

(No Model.)

2 Sheets—Sheet 1.

F. F. RAYMOND, 2d.

PROCESS OF ATTACHING HEELS TO THE SOLES OF BOOTS OR SHOES.

Nq. 355,556.

Patented Jan. 4, 1887.

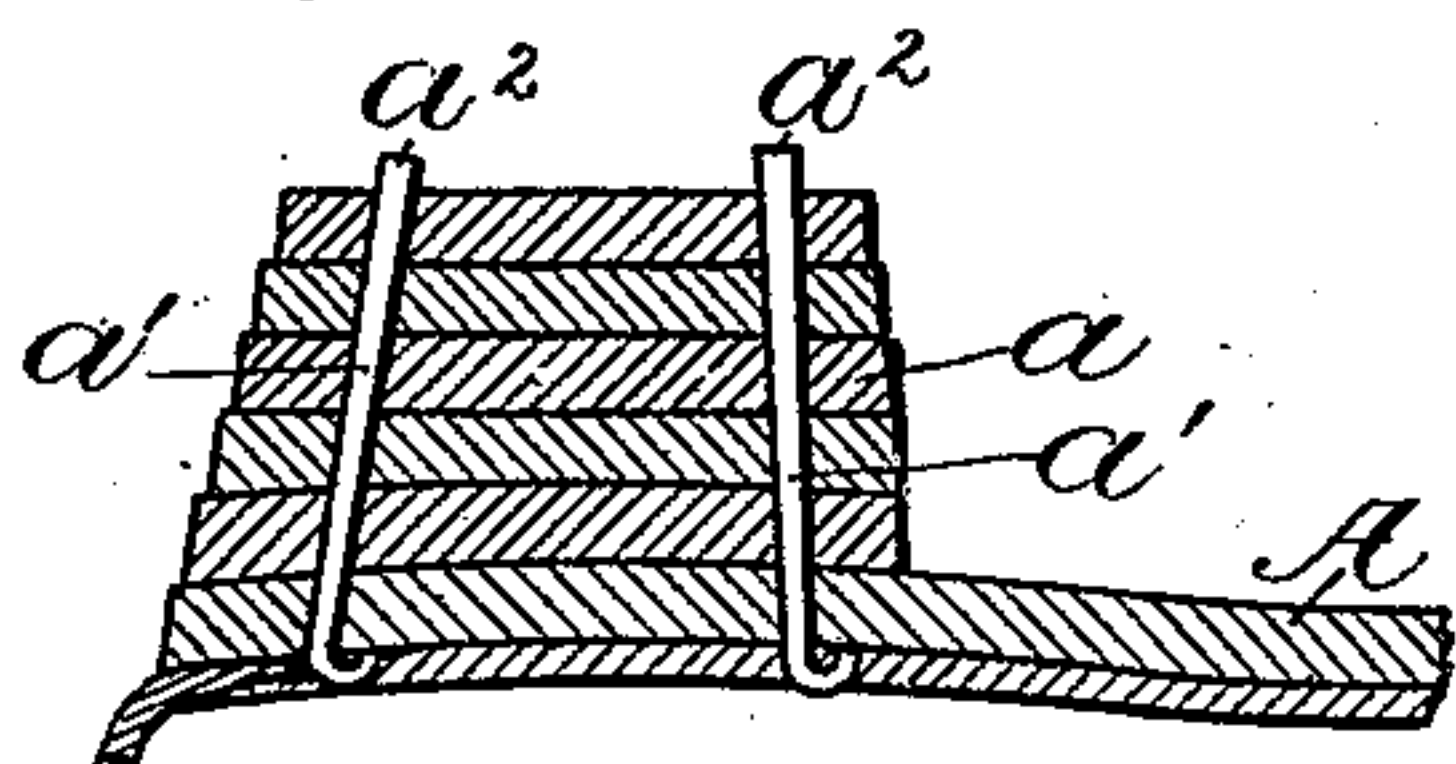


Fig. 1.

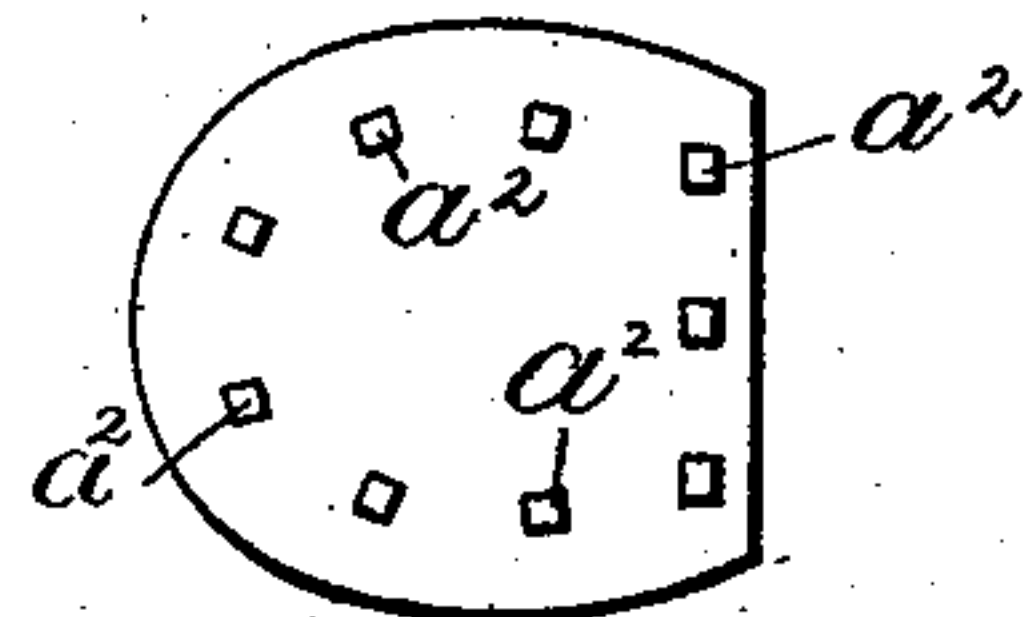


Fig. 2.

