(No Model.) 3 Sheets—Sheet 1.

# G. H. CLARK.

## TREEING MACHINE FOR BOOTS OR SHOES.

No. 589,697. Patented Sept. 7, 1897.

*Fig. 1.*

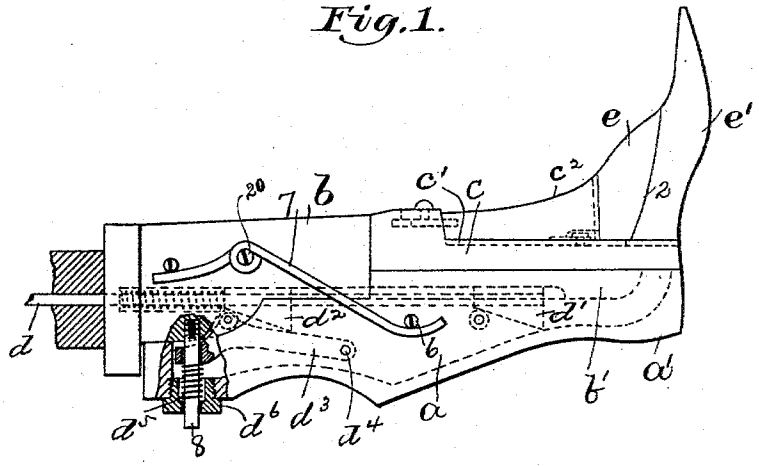
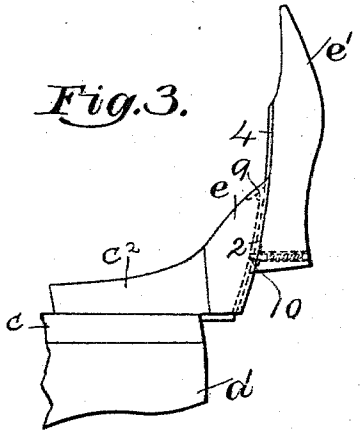



*Fig. 3.*



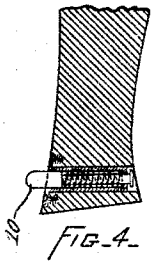
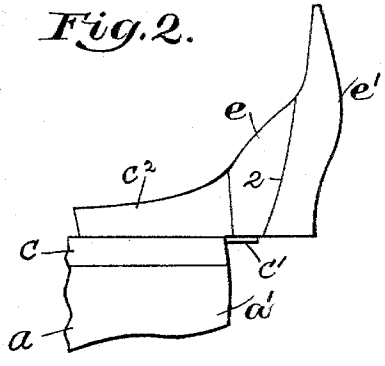




FIG. 4.

*Fig. 2.*




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(No Model.) 3 Sheets—Sheet 2.

# G. H. CLARK.

## TREEING MACHINE FOR BOOTS OR SHOES.

No. 589,697. Patented Sept. 7, 1897.

Fig. 5.

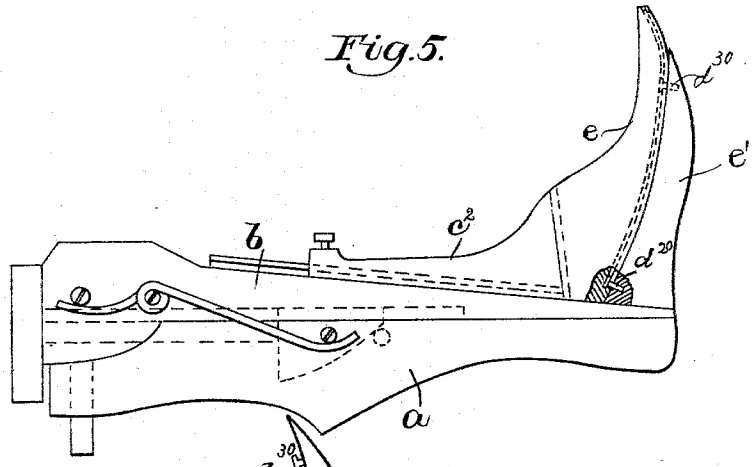
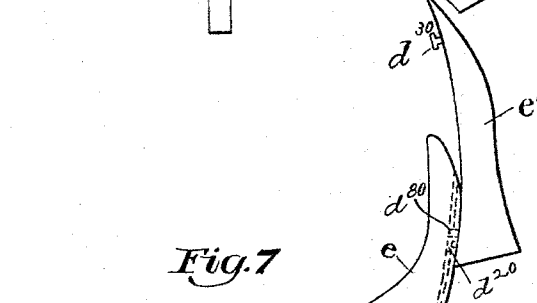



