

(No Model.)

A. EBERHART.

STRETCHER FOR FELT OR FABRIC BOOTS, &c.

No. 374,353.

Patented Dec. 6, 1887.

Fig. 1.

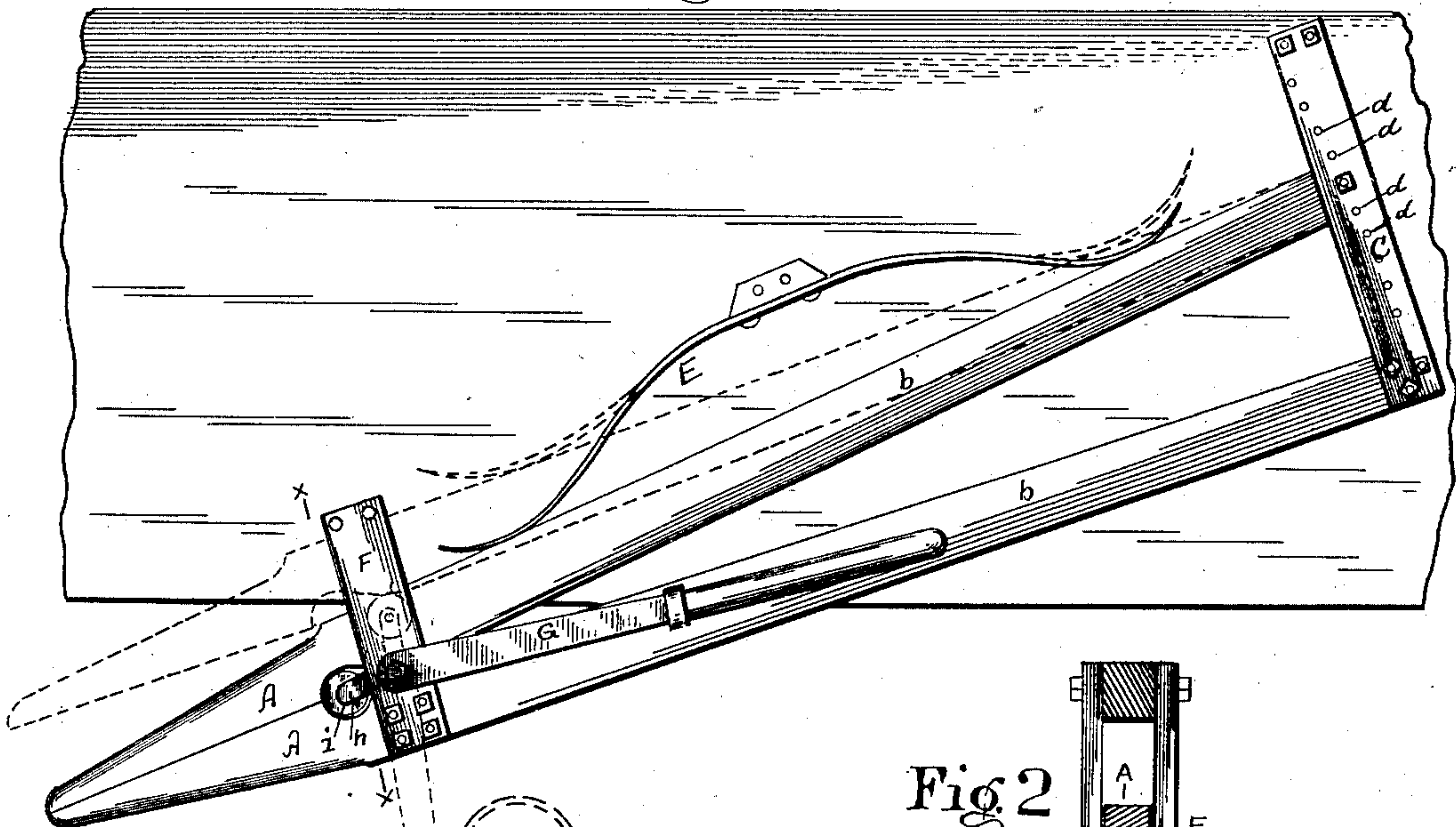


Fig. 2

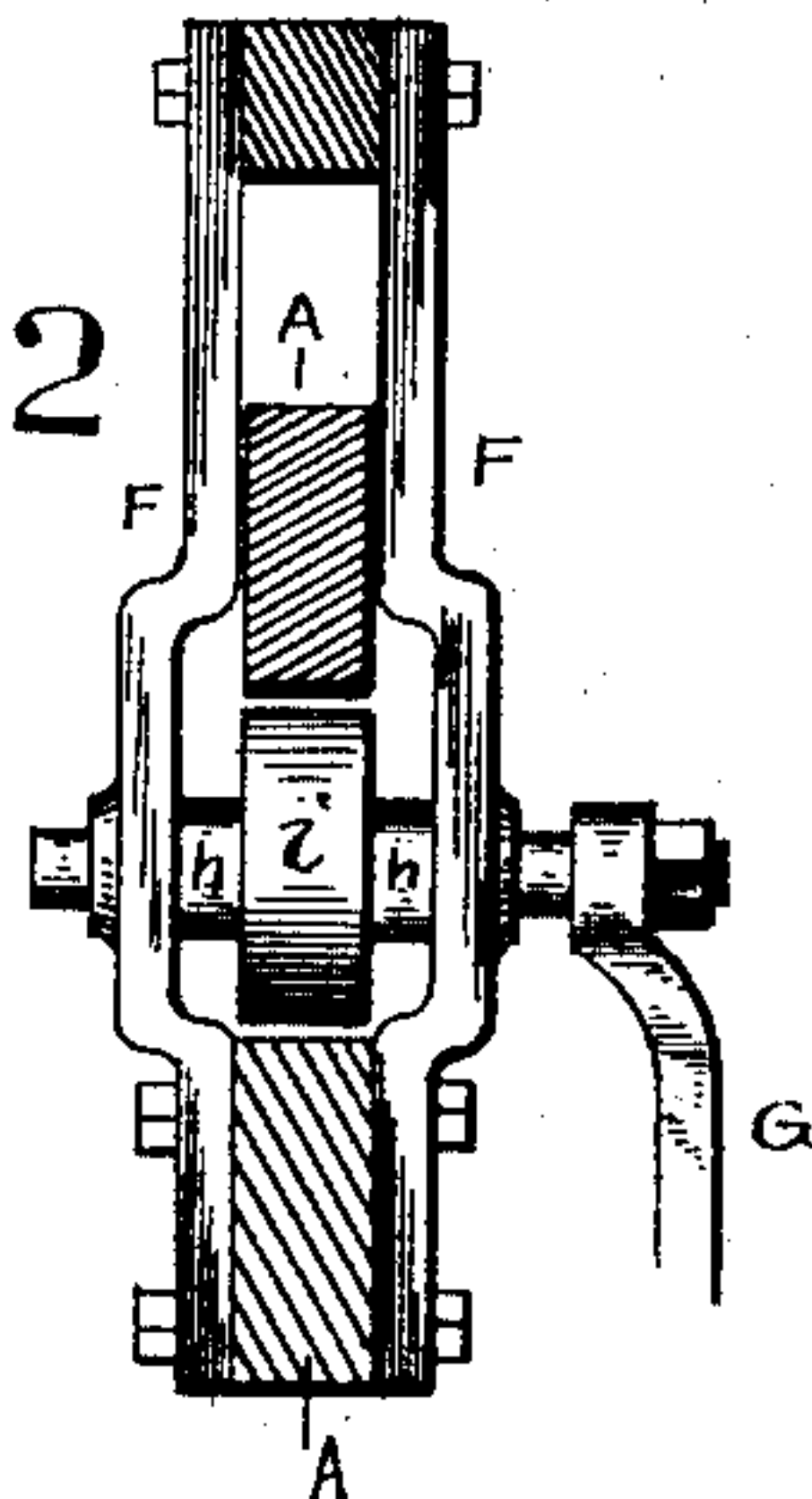


