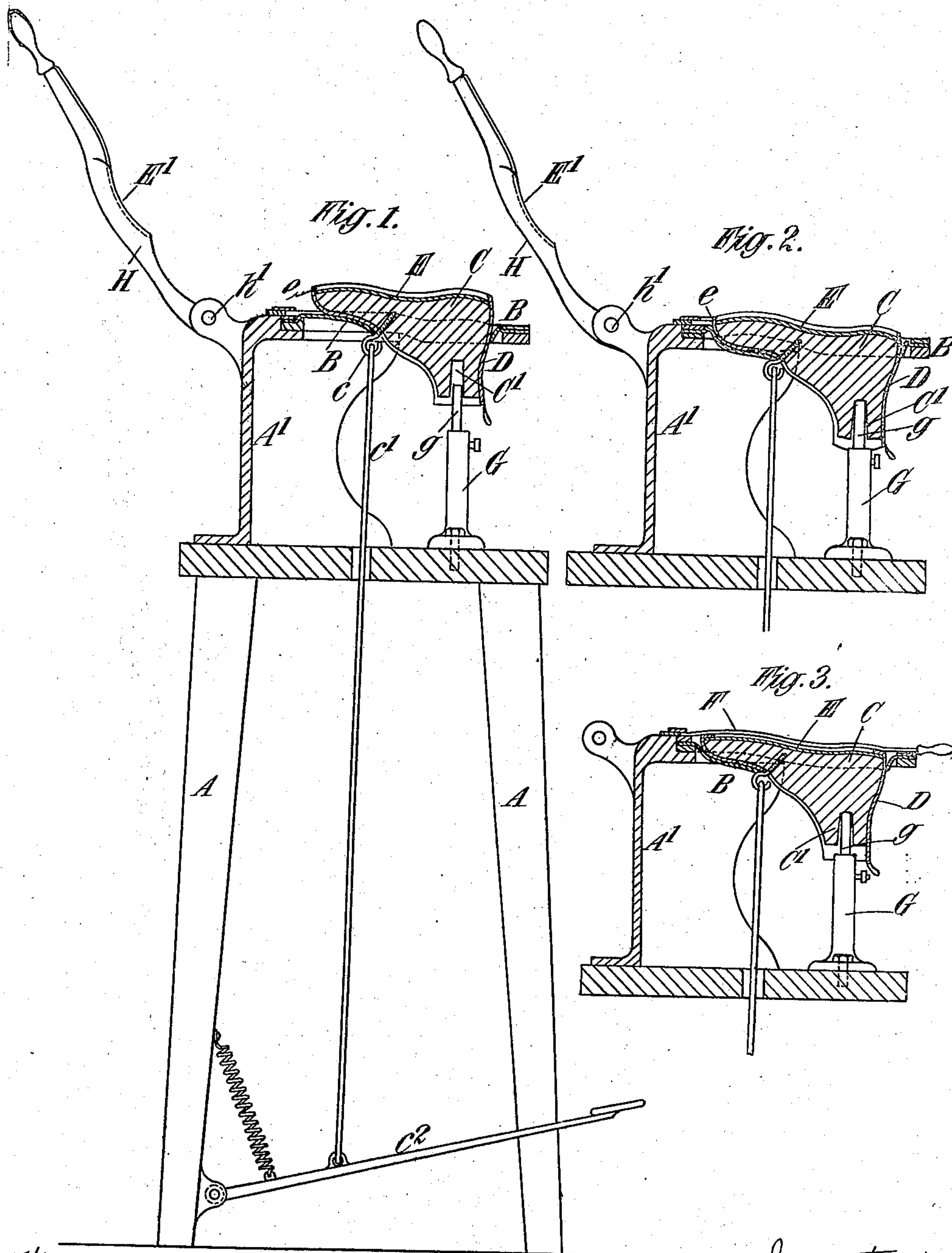


J. C. & B. WRIGHT.
MACHINE FOR LASTING BOOTS AND SHOES.
APPLICATION FILED JAN. 2, 1907.

919,995.

Patented Apr. 27, 1909.
2 SHEETS—SHEET 1.



Witnesses:

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Inventors:

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Fig. 4.

