

W. C. STEWART.

ROTARY JACK.

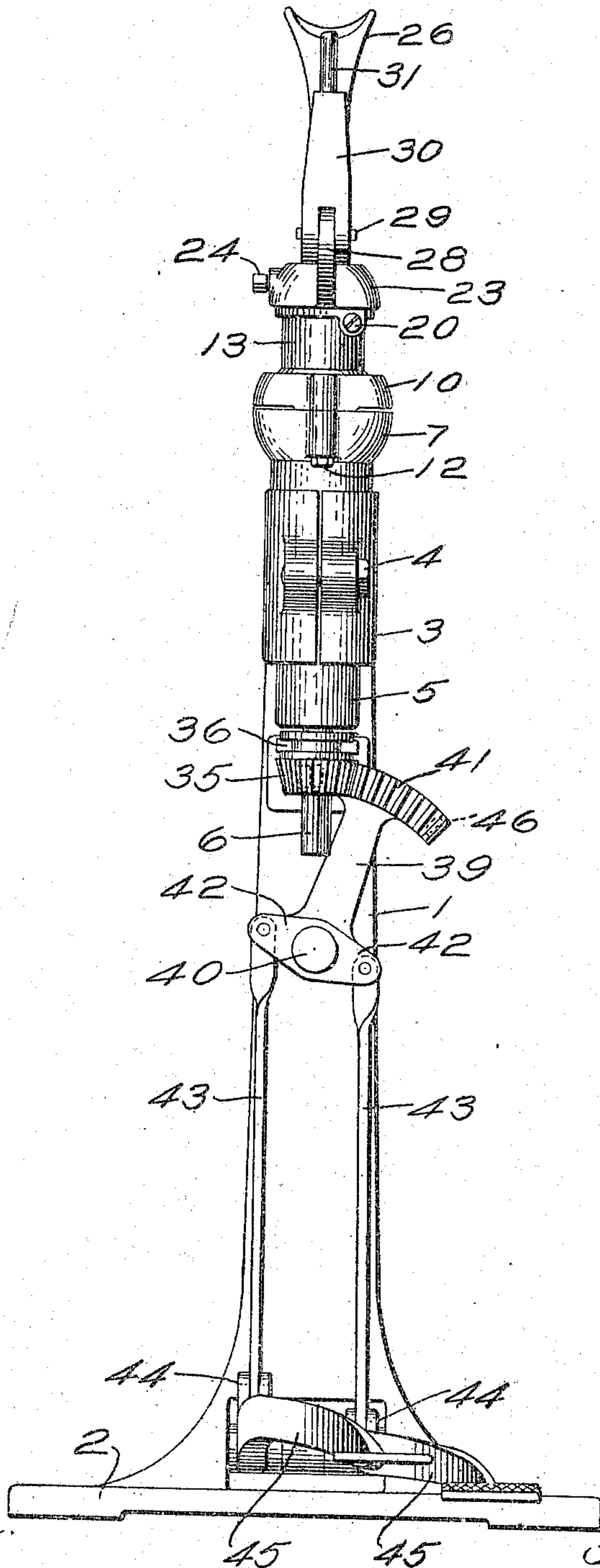
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Patented May 17, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
Roswell F. Hatch
Rudolf H. Allen

Inventor:
William C. Stewart
by Robt. G. Harris,
Attorney.

