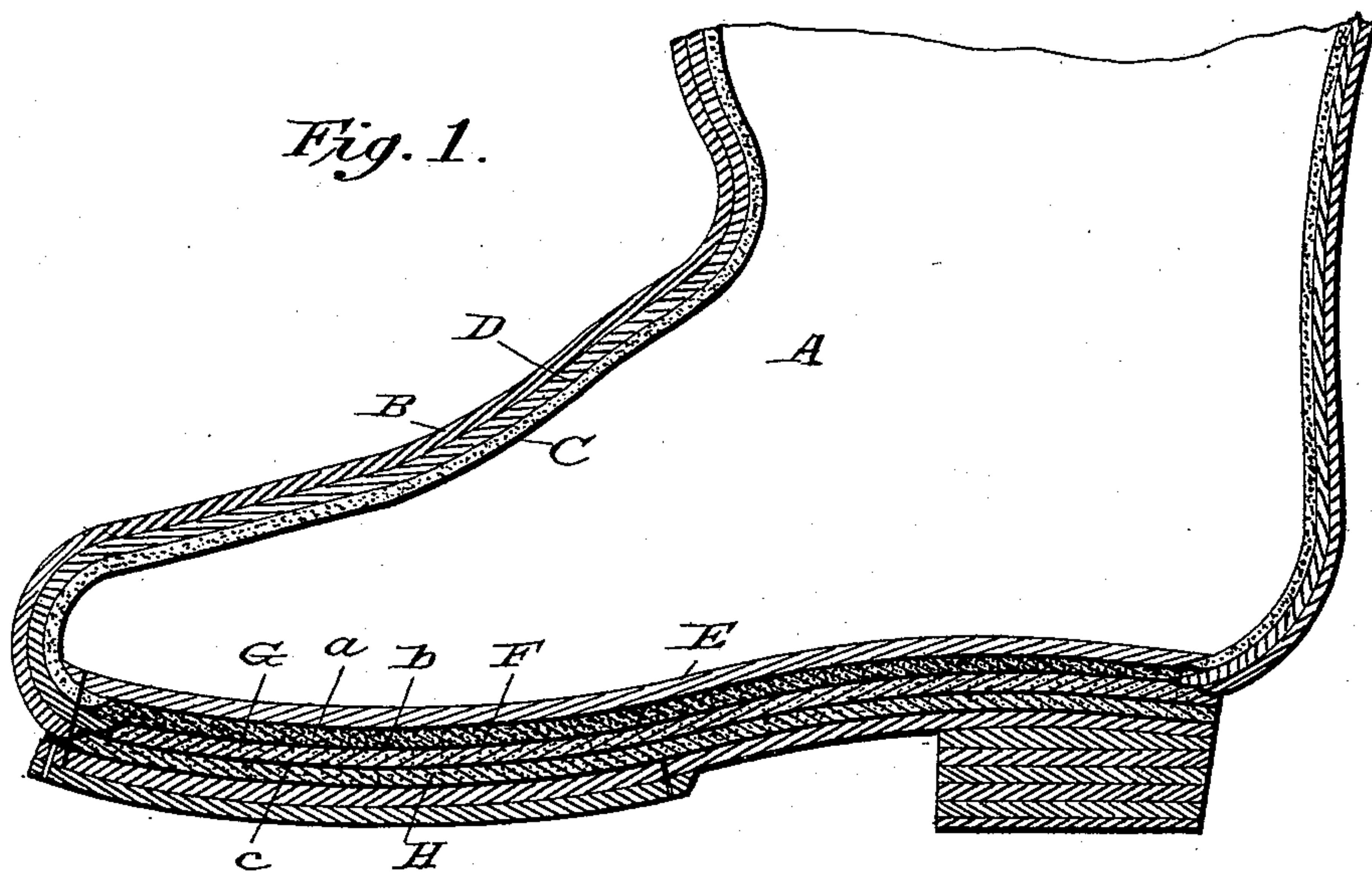


(No Model.)

