

(No Model.)

3 Sheets—Sheet 1.

N. & G. GODDU.

SEWING MACHINE FOR LASTING BOOTS OR SHOES.

No. 592,702.

Patented Oct. 26, 1897.

Fig. 1^a.

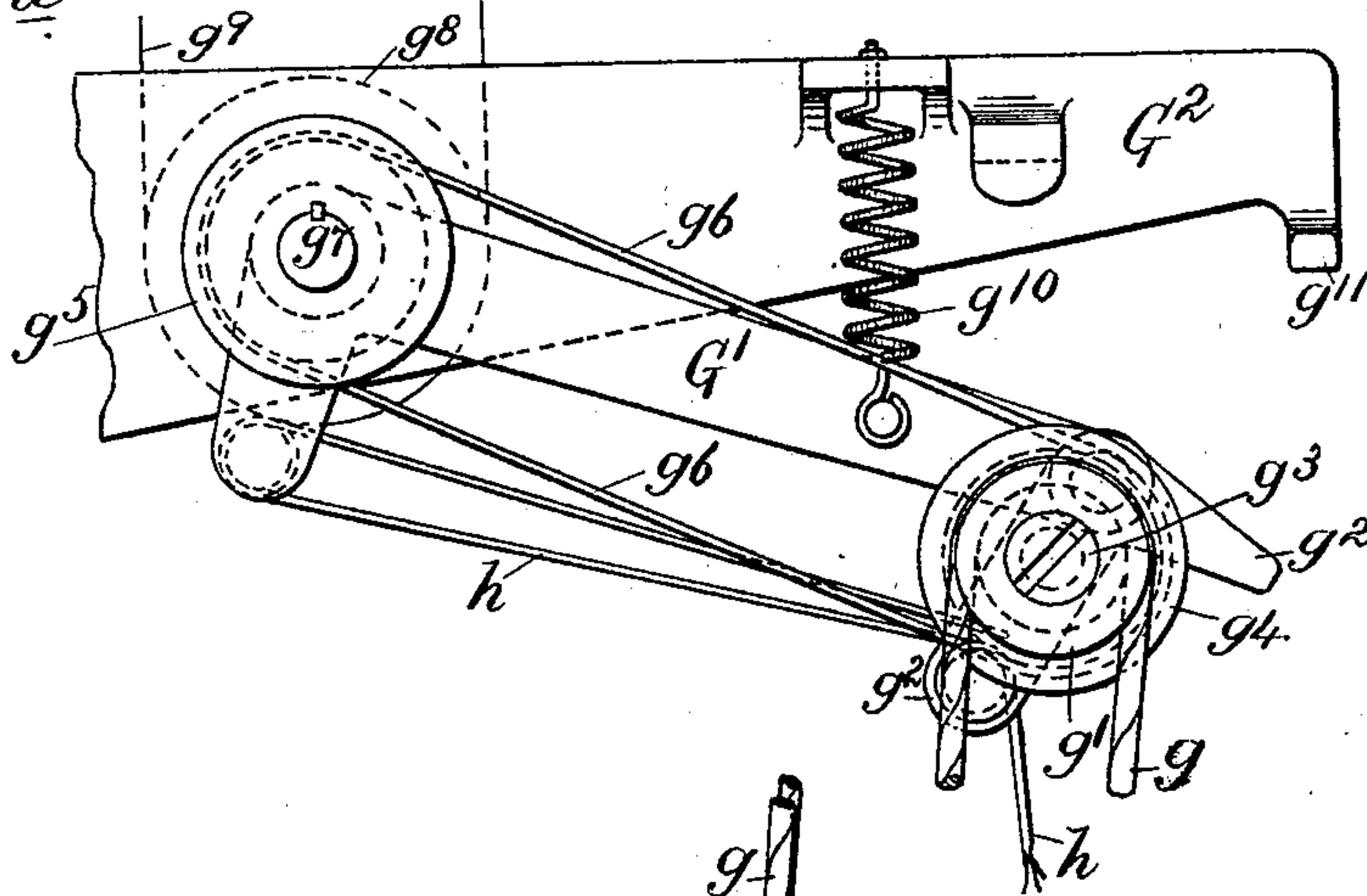
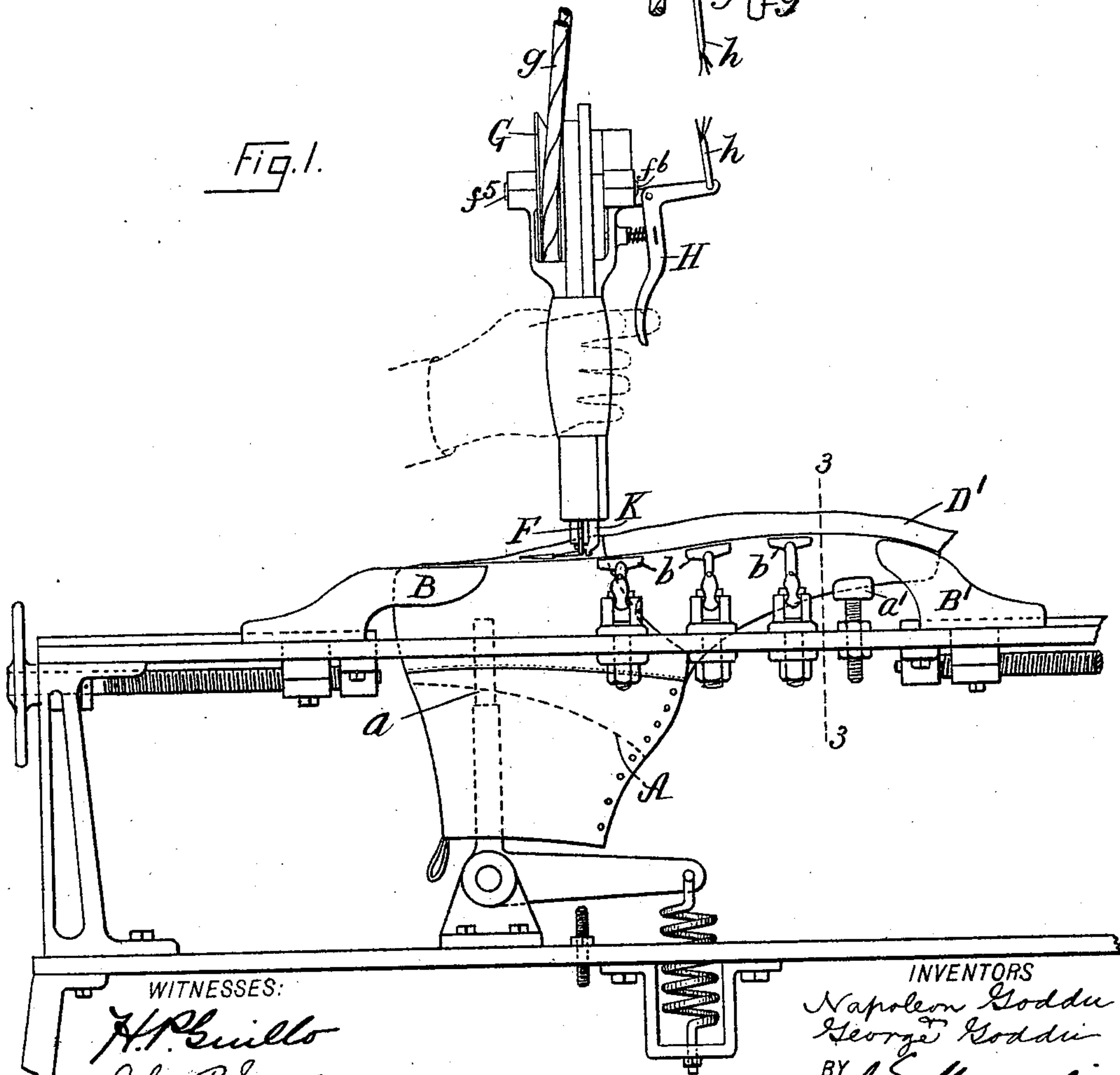