Fig. 7



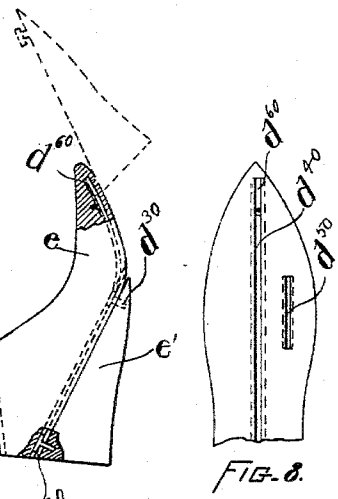




Fig. 6.




FIG. 8.

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(No Model.) 3 Sheets—Sheet 3.

# G. H. CLARK.

## TREEING MACHINE FOR BOOTS OR SHOES.

No. 589,697. Patented Sept. 7, 1897.

*Fig. 9.*

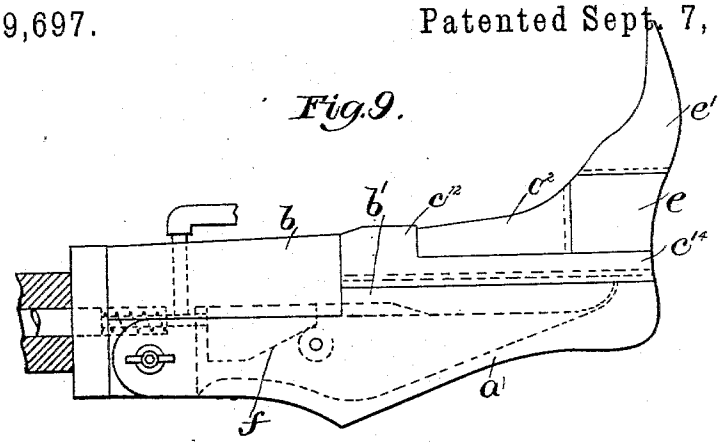



*Fig. 10.*

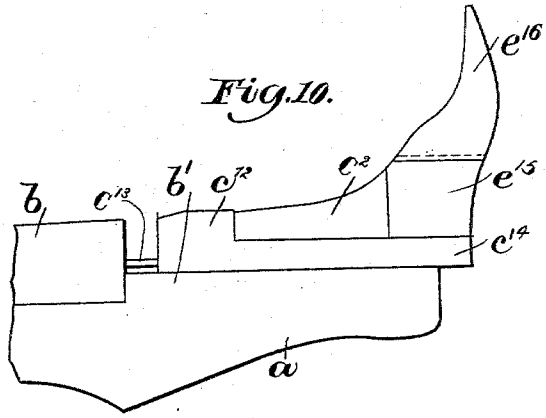



*Fig. 11*

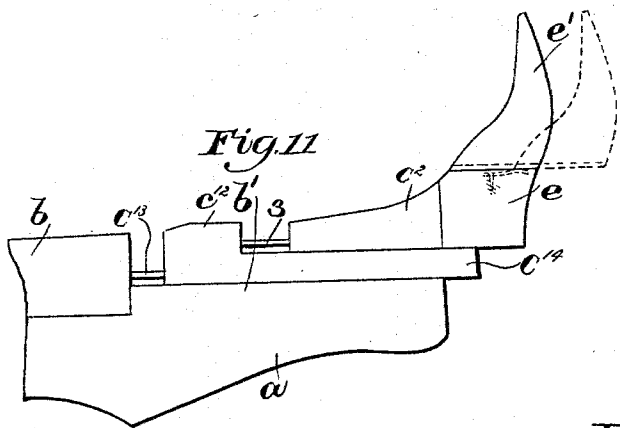
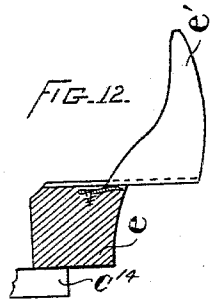



FIG. 12.




