B. TATHAM.

Apparatus for Manufacture of Drop-Shot.

No. 198,057. Patented Dec. 11, 1877

Fig.1.

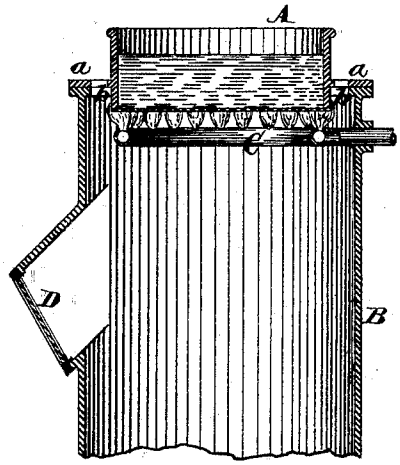


Fig.2.

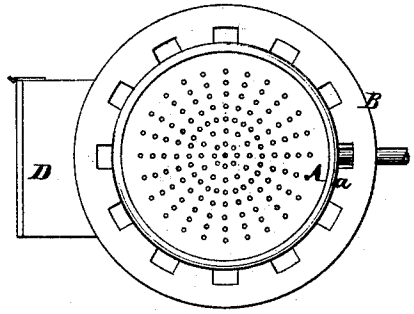
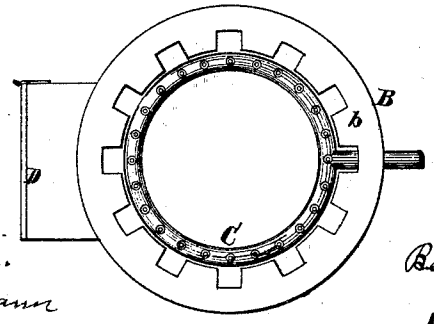


Fig.3.



Witnesses.
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Hugo Bruggemann

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UNITED STATES PATENT OFFICE.

BENJAMIN TATHAM, OF NEW YORK, N. Y.

IMPROVEMENT IN APPARATUS FOR MANUFACTURE OF DROP-SHOT.

Specification forming part of Letters Patent No. **198,057**, dated December 11, 1877; application filed October 20, 1877.

To all whom it may concern:

Be it known that I, BENJAMIN TATHAM, of the city, county, and State of New York, have invented a new and useful Improvement in the Apparatus for the Manufacture of Drop-Shot, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a vertical central section of my invention. Fig. 2 is a plan or top view. Fig. 3 is a similar view when the dropping-pan has been removed.

Similar letters indicate corresponding parts.

This invention consists in the combination, in an apparatus for manufacturing drop-shot, of a shield or cylinder with the dropping-pan, said shield or cylinder being closed at the top and open to the atmosphere at the bottom, for retaining heat and keeping currents of air from the outside surfaces of the pan; also, in the combination, with the dropping-pan, of a gas-flame or other supply of artificial heat for regulating and controlling the temperature of the metal in the dropping-pan; further, in the combination, with the dropping-pan, of a gas-flame or other supply of artificial heat, and of a shield or cylinder for retaining heat and keeping currents of air from the outside surfaces of the dropping-pan.

Drop-shot has heretofore been made by passing prepared metal through holes in the bottom of an iron cylinder called a "dropping-pan," made large enough to contain a body of metal from three to four inches deep and with a diameter of about ten or twelve inches.

This dropping-pan is so arranged that the molten metal shall issue through its holes in the form of drops more or less rapidly, or be formed into drops immediately thereafter and become solidified during their descent into a reservoir of water below.

In practice, it has been found that the metal, while in and passing through the dropping-pan, loses so much of its heat by the currents of air which come in contact with the bottom and sides of the pan that the flow is liable to be retarded or stopped, and it is often necessary to return a large portion of the metal from the pan to the melting-pot, to be replaced by a fresh supply of metal of the proper temperature.

The object of my invention is to regulate the temperature of the metal in the dropping-pan and to shield the bottom and sides of said pan against currents of air which would abstract heat from the metal in its passage through the same.

In the drawing, the letter A designates the dropping-pan, which rests upon the shield or cylinder B, and is held at a sufficient elevation above a reservoir of water. On the outside of the pan is formed a flange, *a*, which rests upon a rim or flange, *b*, projecting inwardly from the upper edge of the cylinder B. Both these flanges are provided with openings, so that by turning the pan the openings in the flange *b* of the cylinder can be opened or closed, to suit circumstances.

Below the bottom of the dropping-pan is situated a gas-pipe, C, bent so as to form a circle, and provided with a number of small openings or burners, so arranged that when the gas issuing from these burners is ignited the flames will play upon the bottom of the pan.

The cylinder B is provided with one or more transparent doors, D, to enable the workman to see and have access to the bottom of the pan. The length and diameter of the cylinder may vary as circumstances may require. I have found that a diameter a little larger than the pan and six feet long answers for ordinary size of shot.

It is obvious that the construction of my apparatus may be varied in different ways. For instance, the gas-pipe may be replaced by any other suitable means for producing artificial heat beneath the bottom of the pan without obstructing the passage of the molten metal from the dropping-pan to the reservoir of water below.

By means of the shield or cylinder B the bottom and sides of the dropping-pan are protected against currents of cold air, and by the gas-pipe or other equivalent means for producing artificial heat, the temperature of the metal in the dropping-pan can be kept up or raised to the degree necessary to insure a spherical form after the metal leaves the perforated bottom of the pan and before it passes through the air in the shield or cylinder to the colder stratum of air below and becomes solidified.

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

1. The combination, in an apparatus for manufacturing drop-shot, of a shield or cylinder with the dropping-pan, said shield or cylinder being closed at the top and open to the atmosphere at the bottom, for retaining heat and keeping currents of cold air from the outside surface of the pan, substantially as set forth.

2. The combination, in an apparatus for manufacturing drop-shot, of a dropping-pan, with a gas-flame or other supply of artificial heat supplied to the bottom of the pan for regulating and controlling the temperature of the metal in said pan, substantially as described.

3. The combination, in an apparatus for manufacturing drop-shot, of a dropping-pan, a gas-flame or other supply of artificial heat situated in the interior of the shield, directly under the bottom of the dropping-pan, and of a shield or cylinder for retaining heat and keeping currents of cold air from the outside surface of the dropping-pan, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of October, 1877.

BENJN. TATHAM.

Witnesses:
W. HAUFF,
CHAS. WAHLERS.