

(No Model.)

2 Sheets—Sheet 1.

S. POOLE.

POWDER WARMING APPARATUS.

No. 291,932.

Patented Jan. 15, 1884.

Fig. 1.

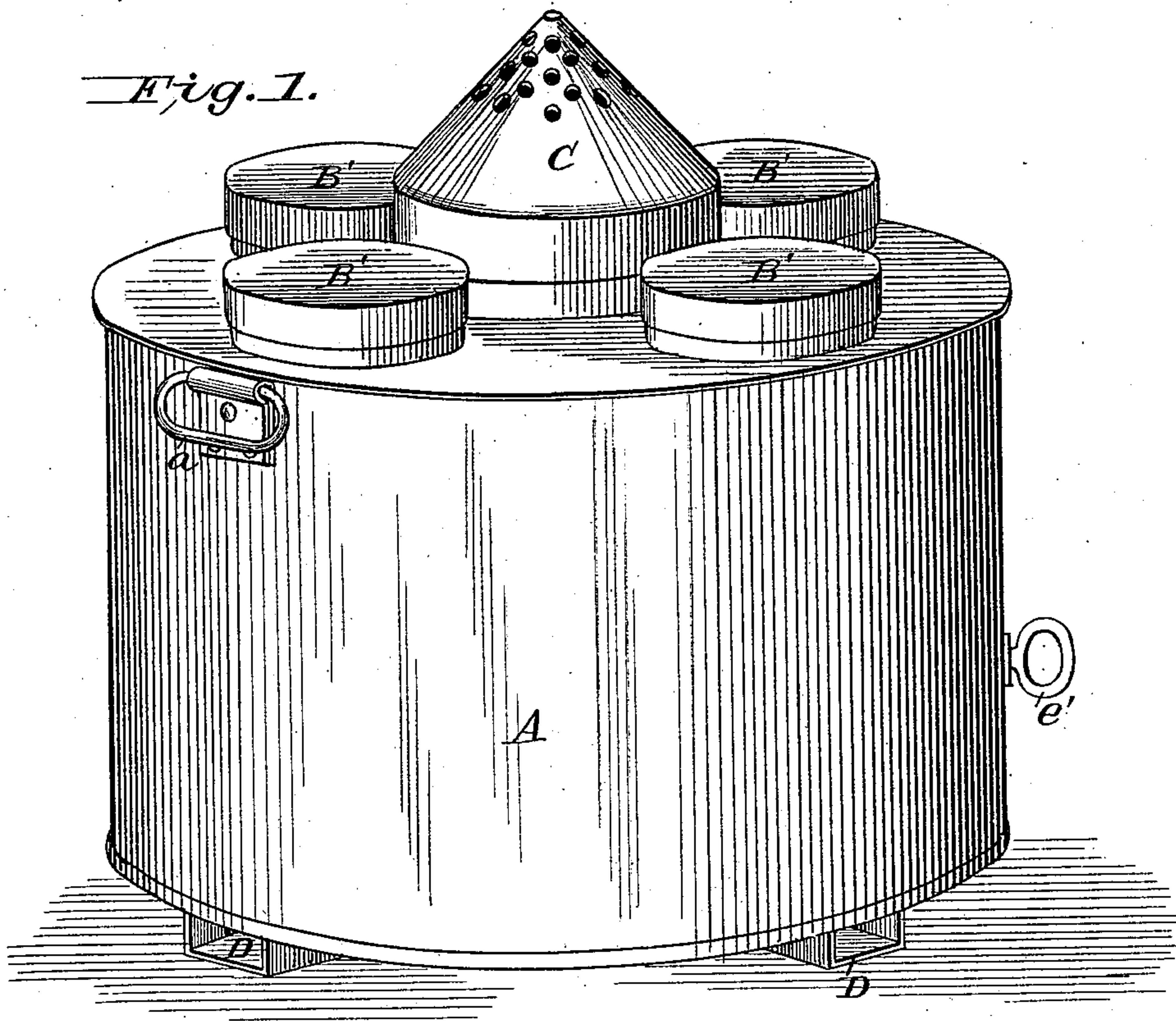
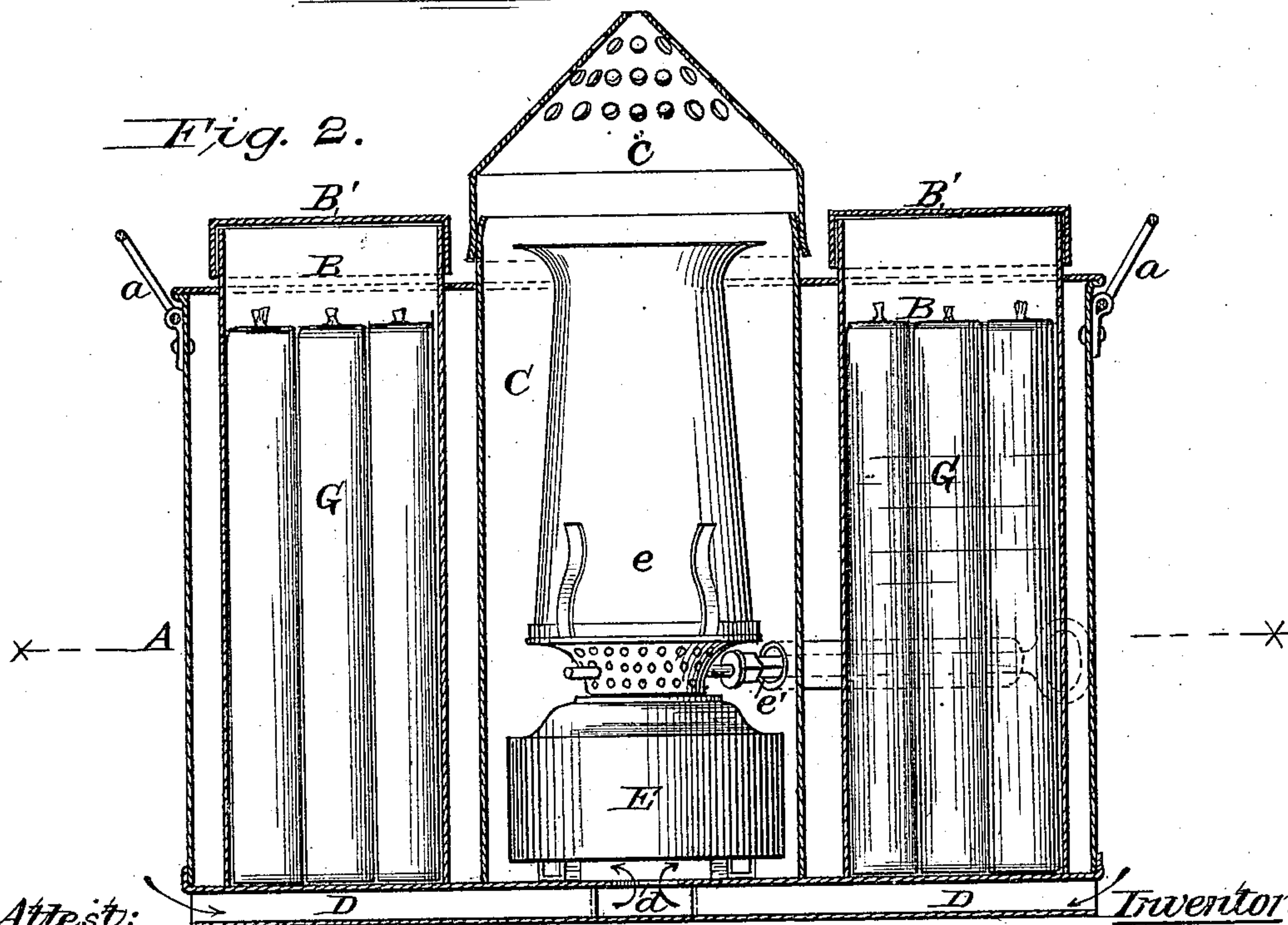


Fig. 2.