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# UNITED STATES PATENT OFFICE.

GEORGE H. CLARK, OF BOSTON, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE MORLEY FINISHING MACHINE COMPANY, OF MAINE.

## TREEING-MACHINE FOR BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 589,697, dated September 7, 1897.

Application filed July 11, 1896. Serial No. 598,822. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE H. CLARK, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Shaping or Treeing Machines for Boots or Shoes, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to construct a machine for shaping or treeing boots and shoes, it being especially designed for shaping women's boots and shoes, and more particularly for shaping women's button-boots, as it is so constructed and arranged that a button-boot may be drawn onto the form while buttoned, and after said boot has been shaped or treed in any desirable way it may be drawn off of the form without unbuttoning, thereby greatly facilitating the work and also giving shape to the ankle and top portions at the same time that the fore part is shaped or treed, which shape will be retained when the boot or shoe is withdrawn from the form.

In order that a button-boot may be drawn onto and off of a form while buttoned, the measurements of all parts of the form below the ankle should be no greater and preferably should be less than the ankle measurement of the boot or shoe.

By the term "ankle measurement of the shoe" I mean the ankle measurement of a button-boot or other boot or shoe—as, for instance, a lace-shoe or Congress boot—having its ankle and ball measurements substantially equal, the ankle measurement being taken in the case of a button-boot with the boot buttoned, and in the case of a lace-shoe with the shoe laced, or in the case of a Congress boot with its gores unstretched.

The boot or shoe shaping or treeing form comprehending this invention comprises, essentially, a back part and a fore part, the latter being detachable in order that fore parts of different shapes and sizes for different shapes and sizes of boots and shoes may be employed, and as the ball and ankle measurements of a boot or shoe are substantially equal it is only necessary to reduce the instep measurement of the fore part and heel measurement of the form to the ball and ankle measurements of the shoe to enable the results above mentioned to be accomplished. To thus reduce the normal instep measurement of the fore part to the ankle measurement of the shoe, I have provided it with a movable shank portion or shank-piece of such size and shape that when withdrawn all the circumferential measurements of said fore part are reduced to or to less than the ankle measurement of the shoe.

As a simple way of constructing the fore part with a movable shank portion I may form said fore part in two parts, the upper part comprising the instep portion and the lower part comprising the toe, ball, and shank portions, and said lower part is adapted to slide along the bottom of said upper part. The line of severance between the upper and lower parts of said fore part may be more or less curved, if desired, and said parts are or may be dovetailed or otherwise connected together in such manner that the lower part, while free to slide along the bottom of the upper part, retains its connection therewith, yet the fore part may be otherwise constructed of two or more parts, movable one with relation to another, to thus reduce the instep measurement.

To reduce the normal heel measurement of the form to the ankle measurement of the boot or shoe, the two essential parts—viz., the back part and fore part—are movable one with relation to the other—as, for instance, said fore part may be adapted to slide in and out on or with relation to the back part. An expanding device of any suitable construction will be provided for spreading the parts of the form.

The back leg portion of the form may be bodily movable with relation to the front leg portion, if desired, and in such case means may be provided for adjusting such movement.

In another application, Serial No. 598,381, filed concurrently with this, a shoe shaping or treeing form is shown wherein all of its

circumferential measurements are reducible to the ankle measurement of the boot or shoe, and the form therein shown comprises, essentially, a back part and a fore part, movable one with relation to the other to reduce the heel measurement to the ankle measurement of the shoe, and said fore part had its shank cut away to a considerable extent to reduce its instep measurement to the ankle measurement of the boot or shoe, and herein the gap produced by so cutting away the fore part is filled by means of the movable shank piece or portion.