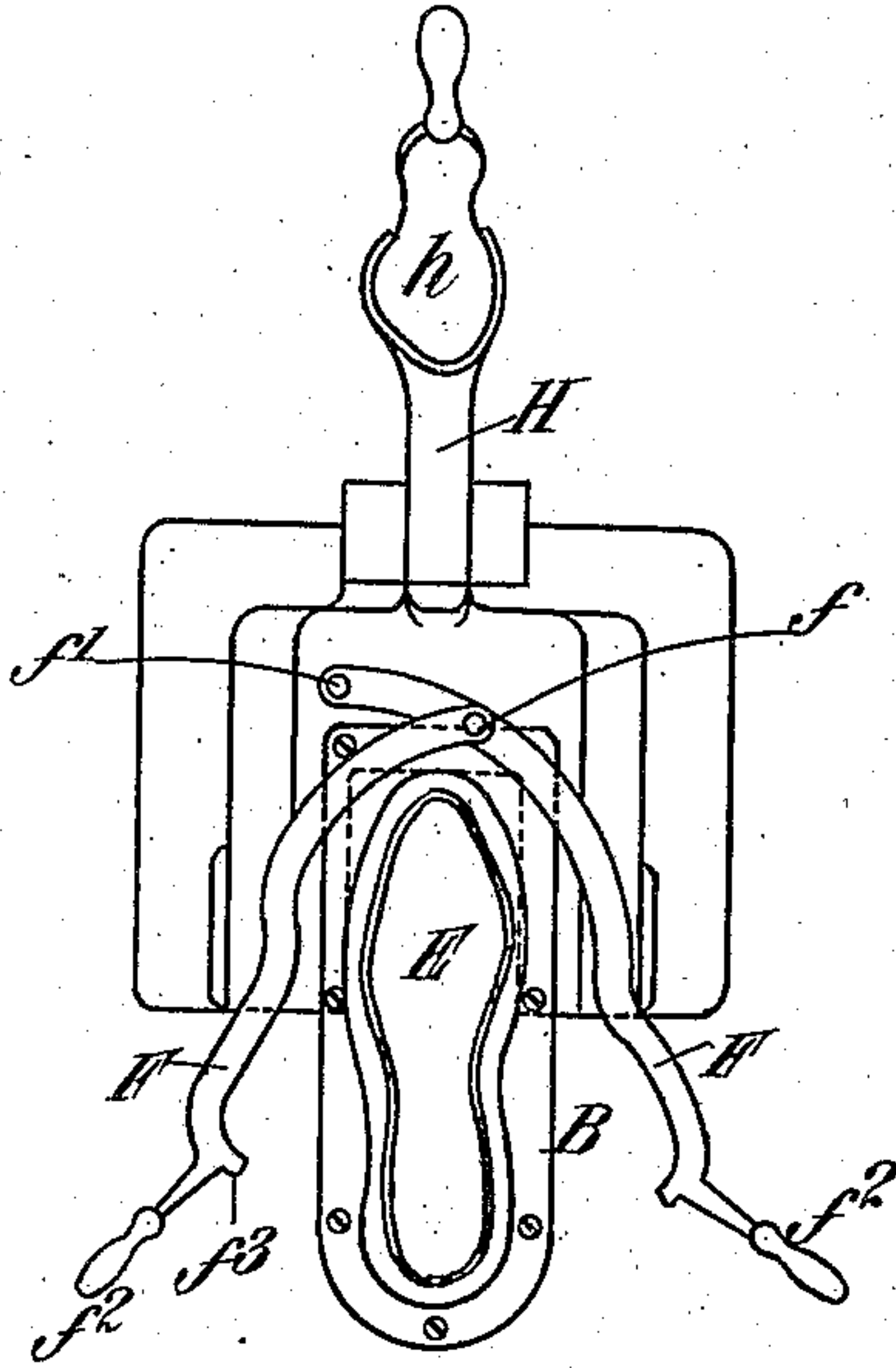


Fig. 5.