Fig. 1.



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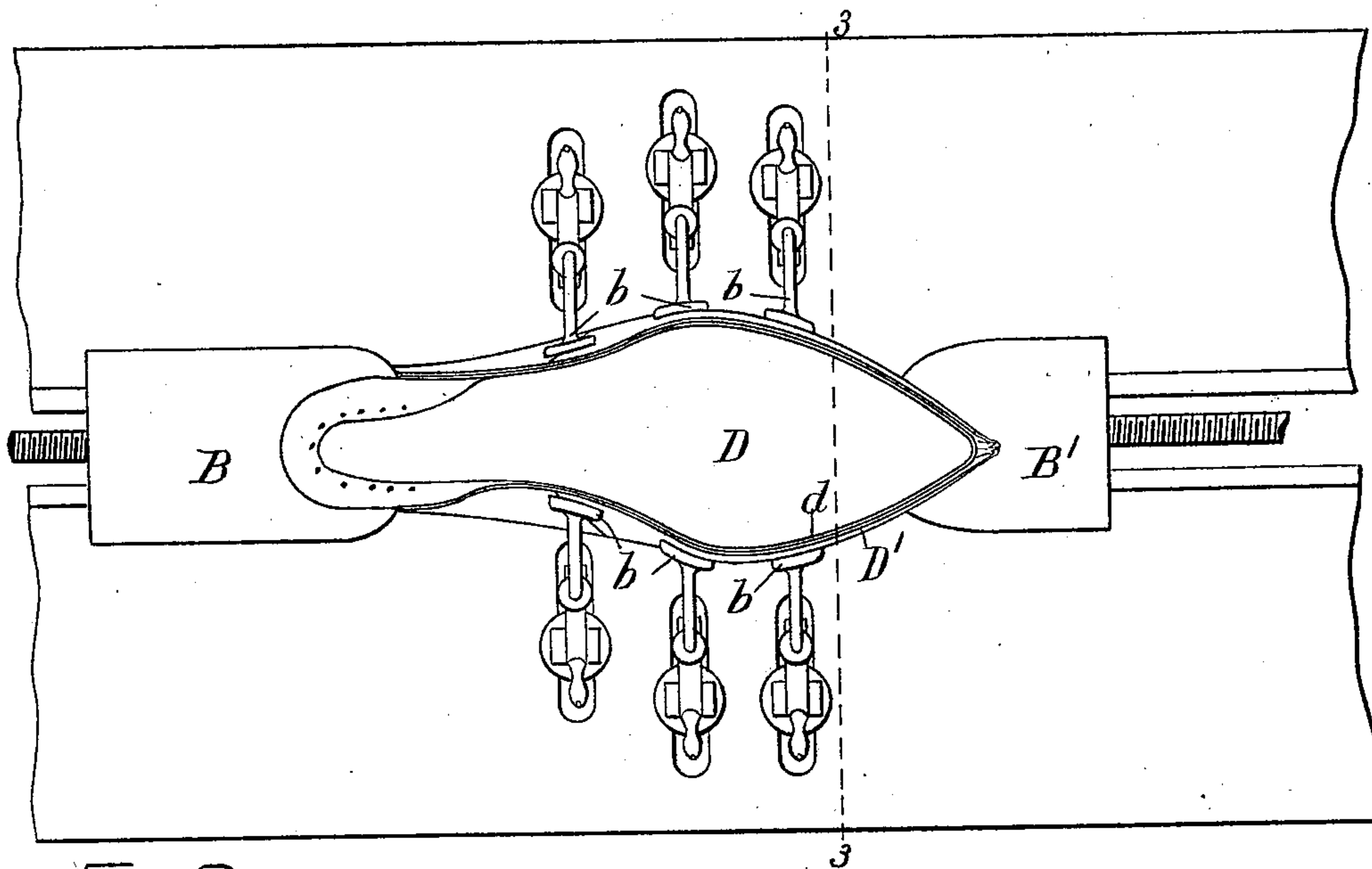


Fig. 2.