Figure 1 shows in side elevation a form adapted for shaping or treeing boots and shoes embodying this invention; Fig. 2, a view showing the fore part withdrawn with its supporting-slide to reduce the normal heel measurement to the ankle measurement of the shoe; Fig. 3, a view showing the shank piece or portion drawn out relatively to the instep portion of the fore part to thereby reduce the instep measurement to the ankle measurement of the shoe; Fig. 4, a detail showing a spring-pin in the shank-piece; Fig. 5, a side elevation of a modified construction of form embodying this invention; Fig. 6, a view wherein the fore part shown in Fig. 5 is withdrawn; Fig. 7, a similar view wherein the shank-piece of the fore part is withdrawn; Fig. 8, an under side view of the instep portion of the fore part shown in Figs. 5, 6, and 7; Fig. 9, a side elevation of another modified construction of form embodying this invention; Figs. 10, 11, and 12, views wherein the fore part is more or less withdrawn and its shank piece or portion moved relatively to the remainder of the fore part to reduce the instep and heel measurements to the ankle measurement of the shoe.

The form shown in Figs. 1 to 4, to which my invention is herein shown as applied, consists, essentially, of a back part $a$, having a heel $a'$; a front leg portion $b$, having an extension $b'$, (see dotted lines, Fig. 1,) contained in a recess in the back part $a$; a support $c$, rigidly secured to the front leg portion $b$; a slide $c'$, fitted to slide freely in and out in a groove formed in the part $c$; a shin-piece $c^2$, detachably connected with said slide $c'$, and a fore part detachably connected with said shin-piece $c^2$. Instead, however, of applying my invention to this particular construction of form I desire it to be understood that it may be applied to any other well-known or any other suitable construction of form having a back part and a detachable fore part.

The back leg portion $a$ of the form shown in Fig. 1 is bodily movable and has a pin 6 at each side of it which is engaged by the free ends of springs 7, secured by screws 20 or otherwise to the opposite sides of the front leg portion $b$. These springs 7 hold the back leg portion $a$ up in position, yet permit it to be moved bodily away from the front leg portion $b$. A guide-pin 8 projects from the front leg portion $b$, on which said back leg portion $a$ is adapted to move bodily toward and from the part $b$.

The expanding device herein shown consists of a rod $d$, adapted to be drawn out to expand the form, having thereon two wedges $d'$ $d^2$, (see dotted lines, Fig. 1,) one of which, as $d'$, acts upon a pin or roll at the forward end of the form, and the other of which, as $d^2$, acts upon a spring pressed or yielding device at the other end of the form.

The yielding device consists of an arm $d^3$, pivoted at $d^4$ to the back leg part $a$ and extending rearwardly and bearing a roll or, it may be, a projection or other engaging face which lies in the path of movement of the wedge $d^2$.

The rear end of the pivoted arm $d^3$ has a hole through it which receives the pin 8, and said rear end of the arm bears upon a spring $d^5$, which encircles said pin 8, said spring entering a recess formed in a nut $d^6$, which is screwed into a hole in the back leg part $a$, and thus supports said spring, and said nut has a hole through it, so that said back part $a$ may move freely. As the expanding rod $d$ is withdrawn the wedges $d'$ $d^2$ will act to bodily move the back leg portion $a$ outward, and the spring-pressed arm $d^3$ will at such time yield.

By turning the nut $d^6$ the spring-pressed arm $d^3$ may be adjusted to thereby enable the back leg part to be moved more or less, as desired.

The particular means herein shown for moving the back part $a$ bodily in and out possesses some advantages, but so far as the broad features of this invention are concerned they may be materially altered or said back part $a$ may be moved in any other way.

The fore part comprises an upper part $e$ and a lower part $e'$, the former comprehending the instep portion and the latter comprehending or including the toe, ball, and shank portions. Such a fore part may be made by forming a block of proper shape and then cutting it in two parts on or about the line 2. This line of severance may be more or less curved, if desired.

The two parts $e$ $e'$ of the fore part are or may be connected together in such manner that the lower part is adapted to slide along the bottom of or with relation to the upper part, and herein such sliding connection is shown as a dovetailed rib 4, secured to the meeting or upper face of the lower part, and a corresponding groove (see dotted lines) formed on the meeting or lower face of the upper part, but any other form or construction of sliding connection may be employed.

A socket 9 is provided at the forward end of the upper part and a spring-pin 10 is provided at the rear end of the lower part, which enters said socket when the lower part is withdrawn to its fullest extent.

