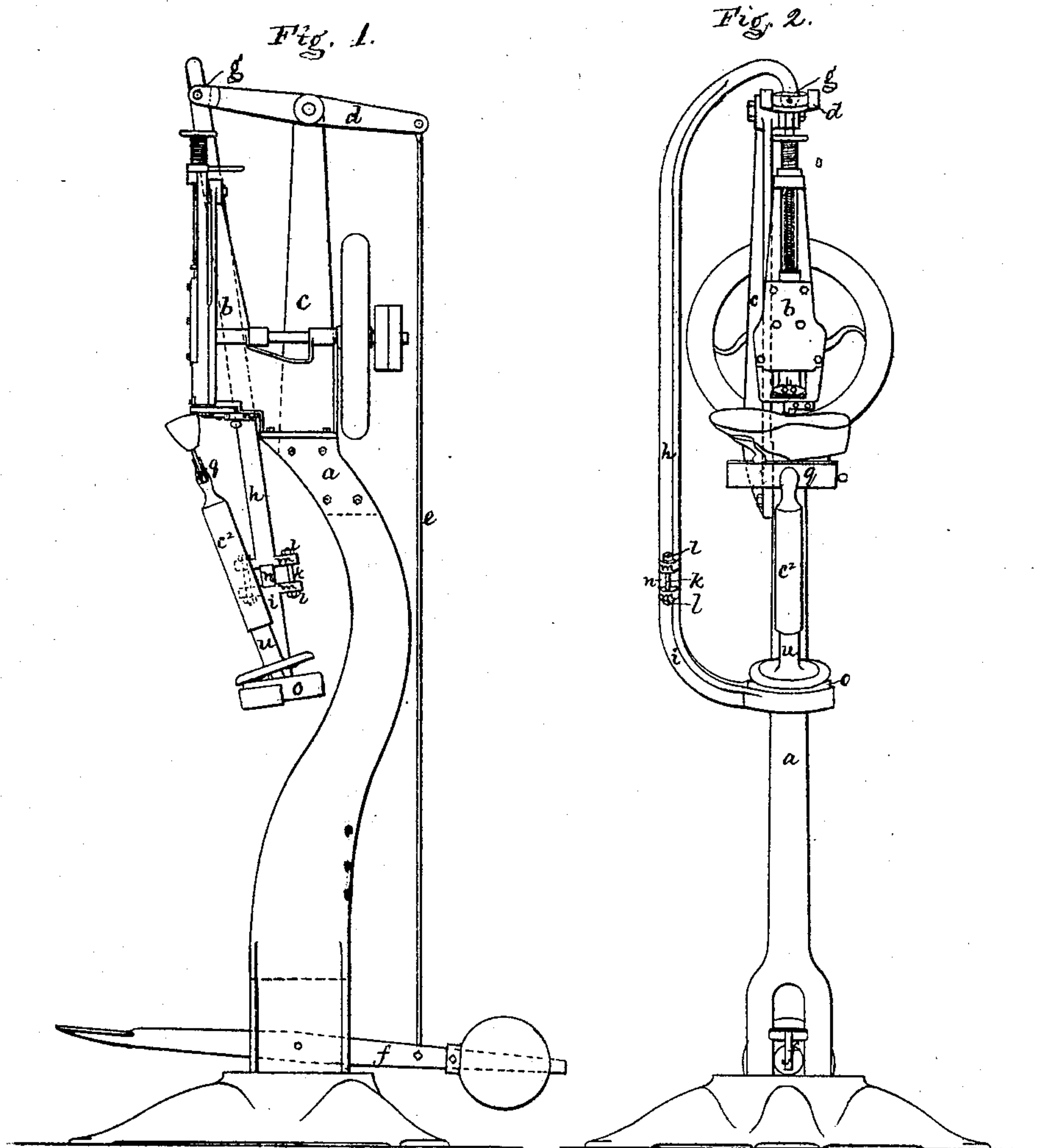


3 Sheets--Sheet 1.

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**Pegging-Machines.**

No. 145,900.

Patented Dec. 23, 1873.



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L. H. Latimer.

Inventor,  
George L. Roberts.  
By his Attys.  
Crosby & Gould.

