(No Model.)

J. ORCUTT & C. R. RICHARDS.

APPARATUS FOR SHAPING OR ORNAMENTING HOLLOW WARE.

No. 269,811. Patented Dec. 26, 1882.

Fig 1

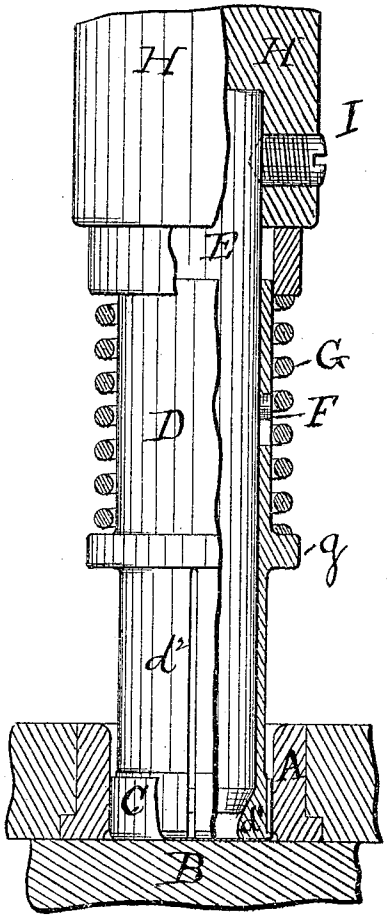

Fig 3

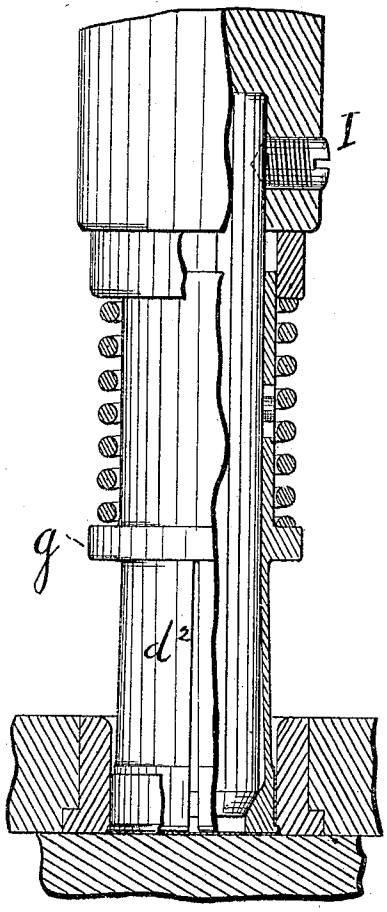

Fig 2

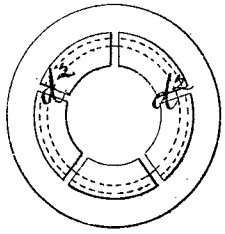

Fig 4

Fig 5

Witnesses
John A. Loes
John J. Cauldwell.

Inventors
Jerome Orcutt
Charles Rhoderick Richards
per E. G. Thompson
their Attorney

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JEROME ORCUTT AND CHARLES R. RICHARDS, OF BRIDGEPORT, CONNECTICUT, ASSIGNORS TO THE UNION METALLIC CARTRIDGE COMPANY, OF SAME PLACE.

APPARATUS FOR SHAPING OR ORNAMENTING HOLLOW WARE.

SPECIFICATION forming part of Letters Patent No. 269,811, dated December 26, 1882.

Application filed November 18, 1882. (No model.)

To all whom it may concern:

Be it known that we, JEROME ORCUTT and CHARLES RHODERICK RICHARDS, citizens of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful Apparatus for Shaping or Ornamenting Hollow Ware, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 represents the apparatus partly in section in position to operate. Fig. 2 represents an end view of the expanding plunger. Fig. 3 represents the apparatus partly in section, showing the location or position of the several parts when the operation is completed. Fig. 4 represents a blank before being operated upon, and Fig. 5 represents a blank after being operated upon.

Similar letters refer to similar parts in the several figures.

Our invention relates to the manufacture of hollow ware such as is usually made of sheet metal, paper, hard rubber, or like materials with flanges, volutes, or other conformations found on their exterior surfaces, either for ornamental or other purposes; and we form such flanges, volutes, or conformations in any desired article by pressing them into the material of which such article is made from the inside outwardly.

The apparatus may be used to produce any desired external ornamentation or configuration and for a great number of different articles.

We have represented the parts shown in the drawings (and for the purpose of illustrating the operation of the apparatus only) as applicable to the formation of boxes with a simple flange at the bottom, and a box as the article being made.