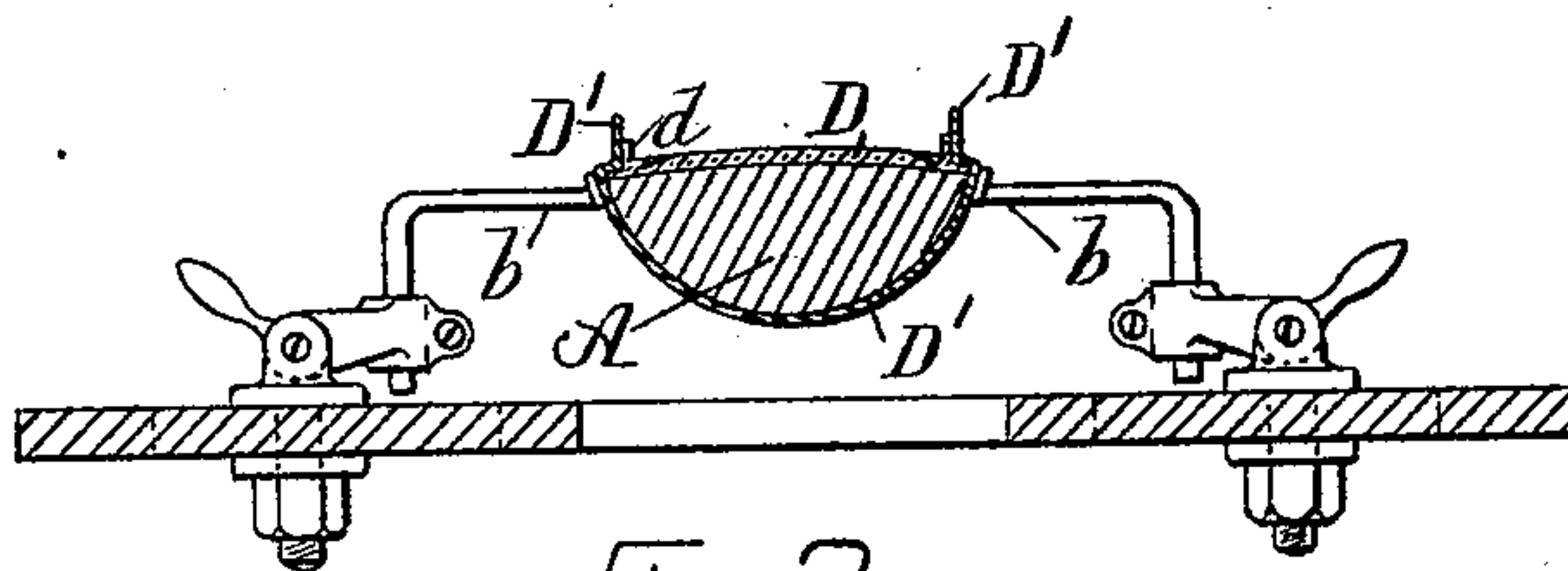


Fig. 3.

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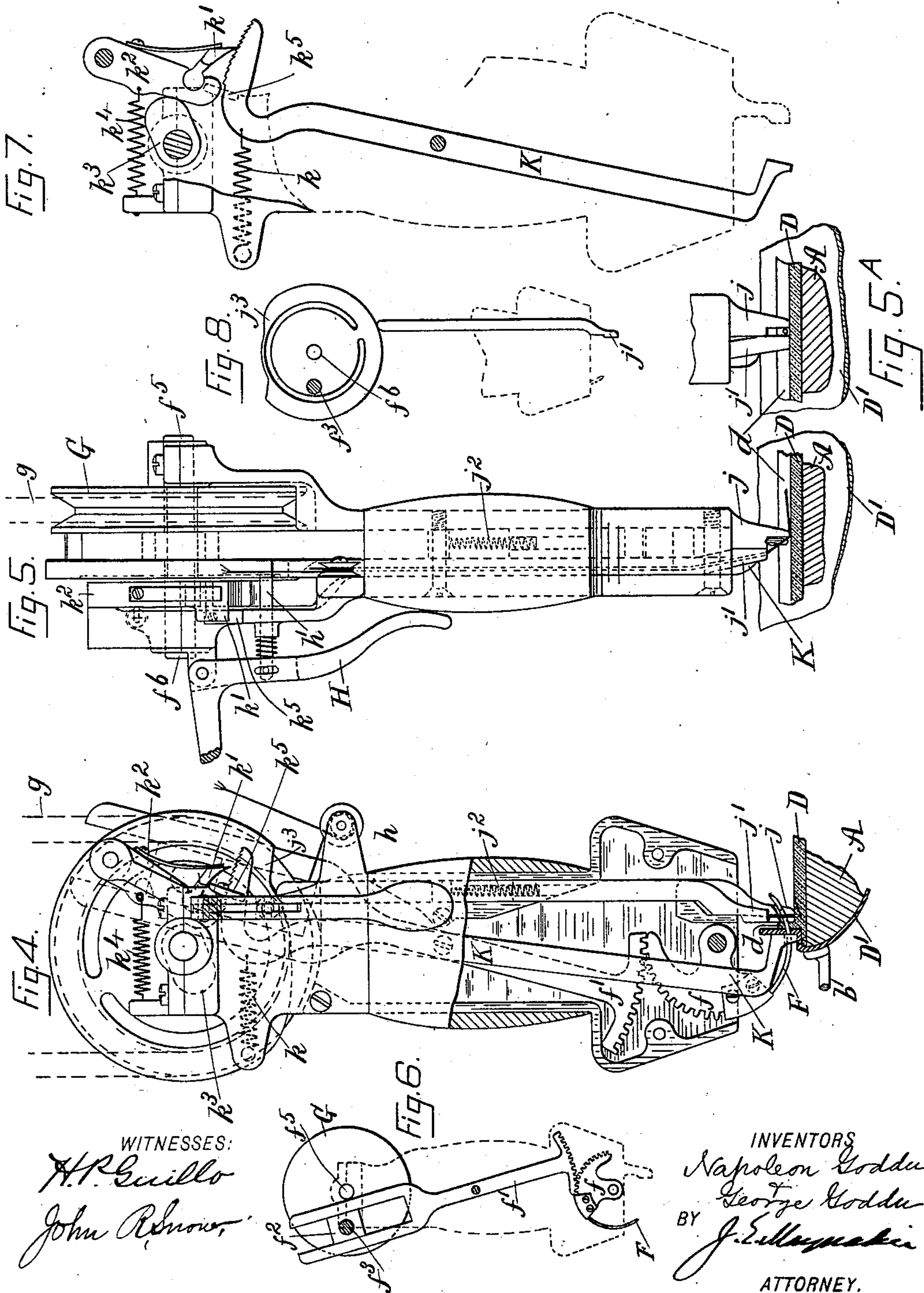
3 Sheets—Sheet 3.

