

(No Model.)

A. A. HAWLEY.

METHOD OF AND DEVICE FOR MAKING FELT BOOTS, SHOES, LEGGINS, &c.

No. 306,748.

Patented Oct. 21, 1884.

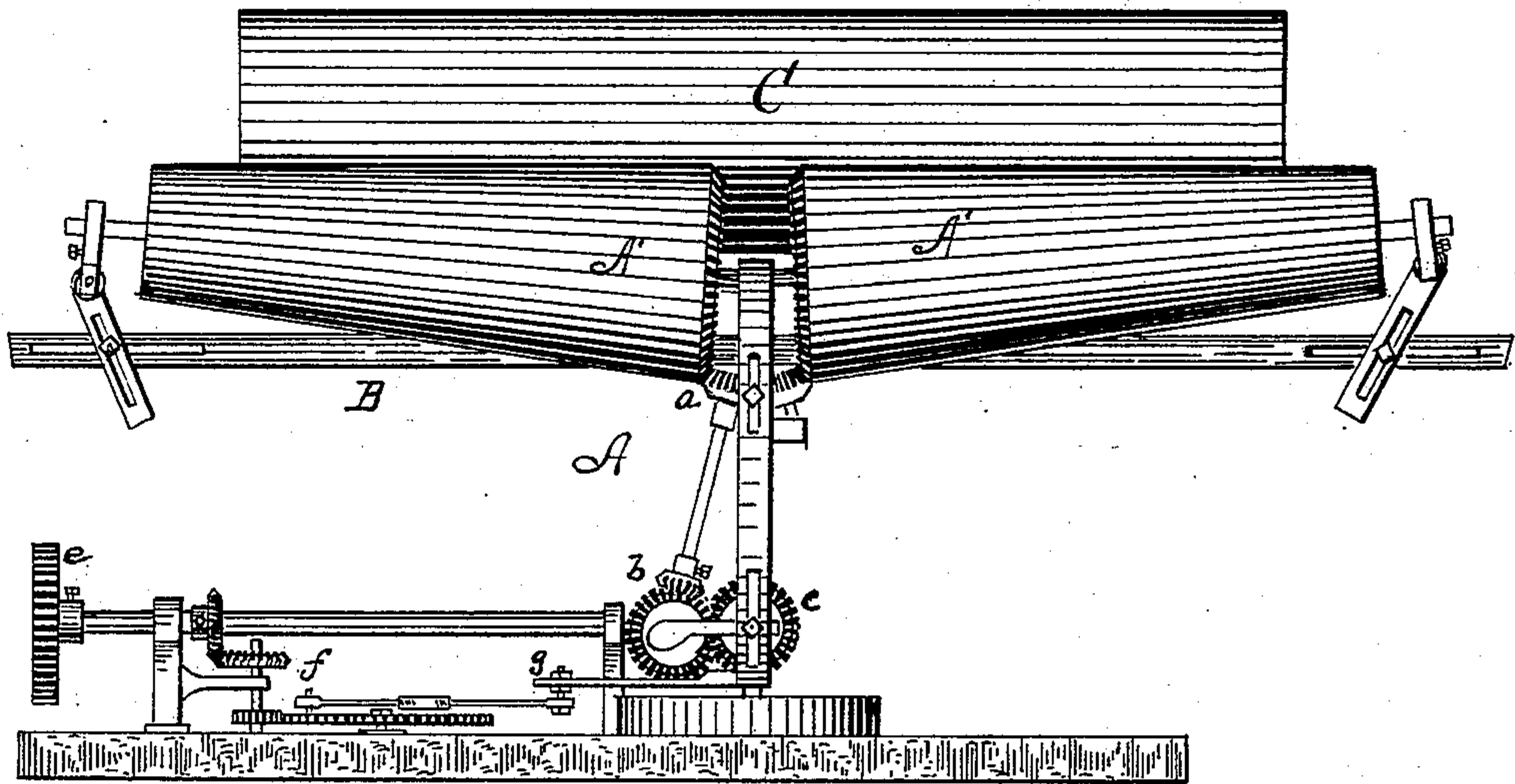


FIG. I.