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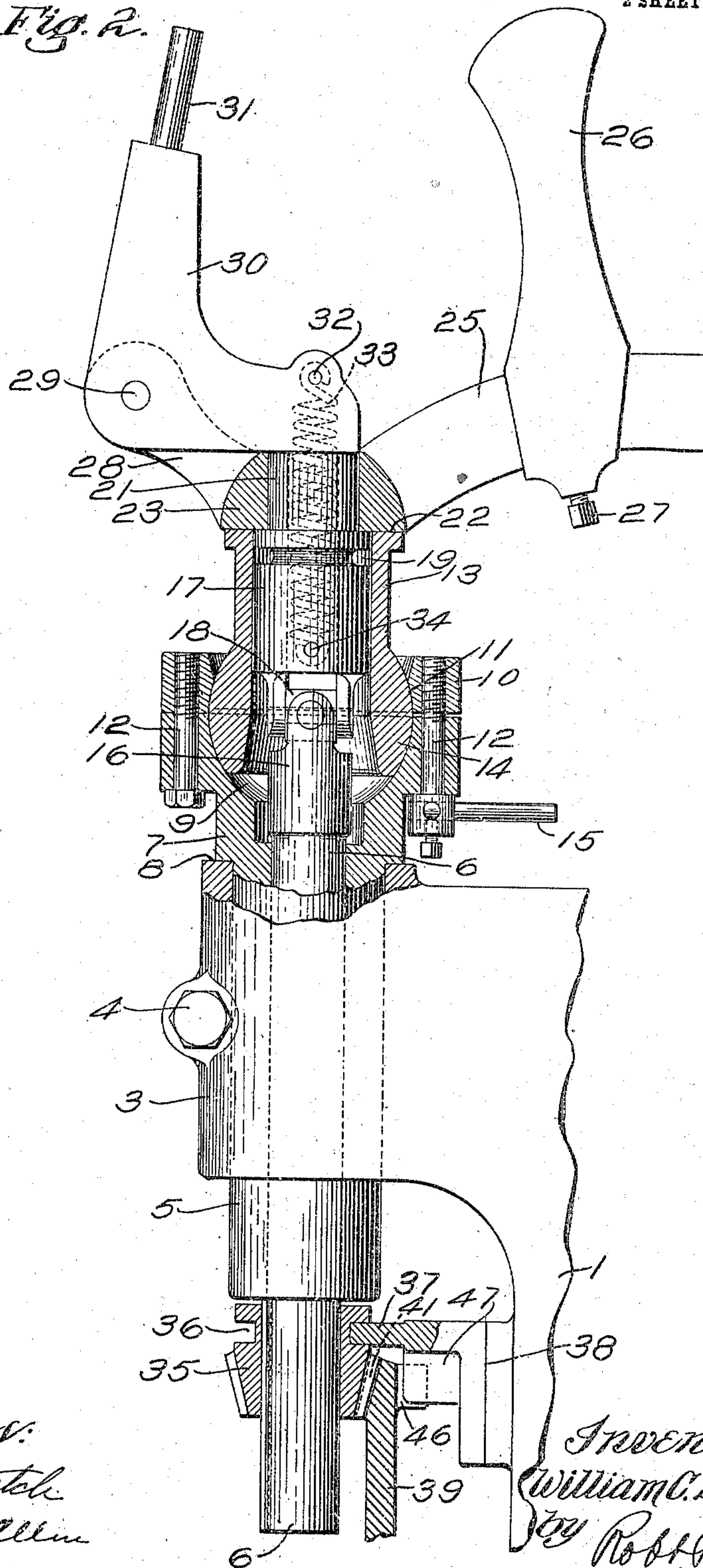
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2 SHEETS—SHEET 2.

Fig. 2.



Witnesses:

Roswell F. Hatch

Redfield H. Allen

Inventor

William C. Stewart

By Robt. P. Harris

Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM C. STEWART, OF LYNN, MASSACHUSETTS, ASSIGNOR TO THOMAS G. PLANT,
OF BOSTON, MASSACHUSETTS.

ROTARY JACK.

958,034.

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To all whom it may concern:

Be it known that I, WILLIAM C. STEWART, a subject of the King of Great Britain, residing at Lynn, in the county of Essex and State of Massachusetts, have invented an Improvement in Rotary Jacks, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

The invention to be hereinafter described relates to shoe supports adapted for the support of boots and shoes during the lasting operation.

In the manufacture of boots and shoes it is desirable to mount the jack which supports the last so that it may be adjusted vertically, rolled laterally, and turned or rotated to the right or left, as desired, in order to facilitate the labor of the operator. Inasmuch as both hands of the operator are engaged during the lasting operation, the one for pulling the upper of the boot or shoe about the last, and the other for driving tacks into the pulled over upper, it is further desirable that the last or shoe supporting element should be operable by means other than the hands of the operator for turning it so as to present first one side and then the other for the action of the nailing devices.

With the above matters in view, the aims and purposes of the present invention will best be made clear from the following description and accompanying drawings of one form of means for carrying the invention into practical effect, it being understood that means other than those shown and described may be employed within the true scope of the present invention which is definitely pointed out by the claims.

In the subsequent description the term "shoe support" is used in its generic sense, as applicable to the device as an entirety, and the term "jack" or "shoe jack" will be employed to designate that feature of the device directly sustaining the last or shoe.