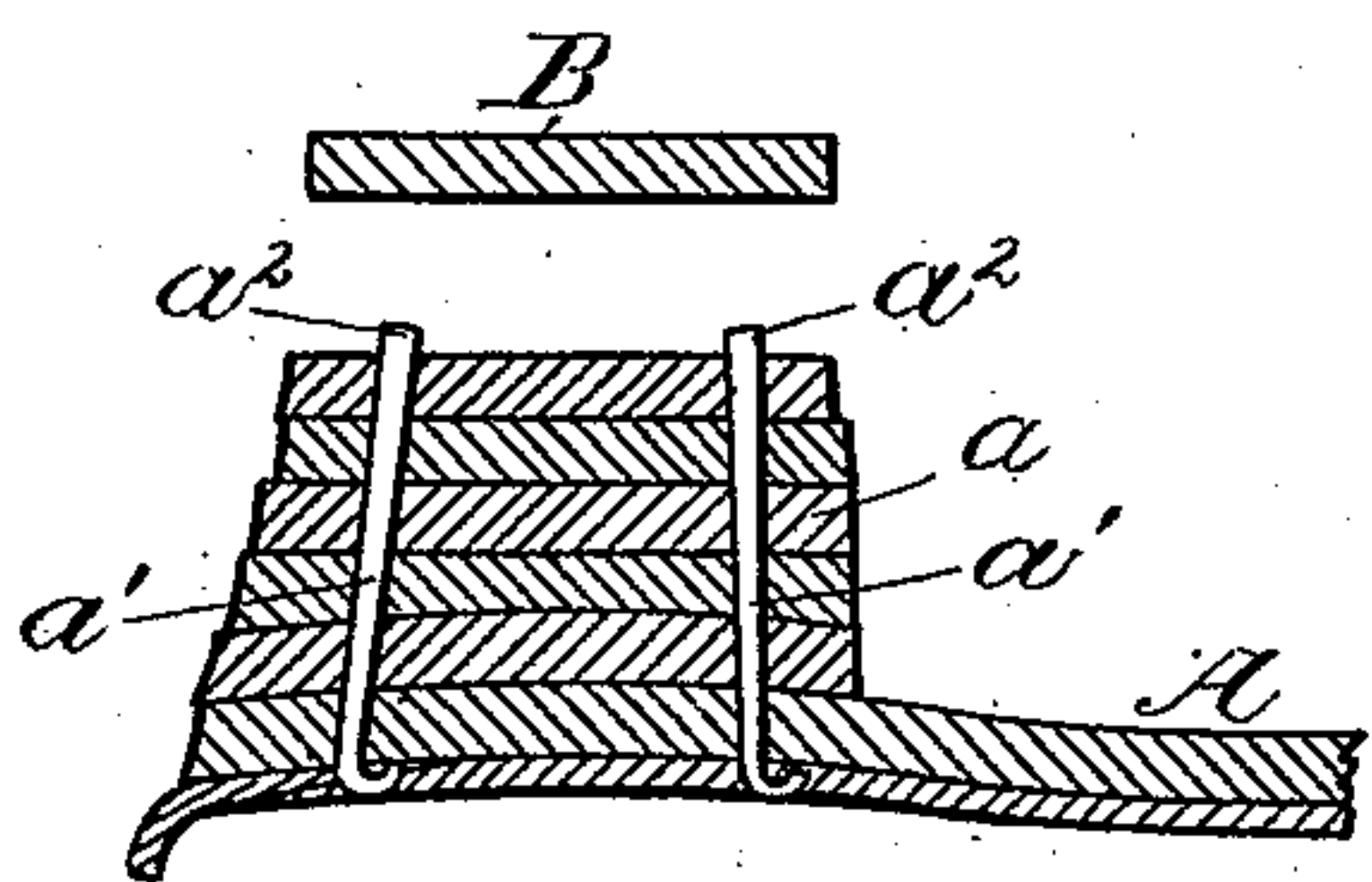


Fig. 3.