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SEWING MACHINE FOR LASTING BOOTS OR SHOES.

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Patented Oct. 26, 1897.



UNITED STATES PATENT OFFICE.

NAPOLEON GODDU AND GEORGE GODDU, OF WINCHESTER, MASSACHUSETTS.

SEWING-MACHINE FOR LASTING BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 592,702, dated October 26, 1897.

Application filed July 27, 1895. Serial No. 557,326. (No model.)

To all whom it may concern:

Be it known that we, NAPOLEON GODDU and GEORGE GODDU, of Winchester, in the county of Middlesex and State of Massachusetts, have invented a new and useful Sewing-Machine for Lasting Boots or Shoes, of which the following is a specification, reference being had to the accompanying drawings, in which—

10 Figure 1 is an elevation showing a sewing-machine and a portion of a lasting-machine embodying our invention, Fig. 1^a showing in elevation the mechanism for suspending and driving the sewing-machine. Fig. 2 is a plan 15 showing a shoe and the clamps or pressers as seen in elevation in the lower part of Fig. 1 and ready for the operation of the sewing-machine. Fig. 3 is a section on line 3 3 of Figs. 1 and 2. Figs. 4, 5, 5^A, 6, 7, and 8 illustrate the preferred construction of the sewing-machine portion of our invention.

In the drawings we have shown the last A with the sole D and upper D' supported on a heel-pin *a* and toe-rest *a'* in the usual way, 25 the upper being clamped in proper relation with last A and sole D by the heel-presser B and toe-presser B' and shank and fore-part pressers *b*, but we have not fully shown the details of our preferred form of lasting-machine proper—that is, a machine made up of 30 a support for the last A, sole D, and upper D' and pressers to clamp and hold the upper and sole in proper relation after they are fitted on the last—for the reason that any suitable means of holding the last, sole, and upper and applying the pressers will answer; but the pressers must be substantially such as are shown in order that they may serve as the work-holder of a sewing-machine. The 40 sole D has a lip *d* about its shank and fore part, as usual, and the upper D' is sewed to the lip *d*, while the upper and sole are held in proper relation by the pressers, the sewing being done, preferably, by a sewing-machine which is moved along the lip *d* from 45 the shank on one side about the fore part to the shank on the other side.

So far as we have any reason to believe we are the first to invent a sewing-machine 50 adapted for this work, and we have therefore

shown not only our combined lasting and sewing machine in Fig. 1, but have also fully illustrated the construction of our sewing-machine in Figs. 4, 5, 5^A, 6, 7, and 8, in which the hook-needle F is mounted on its segmental carrier *f*, which is oscillated by segmental 55 lever *f'*, forked at its upper end to receive the box *f*² of the wrist-pin *f*³, which is fast to pulley G on main shaft *f*⁵, as will be clear from Fig. 6, which shows these parts with 60 other parts obscuring them removed or merely indicated.