In the drawings:—Figure 1 is a front elevation of a shoe support embodying the present invention; and Fig. 2 is a side sectional elevation of the upper part of said shoe support on an enlarged scale with some of the parts broken away to show the relation of the elements beneath.

The column or standard 1 having a base

2 may be of any suitable or desired character for sustaining the operative parts and is preferably provided with the bearing portion 3 near its upper part formed as a split hub, the parts of which may be drawn together in a well known manner by means of screw bolts 4, as clearly indicated in Figs. 1 and 2.

The bearing portion or split hub 3 is formed to adjustably sustain a sleeve or supporting member 5 in which is rotatably mounted the jack shaft 6.

The sleeve 5 is formed with an enlarged head which provides a universal bearing for a jack carrier. One form of such head is indicated in Fig. 2, wherein the said head 7 is provided with a shoulder 8 adapted, if desired, to rest upon the upper end portion of the split hub or bearing 3. The head 7 is provided with the socket 9, substantially hemispherical in general shape and is surmounted by a cap 10 which is provided with a socket 11 and preferably connected to the head 7 by means of suitable screw bolts 12 which pass through projecting flanges of the head and into threaded sockets in the cap 10.

Mounted in the head 7 is a jack carrier 13, the lower portion of which is preferably formed of a general spherical shape 14 to fit corresponding sockets 9 and 11 in the head and cap, the construction being such that upon loosening the cap 10 by manipulation of the screw bolts 12, the jack carrier may be inclined in any desired direction as will be readily understood.

In order that the screw bolts 12 may be readily manipulated to release the jack carrier and then clamp it in any desired position, said bolts may be provided with socketted heads to receive a pin 15, or they may be formed in any other suitable manner to permit of their being readily turned to clamp and unclamp the jack carrier in a manner that will be well understood.

As heretofore pointed out, the jack shaft 6 extends longitudinally through the sleeve 5 and at its upper end is connected to a jack turning block in such manner that the jack turning block may be suitably turned to the right or left by the jack operating shaft 6 in all positions of it or inclinations of the jack carrier.

In the construction shown the jack operating shaft 6 has an upper head portion 16

connected by the gimbal or universal joint 18 to the jack turning block 17, the jack carrier 13 being preferably hollowed out or bored to receive the jack turning block and the gimbal or universal joint connection between it and the jack operating shaft, substantially as indicated in Fig. 2.

The jack turning block 17 is provided with a circular recess 19 into which is received the end of a retaining pin 20, Fig. 1, the construction being such that, while the jack turning block may be free to rotate under the action of the jack operating shaft, it will be sustained in its normal position, as indicated in Fig. 2.

The jack turning block has an upwardly extending portion 21, preferably in the form of a hollow pin which may be formed integral with said block or otherwise so as to turn therewith. Resting upon the upper bearing surface 22 of the jack carrier is the jack base or cap 23 into which the pin 21 projects and to which it is clamped by means of a set screw 24 or otherwise, the construction being such that as the block 17 is rotated the jack base or cap 23 will partake of said rotative movement.

Extending from the cap 23 is an arm 25 for supporting the toe post 26 which may be held in adjusted position thereon by means of a set screw 27 or otherwise. Projecting in the opposite direction from the arm 25 is the arm 28 to which is pivotally connected at 29 the bell crank 30, the upper end of which has the last supporting pin 31, and the other arm of which at 32 is connected to one end of a spring 33, the other end of said spring being connected to a pin 34 secured to the turning block 17, said turning block 17 and pin 21 being preferably bored or hollowed out to permit the passage of the spring 33, all as will be clear to one skilled in the art from Fig. 2.

Splined to the lower portion of the jack operating shaft 6 is a bevel gear 35 having a circular recess 36 which is engaged by a stop or finger 37 projecting from a bracket 38 secured to the column 1, the construction being such that upon rotation of the bevel gear 35 the jack operating shaft will be caused to rotate in one or the other direction, but will be free for longitudinal adjustment, in the manner hereinbefore pointed out, as will be readily apparent.

