

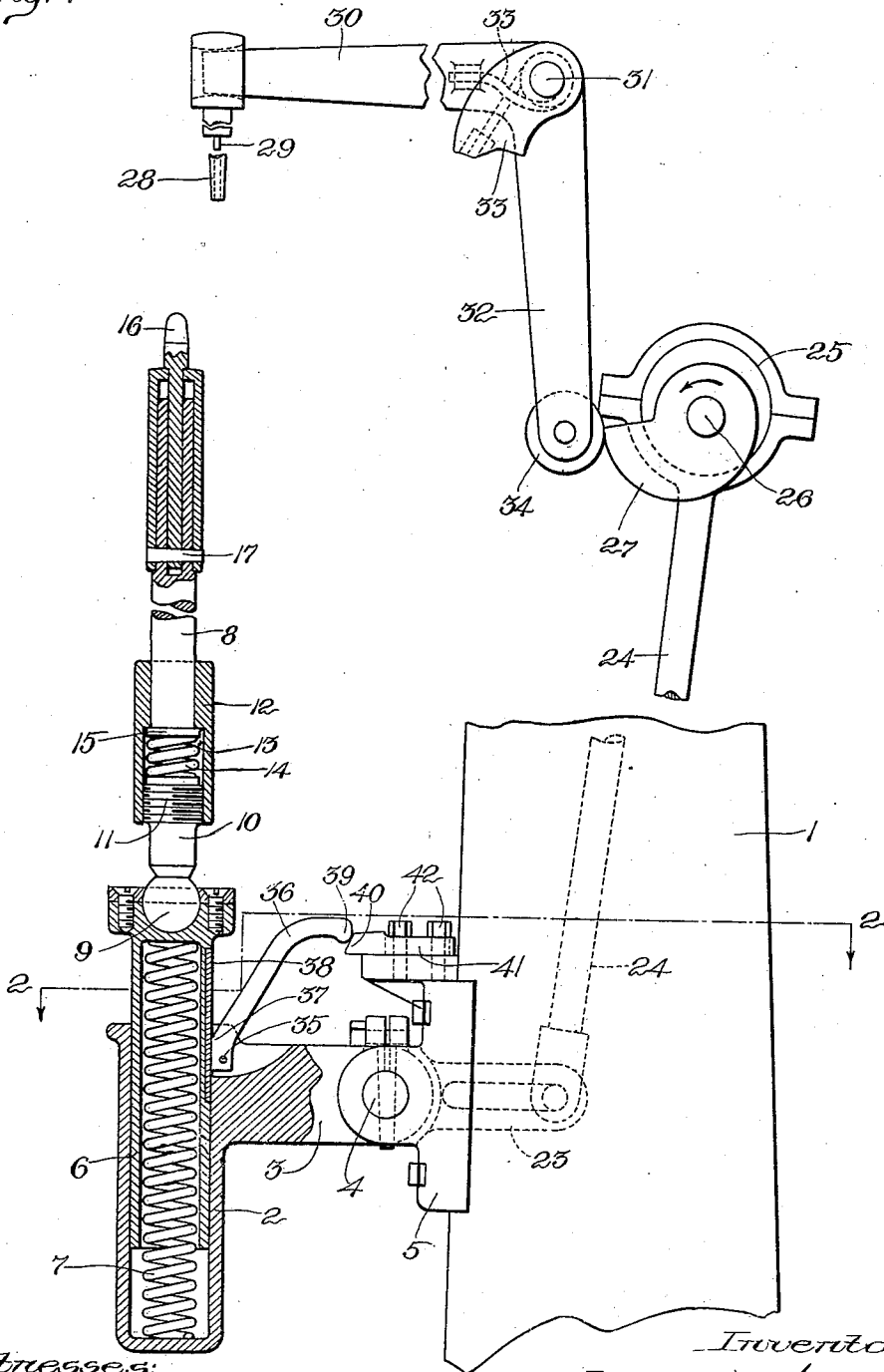
L. G. FREEMAN.
SHOE SUPPORTING JACK.
APPLICATION FILED FEB. 9, 1909.

977,180.

Patented Nov. 29, 1910.

2 SHEETS—SHEET 1.

Fig. 1



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2 SHEETS-SHEET 2.

