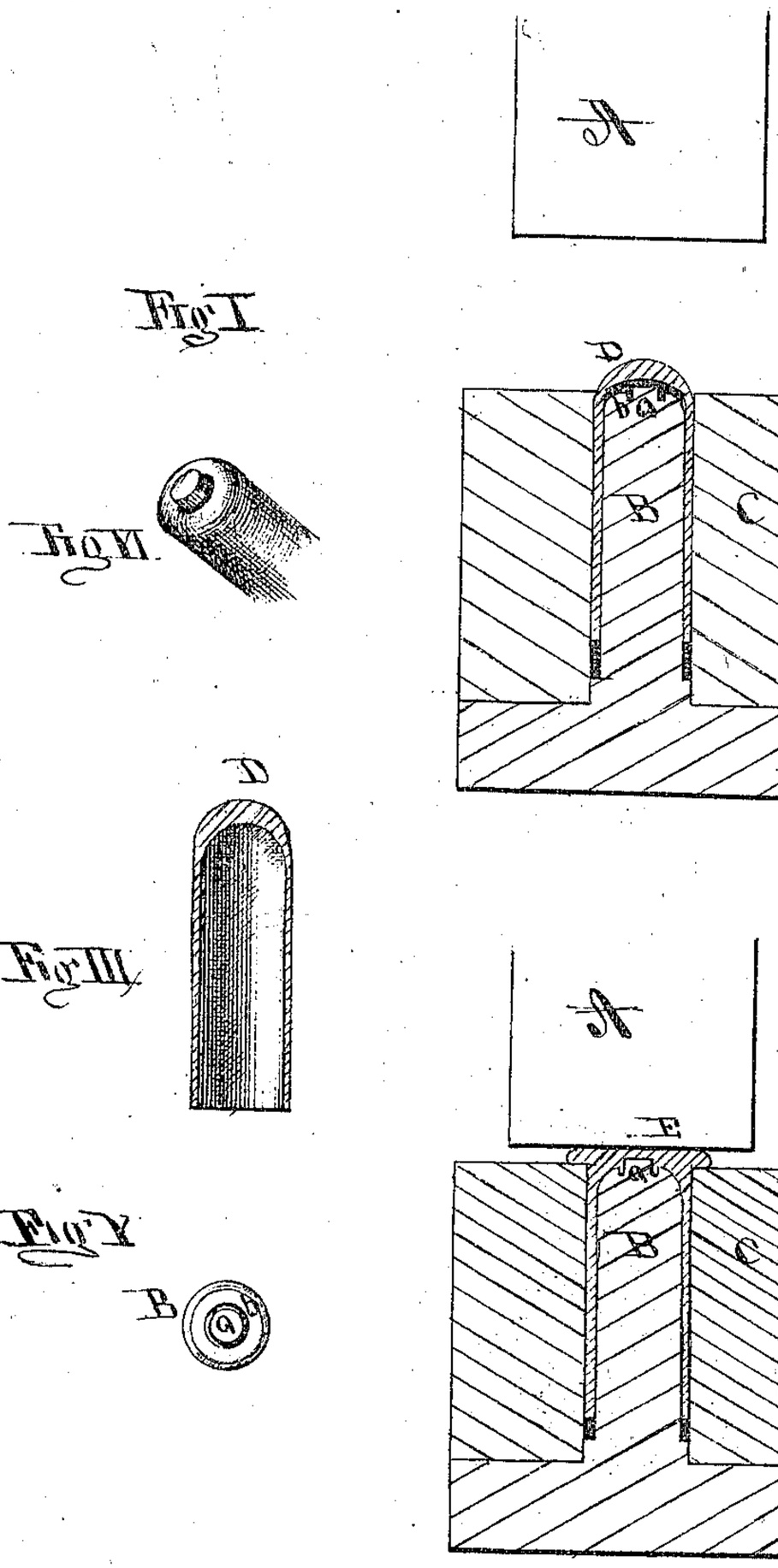
D. Smith,

Manf. Cartridge Shells,

No. 97,561. Patented Dec. 7, 1869.



Witnesses

J. E. Stanton

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Inventor

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UNITED STATES PATENT OFFICE.

DEXTER SMITH, OF SPRINGFIELD, MASSACHUSETTS.

IMPROVEMENT IN THE MANUFACTURE OF CARTRIDGE-SHELLS.

Specification forming part of Letters Patent No. 97,561, *dated December* 7, 1869.

To all whom it may concern:

Be it known that I, DEXTER SMITH, of Springfield, Hampden county, State of Massachusetts, have invented a new and useful Improved Method of Manufacturing Metallic Cartridges; and I do hereby declare that the following is a full and clear description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

In the drawings, Figure I is a vertical sectional view of the tools used in forming the head of my cartridge-shell, showing the shell in place before the head is formed. Fig. II is a similar view, showing the shell after the operation of forming the head. Fig. III is a longitudinal sectional view of the shell before the head is formed. Fig. IV is a similar view after the head is formed, also an inside view of the head. Figs. V and VI are end and perspective view of the punch for forming the inside of the head.

The operations performed in my invention are these: The shell is shown in Fig. III after having been drawn out into an elongated metallic cup in the ordinary form, except that there is greater thickness of stock at the part of which the head is formed. It is in this shape placed into the die C, fitting over the punch B. The header A is then brought down upon it, either by weight or power. This leaves the shell in the shape shown in Fig. IV, that is, ready for the fulminate to be placed into it, a completed shell.

The construction of the punch B is shown in Figs. I, II, V, and VI. It consists of a cylinder of the same diameter as the inside of the shell. Its end is formed with a projection, *a*, in the center, and around this there is a circular cavity, *b*, of about the eighth of an inch in depth. The punch is rounded off at the corners for a purpose hereafter mentioned.

The die C consists of a block of metal with a hole in it of the same diameter as the outside of the shell. The punch B is arranged in this hole in such a manner that the shell fits in the space between the outside of the punch and the inside surface of the hole. The projection *a* on the end of the punch projects sufficiently above the plane of the die at the top to cause the stock in the head of the shell to be thin enough to allow the fulminate on the inside to be ignited by a blow of the hammer upon the outside at this point, the cartridge being of the variety known as center-fire. When the head A descends upon the unheaded shell D it crowds the stock around the end of the punch, filling up the space between it and the die; the surplus stock is flattened out, and forms the rim. The projection *a* of the punch forms the cavity *d* of the shell, and the annular cavity *b* of the punch forms the inner flange *e* of the shell. The finished shell E so formed has a solid head with its inner corners curved, thereby bracing the head of the shell, and strengthening it very much.

The object of forming the punch with rounded corners is not only to give a greater thickness of stock at the inside corner of the shell, but, also, to prevent the stock from cracking at this point, which it is very apt to do if the punch is formed with a sharp corner, the wedge-shaped edge parting the stock at the first shock, and rendering the shell liable to blow out. When it is desired to form the cavity *d* on the outside of the shell, it is only necessary to form the projection *a* on the header, as well as the annular cavity *b*, and leave them off the punch, in which case the end of the same would be dome-shaped.

The advantages of this invention are that a solid head to the shell is formed at a single operation in a drop or press, leaving the shell ready for loading.

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

The method herein shown of striking up a solid head upon a metallic cartridge-shell by means of the punch B, die C, and header A, the parts being constructed, arranged, and operating in the manner and for the purpose shown and set forth.

DEXTER SMITH.

Witnesses:

EDWARD H. HYDE,

J. B. GARDINER.