As hereinbefore stated, it is desirable that the jack may be turned in one or the other direction to present first one and then the other side of the shoe to the action of the lasting devices, while at the same time permitting the operator to use both hands in manipulating the lasting devices, and one means contemplated by the invention for effecting this result comprises a segment arm 39 pivoted at 40 to the column 1 and having a gear segment 41 at its upper por-

tion adapted to engage the bevel gear 35 which is splined to the jack operating shaft. Projecting from the segment arm 39 to opposite sides of its pivotal connection 40 with the machine column are the lugs or arms 42 to each of which is jointed a treadle rod 43 connected at its lower end at 44 to a suitable treadle 45, the construction being such that, upon depression of one of the treadles, the segment arm 39 will be swung in one direction to rotate the jack in order that one side of the shoe may be treated by the lasting devices, and on depression of the other treadle the segment arm 39 may be swung in the opposite direction to turn the jack and present the opposite side of a shoe for the action of the lasting devices.

In order that the segment 41 may remain in mesh with the bevel gear 35 and act to turn the jack through the desired angle, the gear segment 41 at the rear thereof opposite the termination of its toothed portion has a stop 46 adapted to engage a lug or stop 47 carried by the bracket 38.

From the construction described it will be obvious that the operator may, during the lasting operation, employ both of his hands in manipulating the pulling-over and lasting devices, and when one side of the shoe has thus been presented to him and lasted, he has simply to place his foot on the other treadle, whereupon the jack will be turned through the necessary angle to present the other side of the shoe. It will likewise be evident that the jack may be variously inclined to suit the conditions of work by simply releasing the cap 10, and after its proper inclined adjustment the jack carrier and jack may be clamped in its new or adjusted position, and that in all of such positions the jack may be properly rotated by the means hereinbefore set forth.

What is claimed is:

1. In a shoe support, the combination of a rotary jack, a jack carrier adapted for adjustment to varying angles of inclination, jack operating means for turning the jack to present one or the other side of the shoe to the operator, and treadle operated devices for turning the jack in either direction and holding it in either position.

2. In a shoe support, the combination of a rotary jack, a jack carrier adapted for adjustment to varying angles of inclination, a jack operating shaft for turning the jack to present one or the other side of the shoe to the operator, treadle operated means for turning the jack in either direction, and means for limiting the rotative movements of the jack.

3. In a shoe support, the combination of a rotary jack for supporting a shoe, means connected to the jack for turning it in either direction, and two treadles connected to the jack turning means, one for operat-

ing said means to turn the jack in one direction and the other for operating said means to turn the jack in the opposite direction.

4. In a shoe support, the combination of a sustaining member or sleeve, a jack carrier, connections between the said member and jack carrier permitting lateral tilting adjustment of the jack carrier, a jack sustained by the jack carrier, means for turning the jack on the jack carrier, and treadle means for actuating the jack turning means in either direction and holding the jack from further movement during action upon the shoe.

5. In a work support, the combination of jack sustaining means, a rotary jack supported by said means, and two treadles connected to the jack, one for turning the jack in one direction and the other for turning the jack in the opposite direction.

6. In a work support, the combination of a slidable support, a jack carrier pivotally connected therewith for tilting adjustment, a jack rotatably mounted thereon and having an adjustable heel post and toe rest, a shaft carried by said support and having operative connections with and to rotate said jack, and treadle means for turning said shaft in one or the other direction.

7. In a work support, the combination of a slidable support, a jack carrier pivotally connected therewith for tilting adjustment, a jack rotatably mounted thereon and having an adjustable heel post and toe rest, a shaft carried by said support and having operative connections with and to rotate said jack, treadle means for turning said shaft in either direction, and a stop to limit the rotative movement of the jack.

8. In a work support, the combination of a rotary jack, a jack carrier, means permitting adjustment of the jack to different inclinations, jack operating means connected to the jack to rotate it in any of its tilted positions, and means controlled by the operator for rotating the jack in one or the other direction to present one or the other side of the shoe to the operator and for holding the jack in either position.

9. In a work support, the combination of a rotary jack having an adjustable heel post and toe rest, a jack carrier, means permitting adjustment of the jack carrier to different inclinations, jack operating means connected to the jack to rotate it in any of its tilted positions, means controlled by the operator for rotating the jack in either direction to present one or the other side of the shoe to the operator and holding it in either position, and a stop for limiting the rotative movement of the jack in either direction.

10. In a work support, the combination of jack sustaining means, a rotary jack supported by said means, a shaft for rotating

the jack, and two treadles, one for turning the jack in one direction and the other for turning the jack in the opposite direction.