A is a die the cavity in which (or its inner form) corresponds to the external form that is to be given to the article or box, (in the drawings.)

B is the bed-plate of the press, on which the die A rests.

C is a blank for a box. (This blank, as those for any and all articles to be formed by this apparatus, should be given a shape substantially that of the finished article, excepting of course the specific conformation to be given it by this apparatus before being subjected to its operation.)

D is the external expanding plunger, and it is fastened to the internal plunger, E, by the pin F, which plays through a slot in its side. The external plunger, D, is hollow, and at its lower end is divided into a number of sections by being slit from the bottom upwardly, as best seen at d^2, Fig. 2. These slits divide the lower portion of the external plunger, D, into a number of downwardly-projecting finger-like ends, which may be expanded at their lower ends by the action of the internal plunger, E, as hereinafter set forth, and at or near their lower ends, and on the outer surface thereof, is formed the counterpart of the flange, volute, or other ornamentation desired to be produced on the exterior of the article. (In the drawings it is a flange on a box.) A fac-simile of this is, as already stated, formed on the inside of the die A. The external plunger, D, on its lower inner surface and at the lower ends of the finger-like ends has a conical surface, as shown at d', against which the lower conical end of the internal plunger, E, strikes when the machine is operated, and the internal plunger, E, being forced down, the external plunger, D, is expanded at its lower portion. The internal plunger, E, fits loosely inside the external plunger, D.

F is a pin which passes through the internal plunger, E, and enters and works in slots cut in the sides of the external plunger, D, its function being to hold the two plungers D and E together and prevent the spring G from forcing the external plunger, D, away from its proper position. This spring G abuts at one end, as shown at g in the drawings, against any suitable support on the external plunger, D, and at its other end against the end of the ram or gate H, its function being to keep the external plunger, D, when in its normal position, extended beyond the end of the internal plunger, E.

H is the ram or gate of the press, to which the apparatus is attached by the screw I, or in

any other desired manner. The finger-like extremities of the external plunger are preferably made of steel having a spring temper.

The operation is as follows: The apparatus being attached to the ram of the press, and the die A being placed beneath it in proper position, a blank is placed in the die A with its open end upward. The ram now descends, carrying both plungers D and E with it. Both plungers enter the blank until the lower end of the external plunger D rests against the inside of the bottom of the blank. The further motion of the external plunger, D, is thus arrested; but the ram, continuing to descend, forces down the internal plunger, E, the pin F moving through the slot in the external plunger, D, and the spring G being compressed. As the internal plunger, E, is forced down, its conical lower end comes into engagement with the inwardly-projecting circumferential conical surface, as shown at d', on end of the finger-like extremities of the external plunger, D, forcing them outwardly, so that the projections on their outer surfaces press the metal or other material of which the blank is composed into the corresponding cavities or depressions on the inside of the die A. When the internal plunger, E, has fully descended, the ram is allowed to rise, which carries upward the internal plunger, E, first, the external plunger, D, being held down by the spring G until the pin F reaches the top of the slot, by which time the finger-like ends of the external plunger, D, will have returned to their natural and normal position. Then both plungers D and E are carried upward and out of the blank and die A. The die A may then be moved on or swung off from the table or dial on which it rests, and the completed box (or other article) allowed to drop out or be punched out; or the die A may be made in sections in any known manner, which, when separated, will allow the box or other article to be removed.

There may be a series of dies, A, placed on a table or revolving dial, if desired, which shall successively move over a hole or vacant place in the table of the machine, and a punch, either operated by the machine or otherwise used to punch out the completed boxes or other articles at the same time that other blanks are being placed in other of the dies and the apparatus is operating upon another blank, and instead of a ram any other suitable press may be used to operate the apparatus.

We have shown and described the apparatus operating as a vertically-acting downward-pressure machine. It may also be used horizontally or inversely vertical. In this latter position the blank to be operated upon may be simply placed over the end of the external plunger, D, and it will then be carried by it upwardly into the die A.

We do not limit ourselves to the specific details of construction, since they may be extensively varied without departing from our invention.

We claim—

1. The combination of the die A, the plunger D, the plunger E, and the press H, substantially as and for the purposes described and set forth.

2. The combination of the support B for the die, the die A, the plunger D, the plunger E, the pin F, and the press H, substantially as and for the purposes set forth.

3. The combination of the support B for the die, the die A, the plunger D, the plunger E, the pin F, the spring G, and the press H, substantially as and for the purposes set forth.

JEROME ORCUTT.
CHARLES R. RICHARDS.

Witnesses:
J. N. STANDISH, Jr.,
G. A. JENNISON.