(No Model.)

B. F. MITCHELL.

HOLLOW PUNCH.

No. 300,624. Patented June 17, 1884.

Fig. 1.

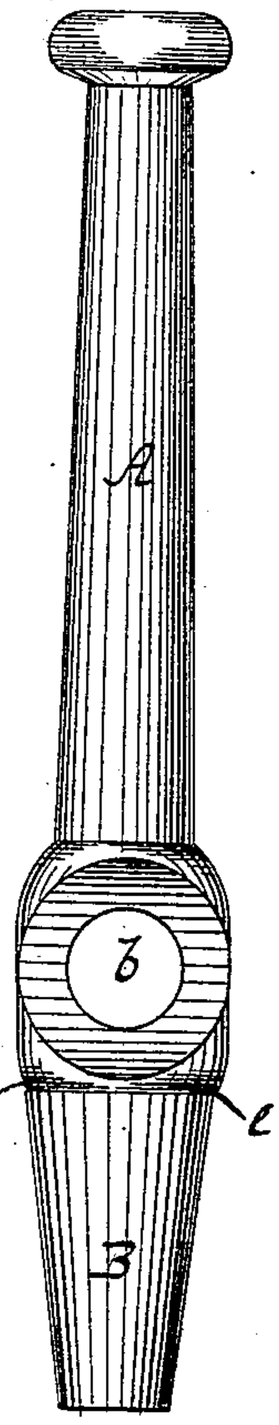


Fig. 2.

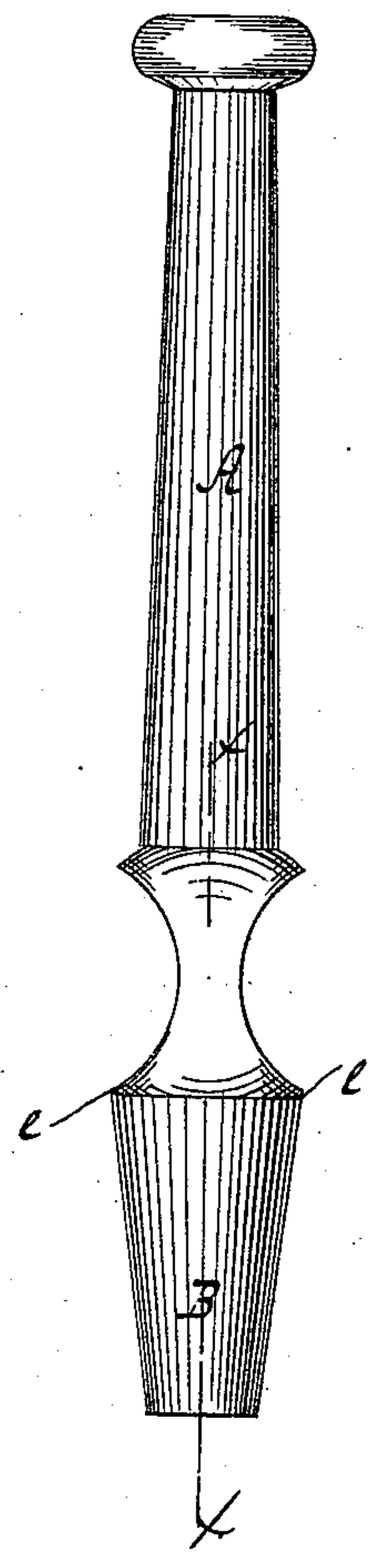


Fig. 3.

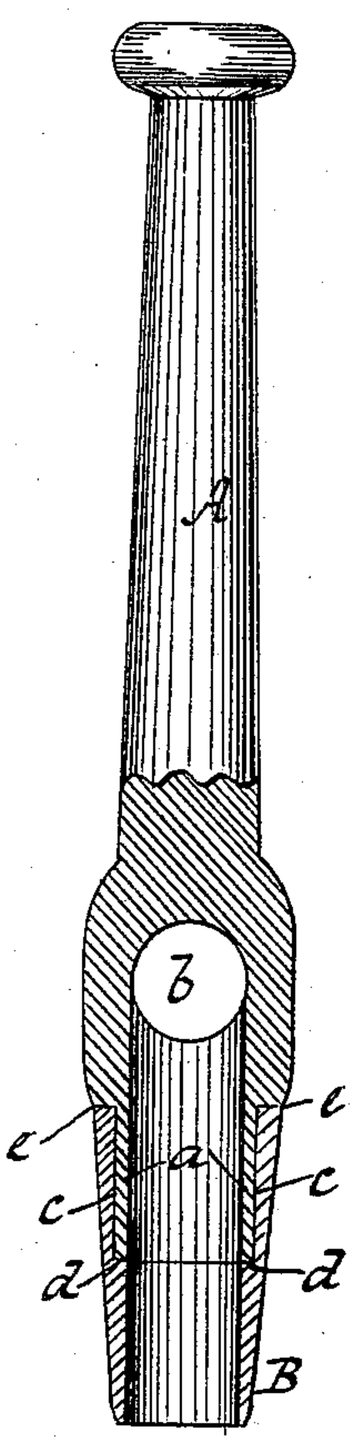
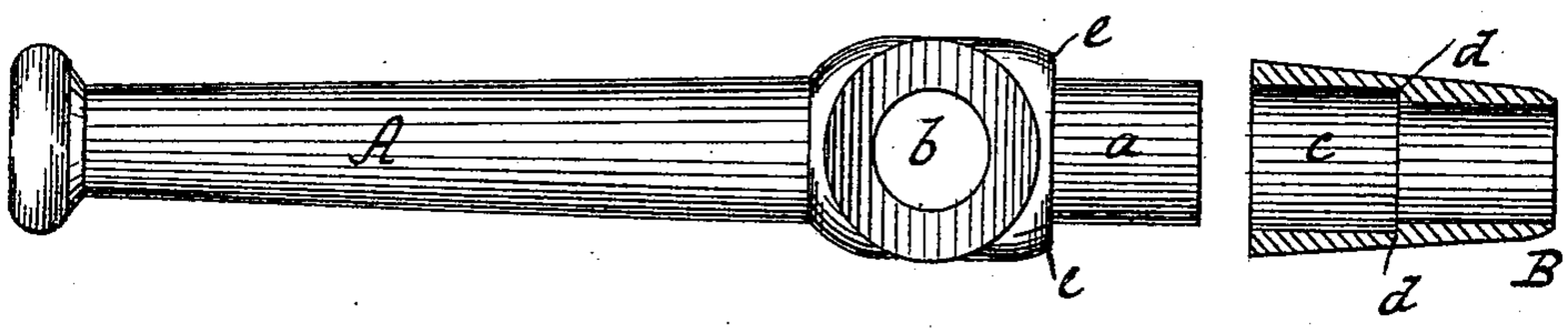