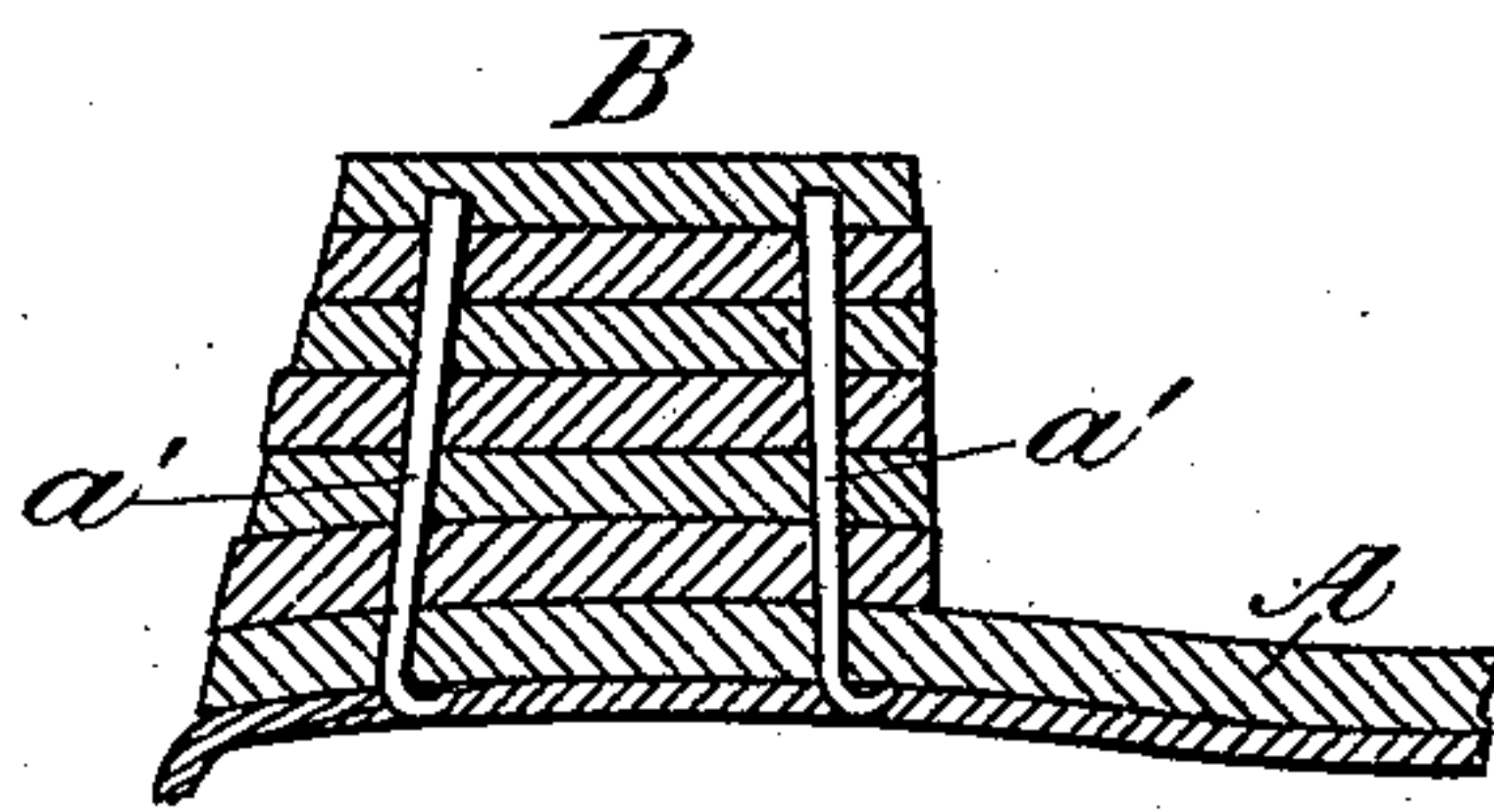


Fig. 4.

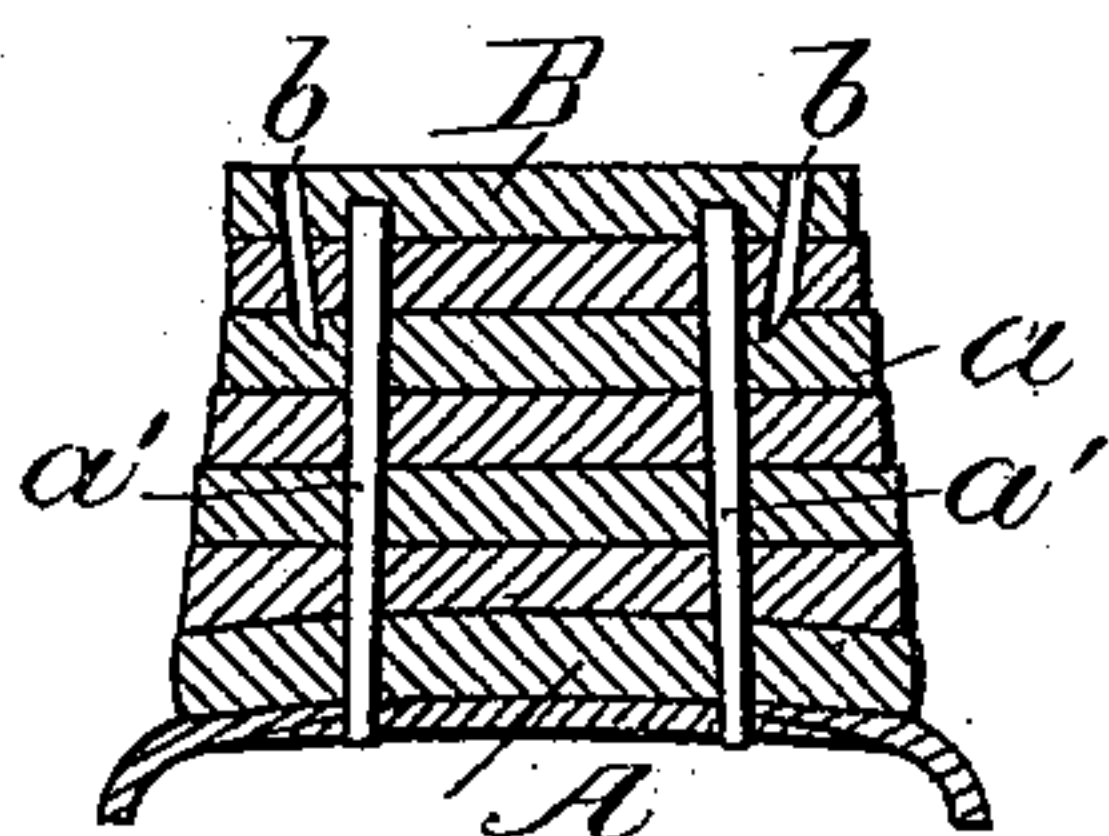


Fig. 5.

