Sheet 1 - 2 Sheets.

J. C. Batcheller,

Farm Implements,

No. 53,258. Patented Mar. 20, 1866.

Fig. 1.

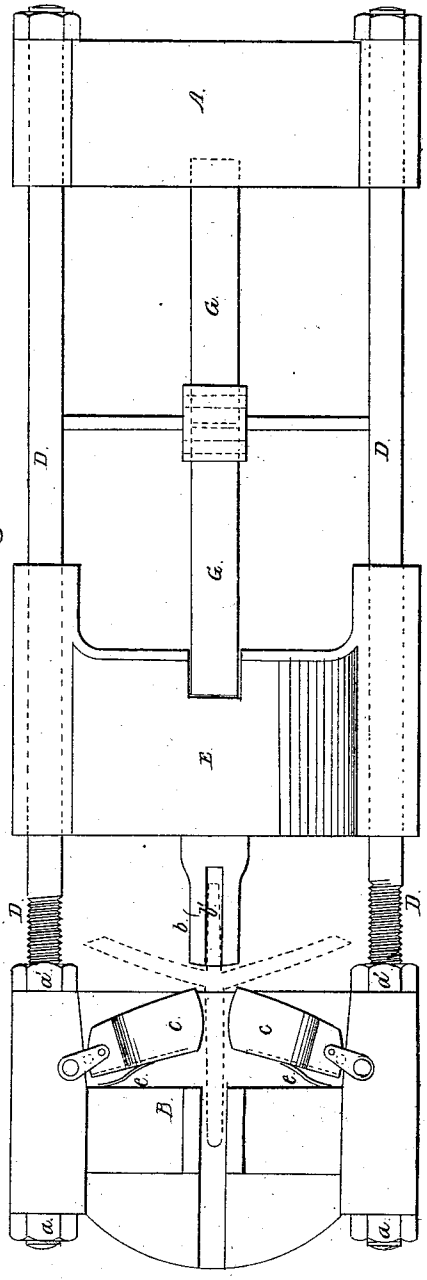
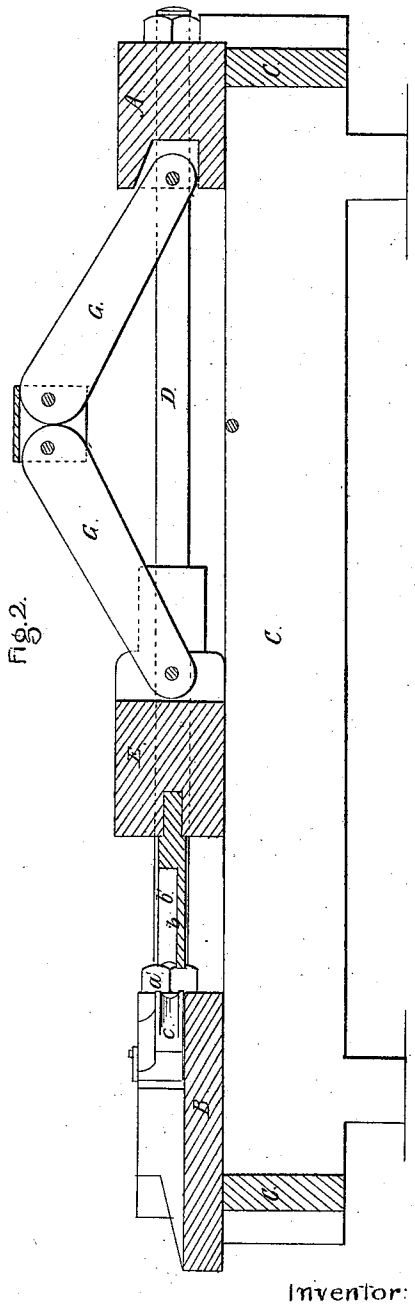


Fig. 2.



Witnesses.

R. Hampbell
Edw Schaefer

Inventor:

J. C. Batcheller
by his atty
Munn Howard & Lamm

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

Sheet 2 - 2 Sheets.

J. C. Batcheller,

Farm Implements,

No. 53,258. Patented Mar. 20, 1866.