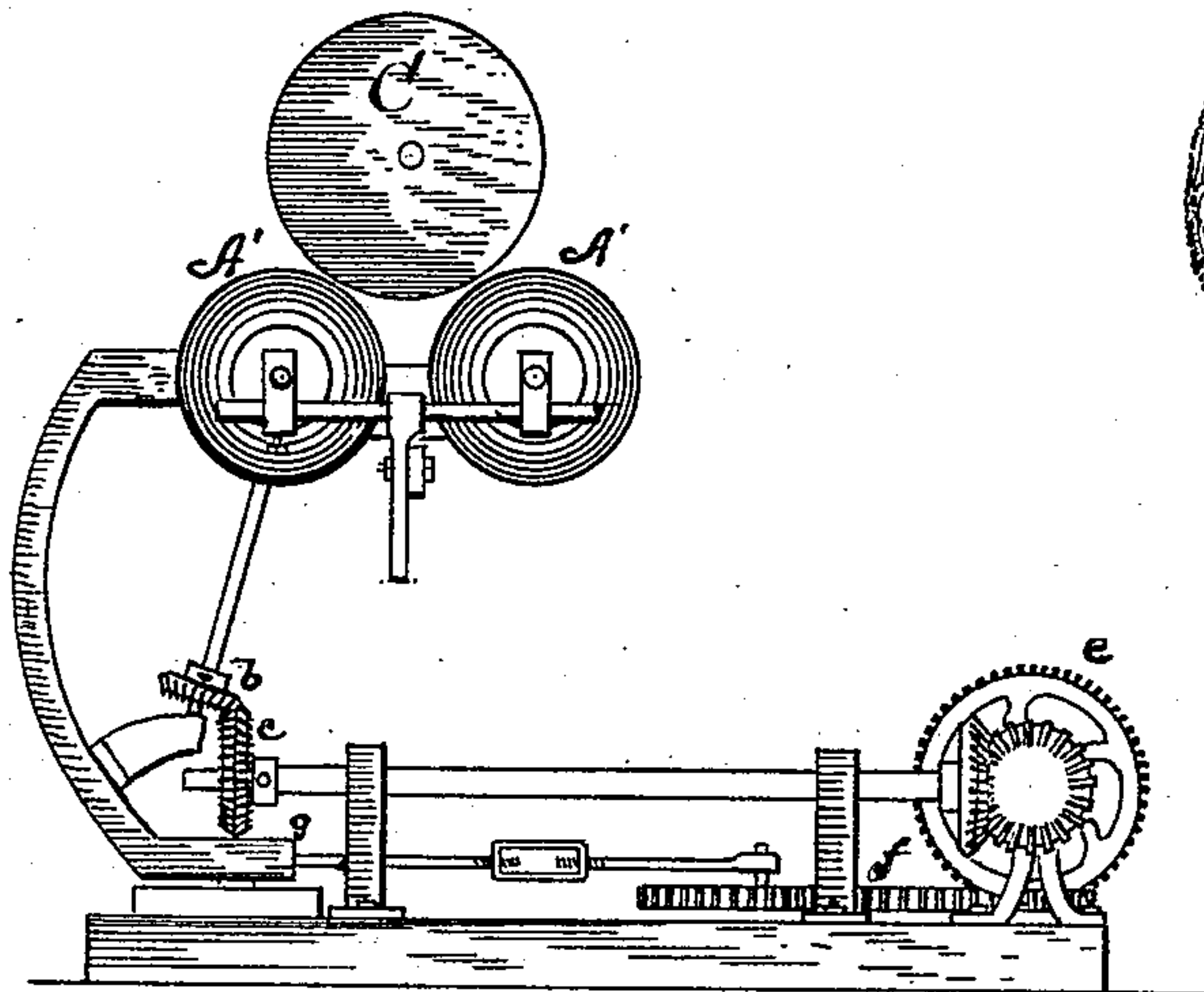


FIG. II.