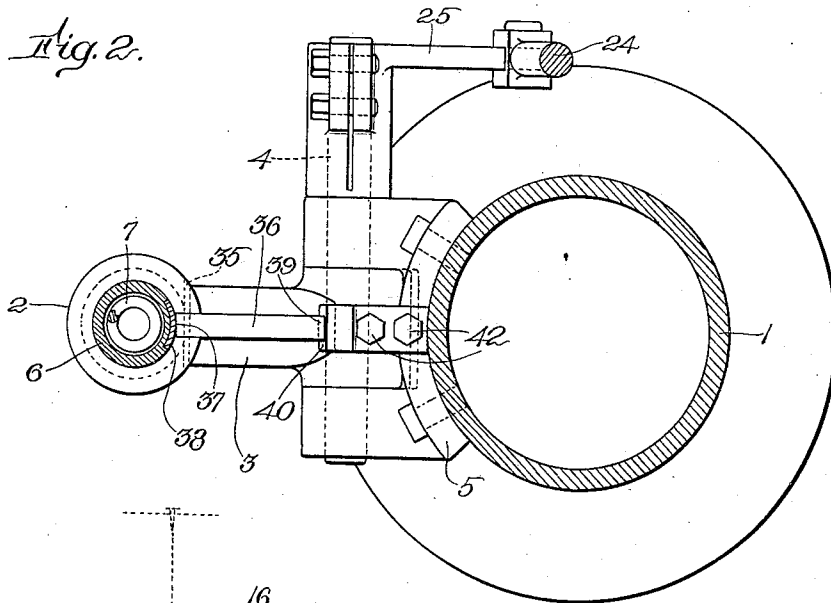


Fig. 3.

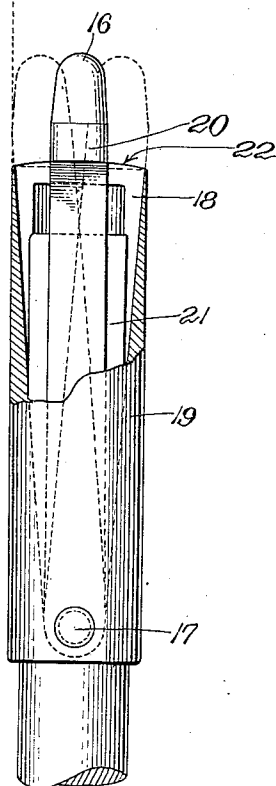
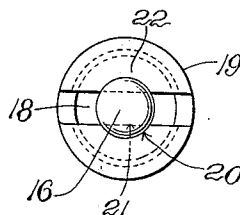


Fig. 4.



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UNITED STATES PATENT OFFICE.

LOUIS G. FREEMAN, OF CINCINNATI, OHIO.

SHOE-SUPPORTING JACK.

977,180.

Specification of Letters Patent.

Patented Nov. 29, 1910.

Application filed February 9, 1909. Serial No. 476,963.

To all whom it may concern:

Be it known that I, LOUIS G. FREEMAN, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented an Improvement in Shoe-Supporting Jacks, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention is an improved jack for use in the various processes attending the manufacture of boots and shoes, its object being to provide a jack more nearly conforming to all the requirements of the various machines and situations in a shoe factory. To this end the improved jack is capable of readily yielding in a vertical direction to such pressure as the operator may bring upon it, and at the same time tipping freely at any angle for receiving a last or the like, and has provision for being automatically locked and raised in timed relation to the operating movement, such for instance as tacking, of the shoe-making machine with which the jack is being used, the invention including also means for permitting the shoe to yield, rather than be torn or injured, notwithstanding said positive locking thereof, and also provision permitting the shoe to tip or swing laterally to a definitely predetermined extent and direction without moving the jack proper.

The various constructional details and further advantages of my invention will be still more apparent from the following description taken in connection with the accompanying drawings, in which I have shown one of the preferred embodiments of the invention.

In the drawings, Figure 1 shows in side elevation and mainly in central vertical section, my improved jack arranged to operate in connection with a tack driver; Fig. 2 is a sectional view thereof on the line 2—2 Fig. 1; and Figs. 3 and 4 show respectively in broken side elevation and top plan the jack pin portion or upper end of the jack.

