H. C. GOODRICH.

Soles for Boots and Shoes.

No. 204,431. Patented June 4, 1878.

Fig. 1.

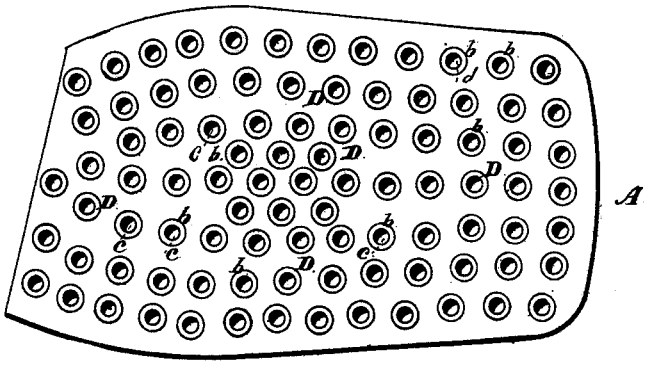
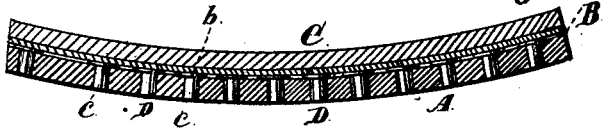


Fig. 2



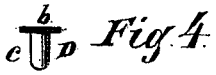


Fig. 4.

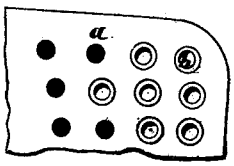


Fig. 3.

Fig. 5.

Fig. 6.

Witnesses:

Henry L. Bruns.

A. W. Bond.

Inventor:

Harry C. Goodrich

UNITED STATES PATENT OFFICE.

HARRY C. GOODRICH, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN SOLES FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **204,431**, dated June 4, 1878; application filed March 21, 1878.

To all whom it may concern:

Be it known that I, HARRY C. GOODRICH, of the city of Chicago, Cook county, State of Illinois, have invented a new and useful Improvement in Soles for Boots and Shoes, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of the inside of the sole with the plugs in place. Fig. 2 is a longitudinal vertical section of a complete sole. Fig. 3 is a detailed view of the sole. Fig. 4 is a side view of the metal plug or filling. Figs. 5 and 6 show two forms of such metal plug or filling.

My invention relates to soles for boots and shoes; and it consists in providing the same with hollow or recessed metal plugs having flanges at their upper ends, and applied from the inside of the outer sole, as will be hereinafter more fully set forth.

A represents the outer sole of a boot or shoe, made of any desired form and size, in the usual manner. This sole is provided with numerous perforations *a*, made by removing portions of the leather by means of a punch or other suitable instrument.

In each hole or perforation *a* is inserted a plug, D, made of cast-steel, iron, or other suitable hard material. Each plug is composed of a shank, *c*, with a head or circumferential flange, *b*, at the upper end, and it is of such dimensions that when the shank is driven in from the top of the sole it will entirely fill the hole and fit tightly therein, the head or flange *b* resting on top of and against the leather.

The length of the shanks *c* may be the same as the thickness of the sole, so that when the plugs are in place their ends will be flush with the under surface of the sole, as shown in Figs. 2 and 5; or the shanks may be made a little longer than the thickness of the sole, so that when in place they will project below the outer face of the sole, as shown in Fig. 6.

In the upper end of each plug is made a cavity or recess, *d*, extending down a suitable distance into the shank *c*, or, in other words, the plug is hollow from the top downward and closed at the bottom.

These recesses or cavities in the plugs reduce their weight, and at the same time form a series of air-spaces, acting as a non-conductor, materially increasing the comfort of the wearer.

On top of the sole A may be placed a non-conducting material, B, and on top thereof is the insole C, said parts being formed and united to the outer sole in any of the well-known and usual ways.

By means of the numerous small and hollow plugs thus inserted in the sole of a boot or shoe the wearing-surface of the sole is practically of metal, so that it possesses all the advantages of a metal sole, while it, at the same time, has all the elasticity or flexibility of a sole made entirely of leather. The plugs will not work loose or open the holes by the bending of the sole, and they cannot come out.

The invention is practical and useful, and can be applied at a comparatively small cost. When nails or pegs are driven in the tendency is to compact the leather and make the sole stiffer and harder. The cutting out of the portion to be occupied by the metal plugs prevents such result; and when a large number are applied, so as not to leave any considerable portion of the sole uncut, an opposite or new result is produced, as the sole is then more flexible with the metal plugs than without them; and when a large number of small plugs are provided the leather and metal wear away evenly without leaving the metal to project as when the plugs are few and large, which is very desirable for fine boots or shoes, while for miners' wear they may be made to project, having a greater length, without injury to the flexibility of the sole.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A sole, A, provided with the hollow or cup-shaped plugs D, all constructed substantially as and for the purpose set forth.

2. As an improved manufacture, a flexible leather and metal boot and shoe sole, having hollow plugs D distributed throughout the body, substantially as specified.

HARRY C. GOODRICH.

Witnesses:

WM. B. UPPERMAN,

FRANK H. DUFFY.