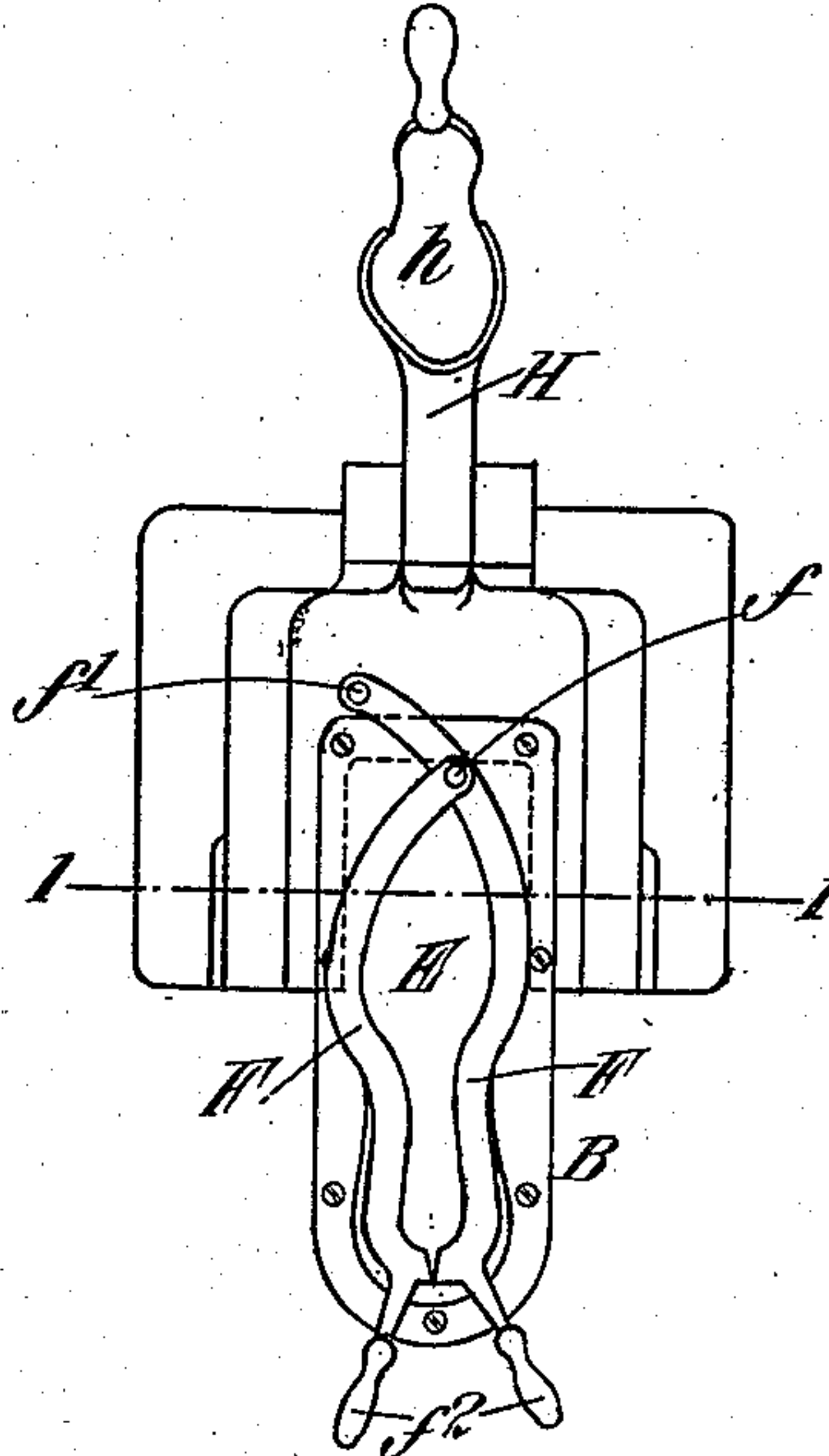


Fig. 7.