On a suitable pedestal 1 of the machine with which the jack is used is mounted a supporting cup-shaped sleeve 2 carried by an arm 3 mounted on a pivot shaft 4 on a bracket 5 bolted to said standard. Mounted to slide vertically in said cup-shaped sleeve 2 is a sleeve 6 yieldingly supported therein by a spring 7 and carrying a jack post 8

mounted therein by a ball-and-socket joint 9 whose stem 10 is threaded at 11 in a collar 12 in whose recess 13 is a heavy spring 14 resting at one end against the stem 10 and at its other end against a head 15 provided on the lower end of the post 8. At its upper end the post 8 is provided with a jack pin 16 supported on a pivot pin 17 to swing laterally in a guiding slot 18 formed partly in the post itself and partly in a retaining cap or sleeve 19 which incloses the upper end of said post and is secured thereto by the pin 17 so as to form a part of the jack post. The jack pin 16 is preferably shouldered at 20 and provided with a flat lower portion 21 fitting the guiding slot 18 so as to be guided accurately thereby, and the upper end 22 of the cap 19 is curved on the arc of 17 as a center so as to provide a curved surface for firmly supporting the shoulders 20 of the heel pin or jack pin 16 in all positions. The cap 19 which surrounds the jack pin 16 and its socket or slot 18 in which said pin is mounted to swing, constitutes an intermediate member between the shouldered portion 20 of the jack pin and the post or spindle proper for aiding to transmit impacts from said pin to said post, being for this purpose in shouldered engagement with said post at the lower end of said intermediate member 19. The guide 18 and the swinging jack pin maintain the shoe-receiving end of the latter always longitudinally over the jack post, thereby insuring better tack driving action than would otherwise be the case. The adjacent end 22 projects laterally in opposite directions from the pin 20 when the latter is in its intermediate full line position Fig. 3 a sufficient distance so that whenever the pin, containing a last and shoe, is swung to an extreme lateral position (either of the dotted line positions Fig. 3) the front portion of the heel seat which is being tacked will be vertically supported by and over the jack post, and in order that the shoe may always be substantially horizontal and in direct supported engagement with the end 22 of the jack, the opposite sides of the top end of the jack pin 16 are beveled or sloped angularly inward with relation to the length of the pin so as to insure that the last will not be tipped angularly by the swinging of the jack pin to its extreme position but will remain substantially horizontal irrespective of whether the jack pin is in its intermediate

full line position as shown in Fig. 3 or in either of its dotted line positions, said figure. The spindle hole in a wooden last is usually well back toward the heel, and hence in order to drive tacks, beyond the center of the heel toward the shank, and to be able to use the same pressure there as at the center, I provide the above means for allowing the last to swing to one side against a stop, which brings a direct support under the front end of the heel seat, at least an inch forward of the jack pin hole in the last (according to the construction herein shown). The pivot shaft 4 is provided at its outer end with a rearwardly extending crank 23 adjustably connected by a rod 24 to an eccentric 25 driven by a shaft 26, herein shown as also carrying the operating cam 27 of a usual power tack driver.

My invention is not limited to any particular kind of tack driver, and in fact in its broader aspects is intended to include any other machine for operating on shoes in timed relation to a jack. Accordingly I have simply indicated herein a sufficient portion of the tack driving mechanism to render my invention clearly understood, having herein shown a nozzle 28 in which operates a tack driver 29 actuated by one arm 30 of a bell crank pivoted at 31, whose other arm 32 is tripped by the cam 27, a spring 33 actuating said bell crank to drive a tack. A roll 34 at the free end of said arm 32 travels on the cam 27. The crank 23 serves to rock the shaft 4 and its arm 3, to which is pivoted at 35 a locking dog or lever 36 whose lower end 37 is normally in position to permit the sleeve 6 to move freely up and down in the sleeve 2, but to engage a wear-plate 38 and lock the two sleeves together so that the jack is practically rigid at the moment a tack is being driven. The shape of the end 37 gives it a wedging action or biting engagement which holds the parts locked immovably under usual conditions and is capable of a slipping action under abnormal pressures to prevent injury to the work. To accomplish this automatic locking of the jack as thus explained, I provide the upper end of the lever or dog with a bearing surface 39 to engage the cam end 40 of a block 41 adjustably secured by bolts 42 to the upper end of the block 5. The action of this cam arrangement is such that when the jack is raised by the rod 24 to bring the shoe into position beneath the tacker, the jack is positively locked against yielding capability of its spring 7 just as it gets into tack-receiving position with the leather against the nozzle 28, the rod 24 then giving a very slightly further upward movement to the jack, with the result that the latter is pinched against the last as the tack is driven with almost the same action and result as when a tack is driven by a hand

