No. 691,837. Patented Jan. 28, 1902.

V. S. BELL.

INCUBATOR.

(Application filed Mar. 28, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

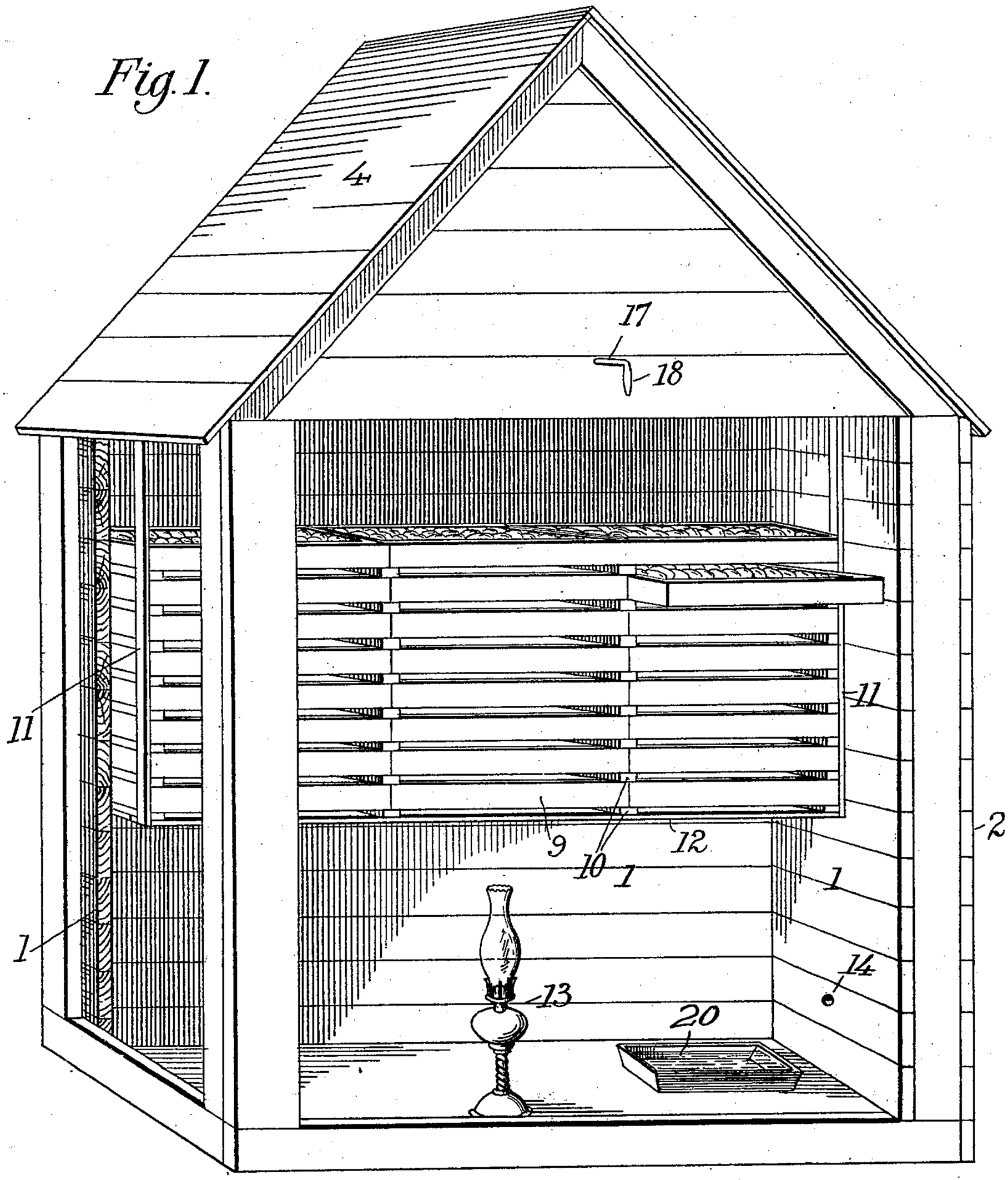

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Fig. 3.

