J. M. HUNTER.

Improvement in Heels for Boots and Shoes.

No. 130,805. Patented Aug. 27, 1872.

Fig: 1.

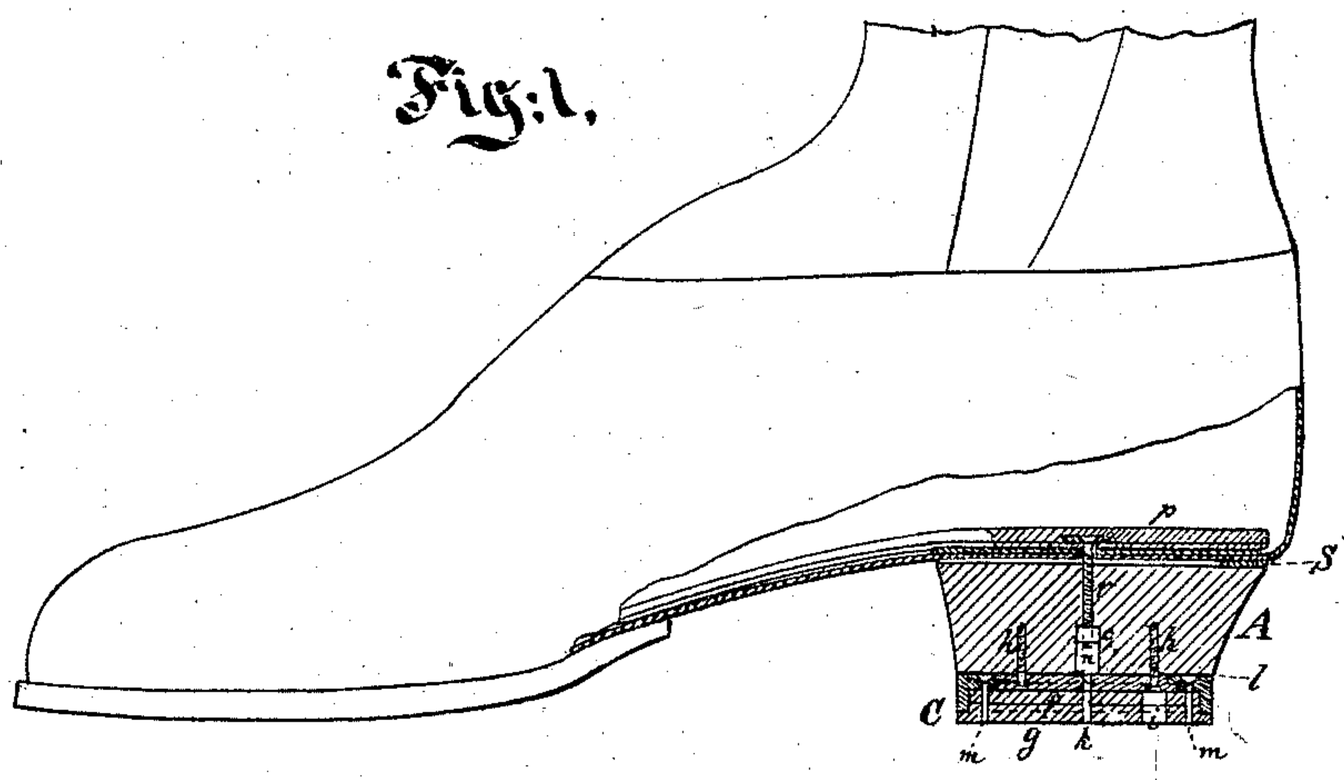



Fig: 2.

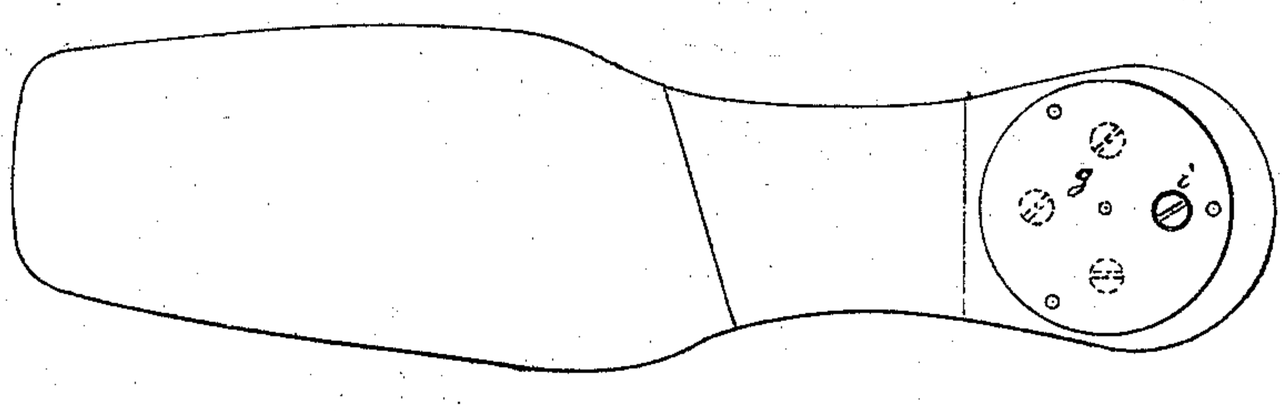



Fig: 3.