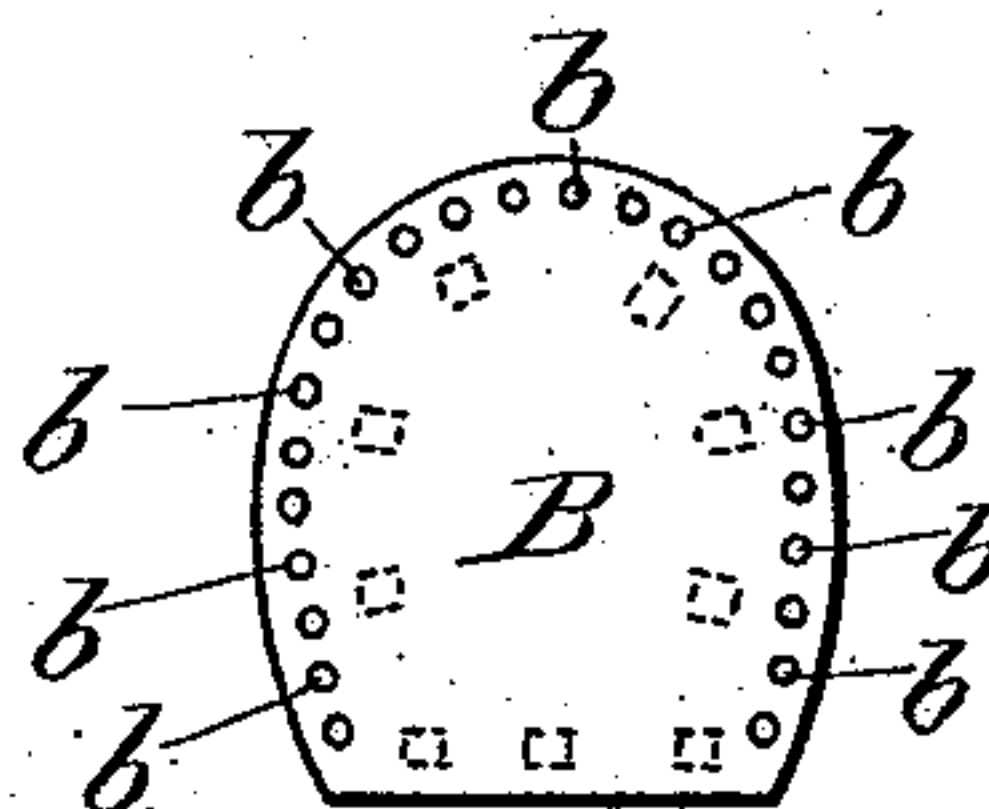


Fig. 6.

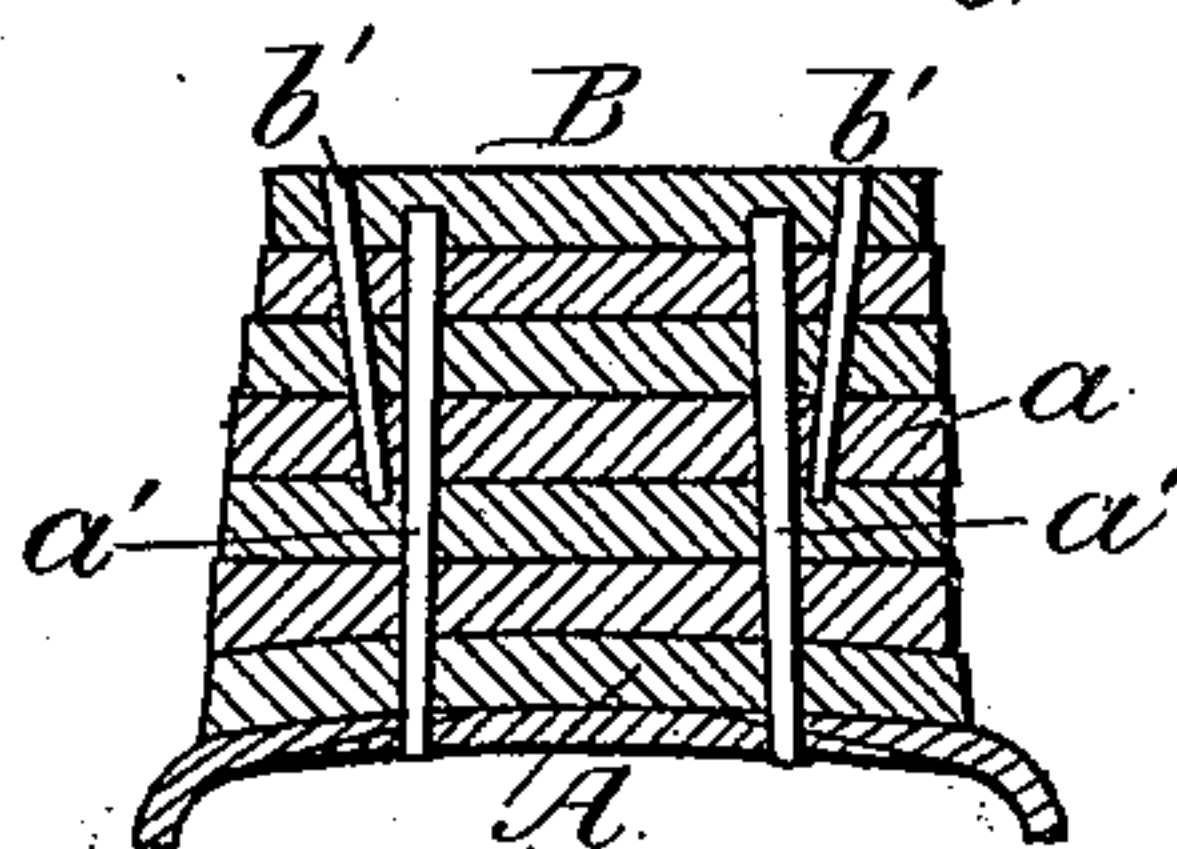


Fig. 7.

