

No. 614,493.

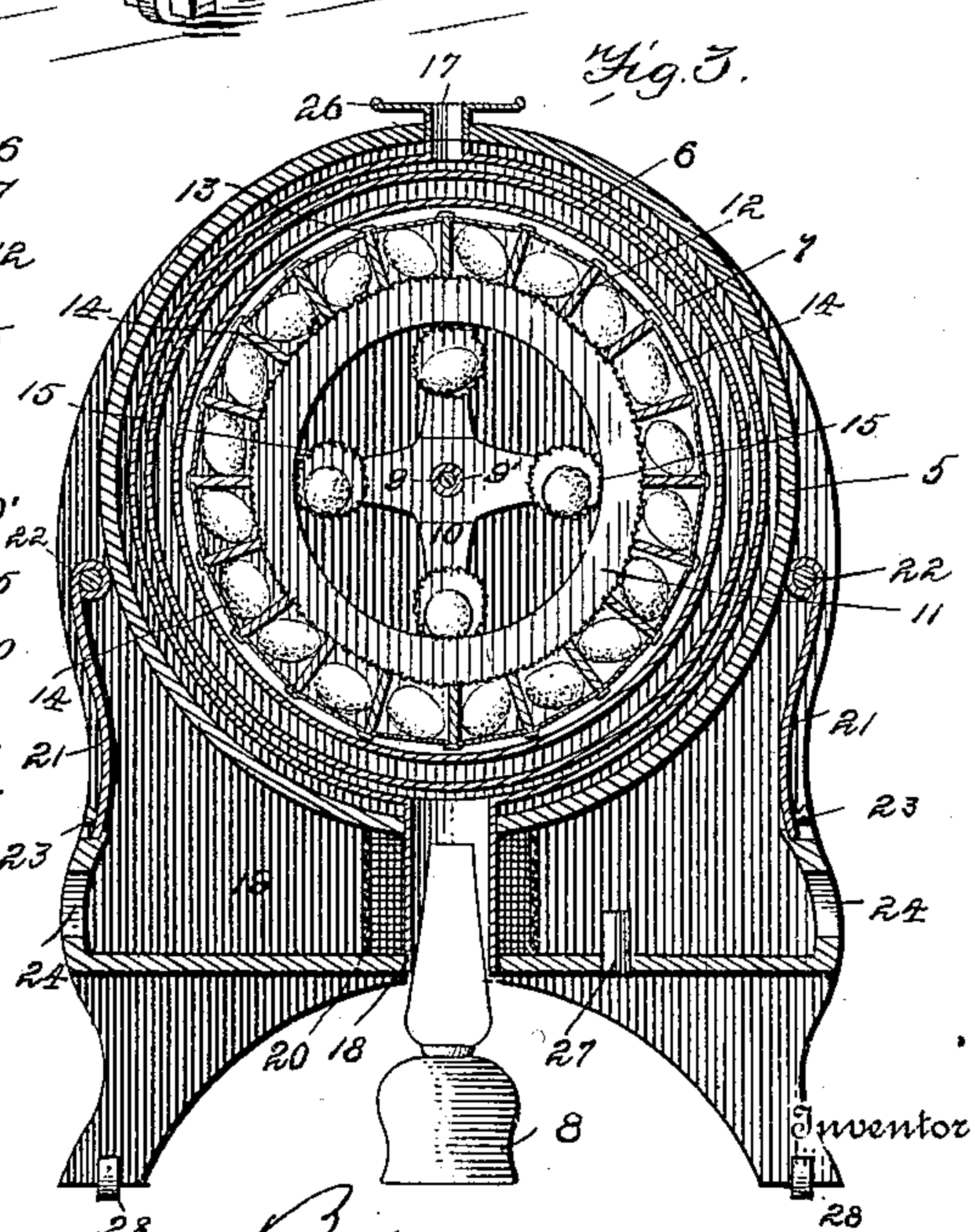
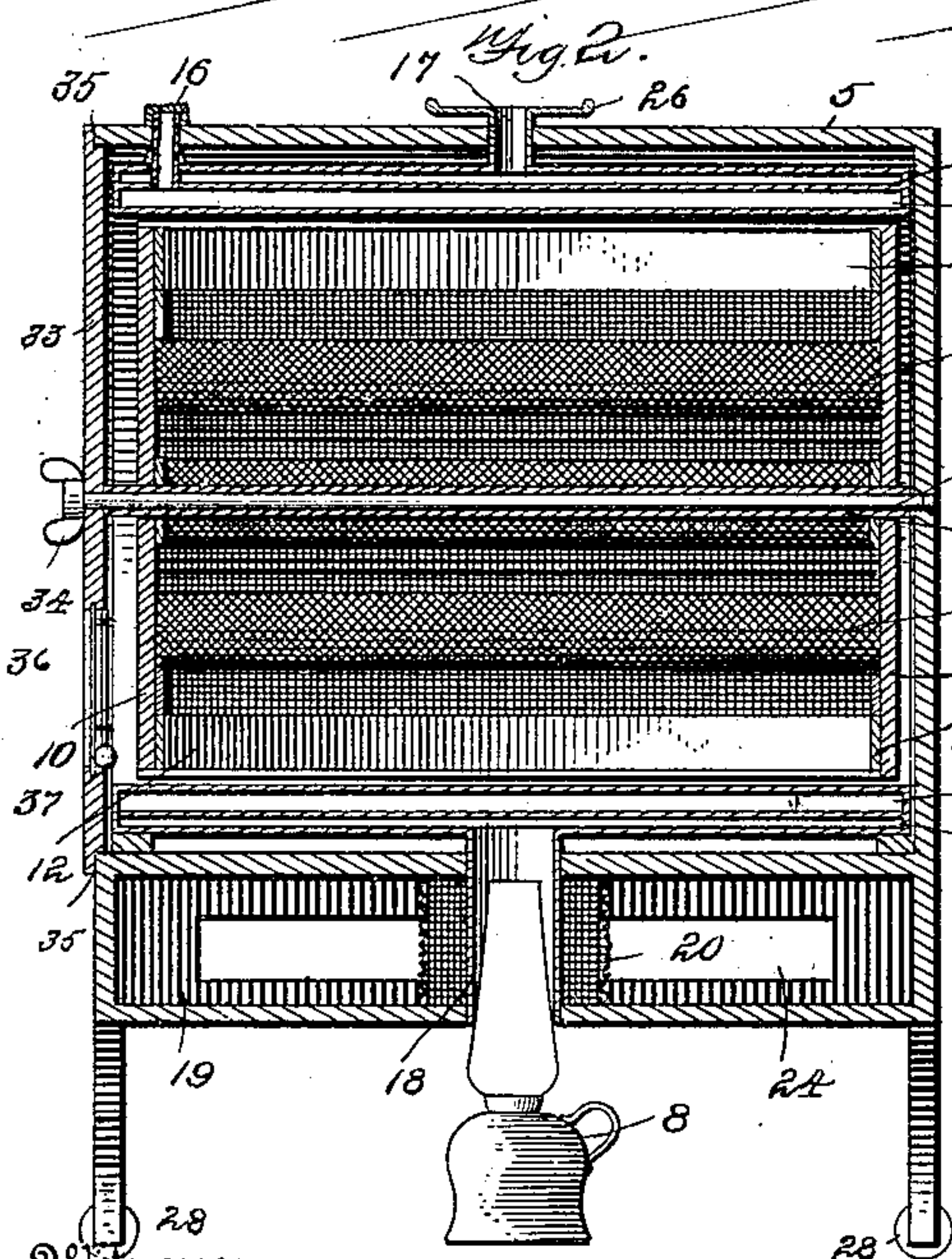