Main shaft *f*⁵ is driven by pulley G, which is connected by belt *g* with pulley *g'*, and pulley *g'* is carried by lever *g*² at the end of 65 arm G'. The stud *g*³ of pulley *g'* is also the stud of pulley *g*⁴, which is driven by pulley *g*⁵ and belt *g*⁶, pulleys *g'* and *g*⁴ being one piece and pulley *g*⁵ being fast to shaft *g*⁷ of 70 of pulley *g*⁸, which is driven by belt *g*⁹, as indicated in Fig 1^a. The spring *g*¹⁰ holds arm G' up to bracket G², so that the end of lever *g*² comes in contact with its stop *g*¹¹ on bracket G², and belt *g*⁶ is thereby slacked as stud *g*³ 75 moves nearer shaft *g*⁷ when lever *g*² is swung on its fulcrum at the end of arm G'; but when the sewing-machine is grasped by the operator and pulled down for operation, as indicated in Fig. 1, belt *g* is drawn tight and acts 80 through lever *g*² to tighten belt *g*⁶.

In case the operator desires to stop the motion of the needle when the sewing-machine is in its operating position, as in Fig. 1, he pulls on the finger-lever H and thereby swings 85 the lower end of lever *g*² inward through cord *h* and thus slackens belt *g*⁶. The stop *h'* enters the groove in the face of cam *j*³ when the finger-lever H is depressed and stops the sewing-machine with the needle back or out of 90 the work. (See Figs. 4, 5, and 8.)

The sewing-machine terminates in the guide *j* and the looper *j'*, which in one position supplements the guide *j*, for both *j* and *j'* rest upon the surface of sole D, while the needle penetrates the upper D' and lip *d*, the two 95 then acting as a single guide-foot and also as a support for the upper and lip against the thrust of the needle, the looper *j* also keeping the thread close to the surface of the sole, so that the needle is sure to pass over 100

the thread, and after the needle has penetrated the upper and lip the looper j' is lifted by its spring j^2 , threading the hook-needle, which is then withdrawn, and the looper j' is then depressed by its cam j^3 . The cam j^3 is on shaft f^6 , in line with shaft f^5 , and the wrist-pin f^3 extends through cam j^3 and compels cam j^3 and shaft f^6 to rotate with pulley G and shaft f^5 . (See Figs. 4, 5, and 8.)

The upper D' and lip d are clamped between the side of foot j and the work-clamp at the lower end of lever K, which is thrown forward to clamp the work by the spring k and moved away from the work by the pawl k' , carried by the swinging arm k^2 . This arm k^2 is thrown forward by the wiper k^3 in order to make pawl k' engage with the ratchet on the upper end of lever K and thus swing lever K in a direction to move the work-clamp away from the work. As arm k^2 is moved back by its spring k^4 the pawl k' strikes the knock-off k^5 and is thereby freed from its ratchet in order to leave lever K under the influence of its spring k and cause it to clamp the work. The looper-foot, work-clamp, and their adjuncts are shown in Figs. 7 and 8 with other parts removed or indicated.

This sewing-machine is, as already stated, new with us, but forms the subject-matter of another application filed July 27, 1895, Serial No. 557,325, as our present invention does not relate to the construction of either the sewing-machine proper or the lasting-machine proper, but is a combined sewing and lasting machine adapted to hold the upper, sole, and last in proper relation by pressers or clamps coöperating with the last and to secure them by sewing while so held.

The operation is as follows: The operator ordinarily receives the upper, sole, and last from the helper, with the upper held at the toe and heel by a few tacks, and places the last on the heel-pin a and toe-rest a' and then fits the upper over the last and sole, pulling out the preliminary tacks, all in the usual manner, and temporarily securing the upper in proper relation to the lip d and to the last by the pressers $B B' b$, also tacking it about the heel, as usual, for it is not important to dispense with the tacks except at the shank and fore part, although, as will be obvious, our method of lasting may be used about the heel as well as about the shank and fore part, if the lip d be continued about the heel. When the edge of the upper has been brought into proper relation with the sole and clamped by the pressers and last, the sewing-machine is brought into place with the guide j and looper j' against the outer surface of the sole and close to lip d , and the operator causes the needle to pierce the upper and lip, moving the sewing-machine along and guiding it by the lip d and the sole to get the desired length and position of the stitch and stopping and starting it as required by the finger-lever H, as explained above, until he has sewed the upper to the lip about the shank and fore

part, or about shank, fore part, and heel, if that be desired.