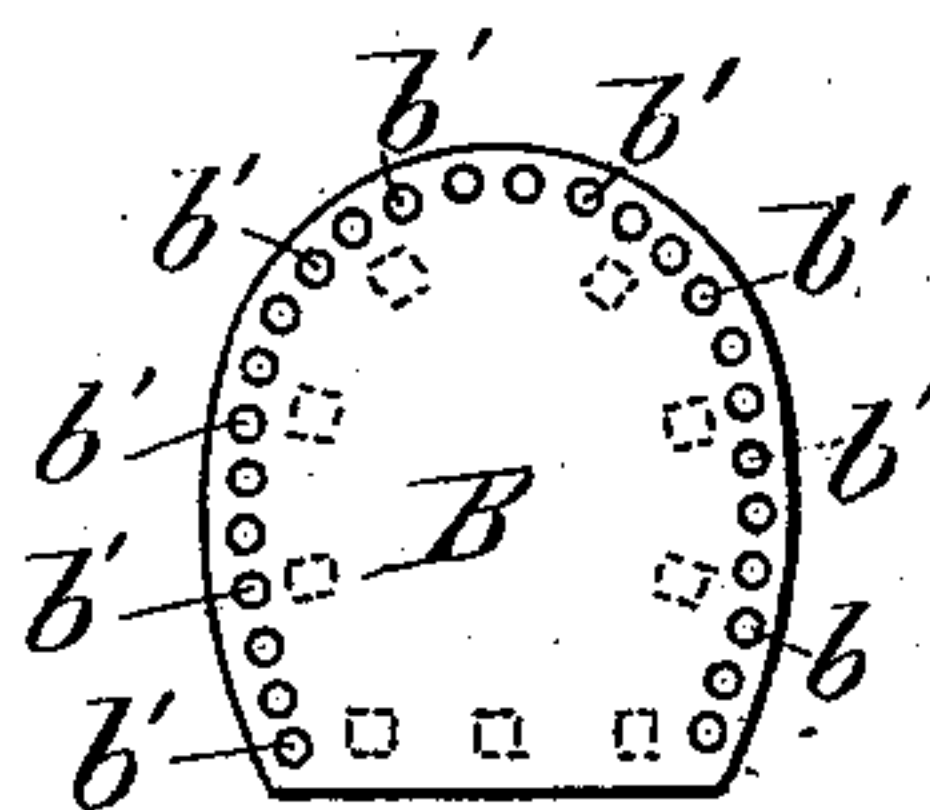


Fig. 8.

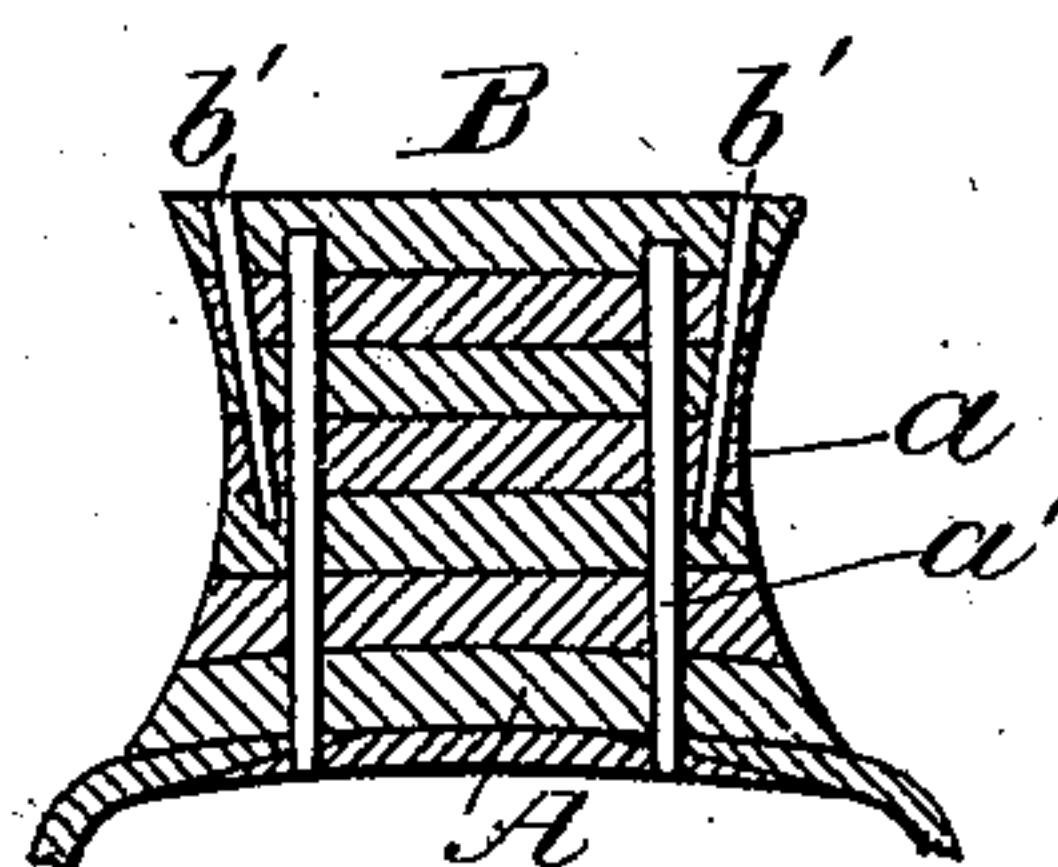


Fig. 9.