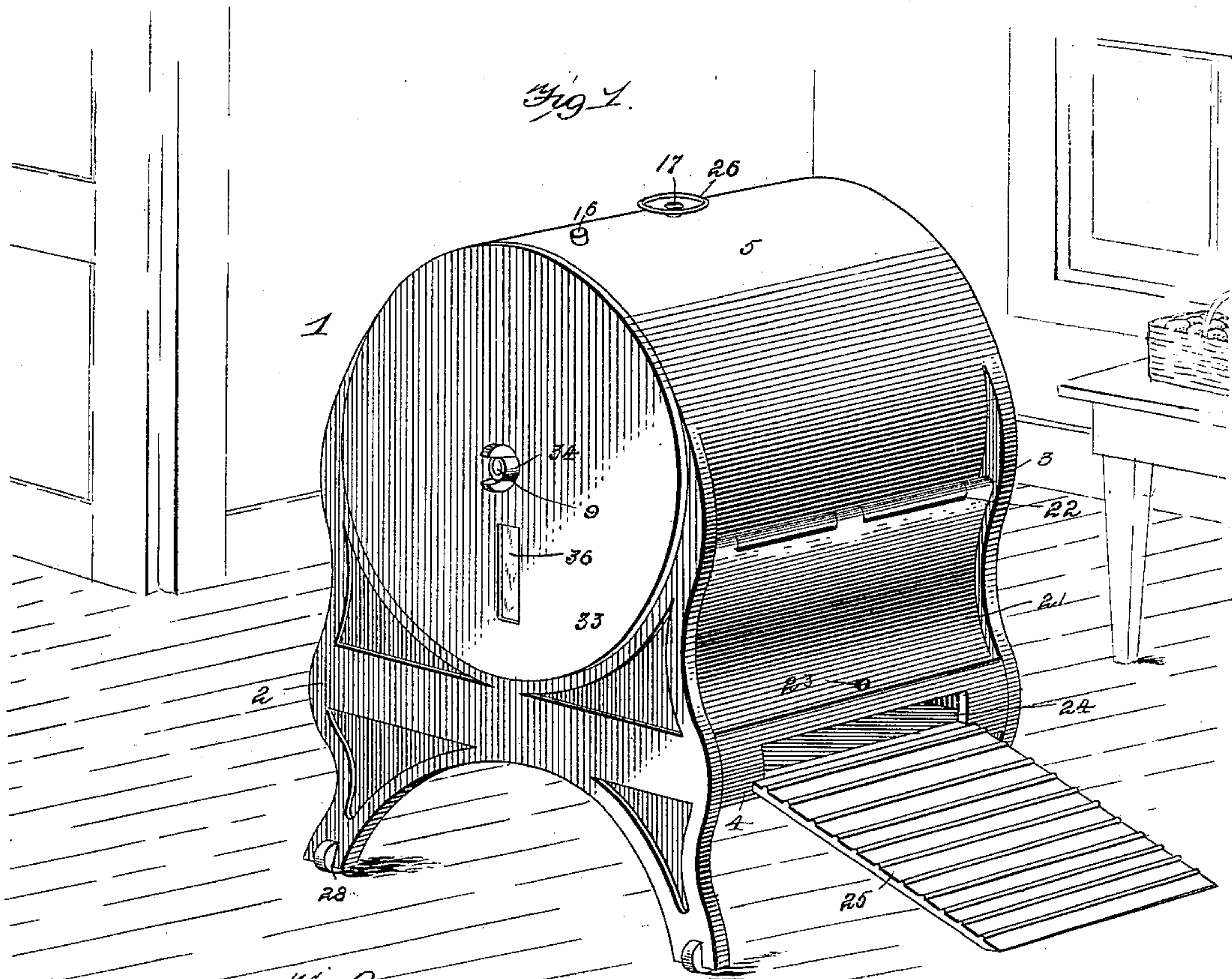
Patented Nov. 22, 1898.