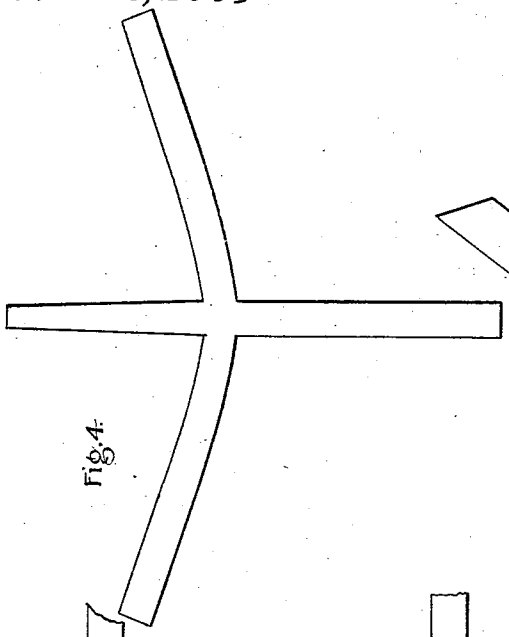


Fig. 4.

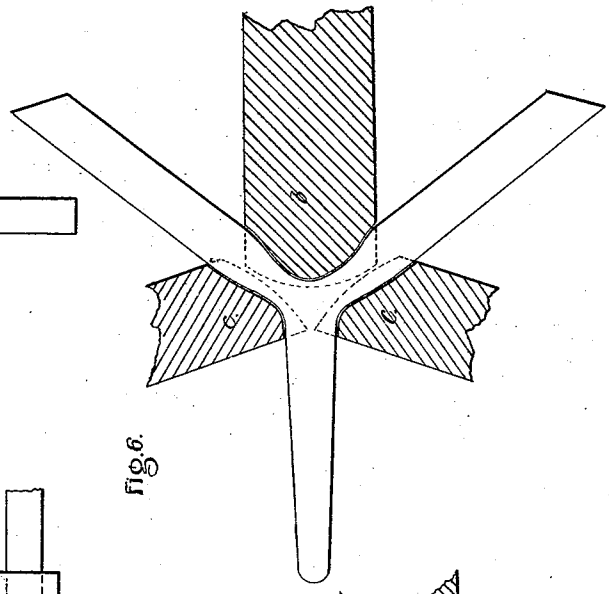


Fig. 6.

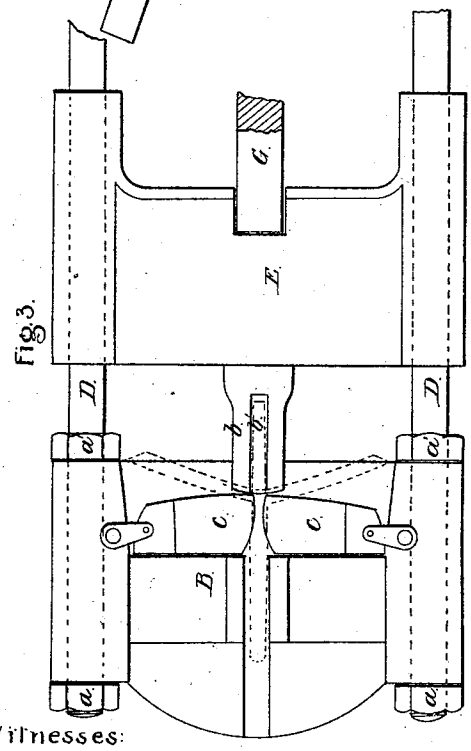


Fig. 3.

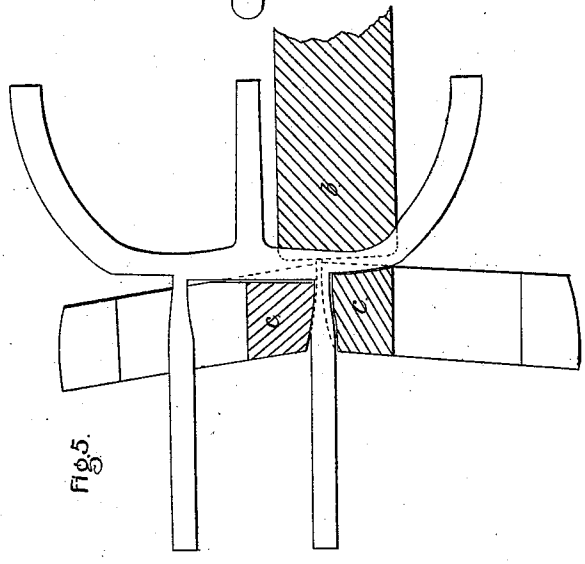


Fig. 5.

Witnesses:

R. Humphreys.
Edw. Schaefer

Inventor:

J. C. Batcheller
by his Attys
Marsh Fennell & Lawrence

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

J. C. BATCHELLER, OF WALLINGFORD, VERMONT.

IMPROVED MACHINE FOR FORMING THE SHOULDERS ON FORKS.