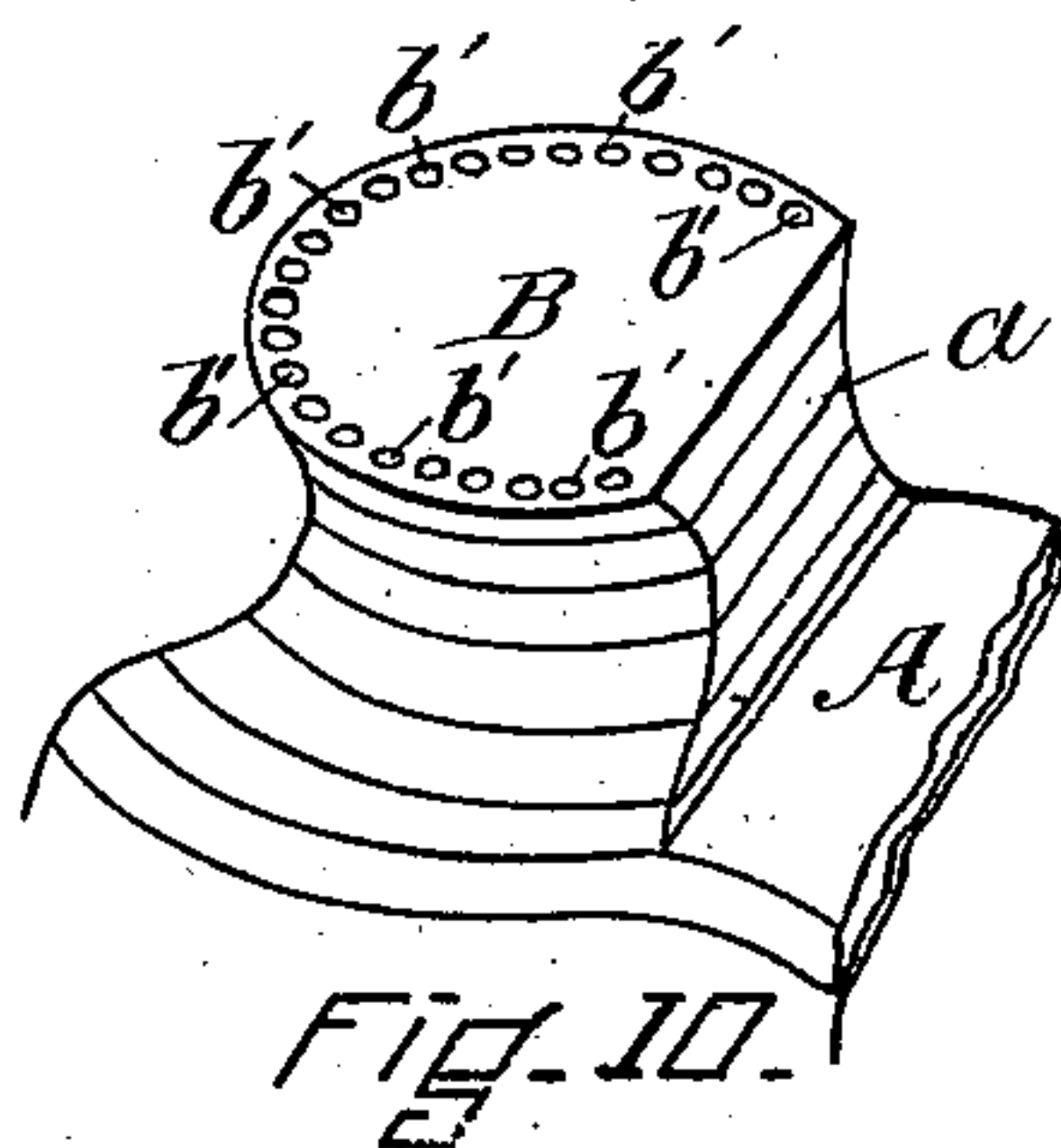


Fig. 10.

WITNESSES

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(No Model.)

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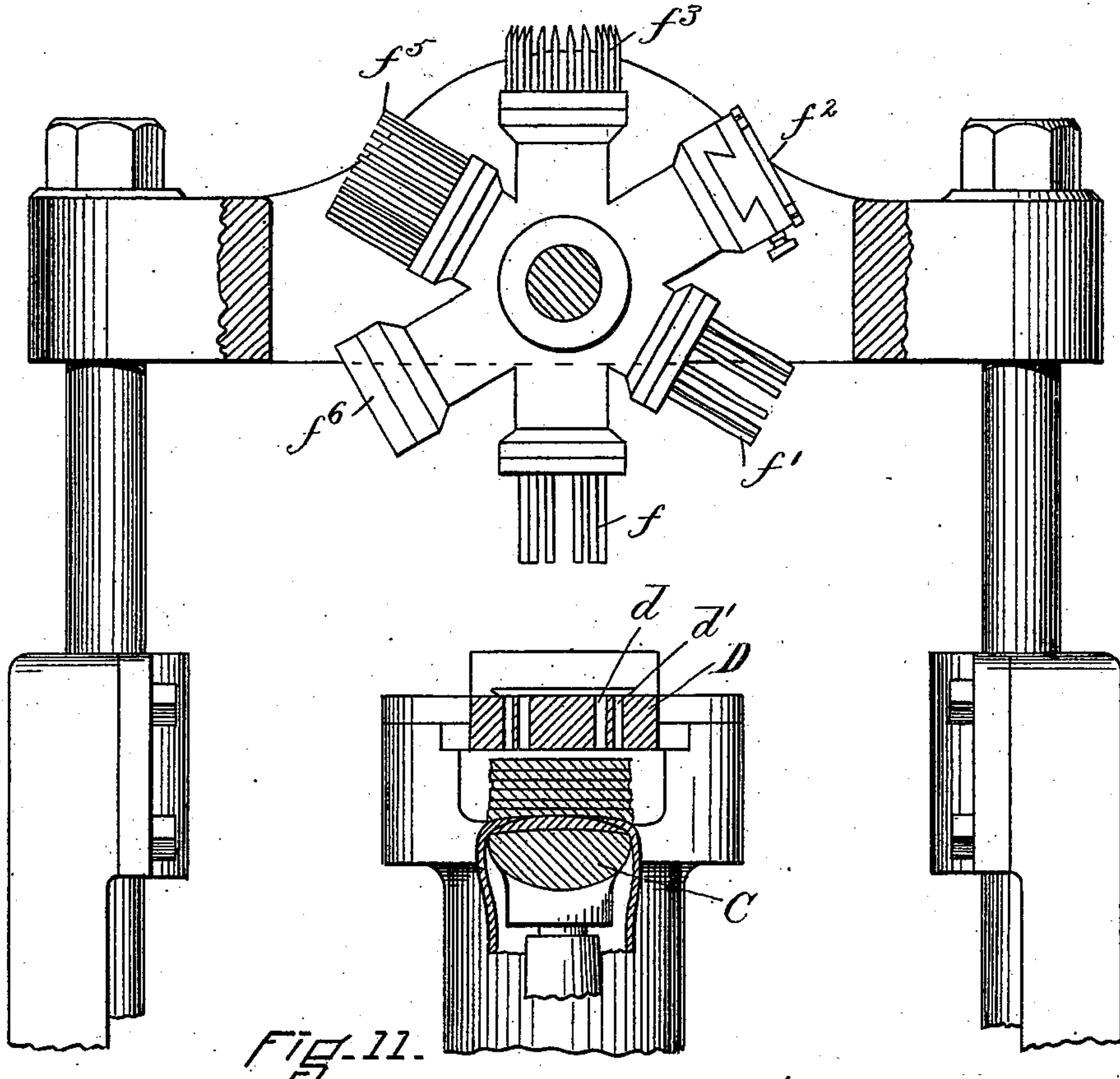


