No. 661,776.

Patented Nov. 13, 1900.

N. C. SPRAGUE.

INCUBATOR.

(Application filed Apr. 30, 1900.)

(No Model.)

2 Sheets—Sheet 1.

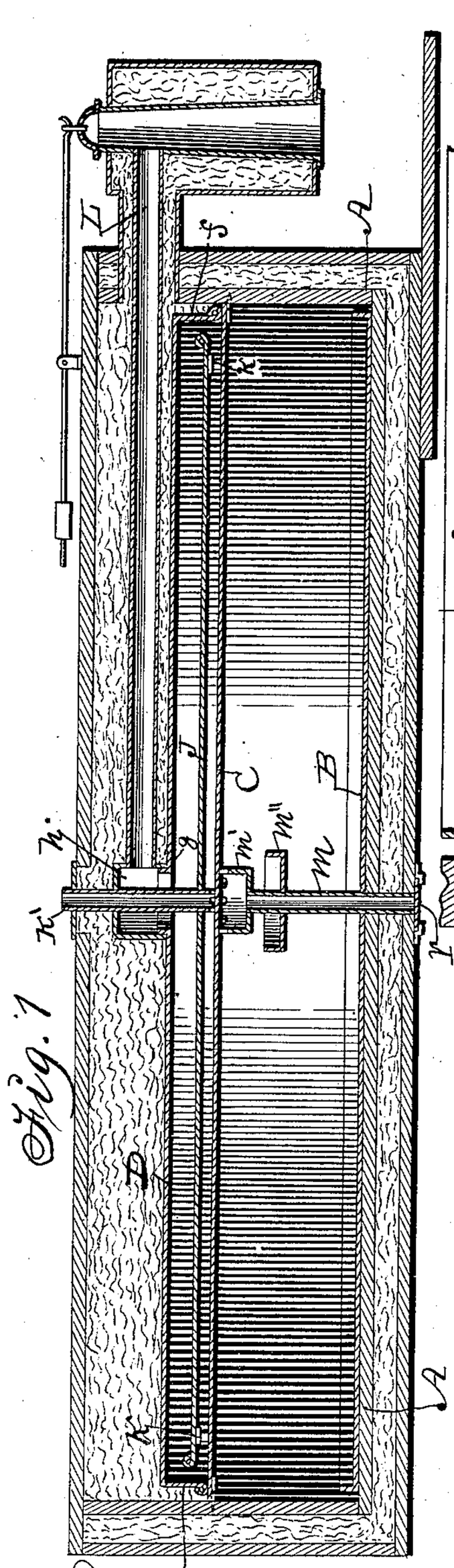


Fig. 1

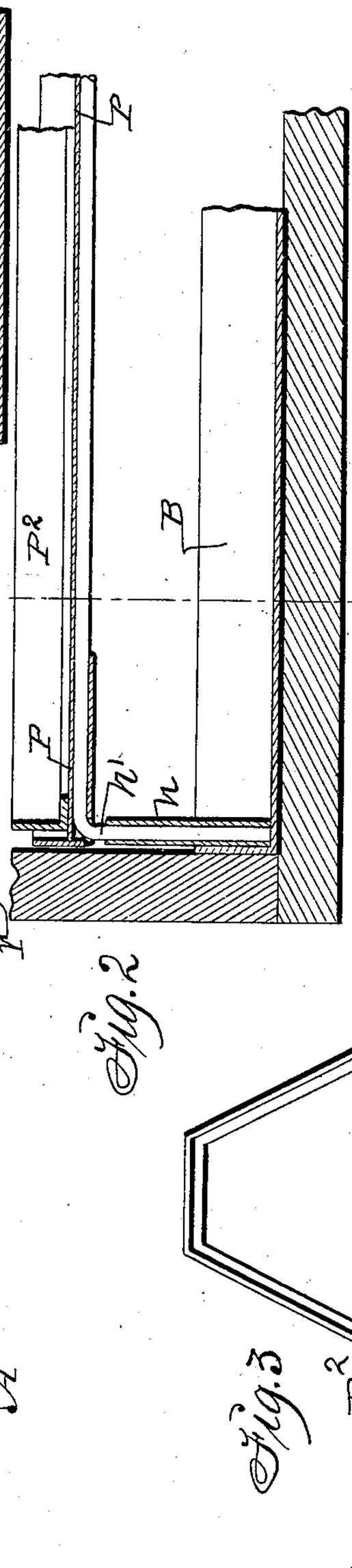


Fig. 2

