

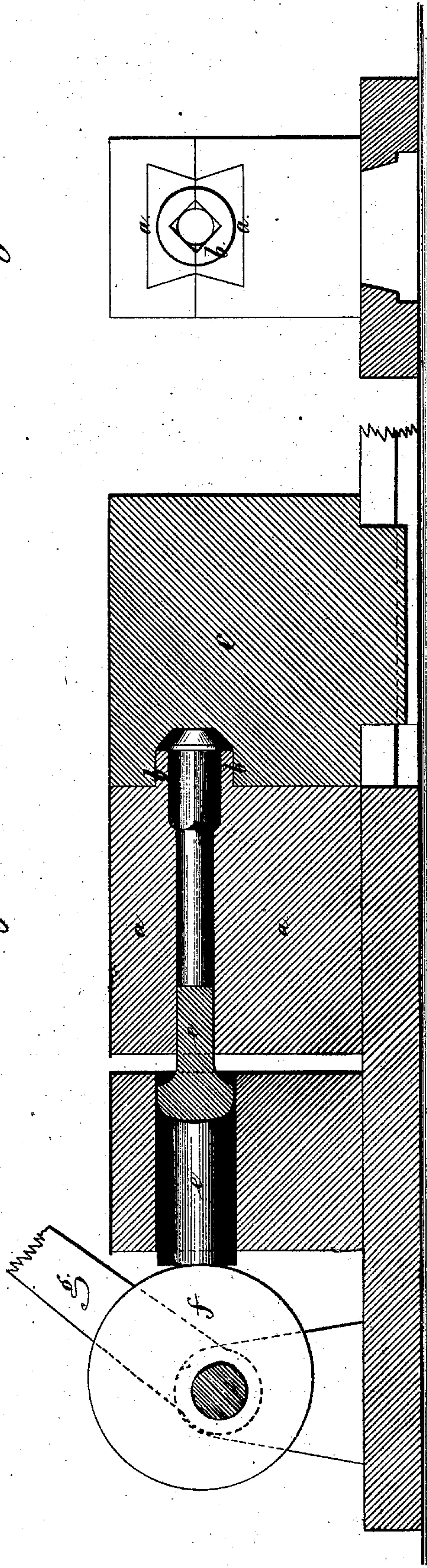
Daniel F. Coe. Impt. in Dies for Bolt Machines.

116270

PATENTED JUN 27 1871

Fig. 1.

Fig. 2.



Witnesses.

Charles Smith
Geo. F. Gurney

Daniel F. Coe
Lemuel W. Serrell *att'y.*

UNITED STATES PATENT OFFICE

DANIEL S. COE, OF PINE MEADOW, CONNECTICUT, ASSIGNOR TO HIMSELF, R. E. HOLMES, AND PHILIP E. CHAPIN, OF SAME PLACE.

IMPROVEMENT IN BOLT-MACHINES.

Specification forming part of Letters Patent No. 116,270, dated June 27, 1871.

To all whom it may concern:

Be it known that I, DANIEL S. COE, of Pine Meadow, in the county of Litchfield and State of Connecticut, have invented an Improvement in Dies for, and Process of, Heading and Upsetting Bolts by Machinery; and the following is declared to be a correct description of the same.

Dies for the manufacture of bolts have usually been made of three parts, one of them having a countersink of the shape of the head, and the other two acting to clamp the rod and hold it while the metal is upset to form the head. In this case there are two difficulties always experienced—the clamping-dies are exposed to great wear, and there is usually a feather formed around the bolt-head between the two surfaces of the dies. In making carriage-bolts, where there is a square along the body of the bolt next to the head the same is seldom complete and perfect, because the metal of the round bar is not spread so as to fill the dies. Dies for bolts have been made with a projection entering into a box-shaped die that forms the head, as may be seen in Letters Patent No. 83,377.

My invention relates to means for spreading the body of the bolt so that the square next the head is made full and sharp. Instead of clamping the bolt, as usual, between two dies, I introduce the same into a die that receives it freely, and a punch at one end supports the body of the bolt while the head is made, and then, by a supplemental action caused by a movement given to the body of the bolt while in the dies by said punch, the metal is spread to more perfectly fill the die and form the said square.

In the drawing, Figure 1 is a longitudinal section of said dies, and Fig. 2 is an end view of the dies for the bolt.

The dies *a a* are made with a hole through them of the size of the bolt. They may be of two pieces of metal brought firmly together, or of one piece. The projection *b* is of a shape correspond-

ing to that of the outline of the head of the bolt, and of a length of about half an inch, so that the cavity in the die *c* of the same shape may slide freely over this projection *b* and inclose the metal forming the head in a box, so that it may be pressed up accurately to the shape of the dies without forming a feather or rough edge to the bolt. The punch *e* is of a size to fit the hole in the dies *a a*, at the end opposite to the die *c*. The dies *a a* may remain stationary, and the die *c* and punch *e* be moved by power in a suitable press or machine, in which the following movements and operations are performed: The die *c* is drawn back, a hot blank of the proper length is inserted in the dies *a a*, the die or punch *e* is brought up to hold the round end of the bolt and form an anvil, while the die *c* is forced upon the blank to form the head. If the bolt is to have a square body next the head, the punch *e* is moved endwise after the head has been formed so as to upset and spread the metal and fill out the dies and make a perfect square upon the body. Or, if desired, the punch *e* may remain stationary, and the dies *c* and *a a* be moved by power against or onto it to spread the metal, fill out the dies, and make a perfect square upon the body. The cam *f* and lever *g* are shown as a means for giving an end movement to the punch *e*. The bolt may be ejected by opening the dies *a a* or by a further movement of the punch *e* after the die *c* has been drawn back.

I claim as my invention—

The combination of the dies *a*, heading-die *c*, punch *e*, and mechanism to cause said punch *e* to supplement the action of the heading-die *c* for squaring the shank of the bolt, substantially as specified.

Signed by me this 1st day of April, A. D. 1871.
DANIEL S. COE.

Witnesses:

E. M. CHAPIN,
PHILIP E. CHAPIN.