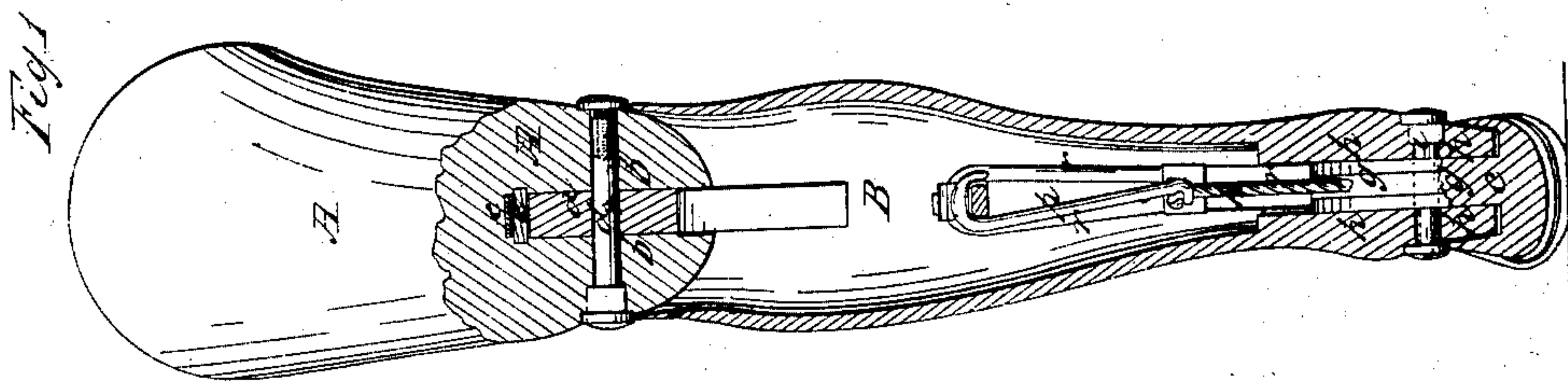
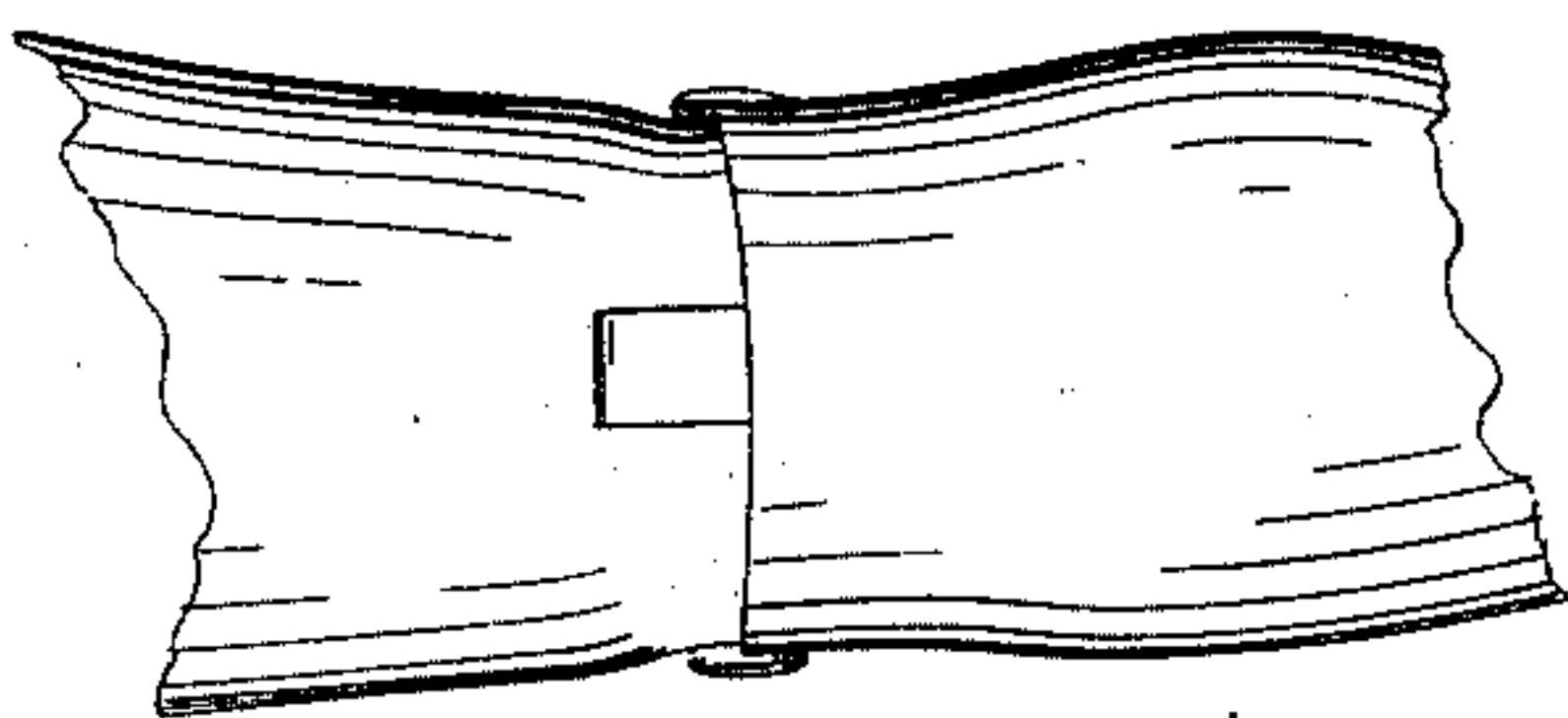