Fig. 11.

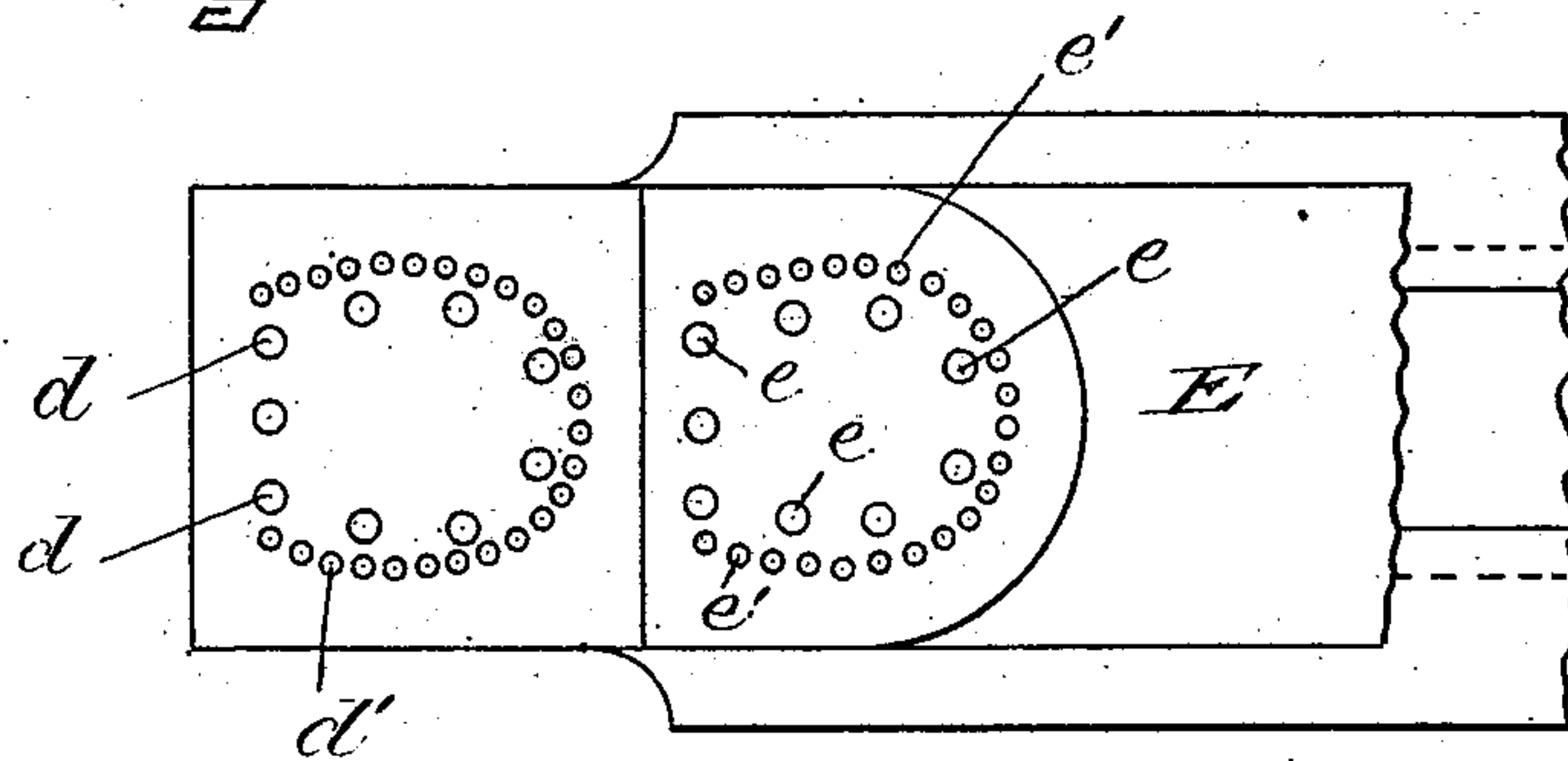


Fig. 12.

WITNESSES

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UNITED STATES PATENT OFFICE.

FREEBORN F. RAYMOND, 2D, OF NEWTON, MASSACHUSETTS.

PROCESS OF ATTACHING HEELS TO THE SOLES OF BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 355,556, dated January 4, 1887.

Application filed October 8, 1886. Serial No. 215,658. (No model.)

To all whom it may concern:

Be it known that I, FREEBORN F. RAYMOND, 2d, of Newton, in the county of Middlesex and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in the Process of Attaching Heels to the Soles of Boots or Shoes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates to a process of attaching heels to the soles of boots and shoes, comprising the following steps: first, the attachment of the heel-blank to the sole of a boot or shoe by a gang or group of attaching-nails simultaneously driven, and so as to leave their heads projecting from the exposed surface of the blank; second, in applying a top lift which has previously been cut to an exact or finished shape to the heel-blank and the extending butts of the attaching-nails; third, in forming simultaneously in the heel a line of holes placed closely together and close to the edge of the top lift, and inclined inward from the surface of the top lift; fourth, in driving a gang or group of small nails into said holes, which shall be caused by the inclination of said holes to be turned inward as they are driven, but which do not extend through the heel-blank; fifth, in the subsequent trimming or finishing of the attached heel.