Specification forming part of Letters Patent No. **53,258**, dated March 20, 1866.

To all whom it may concern:

Be it known that I, J. C. BATCHELLER, of Wallingford, in the county of Rutland, State of Vermont, have invented a Mode of Swaging the Shoulders of Pitchforks; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1, Sheet 1, is a plan view of the machine, showing a fork-blank in position for being acted upon by the swaging-dies. Fig. 2, Sheet 1, is a longitudinal section taken in a vertical plane through the center of the machine. Fig. 3 is a top view of the swaging-dies when they are brought together upon the shoulders of a three-tined-fork blank. Fig. 4 is a view of a three-tined-fork blank before it is swaged. Fig. 5, Sheet 2, is a sectional view of dies for swaging the shoulders of a four-tined-fork blank. Fig. 6, Sheet 2, is a sectional view of dies for swaging the shoulders of a two-tined-fork blank.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to an improvement in the operation of making pitchforks, the blanks for which are stamped out of a plate of steel.

The object of my invention is to swage or upset the metal at the point of junction of the tines or the tang and tines with the head of the fork by means of machinery, so as to round the tines at the crotch, and not only form perfect shoulders, but strengthen the metal in so doing, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, A B represent two head-blocks, which are supported upon a table, C, at or near the extremities thereof. The block A is rigidly secured to the table C, and has two parallel bars, D D, projecting from it, which pass loosely through the ends of the block B and receive upon them nuts *a a'*, by means of which this block B can adjusted and secured at different points.

Between the two head-blocks A B, and guided by the parallel bars or ways D D, is a sliding head, E, which receives a reciprocating movement from the jointed levers G G, that may be acted upon by any suitable means. The outer extremities of these extension-levers are pivoted to the slide E and fixed head-block A, respectively, so that as the levers are straightened out or extended the slide E will be moved toward the head-block B with considerable force. This movable block E carries on one end a die, *b*, (shown in Figs. 1, 2, and 3, Sheet 1, and also in Figs. 5 and 6, Sheet 2,) which die may be constructed with a groove, *b'*, in its upper surface, and extending longitudinally through its center, for receiving the tang of a three-tined fork, as shown in Figs. 1 and 3; but when a two or four tined fork is to be swaged in the machine a die may be used which has no groove in its upper side, as shown in Figs. 5 and 6, provision being made for removing these dies and substituting others in their stead.

Near the forward end of the adjustable head-block B, and upon the horizontal surface of which, are two pivoted dies, *c c*, which are acted upon by springs *e e*, that thrust them out to the positions shown in Fig. 1. At the outer ends of these dies *c c*, and also in the rear of them, are abutments, against which they are forced by the die *b* during the swaging of a fork-blank. The head-block B is also constructed with a longitudinal groove extending through the center of its width for receiving one of the tines of a fork-blank, or the tang of a two-tined fork, and holding the blank in its proper position during the operation of the swaging-dies.

Those ends of the swaging-dies *b c c* which impinge upon the fork-blanks are grooved so as to conform to the points upon which they are made to act. The die *b* of Figs. 1 and 3 acts upon one side of the tines projecting from each side of the tang, and the two dies *c c* act upon the opposite sides of said tines, and also upon the central tine. The three dies operate together as the slide E is forced up, and the metal about the junction of the tines with the tang is compressed and left in a rounded form, or just such a form as is required before drawing and finishing the tines.

The dies of Fig. 5 are operated as above described, but differ slightly in their form to adapt them to a four-tined-fork blank. In this case two operations are required to form the rounded shoulders upon the fork. The first

operation swages the tines on one side of the tang; then the fork is turned over and the tines on the opposite side of the tang are swaged.

A two-tined fork is swaged at a single operation of the dies which are adapted for receiving between them the two tines and the tang.

It will be seen by reference to the dies of Figs. 1, 5, and 6 that the two pivoted dies operate upon the principle of toggle-levers, and as their free ends are forced backward they compress the metal with a gradually-increasing power as they approach the straight line shown in Fig. 3.

I do not confine my invention to any particular form of dies, as the dies will be varied in form according to the number of tines there are in the fork-blanks which it is desired to operate upon or the form of shoulders which it is desired to make.

My invention dispenses with the tedious and difficult operation of rounding the shoulders of fork-blanks by hand and hammer, and to perform this work altogether by machinery, as I have above set forth.

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

Producing rounded shoulders at the junction of the tines of a fork-blank with the tang by means of swaging-dies constructed and arranged substantially as described.

JOHN C. BATCHELLER.

Witnesses:
HARVEY BUTTON,
JOHN SCRIBNER.