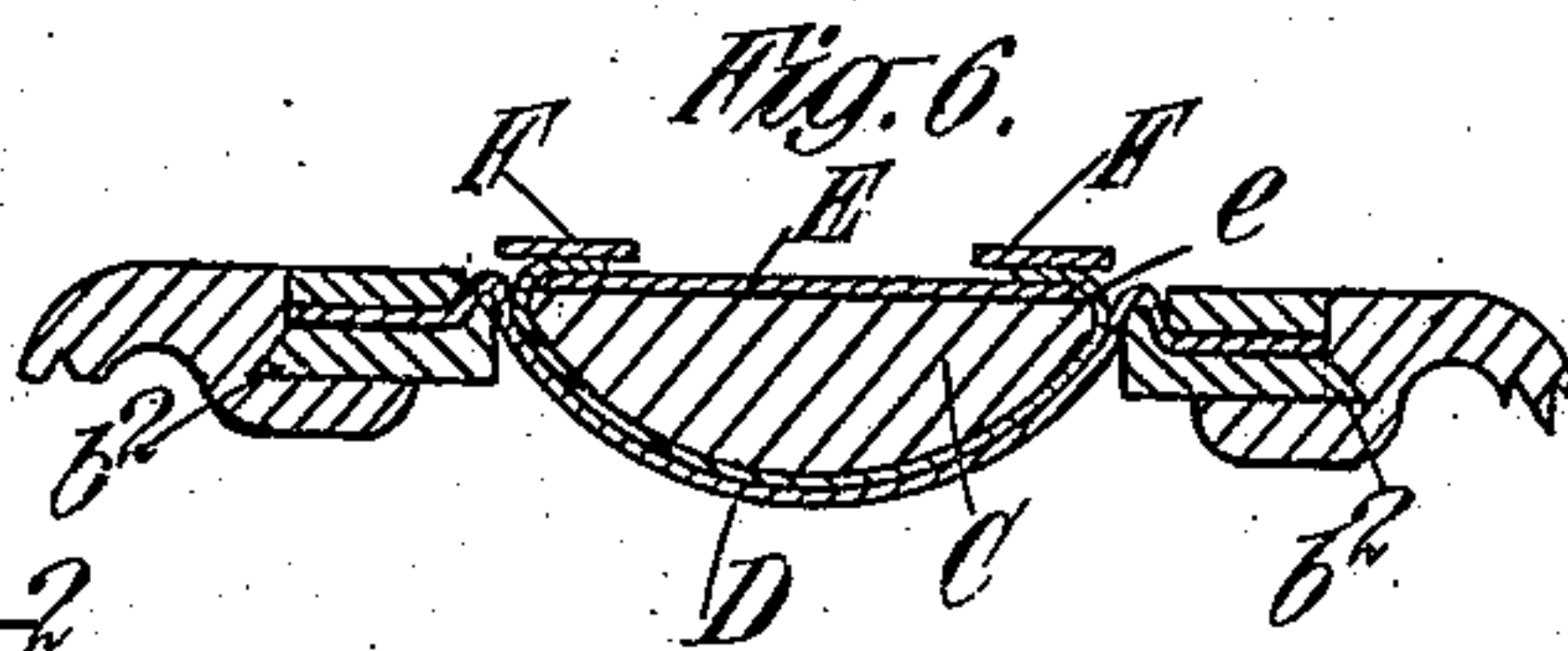
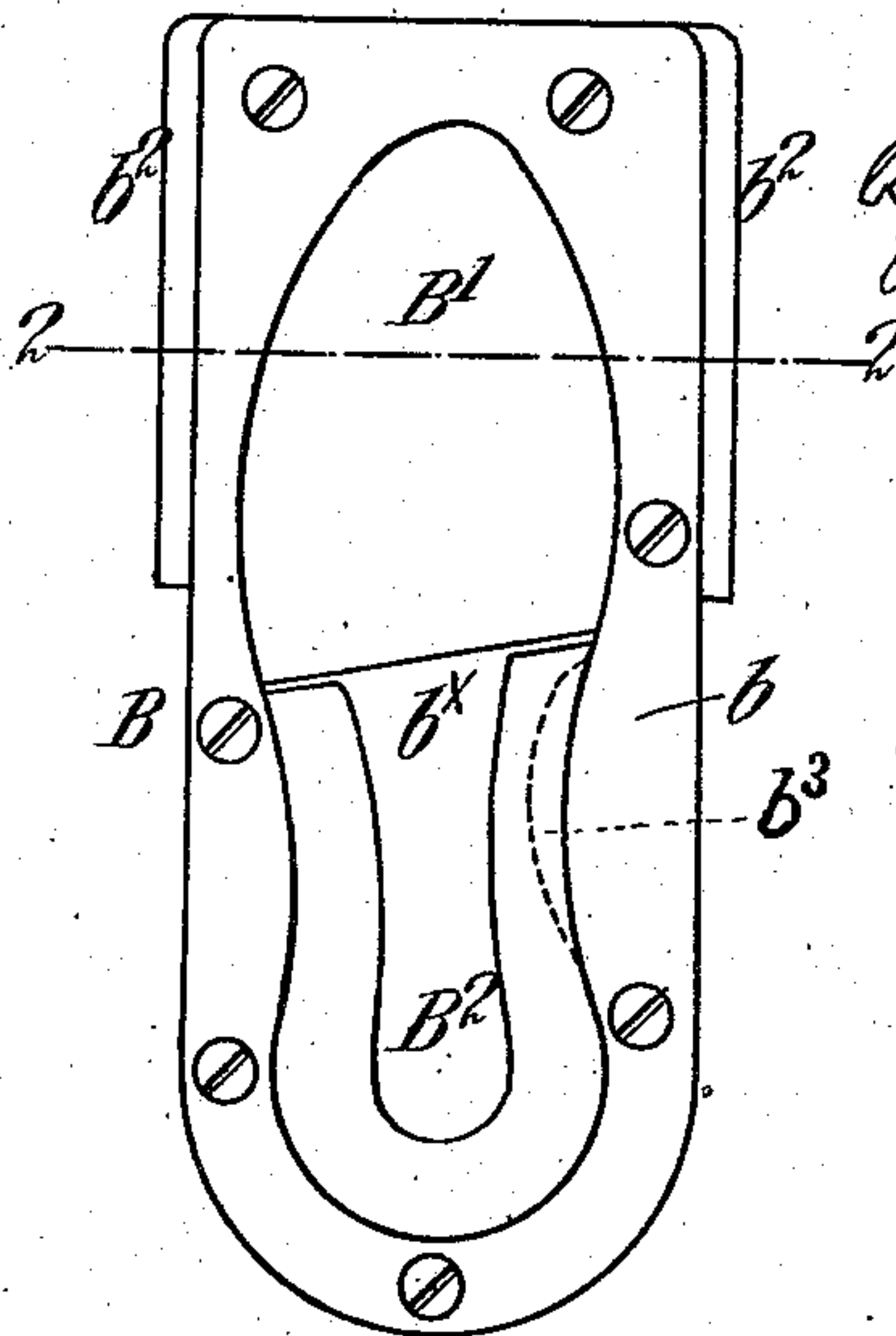


Fig. 8.