When the fore part $e$ $e'$ is drawn out with relation to the back part, as shown in Fig. 2, it will be seen that the heel measurement of

the form is materially reduced, being equal or less than the ankle measurement of the shoe, and when the lower part or shank-piece $e'$ is drawn out with relation to the upper part $e$ it will be seen that the instep measurement of the fore part is very materially reduced, being equal or less than the ankle measurement of the shoe.

The boot or shoe to be shaped or treed may be drawn onto this form while buttoned, and after it has been operated upon it can be easily withdrawn from said form without unbuttoning by drawing out the slide $c'$ with relation to the heel, as shown in Fig. 2, and then drawing out the shank-piece or lower part $e'$ of the fore part with relation to the upper part $e$, as shown in Fig. 3.

I do not desire to limit my invention to any particular way of forming a movable shank portion on the fore part to reduce the instep measurement thereof to the ankle measurement of the boot or shoe, but the way herein shown is easy to construct and is efficient and the gap produced by cutting away the shank of the fore part, as represented in the application referred to, is completely filled.

In the above construction it will be observed that the fore part slides in and out with relation to the back part; but it is immaterial, in a broad sense, which part moves relatively to the other, and therefore I desire it to be understood that so far as this invention is concerned I deem either an equivalent construction of the other.

The shoe shaping or treeing form herein described is especially designed for button boots and shoes; but it is obvious that it is of equal utility in shaping lace boots and shoes which are laced up in order that the ankle and top portions may be shaped, and also in shaping Congress boots and shoes, where it is desirable not to stretch the gores.

Referring to Figs. 5 and 8, inclusive, wherein a modified construction of form is shown, $a$ represents a back leg portion or back part of the form, $b$ a front leg portion, and $c$ a slide formed with a groove adapted to receive a rib on the front leg portion $b$, or otherwise adapted to slide thereon, and said slide $c$ is shown as adapted to be used as a shin-piece, and hence is properly formed for such purpose and detachably connected with its support. The fore part is detachably connected with said slide $c$, and for simplicity it is shown as provided at the top with a dovetailed projection (see dotted lines, Fig. 5) adapted to enter a correspondingly-shaped groove formed in the end of the slide $c$.

The fore part is composed of two parts $e$ $e'$, very similar to that shown in Fig. 1, the upper part, as $e$, comprising the instep and toe portions and the lower part, as $e'$, comprising the shank-piece. The line of severance between said parts $e$ $e'$ is more or less curved, and said parts are connected together in such manner that the shank-piece $e'$ is adapted to slide along the bottom of the instep and toe portions. Such sliding connection is herein shown as made by providing the shank-piece $e'$ with two headed studs $d^{20}$ $d^{30}$, and the instep and toe portion $e$ with a groove $d^{40}$, extending substantially from end to end, which receives said studs $d^{20}$ $d^{30}$, and a stop $d^{80}$ is provided, (see Fig. 7,) against which the stud $d^{20}$ strikes to prevent the shank-piece $e'$ being detached.

In Fig. 6 the shank-piece $e'$ is cut off on an oblique line, leaving more thickness in the part $e$, to which it is attached, but the difference is only in the location of the line of severance. In this modified form (shown in Fig. 6) the studs $d^{20}$ $d^{30}$ are arranged at the ends of the shank-piece $e^8$, but not in line with each other, and two grooves are provided, $d^{40}$ $d^{50}$, the groove $d^{40}$ receiving the stud $d^{20}$ and the groove $d^{50}$ receiving the stud $d^{30}$. The stud $d^{20}$ has a rectangular head which slides freely along in the groove $d^{40}$ provided for it, but does not turn therein, while the stud $d^{30}$ is merely a steadying-pin for the toe end of the shank-piece. At the toe end of the groove $d^{40}$ a flat spring $d^{60}$ is shown, upon which the head of the stud $d^{30}$ impinges or bears when said shank-piece $e'$ is withdrawn, as shown in Fig. 6, and said spring will at such time serve to hold the shank-piece in such position frictionally.

Referring to Figs. 9 to 12, wherein another modified construction of form is shown, $a$ represents a back leg portion; $b$, a front leg portion having a forward extension $b'$, (see dotted lines Fig. 9,) which enters a recess in the back leg portion $a$.