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(No Model.)

2 Sheets—Sheet 2.

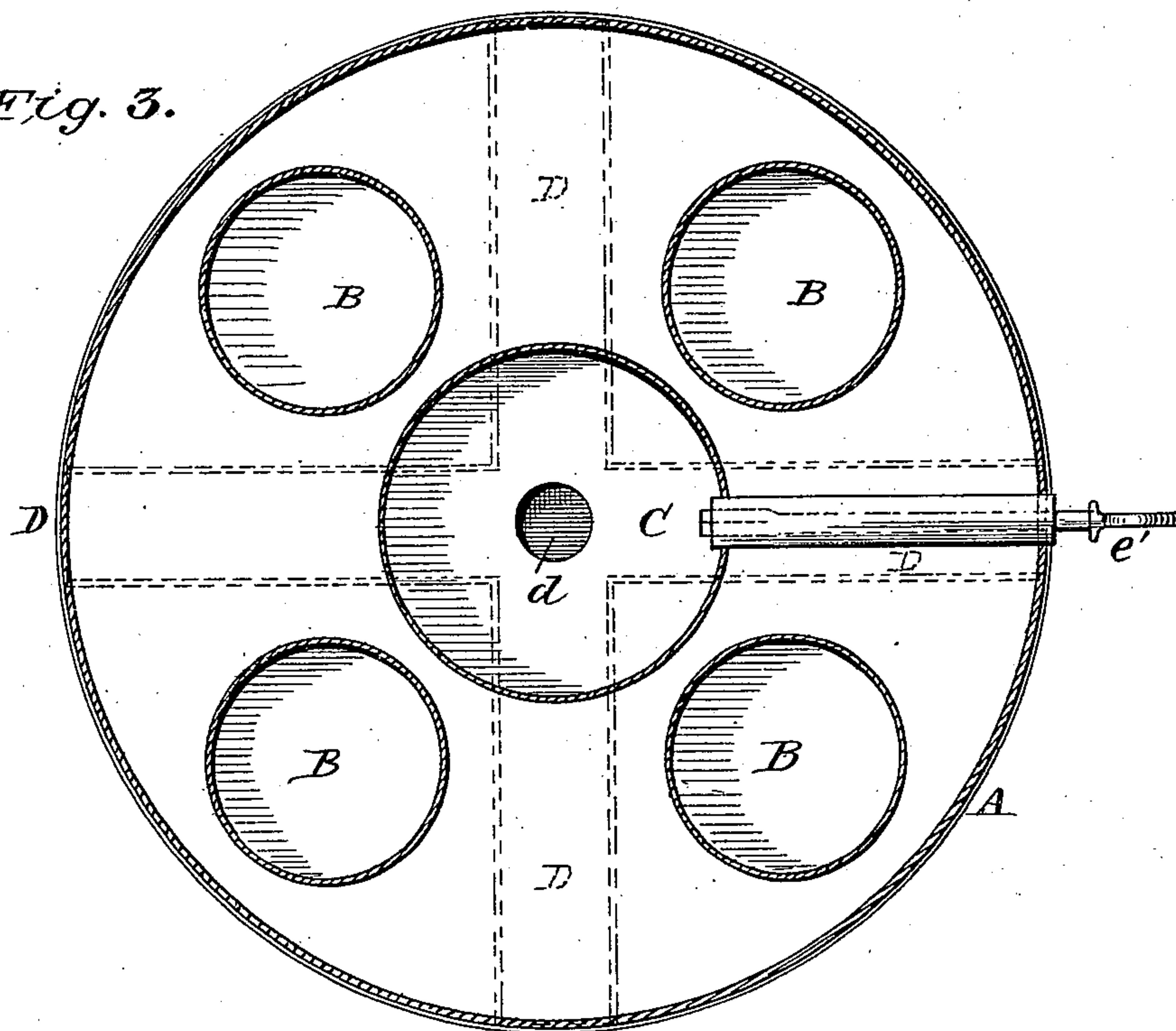
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POWDER WARMING APPARATUS.