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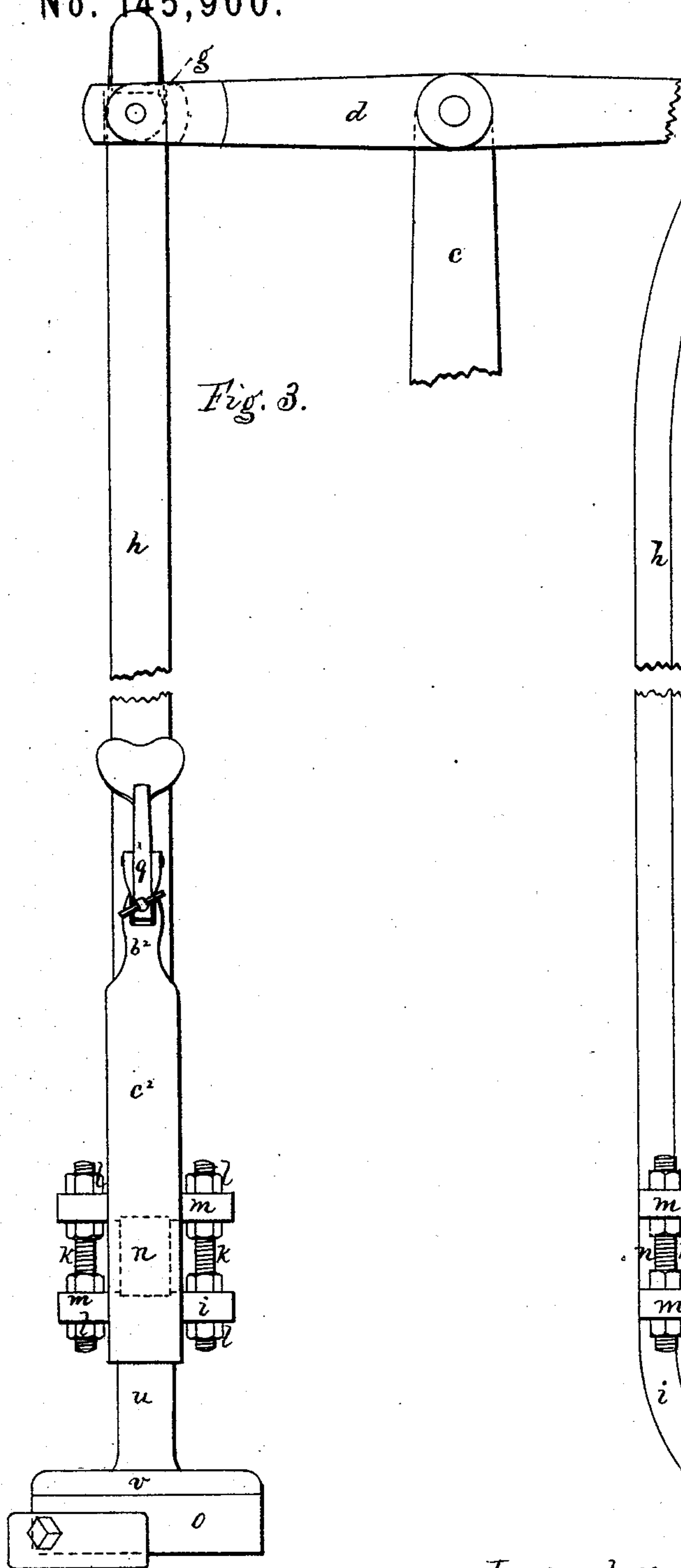


Fig. 3.