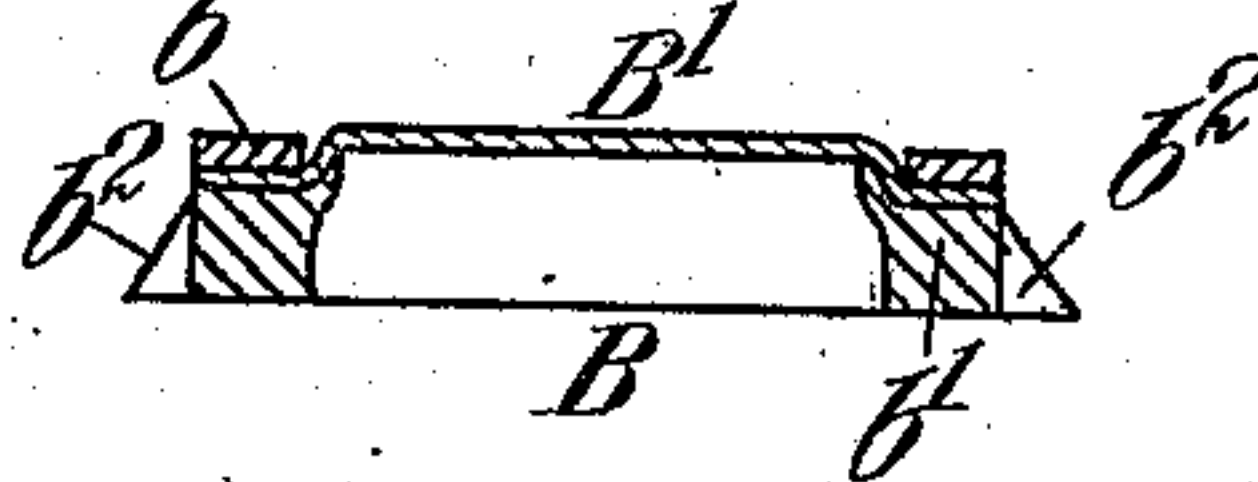
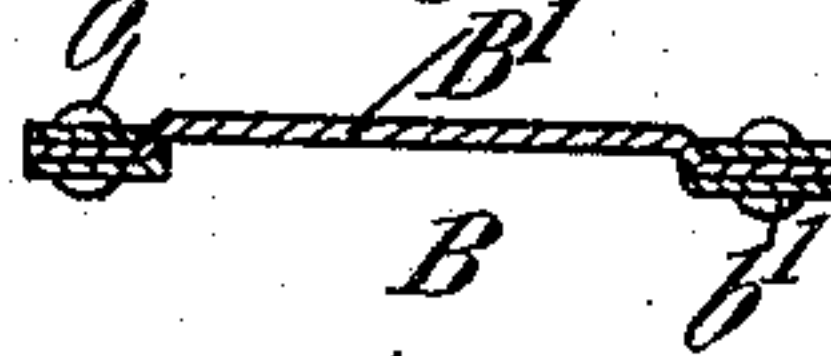


Fig. 9.



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UNITED STATES PATENT OFFICE.

JOSHUA COOKSON WRIGHT, OF BEESTON, LEEDS, AND BENJAMIN WRIGHT, OF LEEDS, ENGLAND, ASSIGNORS OF ONE-HALF TO ARTHUR PARSONS, OF LEEDS, ENGLAND, AND JOHN ADAM MORTON, OF LEICESTER, ENGLAND.

MACHINE FOR LASTING BOOTS AND SHOES.

No. 919,995.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed January 2, 1907. Serial No. 350,352.

To all whom it may concern:

Be it known that we, JOSHUA COOKSON WRIGHT and BENJAMIN WRIGHT, subjects of the King of Great Britain, residing, respectively, at 36 Cross Flatts Place, Beeston, Leeds, boots-stores manager, and 11 Dorset Terrace, Leeds, bootmaker, both in the county of York, England, have invented certain new and useful Improvements in and Relating to Machines for Lasting Boots and Shoes, of which the following is a specification.

This invention relates to machines for lasting boots and shoes and has for its chief object to construct such machines in a simpler manner and with a capability of performing the lasting operation with greater facility and more expedition than heretofore.

According to our invention, we provide what we term a resilient die or matrix which may be in the form of a marginal portion or frame conforming more or less to the contour of the boot or shoe to be lasted, and having an interior cushion composed of india rubber or other suitable material of a resilient character, an opening or cavity of sufficient dimensions existing in said cushion to permit of the ankle portion of the last and its "upper" to project through the same. Suitable means are provided for causing relative movement between the last and the resilient die or matrix, whereby the last and its upper are forced into the said die or matrix against the flexible resistance of the latter, the effect of this movement being to draw the upper over the last from the middle outward, so that it becomes very tightly and smoothly stretched upon the last without injury. The free edges of the upper then project from the insole, to which they may be attached in any appropriate manner prior to releasing the last from the die or matrix.

