

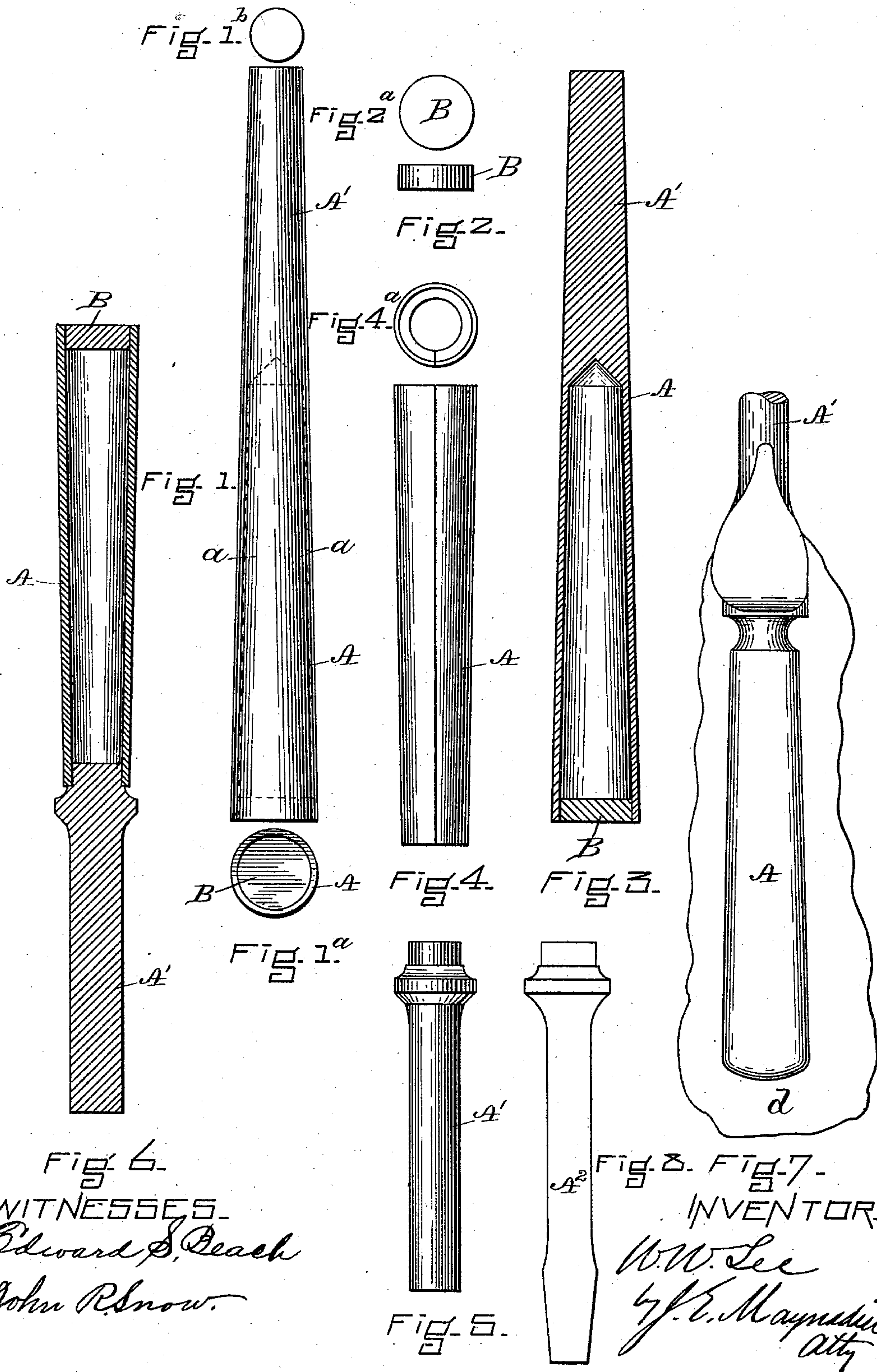
(No Model.)

W. W. LEE.

ART OF MAKING HOLLOW HANDLE IMPLEMENTS.

No. 370,795.

Patented Oct. 4, 1887.



UNITED STATES PATENT OFFICE.

WILLIAM W. LEE, OF NORTHAMPTON, MASSACHUSETTS.