We are aware that we are not the first to sew the upper to a lip on the sole, but we are the first, so far as we have any reason to believe, to adapt a last and a plurality of independent pressers each acting with the last, so that the last is the inner member and each of the pressers are outer members of a compound clamp for use as a work-holder of a sewing-machine; and this is the principle of our invention—namely, that the upper and sole are held with the edge of the upper close to the lip of the sole, ready for the operation of the sewing-machine proper, by a clamp or work-holder consisting of the last as the inner member and a plurality of independent pressers as the outer members of that clamp.

While the lip d on sole D and the upper D' have been sewed together while on the last A, no machine has been heretofore known adapted to hold the upper in proper relation to the last and the lip on the sole on all sides and sew the upper and lip together while the upper and lip are so held in proper relation each to the other and to the last on all sides.

For the best results the sewing-machine should itself be provided with an automatic work-clamp, as the lever K and the side of the foot $j j'$, for although the upper D' and lip d are held in proper relation one to the other by the pressers $B B' b$, which act as work-clamps, the last being the other member, yet the result is more satisfactory if the supplementary work-clamp be used on the sewing-machine, as that part of the upper D' and that part of lip d which are contiguous to the needle-hole are pressed more closely together when a stitch is made than they can be by the pressers $B B' b$.

The pressers $B B' b$ shown differ materially from any before known in the important respect that they do not overlap the edge of the last sufficiently to prevent the needle piercing the upper and lip d near the junction of lip d with the sole. Otherwise they are much the same as like parts well known in lasting-machines, but by our invention they are given the wholly new function as work-clamps for the sewing-machine, as above fully explained.

We are aware of the patent to Carey, No. 147,043, dated December 30, 1873, and disclaim all that is shown in it, for the work-holder in that machine has an interior clamp member which is necessarily hollow and the outer clamp member is a two-part mold which does not hold the upper in proper relation to the inner sole at the line of seam, but the upper is brought a little at a time into proper relation with the inner sole at the line of seam by the motion of the upper under a lip or flange. Moreover, the work-holder of Carey is neither designed nor adapted to hold the edge of the upper in any relation to a lip on the inner sole, but simply to fold the edge of the upper over the edge of the inner sole, so that the needle of the sewing-machine can

pass through the upper and the inner sole into the hollow last, which is an essential part of the work-holder of Carey.

We are also aware of the patent to McKay and Fairfield, No. 458,000, dated August 18, 1891, and disclaim all that is shown in it, for the work-holder there shown is neither designed nor adapted to hold the edge of the upper in any relation with a lip on the inner sole, nor capable of use with a sewing-machine which sews the edge of the upper to a lip on the inner sole; for the "closing-down devices" of that work-holder would be directly in the way of the needle of a sewing-machine for sewing the upper to a lip on the inner sole, and the solid last would prevent sewing through and through.

We are also aware that sewing the edge of the upper to a lip on the inner sole is not new; but we are the first to sew a shoe or anything else whose parts are held together by an interior clamp member, such as a last, and a plurality of independent exterior clamp members pressing the upper against the last on a line contiguous to the line of seam, and thereby holding the edge of the upper in proper relation to be sewed to a lip on the inner sole, the exterior clamp members not interfering with the operation of the sewing-machine because not in the way of the sewing-machine and the interior clamp member not interfering with

that operation because the needle is curved and does not penetrate the inner surface of the shoe.

What we claim as our invention is—

1. A machine for lasting by sewing, made up of a sewing-machine, and its work-holder composed of a last as the inner clamping member and a plurality of independent pressers on all sides of the last, as the outer clamping members, organized to hold the edge of the upper and a lip on the inner sole in position to be sewed together by the sewing-machine, substantially as described.

2. In combination a lasting-machine comprising a support for the last, and independent pressers to hold the upper in place on the last with the edge of the upper in position to be sewed to a lip on the inner sole; a sewing-machine; and means for supporting and actuating the sewing-machine which permit it to be moved into all the positions necessary to sew the upper to the lip on the inner sole while held in the lasting-machine by the last as the inner clamping member and the pressers as the outer clamping members; all organized to operate substantially as described.

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Witnesses:

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