For attaching the free edges of the upper to the insole, we provide the machine with what we term wipers for pressing the said edges inwardly into close contact with the insole. These wipers may be in the form of a pair of metal blades of a shape conforming more or less to the contour of the sole, and so pivoted to the machine that they are not only capable of moving toward each other, but also of moving in the plane of the insole.

We find it advantageous to employ a quickly drying adhesive medium for attach-

ing the edges of the upper to the insole, the said medium being applied before the said edges are acted upon by the said wipers. In some cases we may also provide the machine with a hinged presser bar for use in applying the outer sole to the insole, after the aforesaid lasting operation has been effected, said presser bar being so arranged as to bring the outer sole in proper register with the insole after the free edges of the upper have been affixed to the insole.

In order that our said invention may be clearly understood and readily carried into effect we will describe the same more fully with reference to the accompanying drawings in which:

Figure 1 is a vertical section of the improved machine. Fig. 2 is a similar view with the last and its upper drawn into the resilient die or matrix. Fig. 3 is another similar view showing the edges of the upper turned inwardly over the last by the action of the said wipers. Figs. 4 and 5 are plans of the machine showing the wipers in their open and closed position respectively. Fig. 6 is a cross section taken approximately on the line 1-1 of Fig. 5. Fig. 7 is a plan on a larger scale showing the resilient die or matrix detached from the machine. Fig. 8 is a cross section of the same on the line 2-2 of Fig. 7. Fig. 9 is a cross section showing the matrix-frame somewhat modified.

A is the framework of the machine supporting a standard A^1 . B is the resilient die or matrix carried by said standard A^1 , C is the last, D the upper and E the insole. In the example shown the inner or cushion portion of the said resilient die or matrix is composed of two pieces of india rubber; one B^1 for operating on the front portion of the upper and the other B^2 , for operating upon the heel and sides thereof, these pieces being clamped at their edges between the two members b b^1 of the frame. The piece B^1 is in the form of a sheet or membrane which extends completely across the said frame, but the piece B^2 has its middle part formed with an opening or cavity b^x through which the ankle part of the last and its upper project when in place in the machine. The said frame is also provided with a protuberance of resilient material at the part b^2 for bearing against the waist portion of the last and its upper. The said last has an eye c with which

the upper hooked end of a rod c^1 engages, the lower end of this rod being hinged to a spring controlled pedal c^2 by the operation of which a powerful downward pull can be exerted on the last in order to cause it and the upper to enter the resilient die or matrix.

When the last together with its upper is placed in the position illustrated in Fig. 1, so that it rests on the said resilient die or matrix with the sole uppermost, the guide piece g of a bracket G will engage with the hole C^1 in the last. By then connecting the eye c with the upper hooked end of the rod c^1 , downward pressure can be exerted on the rod c^1 by the foot of the attendant applied to the pedal c^2 . This pressure causes the last together with its upper to enter the resilient die or matrix as shown by Fig. 2, the piece g guiding it during this movement. In thus entering the resilient die or matrix, the front portion of the upper presses against the portion B^1 and causes the latter to bend inwardly whereby it exercises a flexible but effective drawing action upon this portion of the upper, such action commencing from the middle and extending outwardly as the last enters the die or matrix to a greater extent. The portion B^2 of the resilient die or matrix simultaneously exerts a powerful and resilient pulling action on the heel and other parts of the upper, with the result that the entire upper is very tightly and effectively stretched over the last without any liability of injuring the upper during this operation. The lasting having been completed (which can be performed with much expedition as it depends only upon the depression of the pedal C^2) the edges e of the upper can be secured to the insole E in any appropriate manner. In the example of the machine illustrated the said edges of the upper are intended to be secured to the insole by an adhesive substance which is applied after the above stated lasting operation has been effected.

For turning in the edges of the upper, the wiper blades F F are moved from the position shown in Fig. 4 to the position shown in Fig. 5, which movement has the effect of pressing the edges of the upper inwardly all around the insole and at the same time of also pressing said edges in close contact therewith so that the attachment of the edges is effectually performed by the adhesive substance. The said blades F are connected to each other by the hinge joint f and one of them has a prolongation by which the said blades are connected to the machine by the pivot f^1 ; they are furnished with handles f^2 for operating them. By providing the two pivots f f^1 the attendant is able to give the blades a certain amount of movement lengthwise of the last during the movement of the said blades toward each other, which enables the entire edge of the upper to be pressed inward as aforesaid. The blades are

also so situated that they have to be slightly raised against the resistance of their natural resiliency to bring them upon the surface of the insole, so that they will of themselves bear upon the edges of the upper as they turn the same inward; they will thus aid in pressing the edges firmly upon the insole. For acting upon the edge of the upper adjacent to the heel the said blades may be formed with slight downward flanges f^3 . This turning in operation having been completed the blades are separated and the last and its upper permitted to regain their original position shown in Fig. 1, by releasing the pedal c^2 , whereupon the last is detached from the rod c^1 and removed from the machine.