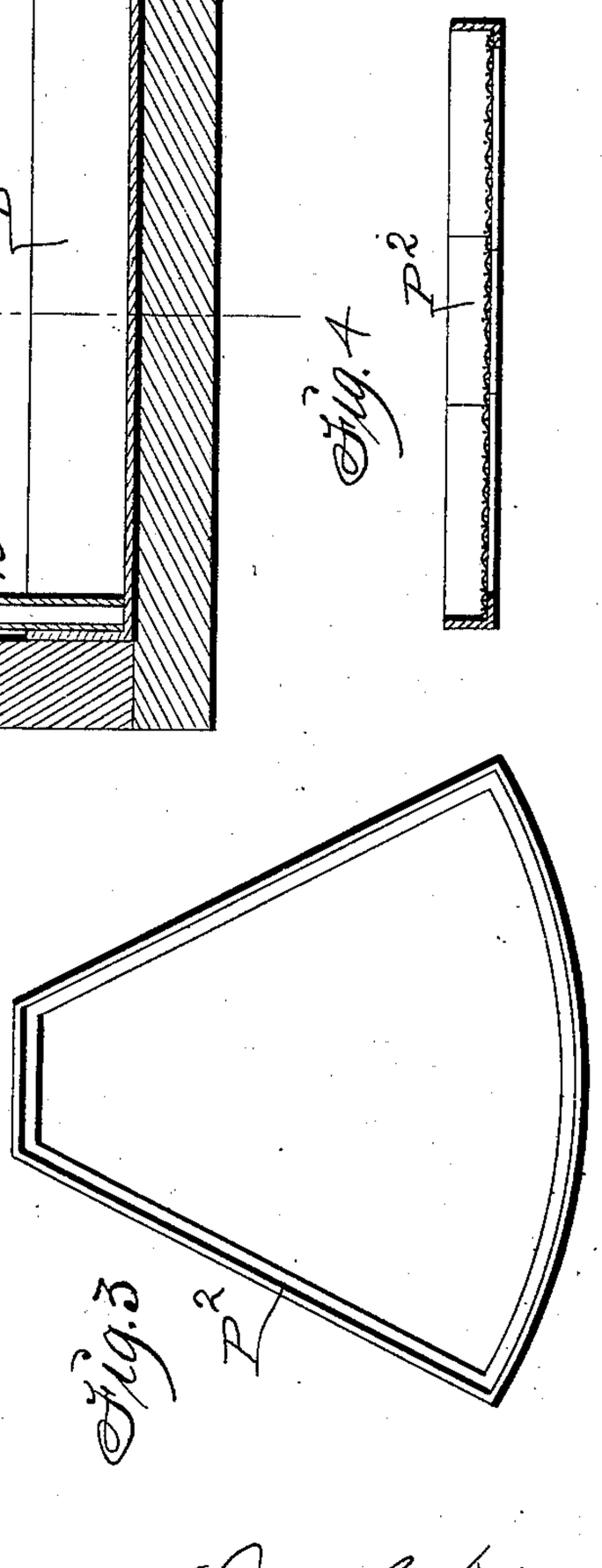


Fig. 3

Fig. 5

Fig. 4

Witnesses:
R. S. Orwig.
F. L. Stuart

Inventor: Newton C. Sprague,
By Thomas G. Orwig.
, Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 661,776. Patented Nov. 13, 1900.