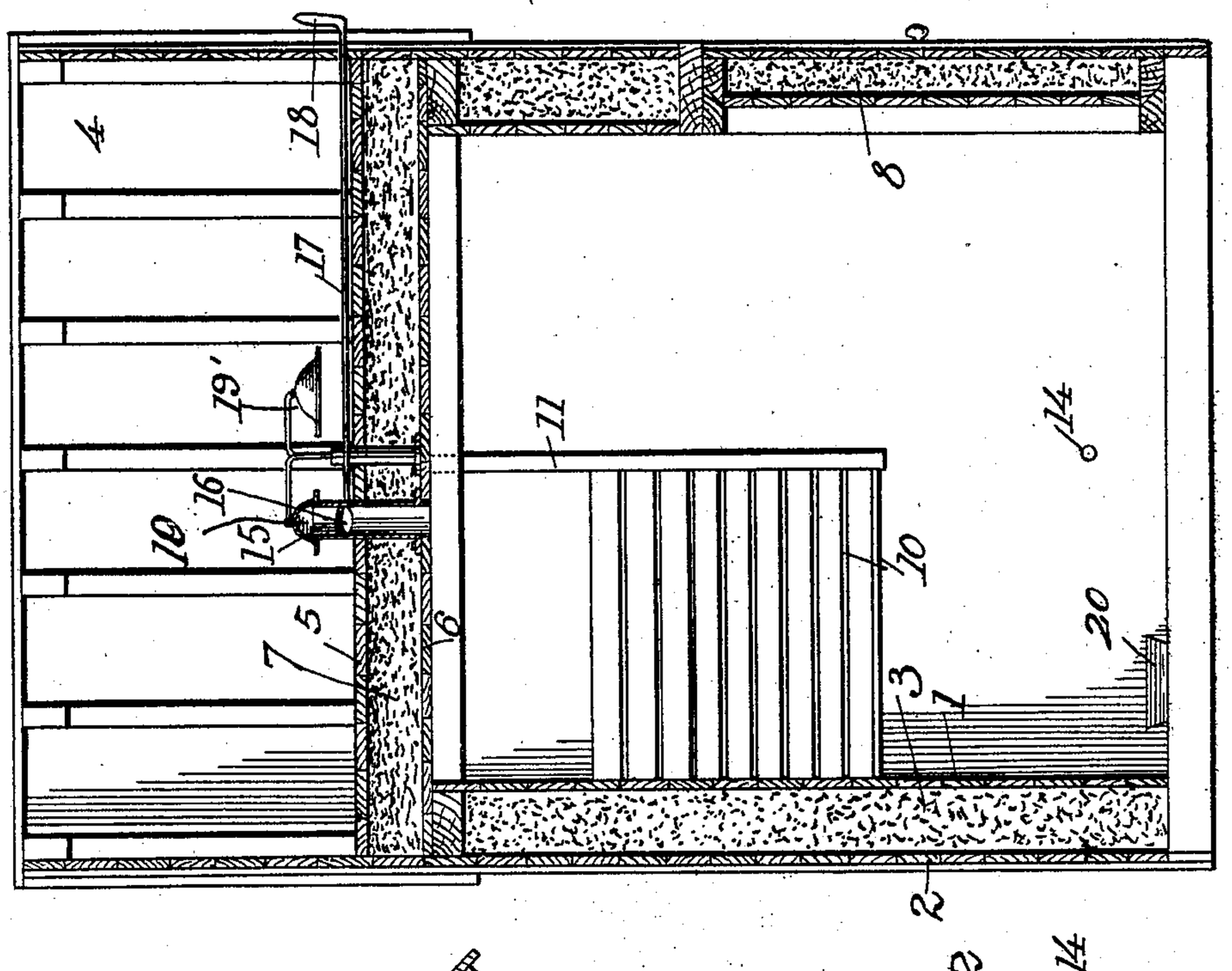