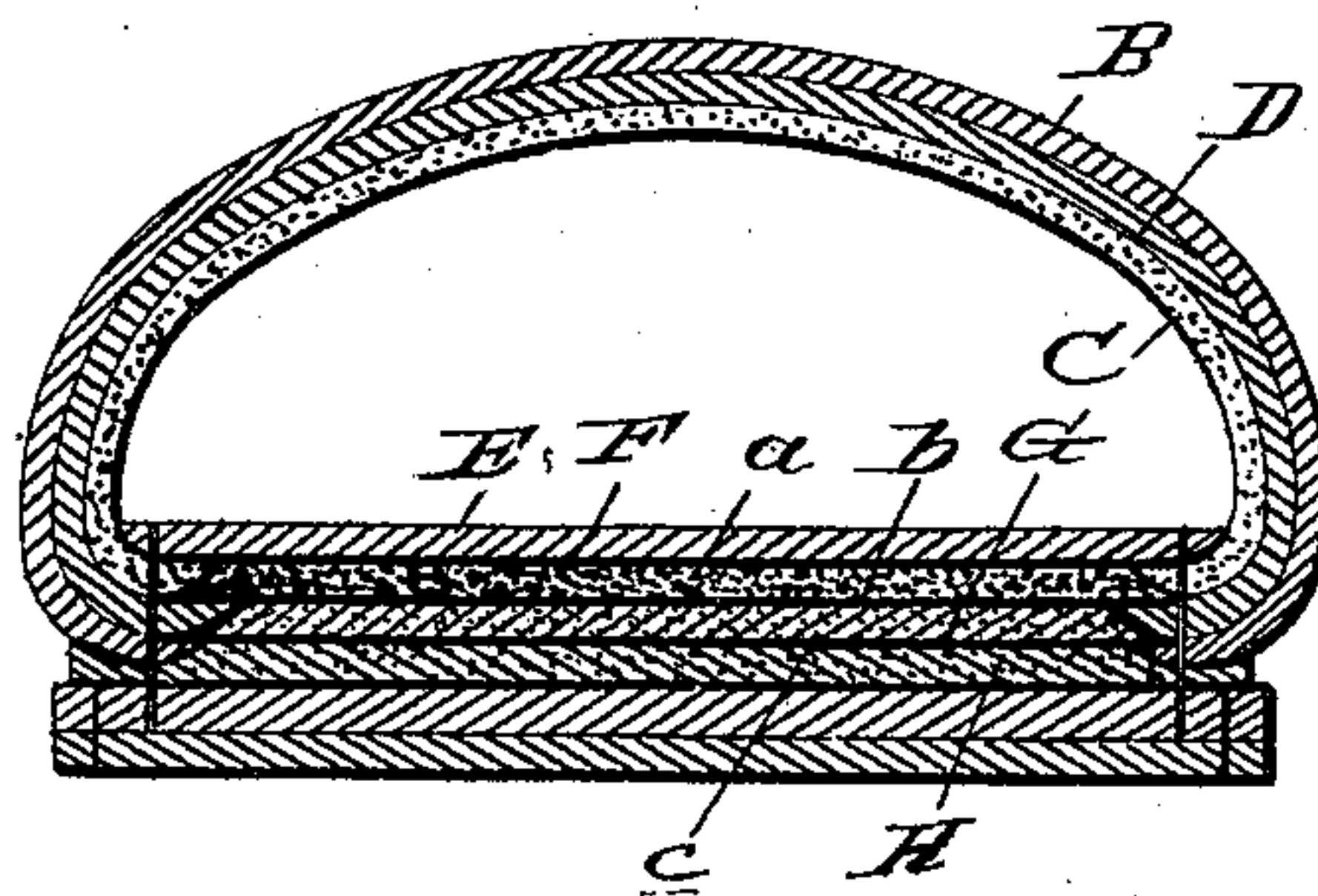
B. A. PICKERING.  
METHOD OF MAKING BOOTS OR SHOES.

No. 497,527.

Patented May 16, 1893.



*Fig. 2.*



Witnesses:

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# UNITED STATES PATENT OFFICE.

BENJAMAN A. PICKERING, OF WOONSOCKET, RHODE ISLAND, ASSIGNOR OF TWO-THIRDS TO JOHN SHAMBOW AND PARKER J. BUXTON, OF SAME PLACE.

## METHOD OF MAKING BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 497,527, dated May 16, 1893.

Application filed December 19, 1892. Serial No. 455,595. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMAN A. PICKERING, a citizen of the United States, residing at Woonsocket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Processes of Manufacturing Boots or Shoes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in the art of manufacturing boots and shoes, and it consists in an improved process of treating sole and other leather so as to render it capable of withstanding the heat of a vulcanizing oven, and uniting the same with a rubber vamp by vulcanization so as to form a thoroughly water-tight joint between the two. The said process is more especially designed for use in the manufacture of the waterproof boot embodied in my prior application filed November 1, 1892, Serial No. 450,670; and for the better understanding of the same I will describe it in conjunction with the said boot which is illustrated in the annexed drawings, in which—

Figure 1, is a vertical longitudinal section of the boot, and Fig. 2, is a section taken across the foot of the same.