This method of attaching a heel permits a line of nails to be driven very closely to the edge of the top lift, yet allows the heel to be undercut in trimming, and I am thereby enabled to obtain a very finely-finished heel, and to apply close nailing to ladies' wear and to undercut heels generally.

Referring to the drawings, Figure 1 is a section to illustrate the heel-blank attached and the attaching-nails thereof. Fig. 2 is a plan view of the attached heel-blank. Fig. 3 shows the attached heel-blank and the finished top lift in position over it before it is applied. Fig. 4 represents the finished top lift as attached to the heel-blank. Fig. 5 is a section showing the gang or group of holes formed close to the edge of the finished top lift and extending downwardly and inwardly into the finished blank. Fig. 6 is a plan view to show the relation of the holes to the edge of the fin-

ished top lift, and also their relation to the heel-blank-attaching nails. Fig. 7 is a section representing the gang or group of small nails driven into this exterior line of holes. Fig. 8 is a plan view thereof. Fig. 9 is a section to show the relation of the exterior gang of nails to an undercut trimmed edge of a heel. Fig. 10 is a view in perspective of a complete heel. Fig. 11 is a view, partly in vertical section and partly in elevation, of mechanism adapted to carry my method into effect. Fig. 12 is a plan view showing a templet and nail-holder for use in practicing my method.

In the drawings, A is the sole of the boot or shoe.

a is the heel-blank. It is placed upon the heel end of the sole and is compressed thereon. It is secured thereto by the attaching-nails a', which are driven through the blank into the sole of the boot or shoe with their ends or heads a² left projecting from the exposed surface of the heel-blank. But few of these attaching-nails are used, only a sufficient number to properly secure the heel-blank to the sole of the boot or shoe. They are simultaneously driven, and the driving mechanism for compressing the blank and driving these nails may be of such a character that the same arrangement or group of nails may be used for attaching blanks of a great variety of sizes in view of the outer and more accurate nailing referred to.

B is the top lift. It is cut or died to exact shape, and is applied to the heel-blank so as to bring it central in relation to the heel-seat of the boot or shoe. This stage of the process is represented in Fig. 4. There is then formed in the heel, close to the edge of the top lift, a gang or group of inclined holes, b. These holes are small in size and are short, not extending much beyond the second or third lift of the heel from the top lift, and they are all inclined inward to a greater or less extent, according to the finish of the heel edge—that is, according to the extent of the under-cut thereof.

The nails b' which are used are preferably round, although I do not confine myself to that especial shape, and they may or may not be headed. They are very small compared with the usual attaching-nails, and are not driven entirely through the heel into the sole, but are driven a little greater distance than the depth of the awl-holes. This produces a line of very

small nails having their heads exposed and placed closely to the edge of the finished top lift, and in regular order in relation thereto, so that the edge of the top lift and of the two or three lifts next in order are held firmly secured to each other, and checking is practically impossible, while a very neat and finished appearance is provided the heel, as well as an exposed wearing-surface of the metal.

By driving the nails as indicated—namely, in a gang or group of inclined holes—they can be placed very closely to the edge, and the heel subsequently trimmed straight and even undercut to a considerable extent without exposing the shanks of the nails; and this is of very material advantage, as it enables me to nail ladies', misses', and children's work, as well as the finer grades of men's work.

Of course in some instances the top lift can be attached to the heel-blank with the attaching-nails to the soles of the boot or shoe, in which case the attaching-nails are driven through the top lift.

I would say, further, that the attaching-nails may be driven flush with the surface of the heel-blank instead of being left projecting, as represented in Figs. 1, 3, and 4.

In practicing this method I prefer to use a last or work-support, C, a templet, D, having the line of large holes *d*, through which the attaching-nails *a'* are driven, and a line of small holes, *d'*, through which the outer line of small nails is driven. These holes may be inclined from the upper surface of the templet inward, but I prefer to use awls having long beveled eccentric points arranged in their holder to form holes in the heel-blank inclined inward.

E is the nail-holder. It has two lines of holes, *e e'*. The line of holes *e* receives the large attaching-nails, and the line of holes *e'* the smaller nails.

F is the gang of awls used for forming holes in the heel-blank for the attaching-nails.

F' is the gang or group of drivers for driving the attaching-nails.

F² is the top-lift holder.

F³ is the gang of awls for forming the inclined holes in the top lift and heel-blank.

F⁵ is the gang of drivers for driving the outer line of small nails.

F⁶ is a spanker for leveling the tread or surface of the heel after the small nails have been driven.

In practicing the method the heel-blank is placed upon the boot or shoe, and it is pricked for the reception of the attaching-nails, which are then fed by the nail-holder and driven. The top lift is then spanked, the heel pricked by the short awls, the shorter nails fed as a gang or group and driven, and, if desired, the complete heel spanked or leveled.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

The process of attaching heel-blanks and top lifts to the soles of boots and shoes, comprising, first, the attachment of the heel-blank to the soles of boots and shoes by attaching-nails driven through it into the soles of a boot or shoe; second, in locating or centering the finished top lift upon the heel-blank in proper relation to the heel-seat of the boot or shoe; third, in simultaneously forming in the heel a gang of small holes placed close to each other and to the edge of the finished top lift and inclined inward or from the edge of the heel; fourth, in simultaneously driving into said inclined holes a gang or group of small nails which are caused by the inclined holes to take an inclined direction as they are driven, substantially as and for the purposes described.

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Witnesses:

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