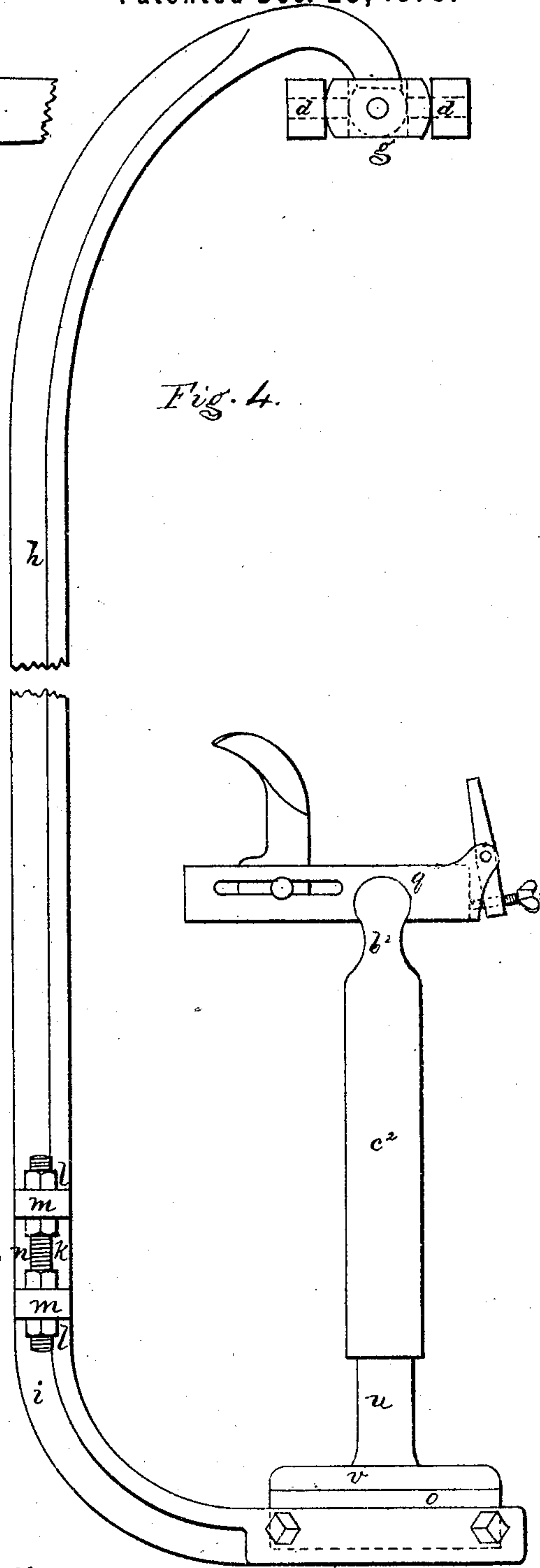


Fig. 4.

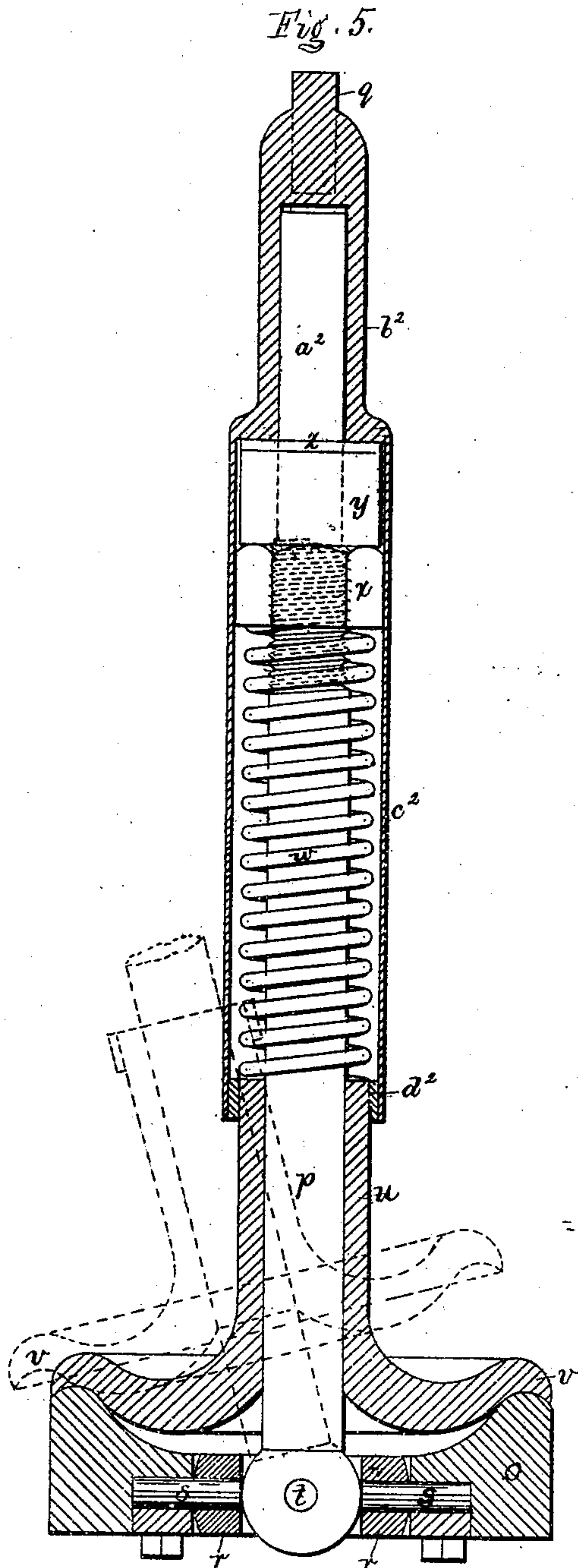
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# UNITED STATES PATENT OFFICE.