11. In a work support, the combination of jack sustaining means, a rotary jack supported by said means, a shaft for rotating the jack, two treadles, one for turning the jack in one direction and the other for turning the jack in the opposite direction, and means for limiting the said turning movements.

12. In a work support, the combination of jack supporting means, a jack carrier, ball and socket joint connections between said means and carrier permitting tilting adjustment of the carrier, a jack sustained by said carrier, and means controlled by the operator and passing through said ball and socket joint for turning the jack in one or the other direction to present one or the other side of the shoe to the operator in any tilted position of the carrier.

13. In a work support, the combination of jack supporting means, a jack carrier, ball and socket joint connections between the said means and carrier permitting universal adjustment of the carrier, clamping means for holding the carrier in adjusted position, a jack on said carrier, a shaft for rotating the jack in different positions of adjustment of the carrier, and plural means actuated by the attendant for rotating said shaft in opposite directions.

14. In a work support, the combination of jack sustaining means, a rotary jack, connections between the rotary jack and sustaining means permitting tilting adjustment of the jack with relation thereto, a shaft, universal joint connections between the shaft and jack extending through said connections to rotate the latter in any adjusted position, and means actuated by the operator for turning said shaft in one or the other direction.

15. In a work support, the combination of jack sustaining means, a rotary jack, connections between the rotary jack and sustaining means permitting tilting adjustment of the jack with relation thereto, a shaft, universal joint connections between the shaft and jack to rotate the latter in any adjusted position, and two treadles for turning said shaft in opposite directions.

16. In a work support, the combination of jack supporting means, a jack connected thereto to be tiltable laterally, two treadles, and means connecting said treadles and jack to cause one treadle to operate the jack in one direction and the other treadle to operate the jack in the opposite direction.

17. In a work support, the combination of jack supporting means, a jack connected thereto to be tiltable laterally, a shaft for rotating said jack, two treadles, means connecting said treadles and shaft to cause one

treadle to operate the shaft in one direction and the other treadle to operate the shaft in the opposite direction, and stopping means for limiting the treadle movement of said shaft.

18. In a work support, the combination of jack supporting means, a jack connected thereto to be tiltable laterally, a shaft for rotating said jack, two treadles, a segment gear operatively connected to said shaft, and connections between the treadles and segment gear to cause rotation of the shaft in opposite directions upon alternate operation of said treadles.

19. In a work support, a sleeve, means for adjusting it, a jack carrier mounted to tilt on said sleeve, a jack on said carrier, a shaft connected to said jack, and two treadles for alternately rotating the shaft in opposite directions.

20. In a shoe support, the combination of jack supporting means, a jack carrier, ball and socket joint connections between said means and jack carrier permitting tilting adjustment of the carrier, a jack sustained by said carrier, a shaft for transmitting motion axially through said ball and socket joint and connected to the jack, and two treadles for turning the shaft and jack in opposite directions.

21. In a shoe support, the combination of a jack carrier having an opening there-through, a support for said carrier, a ball and socket connection between said support and jack carrier, a shaft extending into the opening of said carrier, a jack, connections between the jack and said shaft, and treadle actuated means for turning said shaft and jack in opposite directions.

22. In a shoe support, the combination of a jack carrier having an opening there-through, a support for said carrier, a ball and socket connection between said support and jack carrier, a shaft extending into the opening of said carrier, a jack, universal joint connections between the jack and said shaft, and treadle actuated means for turning said shaft and jack in opposite directions.

23. In a shoe support, the combination of a jack carrier, a support for said carrier, ball and socket joint connections between the support and jack carrier, a shaft, a jack, universal joint connections between the shaft and jack disposed centrally of said ball and socket joint, and treadle means actuated by the operator for turning the shaft and jack in opposite directions.

24. In a shoe support, the combination of a jack carrier, a support for said carrier, ball and socket joint connections between the support and jack carrier, a shaft, a jack, universal joint connections between the shaft and jack disposed centrally of said ball and socket joint, and two treadles connected to

said shaft for turning it and the jack in opposite directions.

25. In a shoe support, the combination of a jack carrier, a support for said carrier, ball and socket joint connections between said carrier and support, a jack turning block extending axially of said jack carrier, a jack connected to said jack turning block, a shaft, universal joint connections between the jack turning block and shaft disposed centrally of the said ball and socket joint, and means actuated by the operator for turning the shaft and jack in opposite directions.