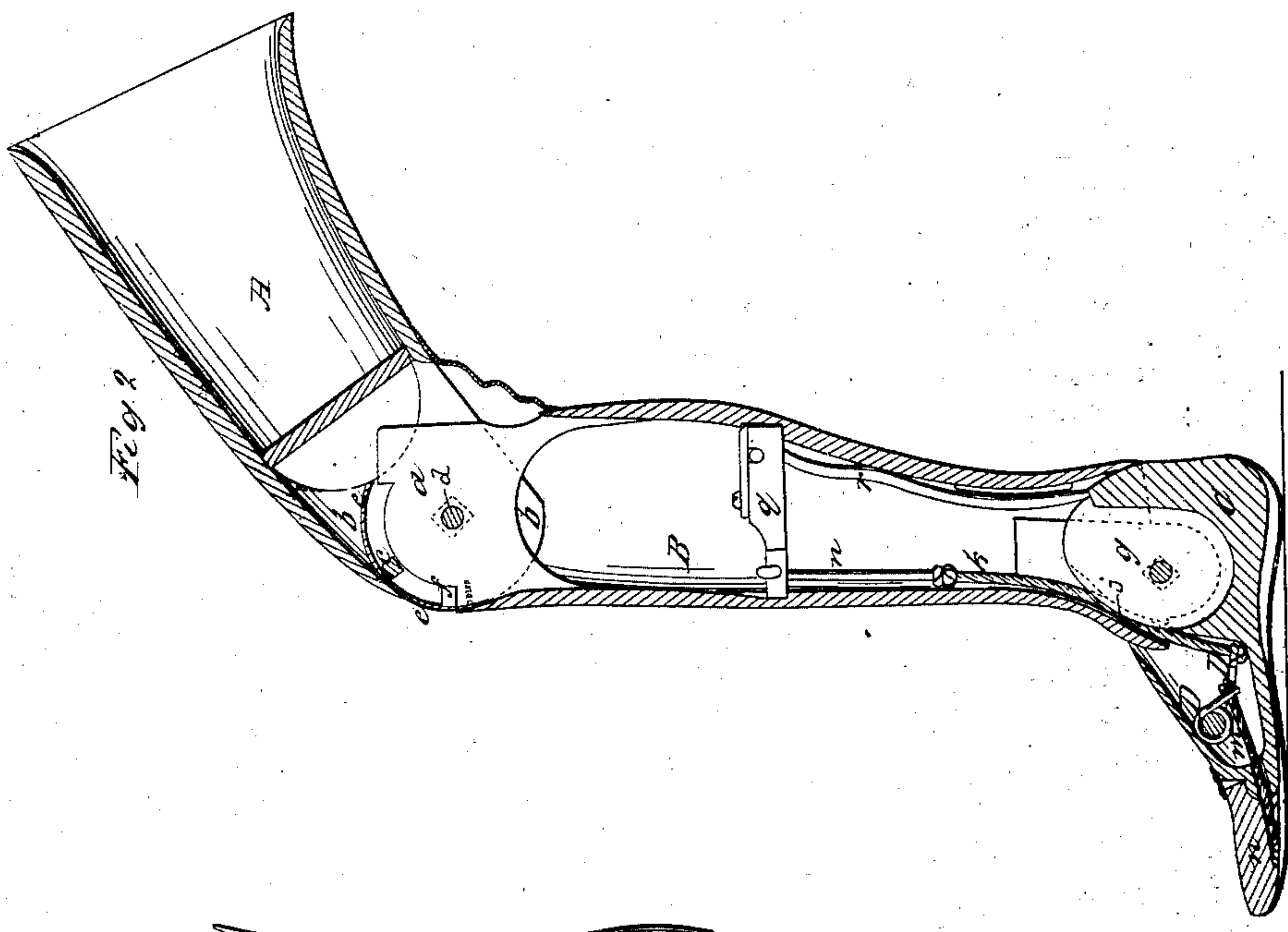