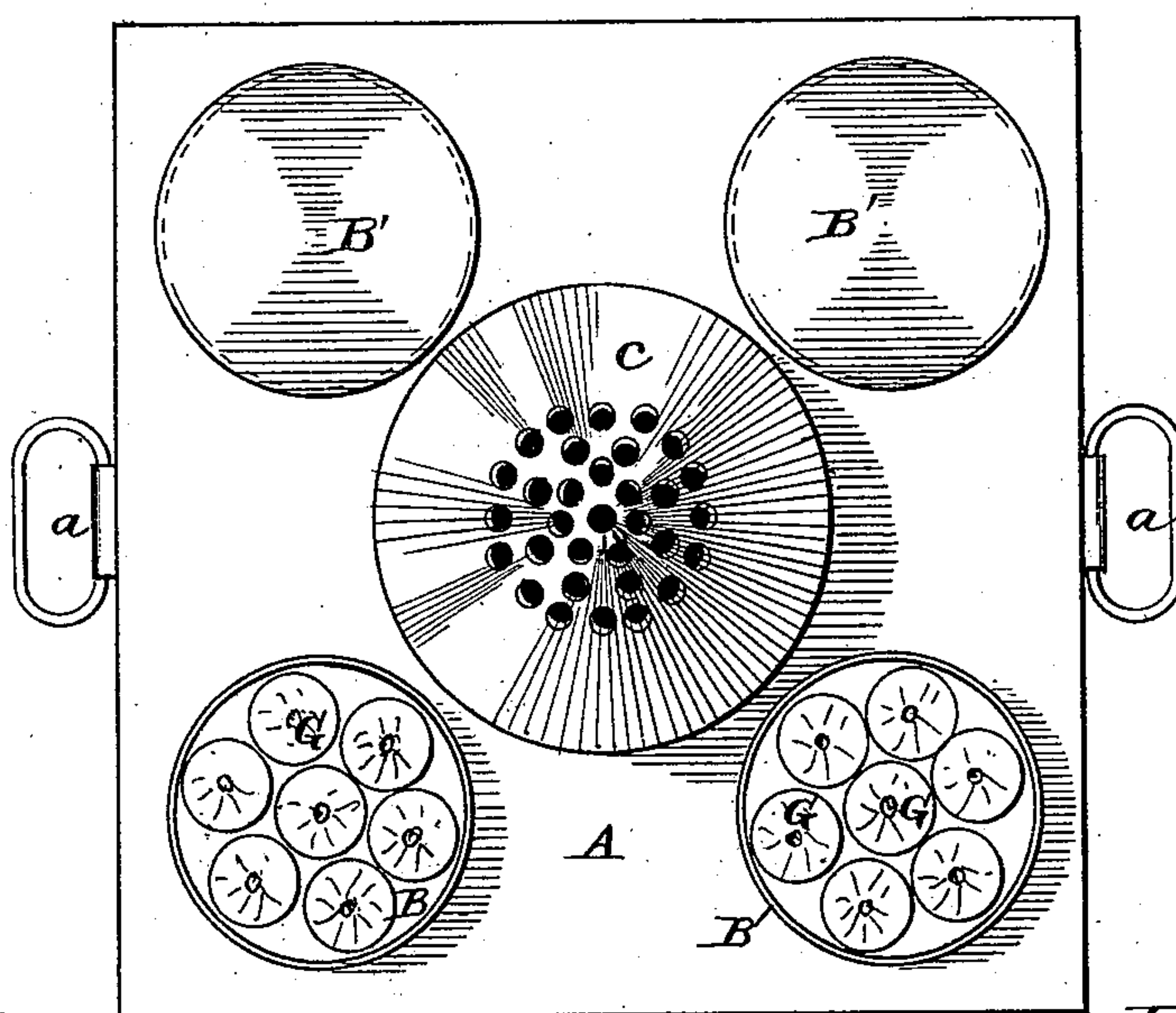
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*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