GEORGE L. ROBERTS, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN PEGGING-MACHINES.

Specification forming part of Letters Patent No. **145,900**, dated December 23, 1873; application filed December 11, 1873.

*To all whom it may concern:*

Be it known that I, GEORGE L. ROBERTS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Pegging and Nailing Machines; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

In the better class of machines for bottoming boots and shoes with pegs of wood or metal, the pegging mechanism is contained in a stationary head, which is mounted upon the top of a post of such height as to bring the point where the pegs are driven conveniently near to the hand and eye of the operator while standing up to his work, and which overhangs sufficiently far in front for the proper manipulation beneath it of the boot or shoe to be pegged. The working-point in each of these machines is at the base of the anterior portion of the head, and is provided with a gage for the edge of the sole to rest against, in order to secure the insertion of pegs at a uniform distance therefrom, and with suitable feeding devices which act upon the bottom of the sole, as it is pressed up against them, to give it a regular, progressive, intermittent movement during the operation of pegging, so as to insure uniformity in the distance of each peg from the next in the row. As the sole of a lasted boot or shoe is very irregular in its configurations, the mechanical contrivances by which it is presented to the working-point of the pegging mechanism throughout its entire contour, should be such as to permit a compound movement of it, resolvable into seven distinct elements: First, a vertical motion, whereby the bottom of the sole may be held in contact with the working-point of the pegging mechanism. Second, a horizontal motion toward and from the pegging mechanism, so that the edge of the sole may be kept against the gage. Third, a horizontal motion at right angles with the second, to allow the sole to be fed along progressively to the action of the pegging mechanism. Fourth, a rotative motion, such as to enable the pegging to proceed continuously around the entire sole. Fifth, a swiveling motion, by which the edge of the

sole where it bears against the gage, may be kept parallel to the line of movement of the feed. Sixth, a lengthwise rocking motion, to compensate for the longitudinal curvatures of the bottom of the sole, and to present it squarely to the action of the pegging mechanism. Seventh, a sidewise rocking motion, to compensate for the lateral curvatures of the bottom of the sole in like manner.

The best means heretofore devised and employed for supporting the lasted boot or shoe while it is presented, moved, and guided to the action of the pegging mechanism, have consisted of instrumentalities which may be briefly described as follows: Upon the forward end of a weighted lever, which has its fulcrum in the base of the machine, is erected a long upright standard, swaying upon a universal joint at its foot, and carrying at its upper end a spindle upon which fits and swivels the socket of the "jack," so called. This jack, which constitutes the immediate support of the lasted boot or shoe to be pegged, has been usually constructed of separate pieces, so jointed together as to allow the part upon which the lasted boot or shoe rests to be rocked lengthwise upon a pivot, and also sidewise upon another pivot, so as to effect with greater or less completeness the presentation of the bottom of the sole squarely to the action of the pegging mechanism. Thus, by the fulcrum-pin of the weighted lever, the universal-joint at the foot of the swaying standard, the spindle and its socket, and the two pivots of the jack itself, has the compound movement hereinbefore described been accomplished. But the practical use of these contrivances has always been attended with considerable difficulty, owing principally to the fact that the operator could not properly manage or control all the movements provided for by the various joints mentioned. For not only is the swaying standard unstable in position, and constantly tending to fall away from the working-point of the pegging mechanism, but each of the joints in the jack acts as a toggle, which becomes the harder to hold the more the lasted boot or shoe is tipped upon it; and although the weighted lever upon which the swaying standard rests bears up the bottom of the sole against the feeding devices, the operator