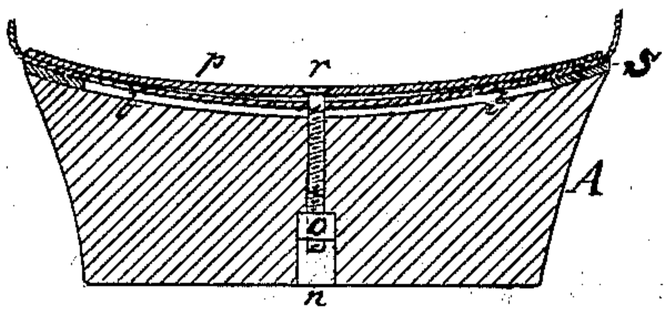



Fig: 4.


Fig: 5.

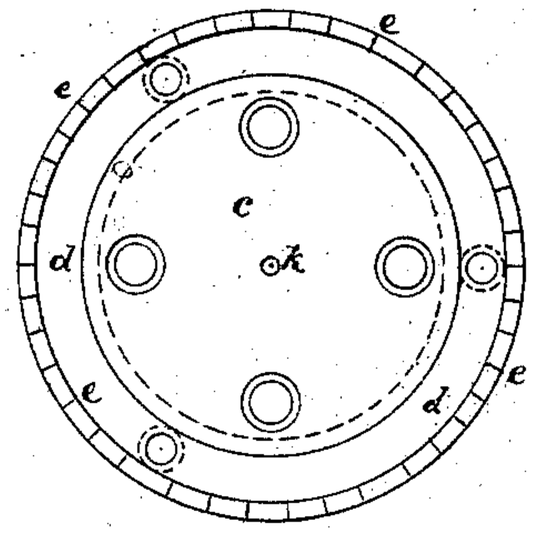
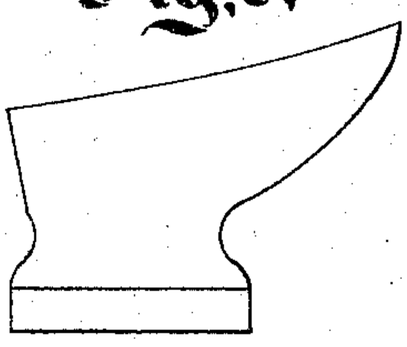



Fig: 6.



Witnesses:

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# UNITED STATES PATENT OFFICE.

JOHN M. HUNTER, OF MORRISTOWN, NEW JERSEY.

## IMPROVEMENT IN HEELS FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **130,805**, dated August 27, 1872.

*To all whom it may concern:*

Be it known that I, JOHN MORRISON HUNTER, of Morristown, Morris county, State of New Jersey, have invented certain new and useful Improvements in Reversible and Applied Heels and Soles for Boots and Shoes.

My improvement contains some of the features of my patents dated April 25, 1871, and March 19, 1872.

The following is a description of what I consider the best means of carrying out the present invention.

The accompanying drawing forms a part of this specification. Figure 1 is a cross-section of improvements as applied to a shoe. Fig. 2 is a view of face toward the ground. Fig. 3 is a cross-section of heel and its appliances for combining it with a shoe so as to produce a tight joint. Fig. 4 is a cross-section of revolving ring and of plate on which it turns. This view shows pikes or serrations at the periphery of ring. Fig. 5 is a face view from below of ring and plate as aforesaid. Fig. 6 represents the heel of a lady's shoe to which the same appliances as aforesaid are supposed to be attached.

Similar letters of reference indicate corresponding parts in all the figures.