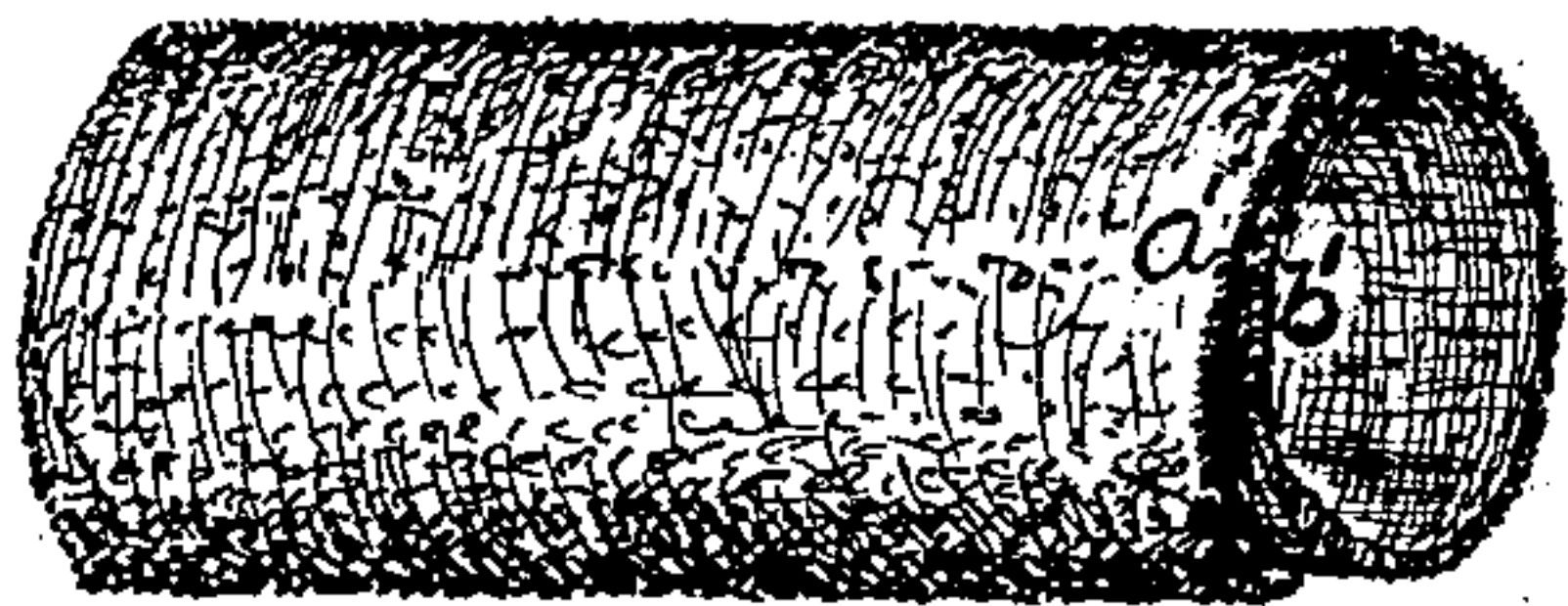


FIG. III.

Witnesses

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# UNITED STATES PATENT OFFICE.

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METHOD OF AND DEVICE FOR MAKING FELT BOOTS, SHOES, LEGGINS, &c.

SPECIFICATION forming part of Letters Patent No. 306,748, dated October 21, 1884.

Application filed April 25, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED A. HAWLEY, a citizen of the United States, residing at Baltimore, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Methods of and Devices for Making Felt Boots, Shoes, Leggins, &c., of which the following is a specification, reference being had therein to the accompanying drawings.

Figure I is a side view of a forming-machine with the improved cone in position. Fig. II, an end view; Fig. III, a perspective view of the cylindrical bat made on the improved cone.

This invention relates to improvements in making felt boots, shoes, stockings, and leggins.

The invention has for its object the production of a cylindrical cone on which is made a cylindrical bat, and also the production of a bat in which there is less shrinkage, and in which the shrinkage is more even. It is a well-known fact that when wool shrinks, as in felting, it shrinks more in the direction of the staple or lengthwise of the fiber. As a bat is formed with the length of the sliver across the bat, the staple is transverse the latter; hence when a bat is felted it will narrow more than it will shorten, and therefore in proportion the resultant article will be longer than the bat was, considering its width. Now, if the sliver be arranged in forming the bat so that the staple will not be across the bat, but obliquely thereto, the shrinkage will be equalized throughout the bat, and as the staple crosses itself it is strengthened. Moreover, the article made therefrom will be stronger and better adapted to resist any strain, as the crossing fibers cause them to aid one another in their resistance.

The invention consists, first, in a cylindrical cone; second, in a cylindrical woolen bat, and, third, in a cylindrical woolen bat in which the fibers are crossed; fourth, in the method of forming a leggin.

I do not propose to limit myself to a bat in which the fibers cross, although this will produce a better article. My invention is

broadier than this, and includes a cylindrical bat, however the staple may be arranged.

In the annexed drawings, the letter A indicates the usual former-frame, such as is used in forming bat-bodies, such consisting, essentially, of the four former-rolls A', held on the frame B and driven by the gearing *a b c d e*, and to it is given the usual vibratory motion by the gearing *f g*. This is all constructed and operated as usual, and needs no detailed description.

On the former-rolls A' is placed my improved cone C. This is a simple cylinder, as shown. In using this cone I form my new bat shown in Fig. III; but such bat may be formed in other ways and by other means. As the machine is rotated it is also vibrated by the mechanism shown. This causes the sliver to wind upon itself obliquely, as shown in Fig. III.

The letter *a'* represents the fibers extending obliquely in one direction, and *b'* those extending obliquely in the other, so that they cross. It is to be understood that this is the same sliver and staple crossing on itself in one continuous sheet, the different reference-letters being used to indicate the different positions of the sliver in the bat. A bat thus formed can be manipulated in various ways to produce a boot, shoe, leggin, &c. This part of my invention I regard, broadly, as a cylindrical woolen bat, however made, and however the fibers are arranged, though crossing them obliquely gives a better article.

In carrying out the last part of my invention—to wit, forming a leggin—I take the cylindrical bat above described and harden and full it in the usual way. The bat thus full is drawn on the usual leggin-last and given the proper shape. It is then surfaced, cut, and prepared for use in the usual way.

Having described my invention, what I claim is—

1. As an improvement in devices for forming felt boots, shoes, leggins, &c., a cylindrical cone, as set forth.

2. As an improvement in bats for forming felt boots, shoes, leggins, &c., a cylindrical bat, as set forth.

3. As an improvement in bats for forming felt boots, shoes, leggins, &c., a cylindrical bat in which the staple is crossed upon itself, as set forth.

5 4. As an improvement in the art of forming felt leggins, the method which consists in forming a cylindrical bat, hardening and fulling the same, and then shaping it into a leggin, as set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

ALFRED A. HAWLEY.

Witnesses:

MURRAY HANSON,  
W. H. SINGLETON.