has to guide its movements to keep its edge against the gage, to swivel it about upon the spindle, and to tip it longitudinally or laterally, or both, in order to accommodate its various curvatures. Such a task has thus far proved to be too difficult to accomplish perfectly with the instrumentalities therefor, heretofore contrived, because, as the pegging proceeds, the operator has been obliged to release his hold upon the jack in order to shift the position of his hands, and this has necessitated the provision of latches and stops to limit or prevent its rocking upon the joints mentioned, while the operator is unable to control it. Moreover, although the best jacks heretofore constructed have contained means for gradually producing the longitudinal rocking of the lasted boot or shoe at the will of the operator, it has been found to be inexpedient and impractical to provide any such means for accomplishing a like regulation of the lateral rocking, but the lasted boot or shoe has been canted sidewise by an abrupt transition to the extreme limit of inclination, the amount of motion being determined by stops.

The object of the present invention is to so construct and arrange the supports of the lasted boot or shoe to be pegged that, first, the jack-standard shall constantly tend to assume an upright position in the machine; that, second, however much the jack may be inclined in any direction upon the working point of the pegging mechanism as a center of motion it shall not be materially harder to hold in whatever position it may take; that, third, the jack can be readily inclined in any direction and to all degrees required by the undulations of the sole of the lasted boot or shoe mounted upon it without abrupt change of the angle at which the successive pegs are caused to be inserted; and that, fourth, all the various movements of the jack by which the sole is tilted and swiveled shall always be completely within the control of the operator even while shifting the position of either of his hands.

The nature of this invention will more clearly appear by reference to the drawings, in which—

Figure 1 represents a side view, and Fig. 2 a front view of an ordinary pegging-machine, to which has been attached the novel contrivances herein described. Fig. 3 is a side view, and Fig. 4 a front view, of the pendent arm with its swinging standard and jack. Fig. 5 is a sectional elevation of the jack-standard itself and contiguous parts.

Upon the post *a* of the pegging-machine, in the rear of its head *b*, is erected a stand, *c*, to the top of which is attached the fulcrum-pin of the lever *d*. To the rear arm of this lever is pivoted the upper end of a rod, *e*, which depends therefrom, and has its lower end pivoted to the rear arm of the weighted lever *f* at the base of the machine. To the forward arm of the lever *d*, at its front end, is jointed, by a universal joint, *g*, the upper end of a curved pendent arm, which, for the sake of adjustment of its length, is made in two

pieces, *h* and *i*, firmly secured together by means of screw-bolts *k* and nuts *l* applied to flanges *m*, and further strengthened by the stay-block *n* held tightly between them. The lower end of this pendent arm embraces and is bolted to the disk *o*, which forms the base of the standard *p* for the jack *q*. This standard is supported upon a universal joint, which consists of a stout ring, *r*, turning upon trunnions *s* in the disk *o*, and embracing within it the foot of the standard *p*, pivoted to it by a pin, *t*, at right angles to the trunnions *s*. The other universal joint *g*, from which hangs the pendent arm *h*, has a similar construction. In order to make the standard *p* for the jack constantly tend to assume a position perpendicular to the plane of the disk *o*, it is surrounded by a prop, which consists of a tubular portion, *u*, encompassing the lower end of the standard, and of a flanged portion, *v*, resting upon and covering the disk *o*. Above the tubular portion of the prop the standard is further encompassed by a spiral spring, *w*, of considerable expansive tension, which is confined by a stout nut, *x*, screwed down upon it, and which, by pressing against the top of the prop, tends to keep its flange *v* squarely upon the disk, and thus to hold the standard upright when left to itself. Moreover, when the standard is caused to incline in any direction out of a position perpendicular to the plane of the disk, the prop will necessarily have to slide upward upon it, as shown by dotted lines in Fig. 5, and thereby to increase the tension of the spring *w*, so that the more the standard is so inclined the greater will be the resistance to further inclination; and this tendency to return to the normal position may be further augmented by constructing the under surface of the flange *v* with a swell or dip extending down into a corresponding depression in the upper surface of the disk, as also shown in Fig. 5. The practical object to be attained in shaping and proportioning the several parts which determine the ratio of the amount of resistance to the degree of inclination, is to keep the entire support of the lasted boot or shoe, as nearly as may be, in a state of equilibrium, except at all times a decided tendency, not too strong, to return to the normal position, whatever be the inclination necessary to make the standard assume, in order to properly present the sole, throughout its various curvatures, squarely to the action of the pegging mechanism; and in securing this substantial equilibrium of parts, the principal factors to be taken account of are the weight upon the lever *f*, the degree of inclination of the standard *p*, the form and size of the flange *v* and disk *o*, and the tension of the spring *w*. Upon the nut *x* is placed a thick ring, *y*, of vulcanized india-rubber, surmounted by one or more annular metallic washers, *z*, through which the upper portion of the standard passes, and there forms the spindle *a*<sup>2</sup>, to receive the socket *b*<sup>2</sup> of the jack *q*. This jack is the same in all essential particulars as that now in common use,