ART OF MAKING HOLLOW-HANDLE IMPLEMENTS.

SPECIFICATION forming part of Letters Patent No. 370,795, dated October 4, 1887.

Application filed July 9, 1887. Serial No. 243,906. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM WILSON LEE, of Northampton, in the county of Hampshire and State of Massachusetts, have invented a new and useful Improvement in the Art of Making Hollow-Handle Implements, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 shows a blank that is hollow from one end part way to the other end, and has a plug in its open end. Fig. 1^a shows the plugged end of the blank. Fig. 1^b shows the solid end of the blank. Fig. 2 is a side view of one form of the plug. Fig. 2^a is a plan of the same. Fig. 3 is a central longitudinal section of the blank shown in Fig. 1. Fig. 4 is an elevation of a tube formed of sheet metal. Fig. 4^a is an end view of the tube, looking through it. Fig. 5 shows a blank from which an implement is formed. Fig. 6 is a central longitudinal section of another form of my blank. Fig. 7 shows my blank after it has been plugged and partially formed by drop-forging. Fig. 8 shows a partially-finished implement—a screw-driver.

My invention consists in a new method of making hollow-handle implements by plugging the outer end of a hollow-handle-forming blank, which has at the other end a part adapted to form a blade or other implement, and shaping and welding the handle-forming blank under a drop.

At present, as is well known to all skilled in the art, great difficulty is met in welding the outer ends of handle-blanks so that the handles neither leak in plating-solution nor, when finished, have an unsightly appearance by reason of a seam at the outer end and along the side of the handle. By my invention these objections are got rid of, and I am consequently enabled to produce hollow-handle implements embodying the invention set forth in Beecher's patent, No. 241,471, dated May 17, 1871, in a materially improved manner, as will be readily seen by all skilled in the art.

In practicing my invention, I usually take a piece of steel about six inches long and make it hollow from one end toward the other end (preferably by drilling) for a depth sufficient to form a hollow handle, as indicated

by the dotted lines *a* in Fig. 1, and as plainly shown in Fig. 3, in which A represents a blank of the form which I prefer to use. I then place a metal block, B, in the open end of the partially-hollowed blank A, to prevent it from collapsing when placed under the drop. I then raise the plugged blank to a welding heat, place it between dies, and drop-forge it, so giving the handle approximately its desired form, (as shown in Fig. 7,) and welding the plug B in the end. The use of a plug B in the open end of the hollow portion of the blank A ordinarily prevents the handle from collapsing under the drop, and enables me to produce a hollow handle which is so tight that it does not leak in the plating-solution, and which, when finished, has the appearance of being seamless. Without the use of the plug B, I have found it practically impossible to weld the open end of the handle-forming blank in such a manner that it does not very often show a crack, whereby the dropped piece is rendered useless when the flash *d*, (see Fig. 7,) formed in the drop-forging operation, is removed. Moreover, I am enabled by the use of the plug to weld the open ends of a handle-forming blank so tightly that plating-solution does not leak into them when they are in the solution; and this is also a matter of vital importance, for it is well known to all persons skilled in the art that hollow-handle implements sometimes give out plating-solution after they have been finished up and put in stock, thereby spoiling other implements in the box with them. After the blank is taken from the dies the part A' is drawn out into a blade, fork, or other implement, and the whole piece then undergoes other operations, too well known to require description, to make it ready for use.

It is not necessary, of course, that the handle-blank A and implement-forming blank A' should be integral, for the handle-blank A may be of sheet metal, if desired, (see Figs. 4, 4^a, and 6,) instead of being a partially-hollowed bar; and either the implement-forming blank A' or the shank of a partially-finished implement—say of a screw-driver, A², shown in Fig. 8—may be inserted in the end of the handle-blank A, and the handle-blank be welded to the implement-forming blank or to

the shank of the implement at the same operation by which the handle is shaped and welded at its plugged outer end.

What I claim as my invention is—

- 5 The herein-described improvement in the art of making hollow-handle implements, which consists in plugging the outer end of a hollow-handle-forming blank having at its

other end an implement-forming blank, and shaping the handle and welding the plugged ro end under the drop, substantially as described.

WILLIAM W. LEE.

Witnesses:

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W. M. COCHRAN.