

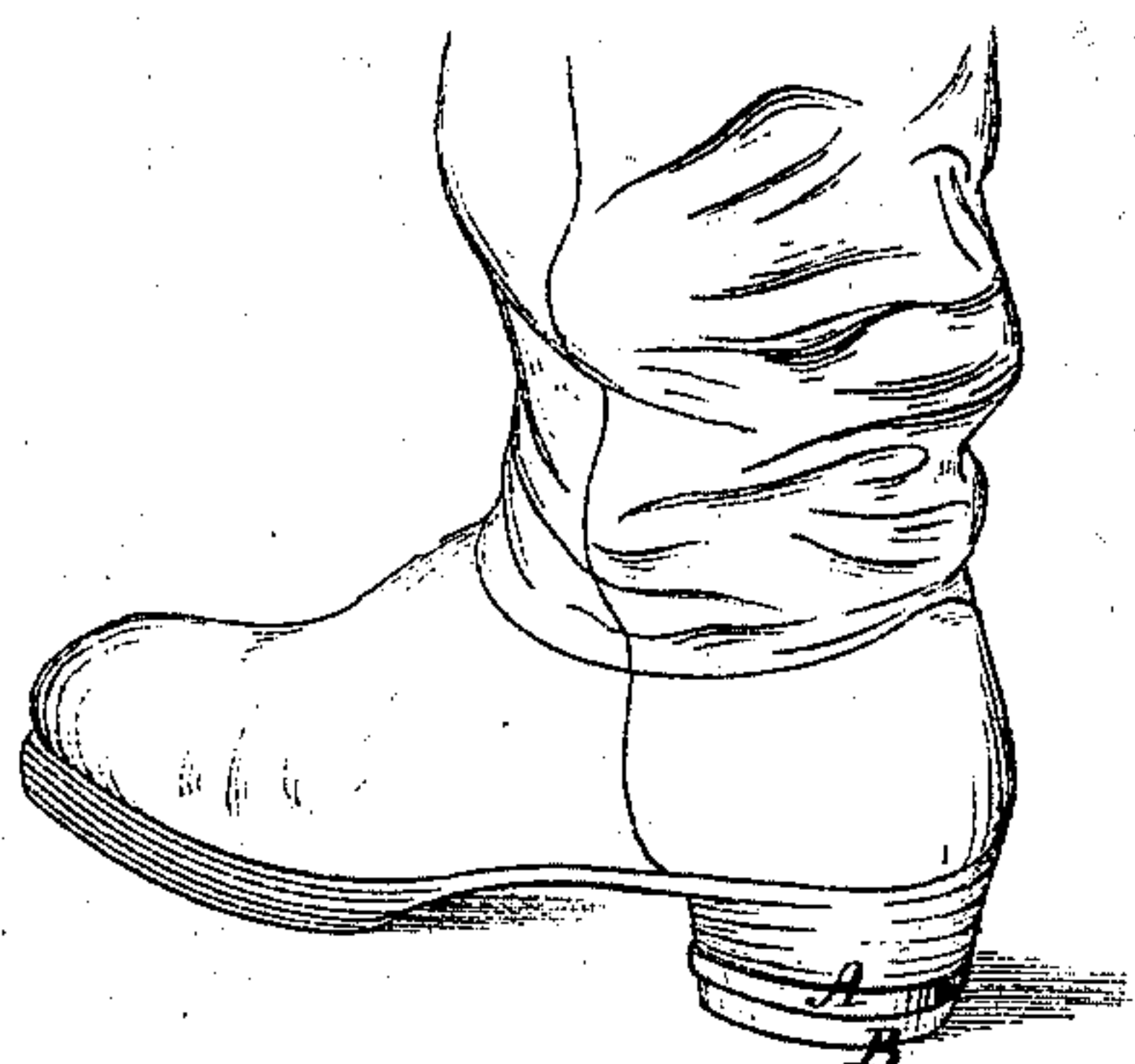
*Frederick Richardson & Francis Hacker,*