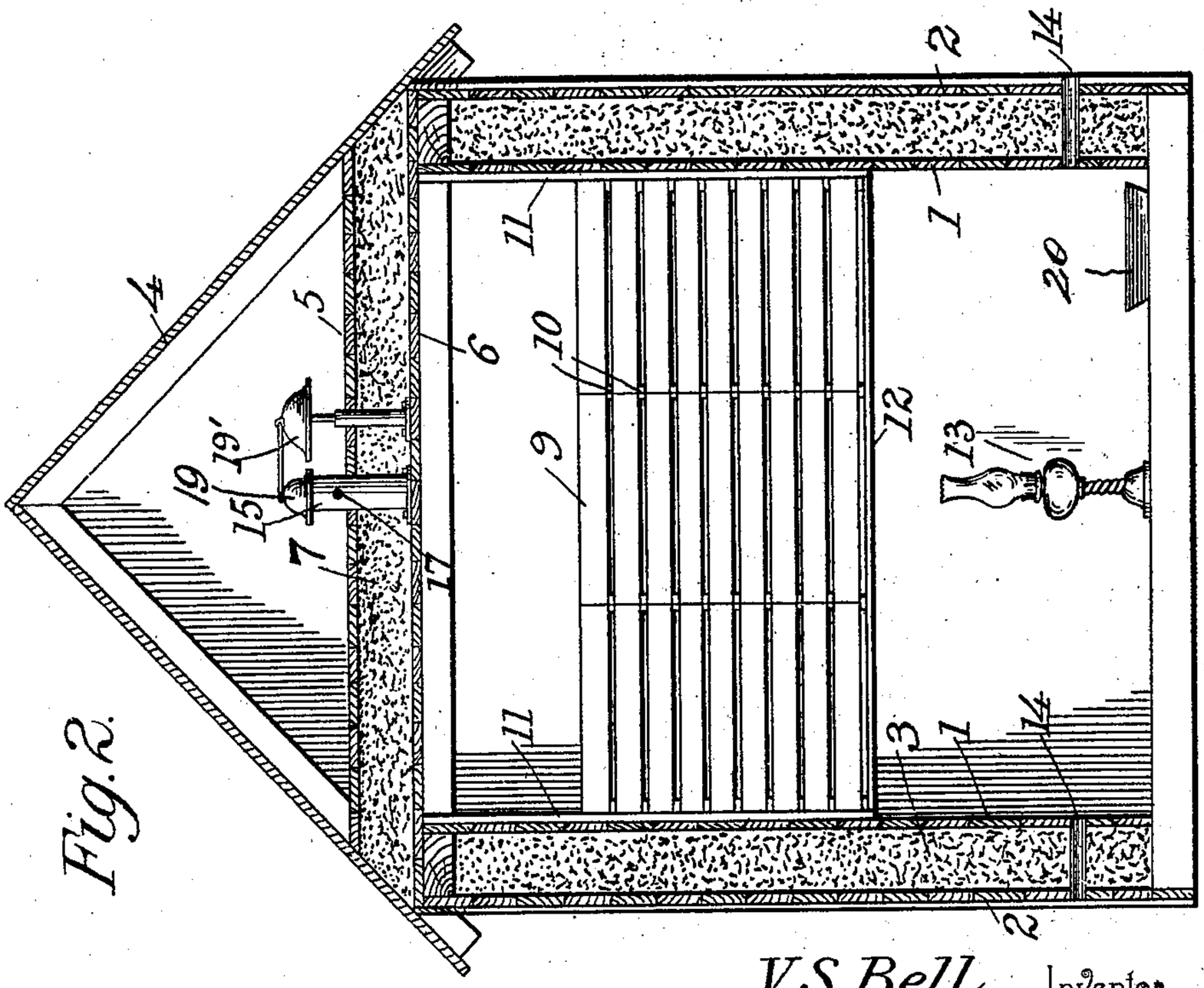