26. In a shoe support, the combination of a jack carrier, a support for said carrier, ball and socket joint connections between said carrier and support, a jack turning block extending axially of said jack carrier, a jack connected to said jack turning block, means for preventing longitudinal movement of the jack turning block, a shaft, universal joint connections between the jack turning block and shaft disposed centrally of the said ball and socket joint, and means actuated by the operator for turning the shaft and jack in opposite directions.

27. In a shoe support, a frame, a sleeve adjustably mounted in the frame, a shaft within said sleeve, a tilting jack sustained by said sleeve, a jointed connection between the shaft and jack disposed at the axis of tilting movement of the jack, and two treadles for turning the shaft and jack in opposite directions.

28. In a shoe support, a frame, a sleeve adjustably mounted in the frame, a shaft within said sleeve, a tilting jack sustained by said sleeve, a jointed connection between the shaft and jack disposed at the axis of tilting movement of the jack, and means actuated by the operator for turning the shaft and jack in opposite directions.

29. In a shoe support, a jack carrier, a support therefor, means permitting vertical adjustment of said support, a ball and socket joint connection between the said adjustable support and jack carrier, a shaft adjustable longitudinally with said support, a jack, connections between the shaft and jack, and two treadles actuated by the operator for turning the shaft and jack in opposite directions.

30. In a shoe support, a jack carrier, a support therefor, means permitting vertical adjustment of said support, a ball and socket joint connection between the said adjustable support and jack carrier, a shaft adjustable longitudinally with said support, a jack, connections between the shaft and jack extending through said ball and socket joint, and two treadles actuated by the operator for turning the shaft and jack in opposite directions.

31. In a shoe support, a jack carrier, a

support therefor, means permitting vertical adjustment of said support, a ball and socket joint connection between the said adjustable support and jack carrier, a shaft adjustable longitudinally with said support, a jack, connections between the shaft and jack, a gear splined to said shaft and held from longitudinal movement therewith, and means actuated by the operator for turning said gear, shaft, and jack in opposite directions.

32. In a shoe support, a jack carrier, a support therefor, a ball and socket joint connection between said support and jack carrier, a shaft, a jack, a universal joint connection between the shaft and jack disposed centrally of said ball and socket joint, means permitting vertical adjustment of the jack, jack carrier and support, and treadle means actuated by the operator for turning the jack in opposite directions.

33. In a shoe support, the combination of a jack and support therefor, universal joint connections between said jack and support permitting the jack to tilt, a shaft, universal joint connections between the shaft and jack for turning the latter in any of its tilted positions, said universal jointed connections being concentrically disposed with relation to each other, and means for turning said shaft in either direction.

34. In a shoe support, the combination of a jack and support therefor, universal joint connections between said jack and support permitting the jack to tilt, a shaft, universal joint connections between the shaft and jack for turning the latter in any of its tilted positions, said universal jointed connections being concentrically disposed with relation to each other, and means actuated by the operator for turning said shaft in either direction.

35. In a shoe support, the combination of a jack and support therefor, universal joint connections between said jack and support permitting the jack to tilt, a shaft, universal

joint connections between the shaft and jack for turning the latter in any of its tilted positions, said universal jointed connections being concentrically disposed with relation to each other, means for turning said shaft in either direction, and means permitting simultaneous vertical adjustment of said universal joint connections.

36. In a shoe support, the combination of a jack and support therefor, universal joint connections between said jack and support permitting the jack to tilt, a shaft, universal joint connections between the shaft and jack for turning the latter in any of its tilted positions, said universal jointed connections being concentrically disposed with relation to each other, means for turning said shaft in either direction, and means to restrict the turning movement of the shaft in either direction.

37. In a shoe support, the combination of a jack and support therefor, a ball and socket joint connection between said jack and support permitting the jack to tilt, a shaft, a universal joint connection between the shaft and jack, said universal joint being disposed centrally of the said ball and socket joint, and treadle operated means for turning said shaft in either direction and holding it in either position.

38. In a work support, the combination of a jack support, a rotary jack sustained thereby, and positively acting means actuated by the operator for turning the jack in one or the other direction for presenting one or the other side of the shoe to the operator for treatment.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLIAM C. STEWART.

Witnesses:

ROSWELL F. HATCH,
REDFIELD H. ALLEN.