To all whom it may concern:

Be it known that I, ELIZA J. BRAY, a citizen of the United States, residing at Fair Forest, in the county of Spartanburg and State of South Carolina, have invented certain new and useful Improvements in Incubators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that class of devices by means of which eggs are hatched mechanically, and its object is to provide means for equalizing and retaining within the hatching chamber the heat produced by a small lamp or lamps, and means for imitating nature as nearly as possible in brooding the eggs while hatching and the young chickens when hatched.

To this end my invention consists in the construction and combination of parts forming an incubator hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1, is a vertical section of an incubator according to my invention. Fig. II, is a view looking down upon a cross section at the line 9, Fig. I.

9 represents the outer shell or body of my incubator, which is preferably a common barrel.

6 represents a thick coating of common plaster consisting of lime and sand, with which the sides of the barrel are lined. The barrel is divided into two compartments or chambers by a flooring 5 made of sheet metal such as tin or iron, finely perforated.

9 represents a layer of sand four or five inches deep in the lower chamber, and 10 a similar layer of sand on the floor of the upper chamber.

11 represents a removable tray adapted to receive the desired number of eggs placed in a single layer over its bottom, and lined with feathers 12, and provided with legs 13 to support it upon the sand 10.

14 is a brooder consisting of a sheet of flexible material like cloth having feathers 15 secured to its under side. While the hatching is in progress this brooder may be laid loosely upon the eggs but as soon as the chickens are hatched it should be stretched upon a hoop 16 provided with legs 17 to support it independently above the tray.

I prefer to make the opening in the removable top 18 of the barrel not over eight or ten inches in diameter and to cover it with a loose cloth 19.

20 is a trap door in the side of the lower chamber through which the lamp 21 may be inserted, or be removed at any time for filling, and there may be any suitable number of these lamps. I find that in practice three lamps turned to burn low serve better than one lamp turned high.

22 represents small air holes through the sides of both chambers for the proper ventilation.

The operation is as follows: Having placed a single layer of eggs in the tray and covered them over with the brooder described, set the tray centrally within the upper chamber and bury the legs into the sand enough to give the tray a level position, then replace the top 18 and the cover 19; then fill and light the lamps and set them about equal distances apart in the lower chamber and close the chamber. The incubator is now in service and the eggs require the usual attention. The plastering described is the least expensive and at the same time the best means that I know of for retaining the heat within the chambers. The sand in the lower part of the chambers is for the double purpose of retaining the heat and delivering it slowly and evenly to the upper chamber, and for preventing the eggs from being damaged by any heavy jar or shaking of the support upon which the incubator rests. This is an important feature because sand does not transmit vibration or jar; and sand still further operates as an absorbent for the disagreeable odors which are the natural consequence of egg hatching. The heat of the lower chamber is not only transmitted by convection from the metallic flooring to the sand above, but the air itself passing through the fine holes permeates the sand which acts like a strainer to deliver the air at an equal temperature throughout the whole area of the hatching chamber.

Loose feathers placed upon the eggs would very soon be turned under in turning the eggs during the process of manipulation and I do not find that any kind of cloth which I have
tried answers the purpose of a brooder as well
as feathers, because they tend to keep the
shell of the eggs polished and clean. I
have fastened them to the cloth in order that
5 when the chickens are hatched the feathers
may not stick to them, or more properly
speaking, that the chickens while yet wet
from hatching may by working around pull
themselves loose from these feathers which
10 stick to them. In the natural process of
hatching, loose feathers stick to the chick but
the mother hen picks them off, and to dispense
with the services of the mother hen and yet
obtain the benefit of the feathers I fasten the
15 feathers to the cloth. As soon as the chick-
en are all hatched this brooder cloth should
be stretched upon the hoop because the
stronger chickens will hop onto this cloth and
stay there to the inconvenience of the weaker
ones underneath unless the cloth is supported
to keep it from resting upon the weaker ones.

Having thus fully described my invention,
what I believe to be new, and desire to secure
by Letters Patent, is the following:
The combination in an incubator of a shell
25 or receptacle divided into two compartments
one above the other and each having a floor,
the upper floor being of perforated sheet metal;
sand upon the upper floor; heating apparatus
beneath, and an egg-carrying tray having legs
30 resting in the sand, substantially as specified.
In testimony whereof I affix my signature in
presence of two witnesses.

ELIZA J. BRAY.

Witnesses:
C. C. TURNER,
C. M. SLIGH.