Fig. 4.

Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

BENJAMIN F. MITCHELL, OF MIDDLETOWN, CONNECTICUT, ASSIGNOR TO WILCOX, CRITTENDEN & CO., OF SAME PLACE.

HOLLOW PUNCH.

SPECIFICATION forming part of Letters Patent No. 300,624, dated June 17, 1884.

Application filed November 30, 1883. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. MITCHELL, a citizen of the United States, residing at Middletown, in the county of Middlesex and State of Connecticut, have invented new and useful Improvements in Hollow Punches, of which the following is a specification.

This invention has for its object to provide a novel and efficient hollow punch; and it consists in the construction and combination of devices hereinafter described and claimed, reference being had to the accompanying drawings, illustrating my invention, in which—

Figure 1 represents a face view. Fig. 2 is a side view. Fig. 3 is a section in the plane *x x*, Fig. 2. Fig. 4 is a side view of the handle. Fig. 5 is a section of the cutter.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates the handle of my punch, and B is the cutter. The handle is made of malleable iron, wrought-iron, steel, or any other material suitable for the purpose, and it is provided at its bottom end with a tubular projection, *a*, the bore of which communicates with a channel, *b*, extending transversely through the body of the handle. The cutter B is hollow, as shown in Fig. 3, and it is provided at its butt-end with a socket, *c*, to receive the tubular projection. If desired, the butt-end of the cutter may be turned off to fit the interior of the tubular projection *a*, and I do not wish to confine myself to the exact relation of these parts as the same are represented in the drawings. The cutter and the handle are detachably connected together by the frictional contact between the parts; but, if desired, a set-screw may be employed to rigidly but detachably connect these parts, as will be obvious without further illustration, the set-screw simply passing through the butt-end of the cutter to bind against the tubular projection of the handle when these parts are arranged as shown. The bore of the tubular projection *a* corresponds to the bore of the largest cutter which is to be fitted to the handle; but my handle can be used with different sizes of cutters, and in practice I intend to fit three sizes of cutters to one and the same handle. In using the cutter which may be attached to the handle, the wads freely discharge through the bore of the tubular projection and through the channel *b*.

At the inner end of the socket *c*, in the butt-end of the cutter B, is formed a shoulder, *d*, which abuts against the outer end of the tubular projection *a*, so as to prevent the cutter from being driven inward by the blows of the hammer or mallet to which the handle is exposed when the punch is used.

At the inner end of the tubular projection *a* is formed a shoulder, *e*, against which abuts the butt-end of the cutter B. The effect of this shoulder is practically the same as that of the shoulder *d*, and by the combined action of both shoulders the cutter is prevented without fail from being driven inward by the blows of the hammer, and at the same time a good finish is given to the punch when the cutter and the handle are united, as shown in the drawings.

By my invention much time and expense are saved in the manufacture of the punches.

In my punches the handles can be made of malleable iron, if desired, and one and the same handle can be used for several sizes of cutters, while if the handle and the cutter are made solid out of one and the same piece of metal the handle, as well as the cutter, must be made of steel, and since each cutter has its own handle a large quantity of steel is required for a series of punches, and the labor required in manufacturing said punches is much larger than that required for manufacturing the same number and sizes of punches according to my invention.

My invention is not confined to hollow cutters with a circular opening; but it is applicable to hollow cutters of any desired shape.

What I claim as new, and desire to secure by Letters Patent, is—

A hollow punch consisting of the handle A, having the transverse channel *b*, the smooth tubular projection *a*, and the lateral shoulder *e* at the base of the projection and below the transverse channel, and the hollow cutter B,

having one end formed into a cutting-edge, and constructed with the lateral interior shoulder, *d*, and smooth socket *c*, said cutter being detachably applied to the tubular projection, and the bore of the latter equal to or greater than the bore of the cutter, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

BENJAMIN F. MITCHELL. [L. S.]

Witnesses:
CARRIE T. E. SILL,
JAMES READ.