

J. F. Shearman.

Forging Metals.

N^o 56,804.

Patented Jul. 31, 1866.

Fig. 1

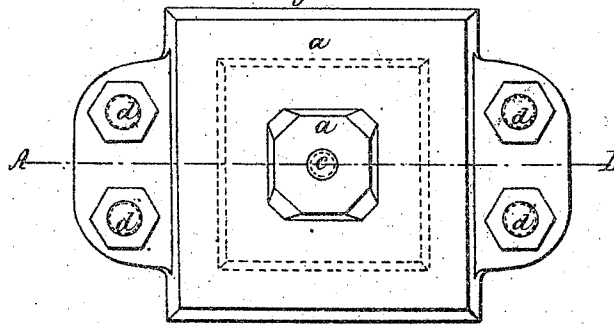
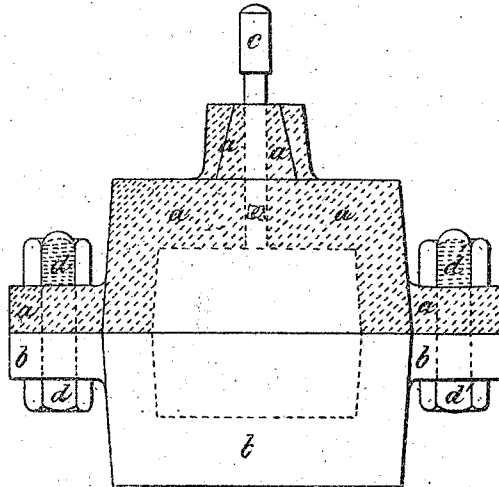


Fig. 2



Witnesses,

Ldney Hienius
Jabez Williams

Inventor

John F. Shearman

UNITED STATES PATENT OFFICE.

JOHN F. SHEARMAN, OF BROOKLYN, NEW YORK.

IMPROVED METHOD OF COMPRESSING, CONDENSING, AND EXTENDING METALS.

Specification forming part of Letters Patent No. 56,807, dated July 31, 1866.

To all whom it may concern:

Be it known that I, JOHN F. SHEARMAN, of the city of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Devices for Hammering and Condensing Metals and other bodies; and I hereby declare that the following is a full and sufficient description thereof, reference being had to the accompanying drawings and reference-letters marked thereon.

The nature of the invention consists in effecting the operation of hammering metals and other substances by the intervention of a liquid between the substance to be treated and the application of the power to be used, as explained in the description hereinbelow.

In the accompanying drawings, Figure 1 represents a plan of a case for containing the articles to be hammered; Fig. 2, an elevation of the case, the upper part being in dotted lines, the section being made in the line A B of Fig. 1.

Similar letters refer to similar parts in the several figures.

The internal irregular hexagon seen in Fig. 2 in dotted lines represents the chamber to receive the fluid, and containing also the articles to be treated.

c represents a steel punch, fitting the hole made to receive it, and bored thin at the lower end, as seen at *e*, and for the purpose of expanding under the pressure, thereby keeping the liquid confined beneath it, said compression of the liquid to be made by percussive force.

The letters *a a a a a* represent the upper part of the case, in one piece of metal.

Letters *b b b* represent the lower part of the case.

Letter *d* represents the left-hand bolts and nuts; *d'*, the right-hand bolts and nuts.

The special value and application of this invention consists in its capability of performing the operation of hammering metals and other substances, of whatever form they may consist, where the application of the hammer is impossible. Brass and wrought-iron can-

not be illustrations of its application. So are stereotype-plates, electrotype-plates, and all forms requiring compression or extension; and this is done without affecting, perceptibly, the finest finish.

The operation is as follows: Open the case by removing bolts *d d'*, and place the article to be hammered therein. Now close the case firmly by screwing down the bolts. Fill the case with the liquid intended to be used until it rises a little in the aperture of the punch. Now insert the punch and strike the head thereof with force sufficient to produce the desired effect, which will vary with different metals and other substances. Thus, soft brass will require but one blow; harder and tougher metals or alloys will require more blows than one. In fact, the workman must use the same judgment in the use of this instrument as he would in the use of a hammer, remembering, however, that with this instrument the force of the blows is applied to every part of the surface of the material operated on at the same instant; or, in the language of the workman, the blows are given all over at the same instant.

The operation being finished, open the case and remove the contents thereof. The metal will be found sufficiently hammered.

Having stated the nature of the invention and the method of using the same, what I claim as my invention, and desire to secure by Letters Patent, is—

1. The percussive condensation or extension, or both together, of solid or hollow bodies, commonly called "hammering," when effected by the intervention of practically non-elastic fluids or liquids between the hammer and the body to be operated on, substantially as set forth.

2. The operation of this hydraulic hammer, whether it be applied to change or not to change the shape of the article to be treated.

JOHN F. SHEARMAN.

Witnesses:

L. D. GALE,
C. G. ALLEN.