hammer. The forcible pressing together of the jack and nozzle acts like a hammer to pound the leather as a tack is driven and also prevents any uncertainty or inaccuracy in the driving of the tack. To prevent any possible injury to the leather by a too strong pressure under the cam action mentioned, the spring 14 is provided, said spring being sufficiently strong not to yield under normal conditions but simply to yield to prevent actual breaking of the last or injury to the shoe, said yielding being supplemented also by the slipping capability of the wedging dog or lever 36. Said spring also serves to hold the jack post 8 against rotation and yet permit it to be forcibly turned slightly by the operator in case he should wish to change the direction of swinging movement of the jack pin 16 on its pivot 17. The swinging movement of the jack pin 16 is especially designed to bring the welt ends at the shank to the right angle, level and position, for receiving the fastening means usually required at this part of the shoe. Said guided swinging movement of the jack pin is also advantageous for other parts of shoe manufacture.

My jack provides extreme facility of positioning the shoe exactly as may be required by the particular machine in which the jack is used. By providing the upstanding portion of the jack with two freely jointed parts, one above the other, one being the spindle post or jack post 8 and the other the jack pin 16, both parts being angularly controllable by and from the last, it will be evident that the operator, while grasping the shoe, can thereby swing said shoe to any lateral position, simply by moving the shoe so as to swing the part 8 on its short transverse bearing or ball-and-socket joint sufficiently to bring the shoe into the desired lateral position, and then, while still grasping the shoe, the operator can simply tip the shoe to whatever angle may be required by the tack driver or other tool operating thereon, said tipping of the shoe being accomplished through the free swinging movement of the jack pin.

In use, the operator first seizes the jack post 8 and swings it forward in position to receive the shoe, the jack pin 16 being inserted in the spindle hole of the last which carries the shoe, in usual manner. He then moves the jack post back to approximately vertical position and starts the machine with the usual treadle motion (not shown). The spring 7 automatically moves the work yieldingly against the driver nozzle 28, leaving the same free however to be readily shifted by the operator into exactly the position desired. The shoe having thus been positioned, the operating rod 24 raises the arm 3 and sleeve 2 so as to bring the desired normal pressure of the spring 7 against the

work, and as the jack is thus raised or held at the desired height, the locking dog 36 is raised by the same movement and swung sufficiently against the cam surface 40 to cause the end 37 thereof to bite into the adjacent surface 38 of the sleeve 6 and lock unyieldingly the two sleeves together just as the tack driving roll 34 is released by the cam 27. This locking of the jack is thus automatically effected in timed relation to the tack driving operation and locks the jack at varying height strictly in accordance with the thickness of the work being operated upon by the operating mechanism, whatever the latter may be, whether a tack driver or otherwise.

As already stated, my invention is capable of wide application and a variety of embodiments, and accordingly I do not limit the same to the particular details explained herein as constituting the preferred embodiment of my invention, excepting as otherwise required by the appended claims.

Having described my invention, what I claim as new, and desire to secure by Letters Patent is:

1. The herein described jack, comprising a jack post, a jack pin pivotally mounted in the upper end of said post, and guiding means affording said pin a guided lateral swinging movement limiting the work-holding position of said pin to substantially longitudinal alinement with said jack post, said pin being shaped to permit the shoe and last to remain in substantially the same horizontal position relatively to the post irrespective of the position of the pin.

2. The herein described jack, comprising a jack post, a jack pin pivotally mounted to swing in the upper end of said post, and stationary guiding means supporting the outer end of said pin against tipping transversely of the direction of said swinging movement, said post having a laterally extending upper end in position to engage vertically beneath and support the front of the heel seat of a shoe when the pin and the last and shoe are swung to the extreme position in an opposite direction.

3. The herein described jack, comprising a jack post, a jack pin pivotally mounted to swing in the upper end of said post, guiding means affording said pin a guided lateral swinging movement limiting the work-holding position of said pin to substantially longitudinal alinement with said jack-post, and a removable retaining cap inclosing said pin and post, slotted at its outer end to constitute a guide and stop for the swinging movement of said pin.