*Reversible Boot Heels.*

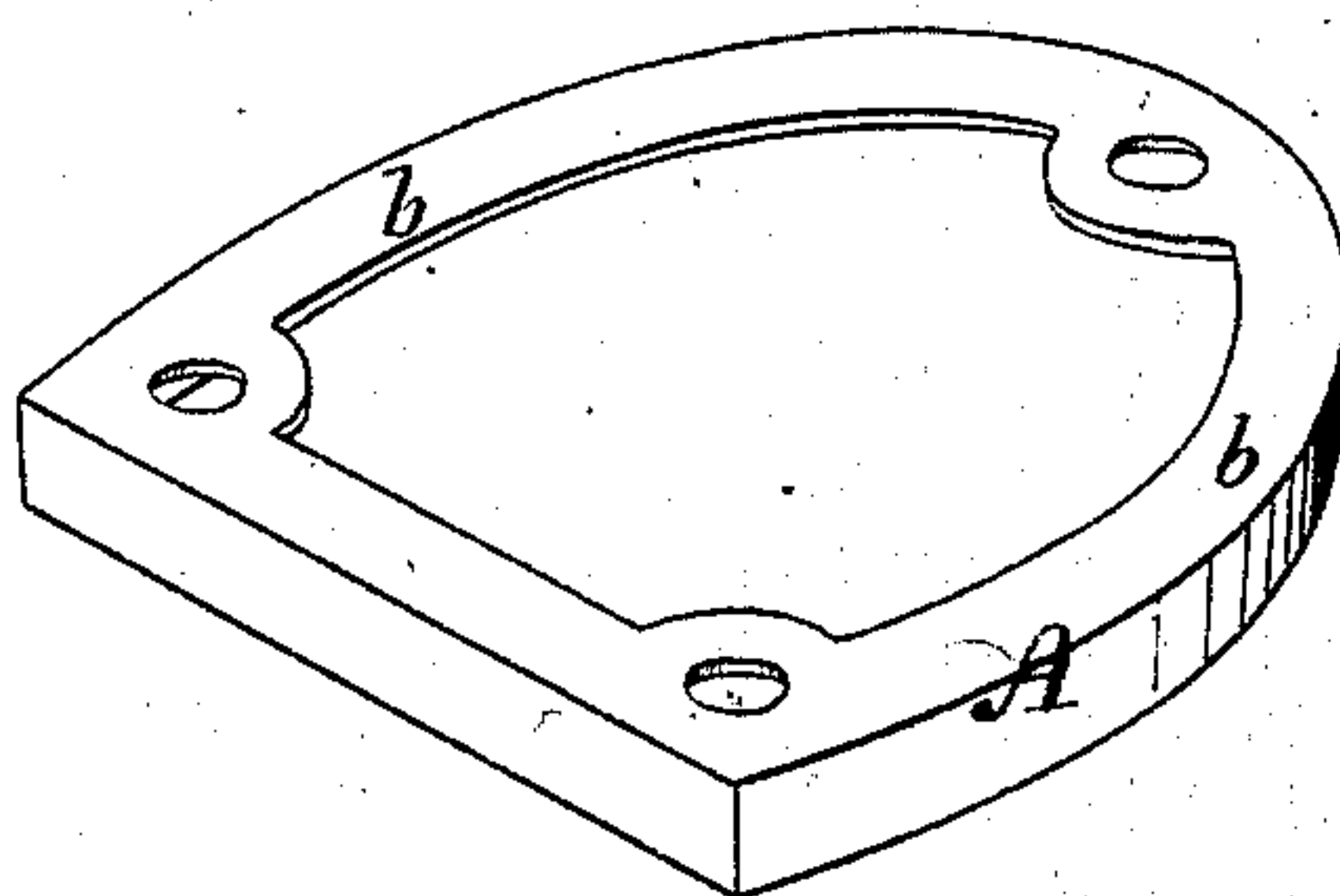
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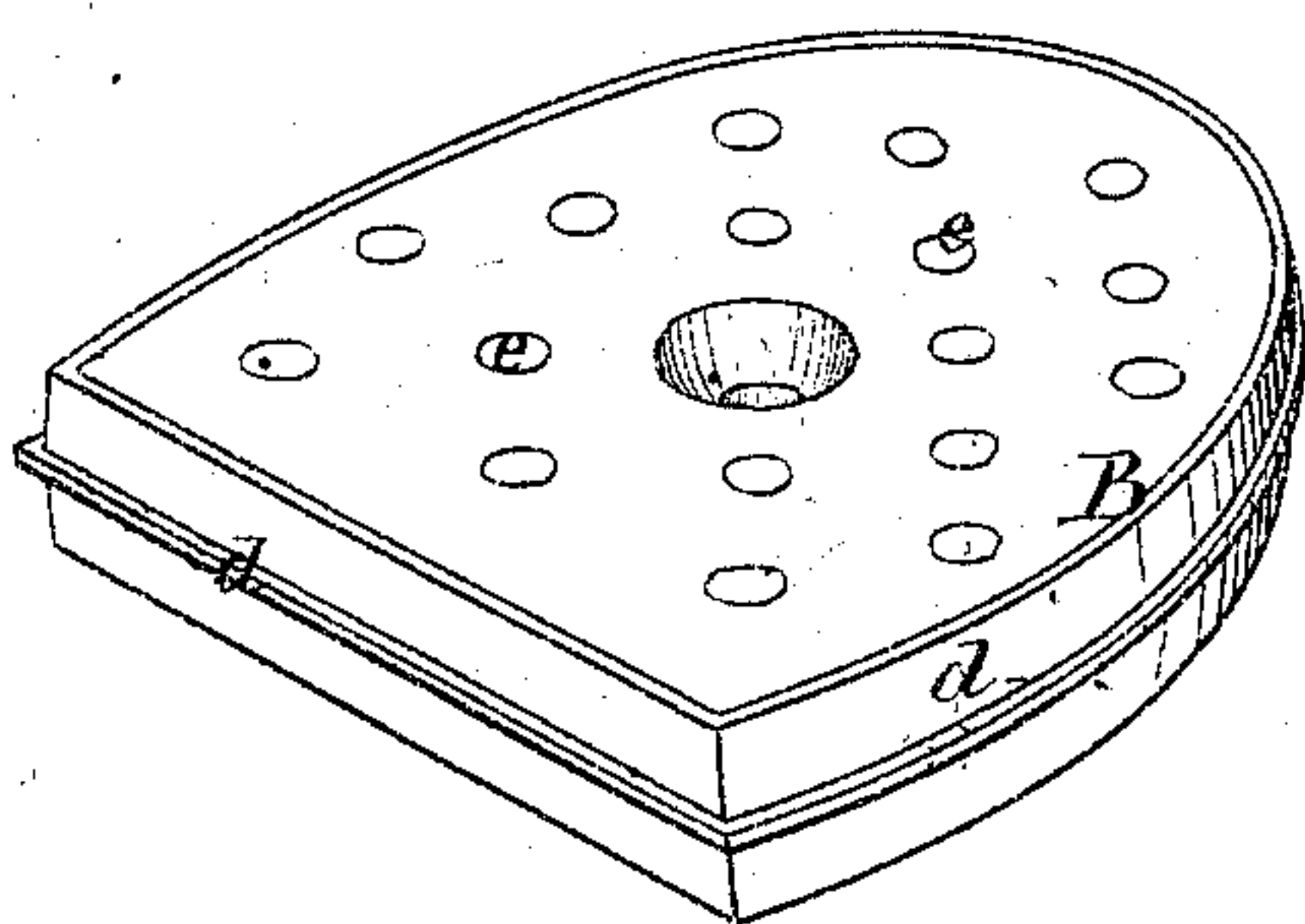
*Fig. 1.*



