M. BRAY.

STUDS FOR BOOTS AND SHOES.

No. 184,457. Patented Nov. 21, 1876.

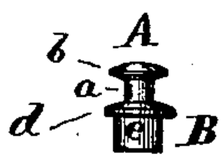

FIG. 2.

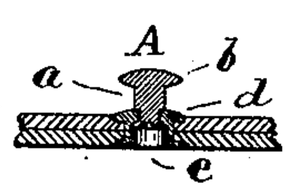

FIG. 3.

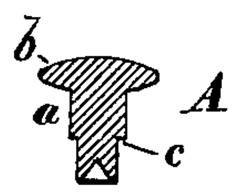

FIG. 4.

FIG. 1.

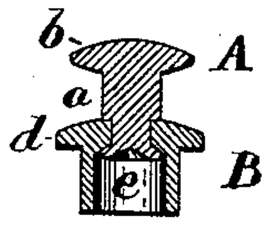

FIG. 6.

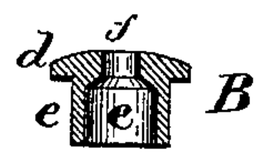

FIG. 5.

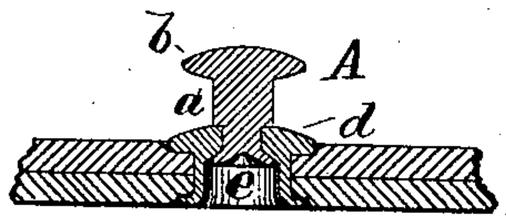

FIG. 7.

WITNESSES.

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UNITED STATES PATENT OFFICE.

MELLEN BRAY, OF NEWTON, MASSACHUSETTS.

IMPROVEMENT IN STUDS FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **184,457**, dated November 21, 1876; application filed October 9, 1876.

To all whom it may concern:

Be it known that I, MELLEN BRAY, of Newton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Studs for Boots and Shoes, and other purposes, of which the following, taken in connection with the accompanying drawings, is a specification:

My invention relates to the manufacture of studs to be inserted in boots and shoes to receive the lacing-cord, and in other leather or cloth work for various purposes; and it consists in making said stud from two separate pieces of wire, one in the form of a solid rivet, and the other in the form of a hollow rivet, or a rivet having a tubular shank with a small hole drilled or otherwise formed through the center of its head, and riveting the small end of the solid rivet into the small hole in the head of the tubular rivet, so as to form in a comparatively cheap and expeditious manner a stud having a tubular shank to enter and clinch over onto the material in which it is to be inserted, a collar or shoulder to rest upon the upper surface of the material, a groove or neck to receive and hold the lacing-string, and an outer or secondary head, as will be described.

This invention is an improvement upon the invention patented to H. S. Walcott, April 28, 1868, and numbered 77,421.

Figure 1 of the drawings is an inverted plan of my improved stud. Fig. 2 is an elevation; and Fig. 3 is a vertical section through the center of the stud, and the material to which it is secured, for use upon boots and shoes. Fig. 4 is a longitudinal section of the solid or outer section of the stud detached from the tubular section. Fig. 5 is a similar section of the tubular portion. Fig. 6 is a longitudinal section of the completed stud, and Fig. 7 is a similar section of the stud applied to the material.

In carrying out my invention, I make a solid rivet, A, using for the purpose a wire of a diameter equal to the desired size of the neck of the stud, as shown at *a*, the head *b* being formed by upsetting the end of the wire blank in the usual manner. The end of shank *a* of the rivet A is then reduced in diameter by compression, by turning, or any other suitable means, to form a shoulder, *c*. Another solid rivet, B, is then formed from a wire somewhat larger than is used in making the rivet A, and provided with the head *d*, after which said rivet is drilled out hollow, so as to form the tubular shank *e*, with a smaller hole, *f*, extending entirely through the head, as clearly shown in Fig. 5. The small end of the shank *a* of the rivet A is then inserted in the hole *f* in the head *d* of the tubular rivet B, and its end riveted down upon the conical shoulder, which forms the bottom of the chamber *e*, by means of a conical-pointed punch or set inserted in said chamber *e*, with its center resting upon the center of the end of the shank *a* of the rivet A, and subjected to pressure or a sudden blow, when the stud is completed, ready for use, as shown in Fig. 6.

By this method of manufacturing studs of this description about one-third of the metal is saved, as well as a considerable saving in time.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

A stud or button having a tubular shank, *e*, shoulder *d*, neck or groove *a*, and head *b*, made in two separate pieces, A and B, and secured together substantially as described.

Executed at Boston, Massachusetts, this 5th day of October, 1876.

MELLEN BRAY.

Witnesses:
N. C. LOMBARD,
E. A. HEMMENWAY.