We wish it to be understood that the edges of the upper may be turned outward instead of inward if a welt sole is employed. If an outer sole is to be applied to the insole while the last is in the machine, that operation may be effected by placing the outer sole E^1 in the depression h of the presser bar H , which is hinged at h^1 to the machine, and bringing the said presser bar down upon the last after the edges of the upper have been turned and attached to the insole by the aforesaid action of the hinged wiper blades. The depression h of said presser bar by being so situated as to register with the last, will apply said outer sole truly to the insole by the mere downward movement of the presser bar. It will be understood however that the use of this presser bar may be dispensed with if desired.

The aforesaid resilient die or matrix may be adapted to be readily detached from the machine and replaced by another bearing a different contour or shape to suit lasts of different sizes or forms. For this purpose we may make the said frame b b^1 as shown by Fig. 8 in which the under frame b^1 has a dovetail b^2 for engaging with a corresponding groove in the standard A^1 ; or the said frames may be made as shown by Fig. 9 and be secured in place in the machine by means of screws or other means for enabling the frame to be readily detached when desired. In some cases we may employ pneumatic cushions in place of the india rubber sheets or membranes; indeed we do not confine ourselves to any specific mode of forming the resilient die or matrix so long as it will operate on the upper in the above stated resilient manner when the last is forced to enter the die or matrix as aforesaid.

What we claim and desire to secure by Letters Patent of the United States is:—

1. In a boot and shoe lasting machine, the combination with the last, of a frame conforming more or less to the contour of the last, a normally flat or approximately flat sheet of resilient material carried by said frame and formed with a cavity for the reception of the ankle of the last, and means

for causing the sheet of resilient material to be stretched over the upper carried by the last.

2. In a boot and shoe lasting machine, the combination with the last, of a frame conforming more or less to the contour of the last, a normally flat or approximately flat sheet of resilient material carried by the said frame and formed with a cavity for the reception of the ankle of the last, and means for causing relative movement between the sheet and the last with its upper.

3. In a boot and shoe lasting machine, the combination with the last, of a frame conforming more or less to the contour of the last, a normally flat or approximately flat sheet of resilient material carried by said frame and formed with a cavity for the reception of the ankle of the last, means for causing relative movement between the sheet and the last with its upper, and means for enabling one frame with its resilient sheet to be substituted by another of different shape or size for the purpose specified.

4. In a boot and shoe lasting machine, the combination with the last, of a frame conforming more or less to the contour of the last, a normally flat or approximately flat resilient divided sheet carried by said frame and formed with an opening for the reception of the ankle of the last, and means for causing relative movement between the die and the last with its upper for the purpose specified.

5. In a boot and shoe lasting machine, the combination with the last, of a frame conforming more or less to the contour of the last, a normally flat or approximately flat resilient transversely divided sheet carried by said frame and formed with an opening for the reception of the ankle of the last, and means for causing relative movement between the die and the last with its upper for the purpose specified.

6. In a boot and shoe lasting machine, the combination with the last, of a frame conforming more or less to the contour of the last, a normally flat or approximately flat resilient sheet carried by said frame and formed with an opening for the reception of the ankle of the last, an internal resilient projection on said frame situated adjacent to the part of the frame that conforms to the waist of the last, and means for causing relative movement between the die and the last with its upper for the purpose specified.

7. In a boot and shoe lasting machine, the combination with the last, of a frame conforming more or less to the contour of the last, means for detachably connecting said frame to the machine, a normally flat or approximately flat resilient sheet carried by said frame and formed with an opening for the reception of the ankle of the last, and means for causing relative movement be-

tween the die and the last with its upper for the purpose specified.

8. In a boot and shoe lasting machine, the combination with the last, of a double frame conforming more or less to the contour of the last, means for detachably connecting one member of said frame to the other, means for detachably connecting one member of said frame to the machine, a normally flat or approximately flat resilient sheet clamped at its edges between said frame-members and formed with a cavity for the reception of the ankle of the last, and means for causing relative movement between the die and the last for the purpose specified.

9. In a boot and shoe lasting machine, the combination with the last, of a double frame conforming more or less to the contour of the last, means for detachably connecting one member of said frame to the other, dovetail projections on the under one of said members, the machine having grooves therein with which said projections are adapted to engage, a resilient sheet clamped at its edges between said frame members and formed with a cavity for the reception of the ankle of the last, and means for causing relative movement between the die and the last for the purpose specified.

10. In a boot and shoe lasting machine, the combination, with the last, of a double frame conforming more or less to the contour of the last, means for detachably connecting one member of said frame to the other, dovetail projections on the under one of said members, the machine having grooves therein with which the said projections are adapted to engage, a normally flat or approximately flat resilient sheet clamped at its edges between said frame-members and formed with a cavity for the reception of the ankle of the last, and means for causing relative movement between the said sheet and the last for the purpose specified.