Fig. 3

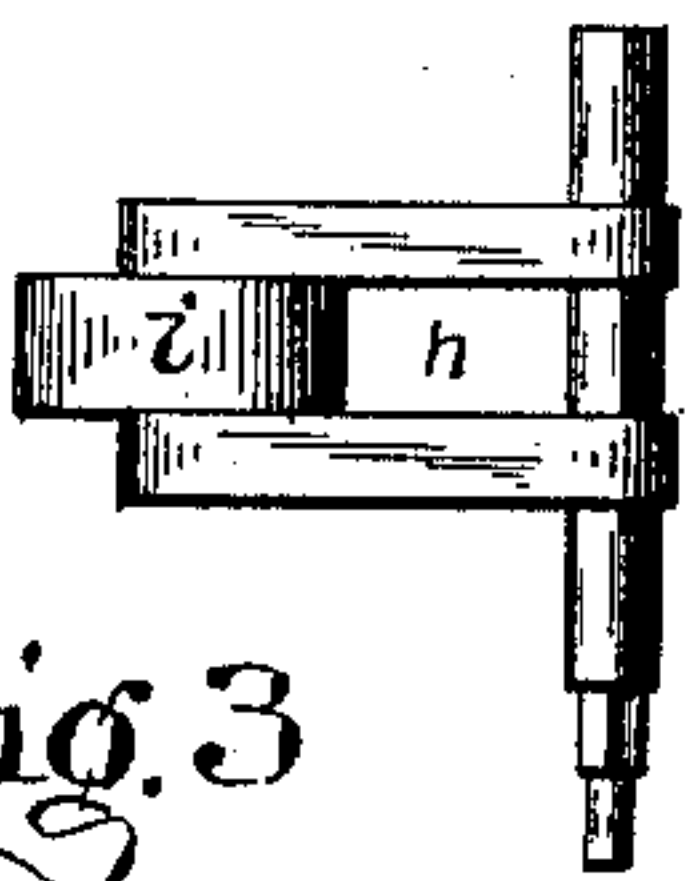
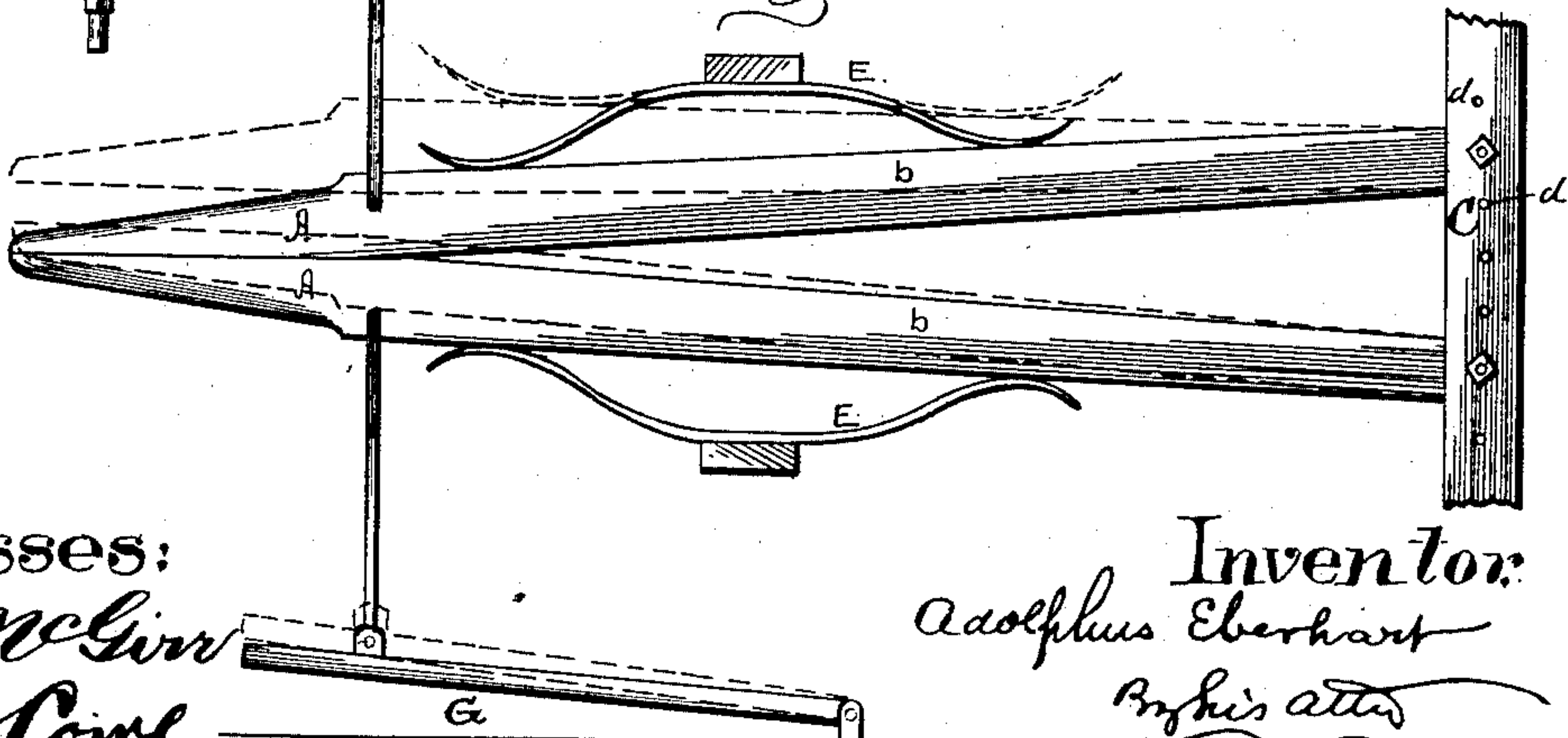