$c^{12}$ represents a slide which is formed with a T-shaped or dovetailed groove adapted to receive a correspondingly-shaped rib $c^{13}$ on the extention $b'$ of the front leg part, and said slide $c^{12}$ extends to the end of the form and includes the shank or a portion thereof, as represented at $c^{14}$.

$c^2$ represents another slide similarly provided with a T-shaped or dovetailed groove adapted to receive a correspondingly-shaped rib on the slide $c^{12}$, and said slide $c^2$ is herein formed as and adapted to serve as and constitute a shin-piece.

The fore part is detachably connected to the slide $c^2$—as, for instance, it may be formed with a T-shaped or dovetailed projection adapted to enter a groove formed in the end of said slide—and said fore part is herein shown as composed of a shank-piece $e^{15}$ and a toe portion $e^{16}$, the latter sliding upon the former—as, for instance, the toe portion may be formed with a groove to receive a rib on the shank-piece $e^{15}$.

It will be seen by reference to Fig. 10 that the slide $c^{12}$ may be withdrawn and then the slide $c^2$ withdrawn, as shown in Fig. 11, and then the toe portion of the fore part may be withdrawn, as represented by dotted lines, and in any event the heel measurement of the form and the instep measurement of the fore part is reduced to the ankle measurement of the shoe, so that a boot while buttoned

or laced can be drawn onto and off of the form.

I claim—

1. A shoe shaping or treeing form composed essentially of a back part and a fore part, the latter having its shank portion movable to reduce its instep measurement to the ankle measurement of the shoe, said back part and fore part being movable one with relation to the other to reduce the heel measurement of the form to the ankle measurement of the shoe, and an expanding device for separating said essential parts of the form, substantially as described.

2. A shoe shaping or treeing form composed essentially of a back part and a fore part, the latter having a sliding shank portion whereby its instep measurement may be reduced to the ankle measurement of the shoe, said essential parts being movable one with relation to the other to reduce the heel measurement of the form to said ankle measurement of the shoe, and an expanding device for separating said essential parts of the form, substantially as described.

3. A shoe shaping or treeing form composed essentially of a back part and a fore part, the latter having its shank portion movable to reduce its instep measurement to the ankle measurement of the form, one of said essential parts sliding longitudinally with relation to the other to reduce the heel measurement of the form to said ankle measurement of the shoe, and an expanding device for separating said essential parts of the form, substantially as described.

4. A shoe shaping or treeing form composed essentially of a back part and a fore part, the latter having a sliding shank portion, whereby its instep measurement may be reduced to the ankle measurement of the shoe, one of said essential parts sliding longitudinally with relation to the other to reduce the heel measurement of the form to the ankle measurement of the shoe, and an expanding device for separating said essential parts of the form, substantially as described.

5. A shoe shaping or treeing form composed essentially of a back leg portion having a heel, and a front leg portion having a detachable fore part provided with a shank portion movable to reduce its instep measurement to the ankle measurement of the shoe, said fore part sliding in and out with relation to the heel to reduce the heel measurement of the form to said ankle measurement of the shoe, and an expanding device for separating the essential parts of the form, substantially as described.

6. A shoe shaping or treeing form composed essentially of a back leg portion having a heel and a front leg portion carrying a slide and a fore part detachably connected to said slide, having its shank portion movable to reduce its instep measurement to the ankle measurement of the shoe, said fore part sliding in and out with relation to the heel to reduce the heel measurement of the form to said ankle measurement of the shoe, and an expanding device for separating the essential parts of the form, substantially as described.

7. An expansible shoe shaping or treeing form having a sliding fore part with a movable shank portion, all the circumferential measurements of said form being reducible to the ankle measurement of the shoe, substantially as described.

8. In a machine for shaping or treeing boots and shoes, a form having a bodily movable back leg portion, a guide-pin therefor an expanding rod having thereon two wedges, an arm pivotally connected to said back leg part which is engaged by the uppermost wedge, a spring for said arm, and an adjusting device for said spring, substantially as described.

9. In a machine for shaping or treeing boots and shoes, a form having a front part with a pin 8, back leg part having a hole through it for said pin, an expanding wedge, a pivoted arm $d^3$ on the back leg part engaged by said wedge, a spring for said arm, and an adjusting-nut for said spring, substantially as described.

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

GEO. H. CLARK.

Witnesses:
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