11. In a boot and shoe lasting machine, the combination, with the last, of a die or matrix comprising a normally flat or approximately flat sheet of resilient material formed with a cavity for the reception of the ankle of the last and carried by the framing of the machine, and means for causing said last to enter the die against the resistance of the latter for the purpose specified.

12. In a boot and shoe lasting machine, the combination with the last, of a die or matrix comprising a normally flat or approximately flat sheet of resilient material, a frame carrying said die, a pedal hinged to the lower part of the said frame; and means for connecting said pedal with the last for the purpose specified.

13. In a boot and shoe lasting machine, the combination with the last, of a die or matrix comprising a normally flat or approximately flat sheet of resilient material, a

frame carrying said die, a spring controlled pedal hinged to the lower part of the said frame, and a readily detachable hinged rod connecting said pedal with the last for the purpose specified.

14. In a boot and shoe lasting machine, the combination with the last, of a die or matrix comprising a normally flat or approximately flat sheet of resilient material, a frame carrying said die, a spring controlled pedal hinged to the lower part of the said frame, an eye on the last and a hinged rod connected with said pedal and means for readily detaching the upper end of said rod from the said eye, substantially as and for the purpose specified.

15. In a boot and shoe lasting machine, the combination, with the last, of a die or matrix comprising a normally flat or approximately flat sheet of resilient material formed with a cavity for the reception of the ankle of the last, a framing carrying the die, means for causing said last to enter the die against the resistance of the latter and means for guiding the last during that operation for the purpose specified.

16. In a boot and shoe lasting machine, the combination with the last, of a die or matrix comprising a normally flat or approximately flat sheet of resilient material, a frame carrying the die, means for causing said last to enter the die against the resistance of the latter, and a guide piece adapted to engage the last during that operation for the purpose specified.

17. In a boot and shoe lasting machine, the combination with the last, of a die or matrix comprising a normally flat or approximately flat sheet of resilient material, means for causing relative movement between those parts to force the last into the die, means for guiding the last during that operation, and means whereby the edge of the upper can be turned and pressed down while said last remains thus forced into the die for the purpose specified.

18. In a boot and shoe lasting machine, the combination with the last, of a die or matrix comprising a normally flat or approximately flat sheet of resilient material, means for causing relative movement between these parts to force the last into the die, means for guiding the last during that operation, and a pair of blades connected with the machine at a point to permit of their movement across the surface of the last-sole, for the purpose specified.

19. In a boot and shoe lasting machine, the combination with the last, of a die or matrix comprising a normally flat or approximately flat sheet of resilient material, means for causing relative movement between these parts to force the last into the die, means for guiding the last during that operation, and a pair of flexible blades con-

nected with the machine at a point to permit of their movement across the surface of the last-sole for the purpose specified.

20. In a boot and shoe lasting machine, the combination with the last, of a die or matrix comprising a sheet of resilient material, means for causing relative movement between these parts to force the last into the die, a pair of flexible metal blades hinged together at one end, a prolongation on one of said blades pivotally connected with the machine at a point to permit of the blades' movement across the surface of the last-sole and handles at the free ends of said blades to enable them to be actuated substantially as and for the purpose specified.

21. In a boot and shoe lasting machine, the combination with the last, of a die or matrix comprising a normally flat or approximately flat sheet of resilient material, means for causing relative movement between these parts to force the last into the die, a pair of flexible metal blades hinged together at one end, a prolongation on one of said blades pivotally connected with the machine at a point to permit of the blades' movement across the surface of the last-sole and handles at the free ends of said blades to enable them to be actuated substantially as and for the purpose specified.

22. In a boot and shoe lasting machine, the combination, with the last, of a die or matrix comprising a normally flat or approximately flat sheet of resilient material, means for causing the relative movement between these parts to force the last into the die, means for guiding the last during that operation, means whereby the edge of the upper can be turned and pressed inwardly upon the last-sole while said last remains thus forced into the die and means whereby this turning and priming operation causes the edge of the upper to be applied to the last-sole substantially as and for the purpose specified.

23. In a boot and shoe lasting machine, the combination with the last, of a die or matrix comprising a normally flat or approximately flat sheet of resilient material, means for causing relative movement between these parts to force the last into the die, means whereby the edge of the upper can be turned and pressed inwardly upon the last-sole while the last remains thus forced into the die, means for attaching the said edges to the last-sole and means for applying the outer-sole to said last sole for the purpose specified.

In testimony whereof we affix our signatures in presence of two witnesses.

JOSHUA COOKSON WRIGHT.

BENJAMIN WRIGHT.

Witnesses:

WM. MELLORSH JACKSON,
T. SEELY WARDLE.