Fig. 4



Witnesses:

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STRETCHER FOR FELT OR FABRIC BOOTS, &c.

SPECIFICATION forming part of Letters Patent No. 374,353, dated December 6, 1887.

Application filed May 14, 1887. Serial No. 238,269. (No model.)

To all whom it may concern:

Be it known that I, ADOLPHUS EBERHART, of Mishawaka, in the county of St. Joseph and State of Indiana, have invented new and useful Improvements in Stretchers for Felt or Fabric Boots, &c.; and I do hereby declare that the following is a full and accurate description of the same.

In the manufacture of felt or fabric boots the "shape" or foundation is made of loose bats of wool, very greatly larger than the size of the finished boot, and this loose shape of bat is first shrunk in scalding water or steam, which causes the fibers to settle together and partly mat, and it is then felted by the action of the felting-machine or in the fulling-mill until it assumes the size of the finished boot. The well-known effect of the felting and fulling is to thicken and harden the walls to a degree corresponding with the reduction in size, and during this process of shrinking and thickening it is impossible to carry it on with perfect uniformity at all points, and therefore some parts will be thicker than others and wrinkles will form. The felting and fulling operation therefore requires careful watching, and it is necessary frequently to remove the article from the machine and "stretch" the thick places and the wrinkled spots in order to preserve a uniform thickness and smoothness of surface, as far as possible. The implement employed for the stretching referred to consists of a pair of blades which cross and are pivoted together, similar in form and mode of operation to an ordinary glove-stretcher. The points of the stretching-blades being farthest from the pivot move through a larger arc than at any part nearer said pivot, and consequently the principal stretching effect takes place immediately at the points of said blades, and consequently it frequently happens that the felt is overstrained or is ruptured and spoiled. My invention avoids that difficulty and danger by a structure which produces a substantially parallel movement of the stretching-blades. I also secure a further advantage in being able to operate the stretcher by power controlled by the foot, with both hands at liberty to manage the material under treatment. The particular features of the invention will fully appear in the following description and