SAMUEL POOLE, OF DENVER, ASSIGNOR OF THREE-FOURTHS TO BARZILLAI S. MORGAN AND THOMAS H. BAKER, BOTH OF LEADVILLE, COLORADO.

## POWDER-WARMING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 291,932, dated January 15, 1884.

Application filed April 12, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL POOLE, of Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Powder-Warming Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art, to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

It is well known that miners, in using the blasting-powder known as "giant-powder," which will not explode in cold weather unless warmed to a moderate temperature, either place the sticks near a fire or put them in their boot-legs to be warmed before preparing the blast. This sometimes results in fatal accidents, as often the slightest concussion is sufficient to explode the warm powder.

The object of my invention is to produce a safe apparatus for warming the powder before preparing the blast for explosion by concussion.

The said apparatus is hereinafter particularly described, and the invention specified in the claim; but briefly it consists of an air-tight case or receptacle having chambers for the sticks or cartridges of powder, and surrounding a chamber wherein there is a lamp for heating purposes. The cartridge-chambers are open at the top and covered by caps, and are insulated from the heating-chamber by an air-space. There is a draft-flue at the bottom and opening at the top for the escape of the products of combustion from the lamp, which is usually the ordinary miner's lamp, except that for this purpose the lamp-chimney should be of tin, put on the lamp in the usual manner of putting on glass chimneys. In using such an apparatus the miner has only to observe the necessary degree of heat required for his purpose.

In the accompanying drawings, Figure 1 shows the apparatus in perspective; Fig. 2, a vertical cross-section, showing the relation of the heating-lamp, the air-tight warming-case, and the chambers for the powder to be warmed; Fig. 3, a horizontal section on the line *xx* of Fig. 2; and Fig. 4 is a top view, in which a square form of case is shown, the pre-

vious views representing the case as circular in form.

The case A is preferably made of tin, of any suitable shape, and substantially air-tight, and carries the separate chambers B for the reception of the sticks or cartridges of blasting-powder, which chambers are open at the top of air-tight chamber, and are covered by removable caps B', and are suitably arranged within the air-tight warming-case.

Within a central chamber, C, which is surrounded by the case A and its chambers, is a lamp, E—in this case an ordinary miner's lamp—having a tin chimney, *e*, for the purpose of communicating all possible amount of heat to the case and its chambers, although a chimney might be dispensed with. The smoke is carried off through a perforated vent-cap, *c*, and air admitted to the lamp through bottom flues, D D, meeting under the lamp, as shown in Fig. 2, at the central opening, *d*, in direct connection with the lamp. This construction might be varied without departing from the spirit of my invention as claimed.

A suitable device, *e'*, for turning the wick to regulate the flame or to extinguish the lamp, and bails *aa*, for handling purposes, are provided, as shown in the drawings.

The case should be about fourteen inches in diameter by eight inches in height, and the chambers for the sticks of blasting-powder about three and one-half inches in diameter by nine inches in depth, to readily adapt it for warming the common sticks of blasting-powder generally used.

I claim—

An apparatus for warming powder, consisting of an air-tight case, A, having separate compartments or chambers B, opening at the top of said air-tight case, and provided with removable covers, and a central chamber, C, provided with a lamp, E, for heating the chambers of the said air-tight case, the said chambers B being insulated from said heating-chamber C by an air-space, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

SAMUEL POOLE.

Witnesses:

HENRY F. GURNEY,  
J. L. MURPHEY.