Referring by letter to said drawings: A, indicates the upper or leg portion of the boot which is formed from rubber. B, indicates the vamp which is also formed from rubber.

C, indicates the foot and leg lining which may be formed from felt or other suitable material.

D, indicates the vamp lining; and E, indicates the insole which is formed from leather and is designed to be connected with the vamp and linings C, D, by vulcanization as will be presently described.

Leather in its natural state when subjected to a great heat such as is necessary to vulcanization, will scroll or curl up and burn and will consequently be rendered worthless. This is due to the presence of moisture and oil or grease in the leather; and it is therefore necessary, in order to render the leather insole E, capable of withstanding the great heat incidental to vulcanization, to free the

same from moisture and oil or grease. To accomplish this purpose, I first steam the leather, from which the insoles are to be made, for a sufficient length of time, and then thoroughly dry the same. The steaming of the leather which may take place in a boiler, or the like, serves to expel all of the oil or grease therefrom, and the drying which may be accomplished in an oven heated to a moderate degree, renders the leather entirely free from moisture.

In constructing the boot, I place the insole E, formed from leather treated as just described, upon a last or the like, and I then cover the bottom side of said insole with rubber cement as indicated by *a*. This rubber cement *a*, is designed to effect a connection of the insole E, to the boot and leg lining C, which is lapped over upon the bottom side of the insole as better shown in Fig. 2, of the drawings. After the insole E, has been connected to the boot and leg lining C, as just described, I place a filling sole F, between the edges of the said lining C, and connect said filling sole to the insole by the cement *a*, before described. The filling sole F, which is usually made from felt, rags, or similar material, is provided upon its under side with rubber cement *b*, for the attachment of the vamp lining D, which is lapped over the bottom of said sole about the proportional distance illustrated.

G, indicates a filling sole similar to the sole F, which is interposed between the lapped edges of the vamp linings and is connected to the under side of the sole F, by the cement *b*, before described. This filling sole G, is also provided upon its under side with rubber cement *c*, for the attachment of the rubber vamp B, which is lapped and secured in substantially the same manner that the linings C, D, are connected to the insole E, and the filling sole F. After the vamp B, has been connected to the sole G, as above set forth, a canvas sole or layer H, which is of a greater length and width than the soles E, F, G, is placed in position and secured to the sole G, by the cement *c*, with which the under side of said sole G, is covered, as before described. When the several soles or layers E, F, G, H, have been connected together and to the vamp



B, and the linings C, D, the whole is placed in a vulcanizing oven and let remain until the several soles or layers are vulcanized into a solid mass. This vulcanizing process forms the several soles or layers E, F, G, H, into a homogeneous mass and renders the connection of the same to the vamp and linings C, D, exceedingly strong and durable, as well as impervious to water, which is highly desirable. To complete the boot, after the same is removed from the vulcanizing oven, a top sole and heel together with a tap sole is connected thereto in the manner set forth in my said prior application.

Having described my invention, what I claim is—

1. The process of vulcanizing rubber and combining the same with leather consisting in steaming the leather so as to expel all oil or grease therefrom and then connecting the leather thus treated with a piece of rubber and vulcanizing the whole, substantially as and for the purpose set forth.

2. The process of vulcanizing rubber and combining the same with leather, consisting in steaming the leather so as to expel all oil or grease therefrom, then subjecting the leather to a moderate degree of heat so as to thoroughly dry the same, then connecting the leather thus treated with a piece of rubber

and vulcanizing the whole, substantially as specified.

3. An improvement in the art of manufacturing waterproof boots, consisting first in steaming a leather insole to expel oil or grease therefrom, then subjecting the insole to a moderate degree of heat so as to thoroughly dry the same, then connecting the sole thus prepared with a rubber vamp or upper and finally placing the combined parts in a vulcanizer and vulcanizing the same, substantially as specified.

4. An improvement in the art of manufacturing waterproof boots, consisting first in steaming a leather insole to expel the oil and grease therefrom, then subjecting the insole to a moderate degree of heat so as to thoroughly dry the same, then connecting the piece of leather and a series of layers or soles of felt and canvas together and to a rubber vamp, the vamp lining and the foot and leg lining of the boot by rubber cement, and then vulcanizing the whole, substantially as specified.

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

BENJAMAN A. PICKERING.

Witnesses:

GEO. W. SPAULDING,  
M. S. BENTON.