4. The herein described jack, comprising a jack post, a swinging jack pin mounted in its upper end, and a removable sleeve inclosing said jack pin for retaining and limiting the latter in its said swinging move-

ment said pin having beveled sides extending at an angle to the length of the pin to permit a shoe and last to remain substantially horizontal when on the pin, swung to an extreme lateral position.

5. The herein described jack, comprising a vertically movable part, a jack post carried in the upper end of said part, a jack pin mounted to swing in the upper end of said post, means restricting said swinging movement to a single vertical plane with relation to said post, and yielding means normally holding said jack post against axial rotation but permitting said post to be forcibly turned by the operator to change the direction of swinging movement of the jack pin with relation to the rest of the jack.

6. The herein described jack, comprising a jack post having a laterally extended, approximately horizontal, work receiving and supporting, upper end, a jack pin pivoted within said post for swinging movement limited within the area of said laterally extended supporting end, the supporting end of the jack post at one side thereof affording direct support for the nailing of the forward end of the heel seat when the jack pin is swung to the opposite side of said supporting end.

7. The herein described jack, comprising a jack post having a laterally extended, approximately horizontal, work receiving and supporting, upper end, a jack pin pivoted within said post for swinging movement limited within the area of said laterally extended supporting end, said jack post and pin having cooperating guiding means restricting the said swinging movement to one direction, the supporting end of the jack post at one side thereof affording direct support for the nailing of the forward end of the heel seat when the jack pin is swung to the opposite side of said supporting end, said jack post and its pin being axially rotatable at the will of the operator.

8. The herein described jack, comprising a jack post, means supporting said post, and locking mechanism including a stationary cam, a cam locking dog and automatic means for moving said dog into wedging biting engagement with said supporting means when the work carried by said post is to be operated upon.

9. The herein described jack, comprising a jack post, means supporting said post, and locking mechanism including a pivoted locking dog and a cam bearing surface engaged by said dog for automatically moving said dog into biting engagement against said supporting means when the work on said post is to be operated upon.

10. The herein described jack, comprising a jack post, a hollow sleeve mounted at the lower end of said post, a cup shaped sleeve receiving said first mentioned sleeve,

a spring normally tending to move said sleeves apart, and automatic means for locking said two sleeves together with substantial rigidity at predetermined intervals including means to move both of said sleeves toward the work.

11. The herein described jack, comprising a pivoted arm, supporting means carried at the outer end of said arm, including relatively movable parts, a spring normally tending to separate said parts longitudinally, a locking dog pivoted to one of said parts to engage and lock against the other of said parts, said dog having a projecting end in position to engage a stationary part of the apparatus for automatically locking said parts together when said frame is swung to operative position on its pivot, and a jack post mounted on the upper end of the upper of said two spring-separated parts.

12. The herein described jack, comprising a pivoted arm, supporting means carried at the outer end of said arm, including relatively movable parts, a spring normally tending to separate said parts longitudinally, a locking dog pivoted to one of said parts to engage and lock against the other of said parts, said dog having a projecting end in position to engage a stationary part of the apparatus for automatically locking said parts together when said frame is swung to operative position on its pivot, and a jack post mounted by means of a universal joint on the upper end of the upper of said two spring-separated parts.

13. The herein described jack, comprising a pivoted arm, supporting means car-

ried at the outer end of said arm, including relatively movable parts, a spring normally tending to separate said parts longitudinally, a locking dog pivoted to one of said parts to engage and lock against the other of said parts, said dog having a projecting end in position to engage a stationary part of the apparatus for automatically locking said parts together when said frame is swung to operative position on its pivot, and a jack post mounted on the upper end of the upper of said two spring-separated parts, said post having a longitudinally yielding portion intermediate its ends.

14. The herein described jack, comprising a pivoted arm, supporting means carried at the outer end of said arm, including relatively movable parts, a spring normally tending to separate said parts longitudinally, a locking dog pivoted to one of said parts to engage and lock against the other of said parts, said dog having a projecting end in position to engage a stationary part of the apparatus for automatically locking said parts together when said frame is swung to operative position on its pivot, and a jack post mounted on the upper end of the upper of said two spring-separated parts, said post having a longitudinally yielding portion intermediate its ends and means for adjusting said yielding portion.

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

LOUIS G. FREEMAN.

Witnesses:

CHAS. M. LESLIE,
P. E. TYLER.