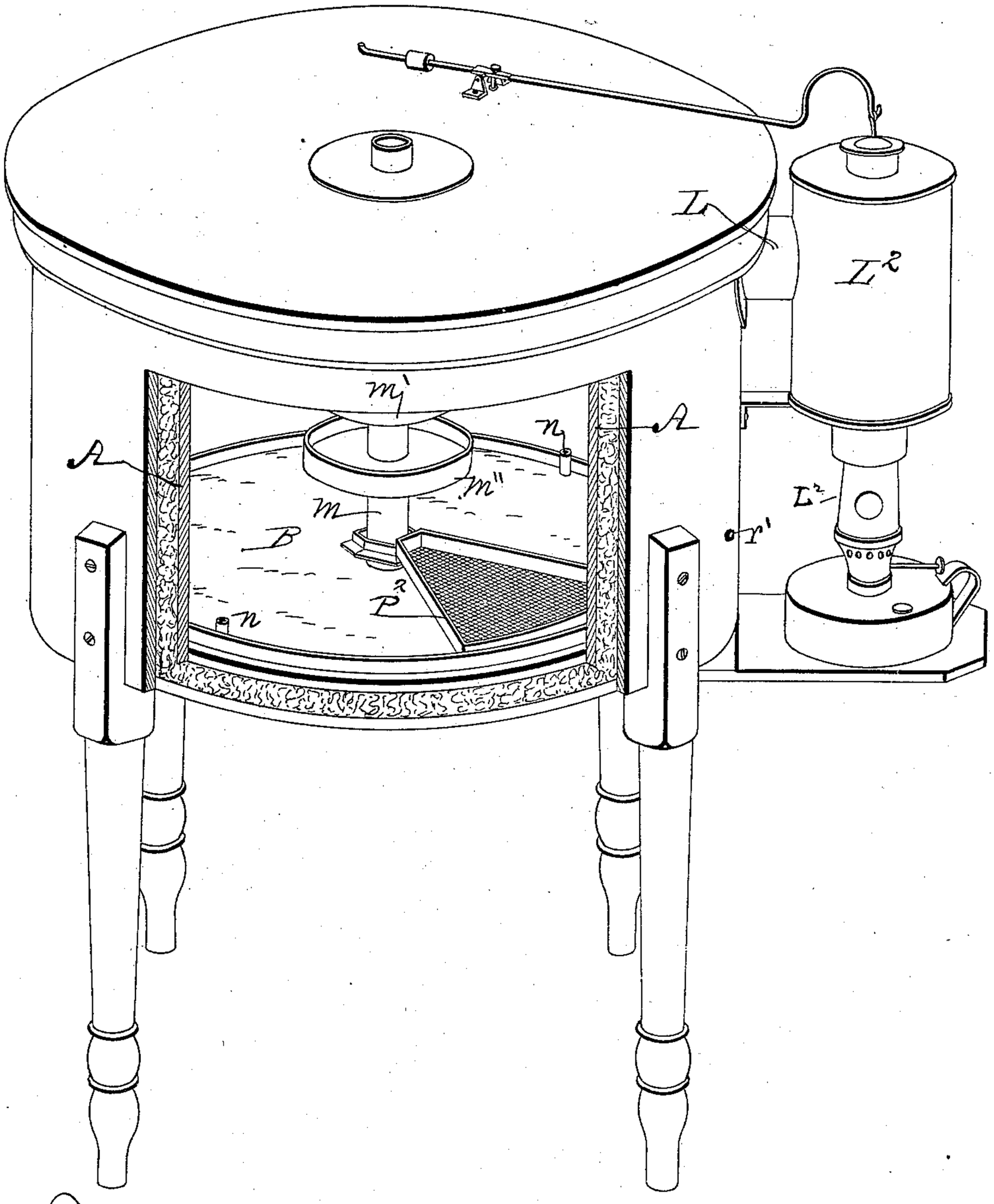
N. C. SPRAGUE.

INCUBATOR.

(Application filed Apr. 30, 1900.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 6



Witnesses:
W. G. Orwig.
John T. Rice.

Inventor: Newton C. Sprague,
By Thomas G. Orwig, Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

NEWTON C. SPRAGUE, OF DES MOINES, IOWA, ASSIGNOR TO THE IOWA INCUBATOR COMPANY, OF SAME PLACE.

INCUBATOR.

SPECIFICATION forming part of Letters Patent No. 661,776, dated November 13, 1900.

Application filed April 30, 1900. Serial No. 14,863. (No model.)

To all whom it may concern:

Be it known that I, NEWTON C. SPRAGUE, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented a new and useful Improvement in Incubators, of which the following is a specification.

My object is to adapt the circular incubator for which United States Patent No. 643,753 was granted to me February 20, 1900, to be operated by means of hot air in place of hot water; and my invention consists in the arrangement and combination of parts, as hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a transverse sectional view of the double-walled case, showing the forms and relative positions of the different operative parts. Fig. 2 is an enlarged detail view illustrating the manner of detachably connecting egg-trays with the chicken-receptacle, as required, to retain the egg-trays on a level in a plane above it. Fig. 3 shows the form of the frame of an egg-tray adapted for fixing a woven-wire bottom thereto. Fig. 4 is a transverse sectional view of one of the movable egg-trays. Fig. 5 is a fragmentary view showing the construction of an egg-tray support adapted to be detachably connected with the chicken-receptacle. Fig. 6 is a perspective view showing parts broken away.

