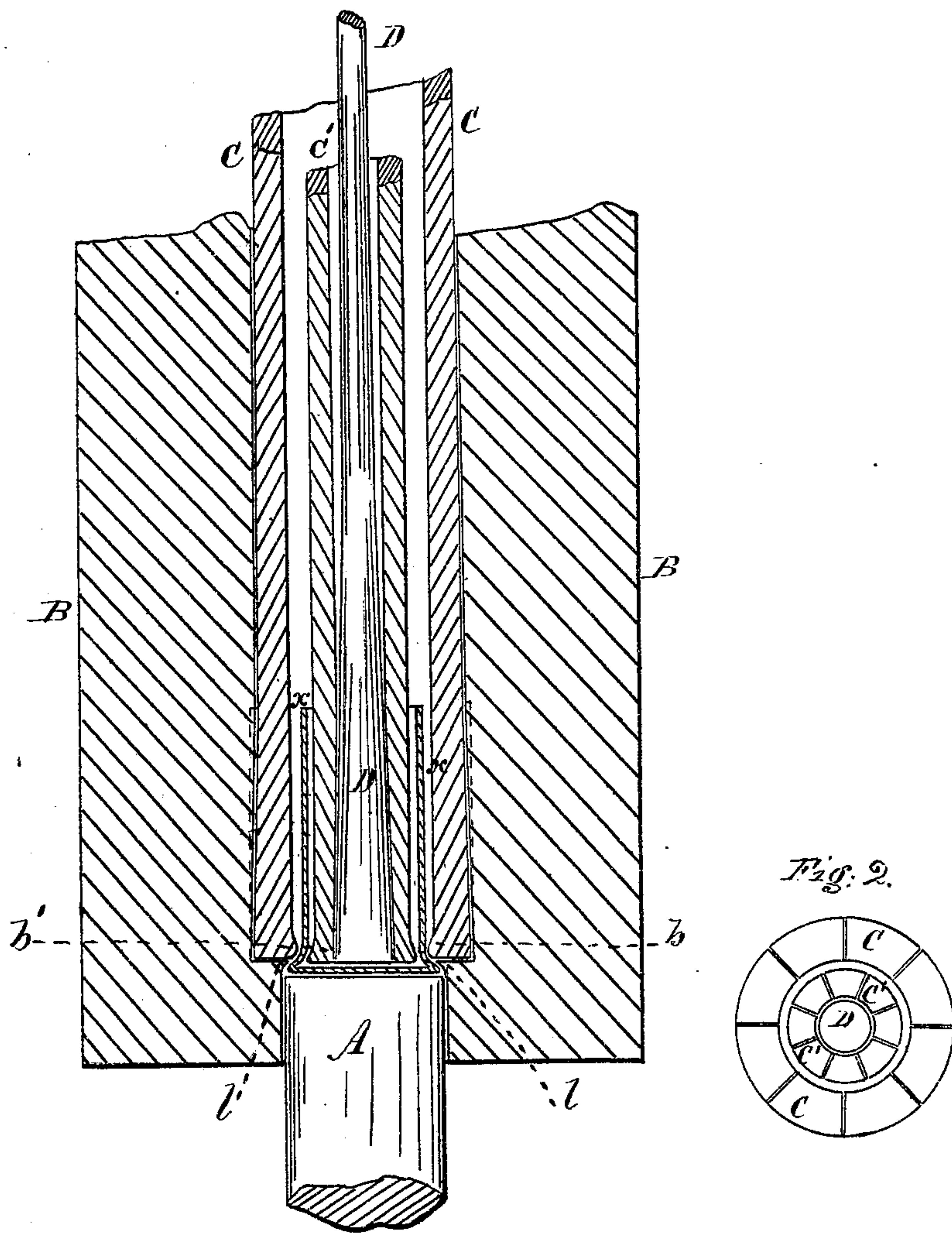


STEPHEN W. WOOD.

Improvement in Machines for Tapering Cartridge-Shells.

No. 126,612.

Patented May 7, 1872.



Witnesses,

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IMPROVEMENT IN MACHINES FOR TAPERING CARTRIDGE-SHELLS.

Specification forming part of Letters Patent No. 126,612, dated May 7, 1872.

To all whom it may concern:

Be it known that I, STEPHEN W. WOOD, of Cornwall, county of Orange, and State of New York, have invented an Improved Machine for Tapering Metallic Cartridge-Shells; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing making part of this specification—

Figure 1 being a central longitudinal section of the principal parts of the machine; Fig. 2 an end view of the expanding and contracting tools by which the tapering of the shells is effected.

Like letters indicate corresponding parts in both of the figures.

In this machine the tapering of the shells is effected by means of two expanding and contracting tools drawn or moved longitudinally, one along the exterior and the other along the interior surface of the shells; the said tools being simultaneously contracted during the movement, so as to produce the exact taper on the shells, substantially as herein specified.

The essential parts of the machine, as represented, are: A seat or support, A, for the shells; an outer expanding and contracting tool, C, and an inner expanding and contracting tool, C'; an exterior die, B, provided with tapering or converging walls to guide the movement of the outer tool C, and an interior tapered rod, D, to guide the movement of the inner tool C', to produce the required taper of the shells. Each shell *x* is first placed upon the seat or support A, and then the outer hollow die B is brought down over the shell, (or the shell is moved up into the said die,) and may assist in holding it in place by means of a lip or projection, *l*, reaching over the flange of the shell, as represented. The interior surface or periphery of the die B is of taper form, to correspond with the required taper of the shell, and acts to contract the outer tool C, when the latter is drawn over the exterior surface of the shell, so as to produce a corresponding taper on the shell; and the tapered rod D has a taper form, largest at the lower or inner end, and acts to allow the inner tool C' to contract, as it is drawn along the interior surface of the shell, so as to produce a corresponding taper on the shell inside.

In the operation of the parts, the movements of which may be produced by any suitable and known means, after the shell *x* has been

brought into position on the holder A, and inside of the outer cam B, the outer drawing tool C having previously been introduced therein, then the inner tool C' and tapered rod D descend together to the base of the shell—or first the cam rod, and lastly the inner tool. The parts are then all in place, as shown in Fig. 1, ready to commence the action of tapering the shell. The outer tool C has an inwardly-projecting lip or working-edge, *b*, at the lower end; and the inner tool C' has an outwardly projecting lip or edge, *b'*, at its lower end. When the two tools have been brought into the position shown, these two lips are opposite to each other, and in contact with the shell, with just its thickness between them. Then the two tools are drawn simultaneously upward or out of the shell, and with equal speed, the two lips *b b'* keeping opposite to each other and pressing the thickness of the shell between them. The die B and tapered rod D during this movement remains stationary, the former gradually contracting the outer tool C by its interior taper surface, and the latter by its taper surface allowing the inner tool C' to recede and contract in the same degree. The result is the tapering of the shell as desired. The tapered rod D is then withdrawn from the shell, and the tapered shell is removed from the machine to give place for the succeeding shell, on which the same operation is repeated.

The position of the parts of the machine may be as shown, or in a reverse vertical position, or may be horizontal or inclined. When the parts are in an inverted position in relation to the position shown, the part A may be dispensed with.

In order to allow the tools C C' to expand and contract they are or should be, preferably, divided radially into longitudinal sections, as shown in Fig. 2, and these sections may be elastic, so as to spring out or in to produce the requisite expansion and contraction.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the expanding and contracting tools C C', die B, and tapered rod D, constructed and operating substantially as and for the purpose herein specified.

STEPHEN W. WOOD.

Witnesses:

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