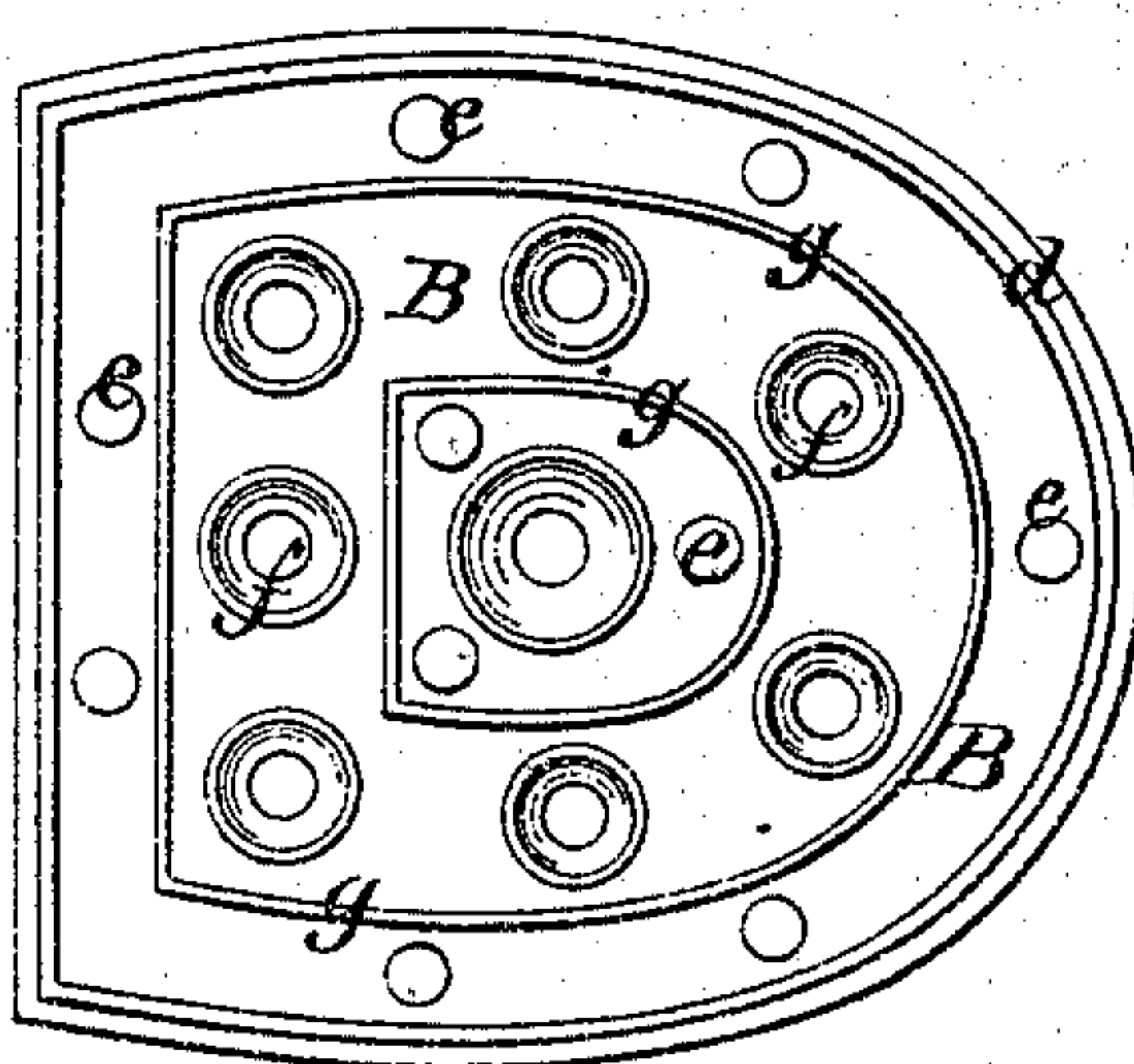
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses.