Fig. 2.



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UNITED STATES PATENT OFFICE.

VIRGIL S. BELL, OF HAYESVILLE, IOWA.

INCUBATOR.

SPECIFICATION forming part of Letters Patent No. 691,837, dated January 28, 1902.

Application filed March 28, 1901. Serial No. 53,314. (No model.)

To all whom it may concern:

Be it known that I, VIRGIL S. BELL, a citizen of the United States, residing at Hayesville, in the county of Keokuk and State of Iowa, have invented a new and useful Incubator, of which the following is a specification.

This invention relates to incubators, and has for its object to provide an improved device of this character which is of great capacity, so that an attendant may have access to the interior thereof for examining the eggs and for any other purpose without exposing the eggs to the outside temperature. It is furthermore designed to provide for effectively ventilating the interior of the device, so as to preserve a proper temperature for the unhatched eggs and also for the recently-hatched chickens, and at the same time prevent the incubator from being chilled too rapidly.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claim, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claim without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a perspective view of the improved inucbator, the front and one side being removed to show the interior thereof. Fig. 2 is a transverse sectional view thereof. Fig. 3 is a sectional view taken at right angles to Fig. 2.

Like characters of reference designate corresponding parts in all of the figures of the drawings.

In carrying out the invention there is built a house or shed having inner and outer walls 1 and 2, that are separated a suitable distance, preferably six inches, and this intervening space is filled with loose earth 3 to form a heat-non-conducting filling, which will maintain the interior air moist. The building is also provided with a peaked roof 4, the ceiling having top and bottom walls 5 and 6, between which is held the filling of earth 7, so that the interior of the building may be entirely housed by earth-filled walls. Access is had to the interior of the shed through a suitable dirt-filled door 8, (shown in Fig. 3 of the drawings,) whereby an attendant may enter the building to inspect the same without exposing the eggs to the outer air for any considerable time.

It is designed to support the eggs in trays 9, arranged in groups, the trays of each group being disposed one above the other, so that the ascending heat may affect all of the eggs. For the support of the trays there is provided a plurality of cleats or bars 10, which are arranged in vertical series and project outwardly from one side of the shed, to which they are connected in any suitable manner. It will be understood that the series of cleats are arranged at regular intervals, so as to slidably support the egg-trays, and the intermediate cleats are wide enough to support the adjacent edges of opposite trays; also, the outer ends of the opposite end series are braced by a hanger 11, pendent from the ceiling of the building, and the lowermost cleats are connected by a cross-bar 12, thus forming a strong and convenient frame for the support of the egg-trays. By this arrangement there is a space between the trays equal to the thickness of a cleat, and these openings or spaces will permit the chickens as they are hatched to escape from the trays and reach the floor of the shed; also, the cleats which support the trays permit the latter to be readily drawn outwardly or slid inwardly to remove or replace them.

The interior of the shed or building is heated by means of a lamp 13, placed upon the floor of the shed, and fresh air is supplied through pipes or inlet-passages 14, formed through the filled walls and adjacent to the bottom of the building, so that the incoming air may become properly heated before rising into contact with the eggs, which are supported at a suitable distance above the inlet-openings.

For ventilating the shed there is provided a hot-air-escape pipe or passage 15, extending through the ceiling of the shed and forming a communication between the interior thereof and the air-space above the ceiling. The peaked roof and the single extensions of the front and rear walls form an upper com-

partment and are provided with sufficient cracks to permit the hot air to escape from this upper chamber or compartment, which thereby partially confines the escaping hot air, causing the same to escape slowly and preventing the lower egg-receiving compartment from becoming suddenly chilled. A damper 16 is located within the escape-pipe between the ends thereof and at a point above the double ceiling, and it is operated by a rod or stem 17, located within the upper chamber or compartment and extending through the front wall of the same and provided with an exteriorly-arranged handle for enabling the damper to be readily controlled. The damper is normally open to permit the free upward passage of the heated air through the ventilating-passage; but the latter is normally closed at a point above the damper by means of an outer terminal valve 19, which is controlled by a thermostat 19′, adapted to open the valve when the air in the incubator has reached a predetermined degree of temperature. The thermostat may be of any desired construction, and the purpose of the two valves and their particular arrangement is to permit the inner valve to be closed should it be desired to cut off the escape of the hot air when the outer valve has been opened by the thermostat.

The incubator is an outhouse or building, and when it is not in use as an incubator it may be employed for a variety of other purposes, such as a storehouse for various articles.

By reason of the fact that the loose earth is confined between opposite walls it will retain its moisture, and additional moisture may be supplied by a water-pan 20, placed upon the floor.

It will be understood that the filling between the inner and outer walls of the incubator may be sawdust, cinders, or other suitable material, and instead of an ordinary illuminating-lamp an oil or gasolene stove may be used, and, in fact, any preferred or particularly-adapted means of heating may be employed.

What is claimed is—

An incubator comprising a housing, a double-walled lower compartment provided with a double ceiling, said housing being also provided with an upper compartment having single walls and provided with cracks or apertures forming escape-openings for hot air, whereby the said upper compartment is adapted to confine partially the escaping hot air and cause the same to escape slowly to prevent the lower compartment from becoming chilled too quickly, a packing of heat-non-conducting material arranged at the walls and ceiling, egg-trays located in the lower compartment, a heat-generating device located below the trays, a short hot-air escape extending through the ceiling and permitting the hot air to pass from the lower compartment and terminating therein, a valve located at the upper end of the hot-air escape and provided with a thermostat to open it automatically, and a damper located in the hot-air escape at a point between the ceiling and the said valve and provided with means for operating it from the exterior to enable the escape of air to be cut off when the upper valve is open, substantially as and for the purpose described.

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

VIRGIL S. BELL.

Witnesses:
EDWARD DUREE,
A. C. JACOBS.