2 Sheets—Sheet 1.

L. CHAPMAN.

DIES AND PUNCHES FOR PICK-EYES.

No. 183,796. Patented Oct. 31, 1876.

Fig 1

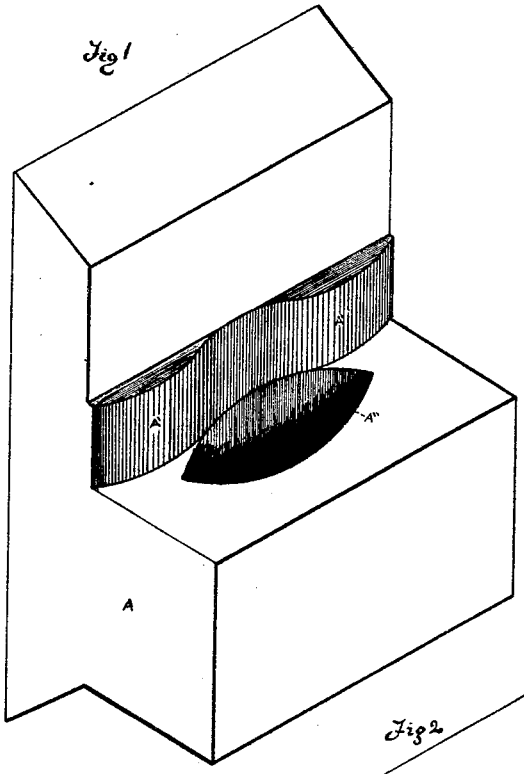


Fig 3

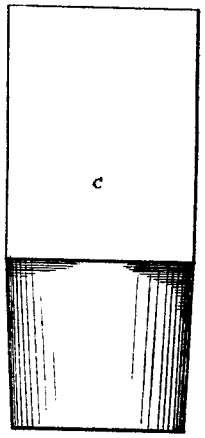


Fig 4

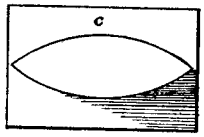
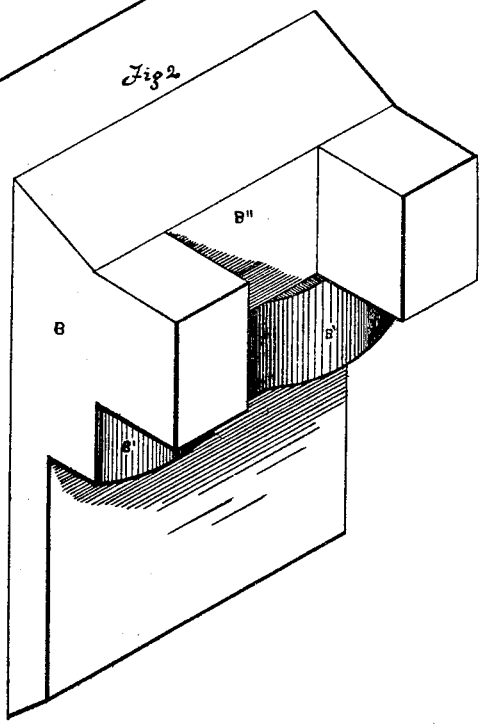


Fig 2



WITNESSES

Robt F. Gaylord

W. F. Dooley

INVENTOR

Luke Chapman

By Wm. E. Simonds

Atty

2 Sheets—Sheet 2.

L. CHAPMAN.

DIES AND PUNCHES FOR PICK-EYES.

No. 183,796. Patented Oct. 31, 1876.