The letter A designates the wooden double wall. The spaces in the wall are preferably filled with mineral wool.

B is a sheet-metal bottom fitted in top of the wooden bottom and provided with a continuous flange projecting upward at its circumference, adapting it to serve as a chicken-receptacle. This metal bottom will absorb and retain heat better than wood and aid in maintaining a uniform temperature where the young chickens will accumulate as they escape from the trays.

C is the bottom of a hot-air reservoir and serves as a sheet-metal roof and radiator that separates the egg-chamber from the heat-distributing reservoir in the top portion of the case. It is detachably connected at its circumference with the wall by means of supports fixed to the wall or in any suitable way.

D is a flat circular sheet-metal plate that has a continuous flange *f* at its circumference projecting downward to rest upon the top of the plate C or fixed thereto, as required, to produce a hot-air reservoir on top of the egg-chamber. The plate D has a central opening and a flange *g* around said opening, and *h* is the wall of a small auxiliary chamber connected with the flange *g*.

J is a circular metal plate and heat-distributer provided with a central opening and rests upon supports *k*, as shown in Fig. 1, as required to be retained in a horizontal plane above the plate C. It is smaller in diameter than the plate D to allow hot air to circulate over its top and bottom. A tube *k'*, open at its top and perforated at its bottom, extends from the center of the plate C up through the plate D, the small chamber, and the wooden top of the case A to allow air to pass therethrough from between the plates C and J to the exterior as required to maintain circulation of air through the hot-air reservoir and distributer.

An open-ended tube L is extended from a lamp-chimney L^2 on the exterior of the case and connected with the wall *h* of the small auxiliary chamber as required to convey heated air from a lamp into the hot-air reservoir and distributer.

A tubular post *m*, fixed in the center of the bottom of the case, terminates in an enlargement *m'* at its top that is perforated and in contact with the plate C to aid in supporting said plate and to admit fresh air to enter from the exterior into the egg-chamber and chicken-receptacle. A tray *m''* is fixed to the post to admit water to be placed therein for the purpose of moistening the air in the egg-chamber.

Tubes *n*, fixed to the flanges of the plate B, admit legs *n'*, that are fixed to the egg-tray supports P as required to retain the trays stationary and elevated.

P^2 represents egg-trays adapted to rest upon the horizontal flanges of the egg-tray supports, as clearly shown in Fig. 5.

A slide *r* is provided at the bottom of the post *m* for regulating the admission of air into the egg-chamber, and *r'* is an air-outlet.

Having described the construction and op-

eration of my invention, its practical utility will be obvious to persons familiar with the art to which it pertains, and what I claim as new, and desire to secure by Letters Patent therefor, is—

1. In a cylindrical incubator, an exterior wall, a sheet-metal plate fitted to the wall to serve as a roof for an egg-chamber and the bottom of a hot-air reservoir to radiate heat, a metal plate of smaller diameter supported in a plane above said metal roof-plate, a metal plate having a continuous flange on top of the said roof-plate and provided with a vertical opening, a tube having perforations at its bottom and an open top extended up from the center of the said roof-plate through the said two metal plates above the roof-plate and the top of the case, and means for discharging hot air down through the opening in the center of the metal plate, arranged and combined to operate in the manner set forth for the purposes stated.

2. In a cylindrical incubator, an exterior wall, a sheet-metal plate fitted to the wall to serve as a roof for an egg-chamber and the bottom of a hot-air reservoir to radiate heat, a metal plate of smaller diameter supported in a plane above said metal roof-plate, a metal plate having a continuous flange on top of the metal roof-plate and provided with a central opening, a tube having perforations at its bottom and an open top extended up from the center of the roof-plate through the said two metal plates above the roof-plate and the top of the case, and means for discharging hot air down through the opening in the center of the upper metal plate, an auxiliary air-chamber on top of said upper plate and around said tube and in communication with the hot-air reservoir under said upper plate and a heat-generator outside of the case, arranged and combined to operate in the manner set forth for the purposes stated.

NEWTON C. SPRAGUE.

Witnesses:
W. H. GARDNER,
THOMAS G. ORWIG.