

*J. F. Cranston,*  
*Making Cartridge-Shells,*  
*No 81,478,                      Patented Aug. 25, 1868.*

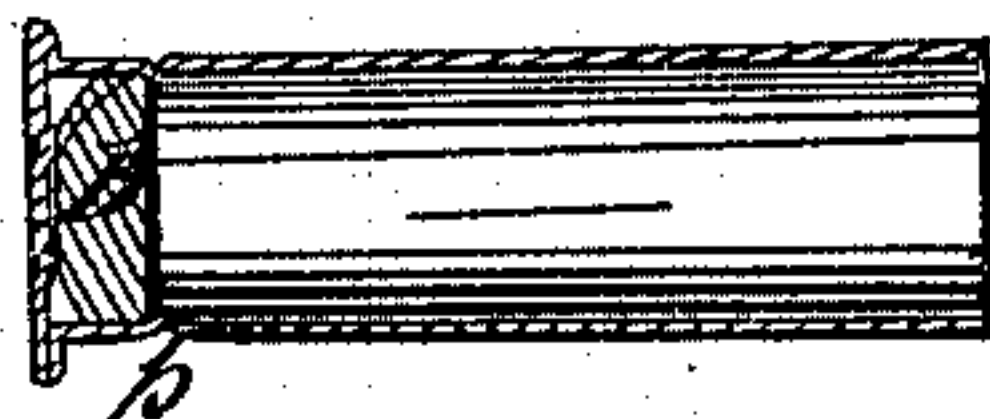
*Fig: 1*



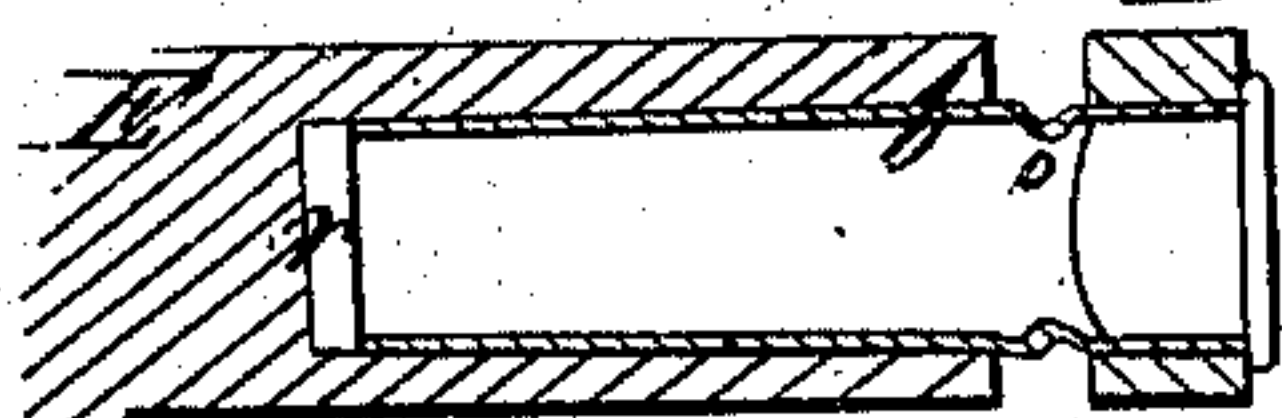
*Fig: 3*



*Fig: 2*



*Fig: 4*



*Witnesses.*  
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*Louis Le Rodier*

*Inventor*  
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JAMES F. CRANSTON, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO  
"THE AMERICAN TRADING COMPANY."

*Letters Patent No. 81,478, dated August 25, 1868.*

IMPROVEMENT IN THE CONSTRUCTION OF CARTRIDGE-SHELLS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JAMES F. CRANSTON, of Springfield, Hampden county, Commonwealth of Massachusetts, have invented certain new and useful Improvements in Centre-Fire Cartridges; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

In the drawings—

Figure 1 is a sectional view of my invention,

Figures 2 and 3 being diagram views of the same.

This invention consists in the peculiar manner of fastening anvils in centre-fire cartridges.

In fig. 1 is shown the anvil A, resting against the rear end of the shell. This disk is perforated in the centre, for the fire to communicate with the powder, the fulminate being placed in the end of the cartridge enclosed in the cavity *a*, formed by upsetting the metal, in the manner shown, so as to form a groove in the centre. In fig. 3 is shown the anvil, formed in the shape of a bar, extending across the rear end of the cartridge-shell. In this case, the fastening these pieces in the shell may be varied, although I prefer the following process and arrangement:

A thin shell of metal, *c*, is placed inside of the cartridge-shell *b*, fitting it tightly inside. This shell extends as far inside the shell *b* as the front edge of the porcelain disk or bar. The shell *b* has a groove run around the outside at this point, crimping in the edge of the inside shell *c*, which forms there a projection, for holding in the porcelain.

In Figures 2 and 4 is shown my method of fastening in the shell. This is done by upsetting a flange, *p*, by means of the dies F and E, used in the operation of tapering the shell. A groove, *o*, having been run around the shell, and the anvil already in place, the die F is put over the shell, and passed back to the rear part, as shown in fig. 4. The die E, having a tapering bore, is then put over the front part of the shell, and forced down, the shoulder *r* striking the end of the shell before the dies close. This upsets the metal in the groove *o*, and forms the flange *p* at the same operation in which the shell is tapered.

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

Forming the flange *p* on the inside of the shell, by means of the dies E and F, at the same operation in which the shell is tapered, substantially as shown.

Witnesses:

R. F. HYDE,

J. B. GARDINER.

JAMES F. CRANSTON.