Fig 5

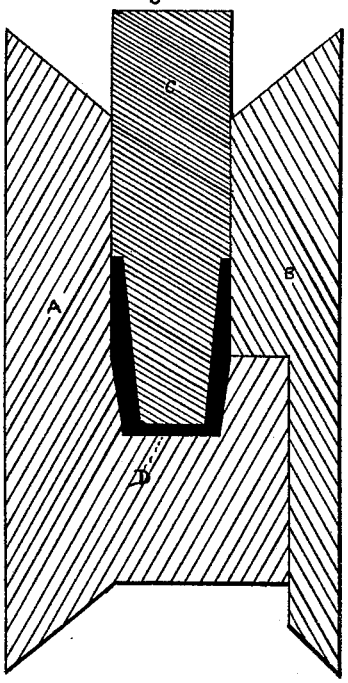


Fig 6

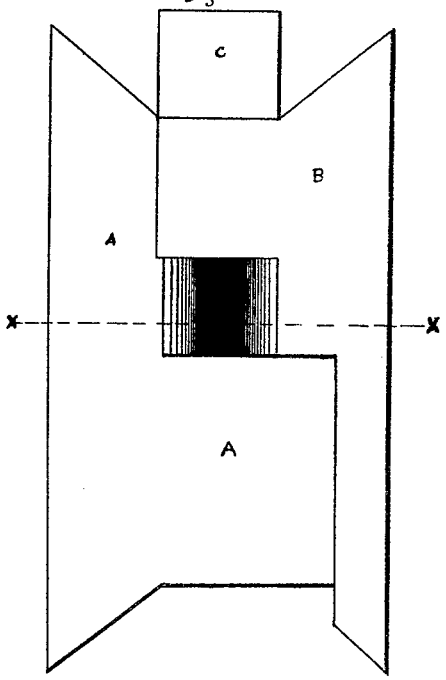
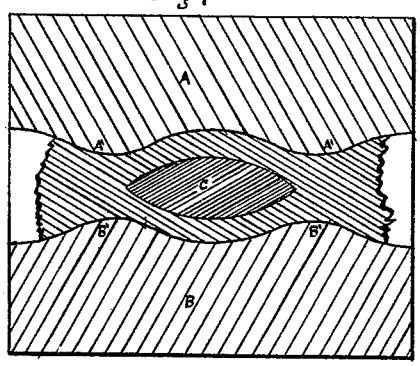


Fig 7



WITNESSES

Robt F Gaylord

M. F. Dooley

INVENTOR

Luke Chapman

By Wm E. Simonds

atty.

UNITED STATES PATENT OFFICE

LUKE CHAPMAN, OF COLLINSVILLE, CONNECTICUT, ASSIGNOR TO THE COLLINS COMPANY, OF SAME PLACE.

IMPROVEMENT IN DIES AND PUNCHES FOR PICK-EYES.

Specification forming part of Letters Patent No. **183,796**, dated October 31, 1876; application filed August 24, 1876.

To all whom it may concern:

Be it known that I, LUKE CHAPMAN, of Collinsville, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements pertaining to Dies and Punches for Producing Elongated Eyes upon Picks and other tools, of which the following is a specification, reference being had to the accompanying drawings, where—

Figure 1 is a face view of that half of the die which, in my practice, is usually stationary, and which I, therefore, term the "stationary die." Fig. 2 is a face view of the other half of the die, which I usually have move up to and away from the stationary die, and which I, therefore, term the "movable die." Fig. 3 is a broadside view of the punch. Fig. 4 is a front end view of the punch. Fig. 5 is a view of the two dies closed, and the punch in central vertical section; also, of the stock. Fig. 6 is an edge view of the dies closed and the punch. Fig. 7 is a view of the dies closed and the punch and stock in cross-section on the plane *x x*.

These are partible dies, by which I mean that the die that receives the stock, and which contains the matrix for the elongated eye, and irrespective of the punch, or the die which bears the punch, if such is used, is in parts, which close together face to face when the stock is operated on, and which afterward separate.

I have, prior to this writing, received patents and made other application for patents for improvements pertaining to dies and punches for producing elongated eyes upon picks and other tools, which embody the fundamental operating principles of the dies and punches herein shown and described, and this present patent is only intended to cover and claim certain improvements upon the dies and punches shown in said other patents and applications for patents.

The letter A denotes one half of the die, which, since the two halves are separate, I term "a die." I usually make this die stationary in the operating machine, and have the die B move up to it, though both may be made movable if desired, or the die B may be made stationary and die A movable. This die A has the curved side clamping-surface A′, and also the elongating-matrix A″ to receive and form the elongation of the eye.

The die B has also the side-clamping surface B′, corresponding to A′, but bears no part of the elongating-matrix; and, by preference, it bears the die-channel B″, though this die-channel may lie in either of the dies, or partly in both.

The swelled or curved contours of the side-clamping surfaces A′ B′ are for the purpose of forcing an extra amount of stock into the center of the matrix as the dies close upon the stock, and afterward preventing endwise or longitudinal flow of the metal.

The dies being open, the stock bar—a plain, straight bar of merchantable iron or steel—is heated to good forging-heat, and passed between the dies, which then close upon it. The punch C then moves down or forward to its work, punching and elongating the eye. I have shown it as leaving the web D in front of the punch, which is afterward cut or ground or sawed off to complete the eye.

These dies differ from former dies mainly in having the elongated matrix A″ non-partible and wholly in one of the dies, thereby almost, and generally wholly, preventing the formation of fins, to be cut off afterward, at the same time preserving the partible character of the side-clamping surfaces, which enable me to produce an elongated eye from a plain straight bar of merchantable iron without previous manipulation. The said fins are formed by the metal of the stock shooting out into the joints between the faces of the dies under the immense pressure put upon the stock by the punch, and when the elongated matrix is partible it affords greater chance for the formation of such fins, because the joint of the dies lies directly in front of the punch, which is not the case in the present dies.

In a previous application I have shown dies the same as these, except that the dies were in three parts, having two dies substantially like die B in this case, and a third die containing simply the elongating-matrix. Said three-part dies are an improvement over dies

shown in still prior application of mine, in which the elongation matrix is partible; but the present dies are an improvement over said three-part dies, because one of the chances for the formation of lateral fins is done away with herein.

So far as this patent is concerned,

I claim as my invention—

In combination, die A, bearing in one piece the side-clamping surface A′ and non-partible matrix A″, die B, bearing the side-clamping surface B′, and punch C, all substantially as described.

LUKE CHAPMAN.

Witnesses:

WM. E. SIMONDS,

ROBT. F. GAYLORD.