claims, having reference to the accompanying drawings, wherein—

Figure 1 is a plan view of my invention arranged with a hand-lever. Fig. 2 is a transverse section on line *x x*; Fig. 3, a side elevation and plan of the spreading-lever. Fig. 4 is an elevation showing how the stretcher may be operated by power.

A A are the stretching-blades, provided with long handles or levers *b b*, one or both of which are pivoted to the fulcrum C at their extremities. When the stretcher is operated by hand, one of said levers is fixed and the pivot or fulcrum pin of the other is adjustable by means of a series of holes, *d d*, or some other known means for rendering said fulcrum movable. The object of the movable fulcrum-pin is to enable the operator to change the angular position of the stretching-edges of the blades A A. This adjustability of the fulcrum-pin is desirable whether the stretcher is operated by hand or by power. A retracting force is desired to return the blades to their initial position, and the force employed may be gravity or the resiliency of a spring, like the spring E. The moving stretcher is guided between guide-plates F. The hand-lever G has its fulcrum in the plates F, and a cam or crank-arm, *h*, is connected therewith with a bearing on the movable blade, so that by the movement of said hand-lever the stretching-blades may be forced apart or permitted to come together, as the case may be. To reduce friction, a friction-roller, *i*, is added to the arm *h* and interposed between said arm and the blade against which it acts.

When it is convenient to operate the stretcher by power, both blades are made movable, and one of them is connected with a cam or crank, W, on a running shaft, V, so as to have imparted to it a regular reciprocation or vibration from and toward the other stretcher, which is then controlled by the lever G or some similar device; but said lever is then, for convenience, placed near the floor, where it may be operated by the foot. The operation, then, is primarily by the power derived from the running shaft; but if the power so exerted and applied to the reciprocating stretcher is too strong or through too long range it may be modified by permitting the other stretcher to yield more

or less by releasing pressure upon the foot-lever.

As stated above, the workman finds it necessary frequently to remove the boot from the fulling-machine and stretch out the places which tend to thicken too much. This he does by slipping the boot over the blades A A and then causing them to separate sufficiently to effect the necessary stretch of the felt. By adjusting the pivot-pin at the end of the movable blade the relative or angular positions of the blades A may be changed to adapt them to the different angular shapes of the several parts of the boot.

15 Having described my invention, I claim—

1. In combination, the stretching-blades A A, the handles or levers *b b*, attached to said blades, respectively, and a pivotal connection at their extremities, whereby said levers and blades may move with respect to each other, a lever or its equivalent acting against one of said blades to move it away from the other blade, as set forth.

2. In combination, the stretching-blades A A, having long handles *b b*, with a pivotal connection at their extremities, and a lever acting against one blade to move it on said pivotal connection and cause it to recede from the other blade, for the purpose set forth.

3. The stretching-blades A A, having long handles *b b*, with pivotal connection at their extremities, and mechanism to periodically move one of said blades a definite distance, combined with a lever acting against the other of said blades to control the distance of separation, as set forth.

4. The stretching-blades A A and the running shaft and crank connected with one of said blades, combined with the lever G, acting against the other of said blades to control the distance of separation, as set forth.

5. The stretching-blades A A, having long handles *b b*, the fulcrum-plate C, provided with series of holes *d d*, for the pivotal fulcrum-pin, and the lever, whereby the angular position of the stretching-blades may be changed, as set forth.

6. The stretching-blades A A, adapted to be moved relatively toward or away from each other in the same plane, combined with a constantly-running power-shaft and means for transmitting motion from said shaft to said blades, substantially as set forth.

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Witnesses:

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