so far as concerns the devices for mounting and fixing in position thereon the lasted boot or shoe to be pegged; but it differs materially therefrom in being a rigid frame, having no joint or pivot whatsoever for tilting or rocking the lasted boot or shoe mounted thereon. The only motion of which it is capable relatively to its standard  $p$  is accomplished by the rotation or swiveling of its socket  $b^2$  upon the spindle  $a^2$ . To the exterior of the socket-piece of the jack is rigidly attached the upper end of a sleeve,  $c^2$ , which extends downward, covering the washers  $z$ , the rubber ring  $y$ , the nut  $x$ , the spring  $w$ , and lapping over a thin ring,  $d^2$ , attached to the upper end of the tubular portion of the encompassing-prop  $u$ . This sleeve  $c^2$  is, in fact, a part of the rigid frame of the jack  $q$ , and is the principal means through which the entire support of the lasted boot or shoe to be pegged is manipulated and controlled.

While pegging a boot or shoe it is customary for the operator to stand facing the left side of the machine, where he can watch the edge of the sole which is next to the gage, and for this reason the pendent arm of the improved support herein described is put on the right side of the machine, so as to be out of the way of the operator, who, after he has placed the sole of the lasted boot or shoe against the gage and feeding devices, can, by grasping the sleeve of the jack with his right hand, swing the foot of the standard in any direction horizontally, and at the same time swivel the jack upon the spindle to any degree required, to give the lasted boot or shoe mounted thereon all the movement, however complex, for properly presenting the sole, throughout its various curvatures, squarely to the action of the pegging mechanism.

It is obvious, therefore, that this mechanism can be much more readily and easily manipulated than any heretofore contrived for the same purpose. The arm of the operator, instead of his hand, is chiefly occupied with the harder parts of the work, and the continuity

of his control over the movements to be given to the jack need not be broken or abridged by reason of the necessity of shifting the position of his hands, since he can allow the sleeve to turn while yet retaining sufficient hold of it, and he always has a spare hand to assist in keeping the sole against the gage, and in otherwise assisting to guide and move the lasted boot or shoe to be pegged.

By placing the foot upon the forward arm of the lever  $f$  at the base of the machine, the operator is enabled to relieve the stress of the weight while adjusting the lasted boot or shoe in position to be pegged, or when desiring to remove it after pegging.

What is claimed herein is—

1. In combination with a pegging mechanism, a jack suspended and counterpoised, substantially as described.

2. A jack-standard, the foot of which swings in any direction horizontally, substantially as described, to give the required inclination to the jack mounted upon it.

3. In combination with a pegging mechanism, a jack-standard having means for constantly resisting inclination upon its supports, and for returning it to its normal position, substantially as described.

4. The flanged prop encompassing the standard, and sliding thereon against the tension of a spring, in combination with the disk to which the standard is jointed.

5. The pendent arm, which forms the support of the swinging jack-standard, in combination with the counterpoised lever, from which it is suspended by a universal joint.

6. The combination of the jack and its sleeve, by which it may be swiveled and inclined, substantially as described.

GEORGE L. ROBERTS.

Witnesses:

FRANCIS GOULD,

M. W. FROTHINGHAM.