provides means maintaining the position of the nut after the same has been established.

An annular groove 25 is formed in the upper end portion of post 12 for the reception of the snap ring 26, as more clearly shown in FIGURE 4. The snap ring projects slight beyond the peripheral surface of the upper end of the post and is adapted to engage shoulder 19 of the sleeve 15 and thereby limiting the upward movement of the sleeve with relation to the post 12.

Lowering of the sleeve 15 is limited by its contact with the upper surface of nut 20 and raising of the sleeve is limited by the contact of shoulder 19 with the under side of snap ring 26.

Should it be necessary or desirable to remove the sleeve 15 entirely from the post 12, the snap ring 26 is readily removed, by means of a special tool, from the annular groove 25, thus permitting the sleeve 15 to be removed from the post.

Operation

In the operation or use of the jack, the work 28 is placed on the upper surface of the table 27. One end of a clamp member 29 is engaged with the upper surface of the work 28, as shown in FIGURE 6. The jack is set under the outer or heel end of the clamp member 29 and bolt 30, having nut 31 and washer 32, connects the clamp 29 and the table 27 to tightly clamp the work 28 in place. Jacks are placed at the four corners of the work and each is adjusted to the same height by means of the sleeves 15 with the base bearing on the table 27 and with the head 16 bearing against the under side of the clamping members 29, as shown in FIGURE 6. After each of the jacks has been aligned or adjusted to the same calibration, the nuts 20 are brought against the under ends of sleeves 15 and serve as jam nuts to lock the sleeves against maladjustment due to vibration.

While the invention is shown and described in its presently preferred form, I desire that it be understood that minor changes may be made therein, insofar as the changes may fall within the scope of the appended claim and the spirit of the invention.

Having now shown and described the invention, what I claim and desire to secure by letters patent of the United States is:

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In a heel jack, the combination of a base having a threaded post extending upwardly therefrom, a nut threaded onto the post, an indicator finger secured into and carried by the nut, with said nut being capable of upward and downward movement with relation to the base, a sleeve threaded onto the post and having upward and downward movement with relation thereto, with only the lower portion of the sleeve being threaded, a counterbore formed above the threads of the sleeve with a shoulder being formed at the juncture of the threads and the counterbore, calibrations provided on the outer peripheral surface of the sleeve with the calibrations being adapted to register with the indicator, an annular channel formed about the upper end of the threaded post, a snap ring positioned in the annular

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channel and protruding into the counterbore and forming a stop limiting the upward movement of the sleeve with relation to the threaded post and the base.

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