A is the fixed part of heel. *p* is a plate sewing within the heel part of upper, as hereinafter described. C is the reversible or revolving disk presenting a wearing-surface next to the ground. *c* is a metal plate holding the ring *d* by the flange *b*, upon which it revolves. *e* are pikes or serrations projecting from ring *d* at its periphery; these prevent the leather lift or lifts *f* and *g* from spreading and act as nails to take the wear. The plate *c* and ring *d* are best made of malleable iron, and the pikes may be case-hardened by immersing them hot in a thin layer of fused prussiate of potash, taking care not to touch the body of the ring into the liquid. I thus harden the projecting pikes without altering the malleable nature of the body of the ring itself. Screws *h-h* are let through the hole *i* in the leather lift *f g*. The flange of ring *d*, having been well greased with tallow, as also the face of ring *d* and of plate *c*, and the lift *f g* having been applied and driven down to its position on the pikes to the plate *c* and ring *d*, its outer edge may now be pared off flush with the external surface of pikes and finished with any suitable black varnish or japan; also, it is to be held in its position by inserting the screws *m m*. An awl is then passed through the central hole *k* to mark the center of disk and also through center of one of the screw-holes of plate *c* to mark that point on surface of lift *f g*; the opening *i* is then to be punched out down to plate *c* of such size as to allow the heads of screws *h h* to freely pass through. The disk is then applied to fixed heel A in manner as follows: A circular piece of well-oiled leather *l l* is tacked on to the treads; this should be a little larger than that surface, so that it may be trimmed off and packed in to make a tight joint; the disk is then held in position by an awl or nail passing through the central hole *k* and one of the screws *m* driven home to its position through the opening *i*; now the disk may be turned, the awl or nail serving as a temporary axis till the opening *i* arrives opposite to another screw-hole of plate *c*; and so proceed till all the screws have been set, when the awl or nail may be removed and the opening *i* plugged up with wet paper or any other suitable material. Pikes are of less weight and may perhaps also occasion less noise in walking than the rim of ring, as shown in my patent of March 19, 1872. Through center of the tread of fixed heel A is an opening, *n*, by which the nut *o* is let into heel. *p* is a metal plate within the heel part of upper. *r* is a screw passing through plate *p* and connecting with nut *o*. Intervening between the upper of shoe and heel is a leather strip, *s*. This serves to pack the joint between upper and heel and also to prevent danger of cutting upper by the sharp edge of the applied heel. When a heel is built up on a shoe, all the materials are so blended together that they become as it were one piece; but when a heel is made separate and afterward connected with a shoe, which I distinguish by the title of an applied heel, it is much more difficult to secure a tight joint at its connection with the shoe, especially if the heel is of other material than leather, as of wood or metal, &c. Therefore, to overcome this difficulty, I have devised the following arrangement, which effectually secures a tight joint with an applied heel. The plate *p* within the heel part of shoe being of less curvature than

the opposed surface of the applied heel, a space, *t*, is left between these parts, so that the action of screw *r* in connecting heel to shoe first brings the pressure of this screw to bear all about the outer edge of plate *p*, while the strip of leather *s*, or other suitable material acting as packing between the applied heel and the upper and plate, a tight joint is secured. The plate *p*, as aforesaid, is covered with felting or leather or other suitable material next to the foot, and a water-proof muslin on its opposite side. These several parts may be cemented or sewed or otherwise connected together. To facilitate sewing the several parts together as aforesaid, a cord or strip of some soft material is applied about the edge of plate *p* and inclosed within the folded edge of covering of said plate. The hole through center of covering of plate *p* for passage of screw *r* should be closed by a valvular piece attached, and thus covering screw-head completely inclose all the metal parts. This covering may be extended beyond the plate so as to form a complete slip-sole, or else a cork-sole may be combined with the plate *p*, thus securing the advantages of both. Heels should be finished by applying any suitable dye and black varnish or paint; also it may be covered with a textile fabric—best of linen dyed black—and cemented to heel by a suitable varnish, as this cannot be acted upon by water and so become loose; and as it does not give or stretch like leather, it holds the wood firmly together and thus adds much to its strength. This covering then may also be finished with varnish or blacking, &c. The pikes *e* only being exposed to the action of the case-hardening material they only become changed; therefore the body of the ring *d* retains its malleable nature. To do this the operator may vary his arrangements as he may deem most convenient. The plate *p* may be dispensed with and the screw-head sunk into the leather of sole, and in some cases also the packing *s* may not be used, as in the use of an applied heel of leather this strip might not be needed.

I am aware that a plate has been used attached to the outer sole, but not pressing down the leather within the shoe and at the outer edge it does not draw the upper down to the heel so as to make a tight joint, nor would it be safe to do so even were it practicable with that arrangement, without the strip *s*, as the upper would be exposed to be cut by the sharp edges of the applied heel.

I claim as my invention—

1. The serrated rim *d* furnished with a bearing-surface, *f g*, arranged to revolve relatively to the heel bearing-plate *c* when the latter is attached to the part A, as herein described.

2. The packing piece *l* between the fixed heel A and the ring *d* and plate *c*.

3. The strip *s* between upper and applied heel by which a tight joint is secured.

4. The mode of attaching an applied heel and securing a tight or close joint, by the combined action of screw *r*, nut *o*, and leather strip *s*.

5. The plate *p*, in combination with the leather strip *s*, nut *o*, screw *r*, and applied heel A, to serve together on a boot or shoe, as specified.

6. In combination with a shoe or boot heel, the case-hardened pikes *e e*, hardened without changing the malleable nature of the body of ring *d*, as specified.

7. A boot or shoe heel prepared and covered with a dyed textile fabric secured by a water-proof cement, substantially as herein specified.

In testimony whereof I have hereunto set my hand this 24th day of April, 1872, in the presence of two subscribing witnesses.

JOHN M. HUNTER.

Witnesses:

WM. C. DEY,

ARNOLD HÖRMANN.