D. DE F. DOUGLASS.
ARTIFICIAL LEG.

No. 26,753.

Patented Jan. 10, 1860.



Witnesses
Mich Hughes
M. M. Livingston
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Inventor  
*D. De Forest Douglass,*



# UNITED STATES PATENT OFFICE.

D. DE FORREST DOUGLASS, OF SPRINGFIELD, MASSACHUSETTS.

## ARTIFICIAL LEG.

Specification of Letters Patent No. 26,753, dated January 10, 1860.

*To all whom it may concern:*

Be it known that I, DARWIN DE FORREST DOUGLASS, of Springfield, in the county of Hampden and State of Massachusetts, have  
5 invented certain new and useful Improvements in Artificial Legs; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings,  
10 forming part of this specification, in which—

Figures 1, and 2, are longitudinal sections taken at right angles to each other of a leg with my improvements. Fig. 3, is a front view of the knee joint.

15 Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in certain improvements whereby I am enabled to use mortise and tenon joints at the knee and  
20 ankle without any of the objections which have existed to the use of that kind of joint as heretofore constructed.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A is the thigh piece. B, is the leg, and C, is the foot, all made of willow or other suitable material and covered and finished in the usual manner. The leg and thigh are  
30 connected by a mortise and tenon joint, the tenon *a* being on the leg and the mortise *b, b*, in the thigh, and the upper part of the front of the leg being formed to lap over the bottom of the thigh piece, but finished  
35 with a sharp edge to prevent a prominent line around the joint. The mortise and tenon are lined with leather to make them work with a uniform degree of ease in all parts of their movement. The tenon *a* has  
40 its front and upper parts cut away as shown in Fig. 2, in the form of an arc described from the center of the joint bolt *d*, to form a shoulder *f*, in front and to permit a stop *e*, to be placed across the mortise *b, b*, of the  
45 thigh piece for the said shoulder to come in contact with, to suspend the action of the lower part of the leg, or in other words to prevent the joint passing beyond the straight condition. The shoulder *f*, is faced with  
50 india rubber to prevent any noise when the said shoulder and stop *e*, come in contact. *e* is a thin piece of spring steel or other metal of a width equal to the thickness of the tenon *a*, attached by its lower end to the leg  
55 B, in front of the shoulder *f*, and curved in the form of an arc described from the cen-

ter of the bolt *d*. This piece *e*, passes between the stop *e*, and the part of the thigh piece in front of it, a space being left in front of the stop on purpose to admit it. 60  
The upper end of the piece *e*, may be left perfectly free as represented in the drawing (see Figs. 1, and 2,) or may be attached to the back part of the mortise which without it would be left open when the knee is flexed, 65  
and hence it excludes dust from the interior of the leg and not only preserves the contour of the knee when the person is sitting down, but prevents the wearing out of the pantaloons on the edges of the mortise. 70

The difficulty of preserving a perfect contour of the knee in all its positions and yet providing a proper stop to suspend the action of the leg when it is extended as in walking has been so great an objection to the use of the mortise and tenon for the knee joint that though it is in every other respect the best kind of joint, it has been very little used; but the setting back of the stop *e*, to leave a space between it and the front part 80  
of the thigh and the employment of the covering piece *e*, working in the said space, in front of the said stop entirely obviates this difficulty.

The ankle joint is made with the tenon *g*, 85  
on the foot and the mortise *h, h*, in the leg. The lower part of the leg is fitted to work into the foot in front of and below the ankle bolt *i*, and outside of the foot behind the said bolt. The mortise *h, h* does not extend all the way through the leg but is left closed by the solid wood of the leg at the front and back, and the front part of the tenon is so cut away as shown at *j* in Fig. 2, and grooved, that the cord *k*, which connects 90  
the leg with the spring D, by which the foot is held up in taking the step, is permitted to work through the mortise in front of the tenon. The spring D, serves both to raise the foot in taking the step and to depress the 100  
toe. It is of spiral form and fitted to a fixed bar or pin *l*, which is placed across the interior of the foot, and has one extremity of its coils attached to the lower end of the aforesaid cord *k*, and the other connected 105  
by a cord *m*, with the toe piece *n*. The upper end of the cord *k*, is attached by a hook *p*, to a fixed cross bar *q*, which is placed across the leg B, said cross bar serving also to attach the cord *r*, which connects 110  
the heel with the leg to prevent the foot being too much elevated by the act of walk-



ing or by the action of the spring D, on the  
cord *k*. The spring D, and cord *k*, have  
never before to my knowledge been used in  
combination with the mortise and tenon  
5 joint as there has been a difficulty in apply-  
ing the said cord and also in preserving the  
contour of the ankle with such a joint both  
of which difficulties I have overcome by cut-  
ting away the front of the tenon and taking  
0 the said cord right through the mortise.

What I claim as my invention and desire  
to secure by Letters Patent, is—

1. The piece *e*, applied in combination

with the stop *c*, to pass between the said  
stop and the front part of the thigh piece 15  
substantially as and for the purpose set  
forth.

2. The employment of a mortise and  
tenon ankle joint *g, h, h*, constructed as  
herein described in combination with a 20  
spring applied substantially as described for  
controlling the action of the foot and toe.

D. DE FORREST DOUGLASS.

Witnesses:

MICHAEL HUGHES,  
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