*Phil. D. Barnes,*  
*Frank A. Jackson,*

Inventors.

*Frederick Richardson, &*  
*Francis Hacker,*  
By *Wm. C. Wood*  
Att'y.

# UNITED STATES PATENT OFFICE.

FREDERICK RICHARDSON AND FRANCIS HACKER, OF PROVIDENCE, R. I., AS-  
SIGNORS TO "REVERSIBLE BOOT-HEEL COMPANY," OF SAME PLACE.

## IMPROVEMENT IN REVERSIBLE BOOT-HEELS.

Specification forming part of Letters Patent No. 116,758, dated July 4, 1871.

*To all whom it may concern:*

Be it known that we, FREDERICK RICHARDSON and FRANCIS HACKER, both of the city and county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Reversible Boot-Heels.

On the 5th day of May, 1868, Letters Patent of the United States were granted to FREDERICK RICHARDSON for a certain novel reversible boot-heel, and our present improvements relate thereto; and consist in providing the reversible section or tap with frictional metallic surfaces flush with the outer rim for the purpose of securing a foothold in slippery places.

Referring to the drawing, Figure 1 represents, in perspective, a boot with our improved reversible heel attached. A represents the socket-plate, which is permanently attached to the boot-heel. This plate is in the form of a boot-heel, and is provided with an inward-projecting flange, *b*, at its upper edge, which is perforated for screws, with which it is attached to the boot-heel. B represents the reversible heel-tap. Fig. 2 represents the socket-plate A detached. Fig. 3 represents the reversible heel-tap B detached. Fig. 4 represents the reversible heel-tap B provided with frictional surfaces. *e* in each case represents solid metallic spurs; *f*, cylindrical studs; and *g*, corrugations. The wearing-surfaces of these spurs, studs, and corrugations are flush with the edge of the outer rim.

For light boots the reversible heel-tap B (which consists of a double-recessed metallic tap with an outward-projecting flange, *d*) has its recesses filled with leather, rubber, wood, or other desirable material. For ordinary winter use on heavy boots the solid spurs *e* are employed. For miners' boots the cylindrical studs *f* or corrugations *g* are used in preference. These latter are also attached to and form a part of the tap.

The intermediate spaces may be filled with any suitable composition or left open, as may be desired. If filled with any material softer than the metal used this intermediate matter will, of course, wear away faster than the metal, and so leave the spurs or corrugations exposed, thereby securing a firm footing. As may be desired, the reversible tap may be wholly provided either with the spurs, studs, or corrugations, or with any number of each in one.

Having thus described our improvements, we claim as new and desire to secure by Letters Patent—

The reversible metallic heel-tap B, provided with the solid, cylindrical, or corrugated frictional surfaces *e*, *f*, and *g*, as and for the purposes specified.

FREDK. RICHARDSON.  
FRANCIS HACKER.

Witnesses:

HENRY MARTIN,  
JOHN C. PURKIS.