C. S. NEWSOM.
COMBINED INCUBATOR AND BROODER.

(Application filed Aug. 13, 1897.)

(No Model.)

3 Sheets—Sheet 1.



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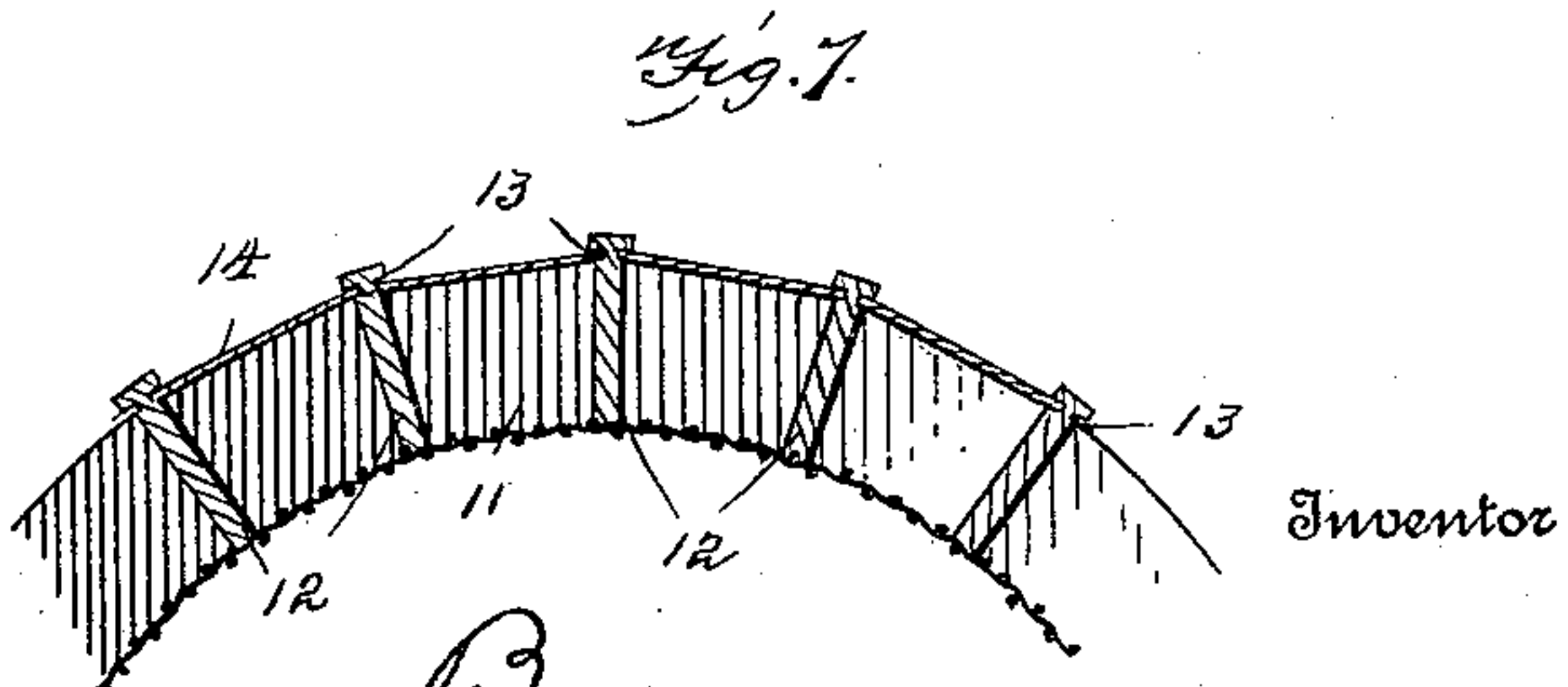
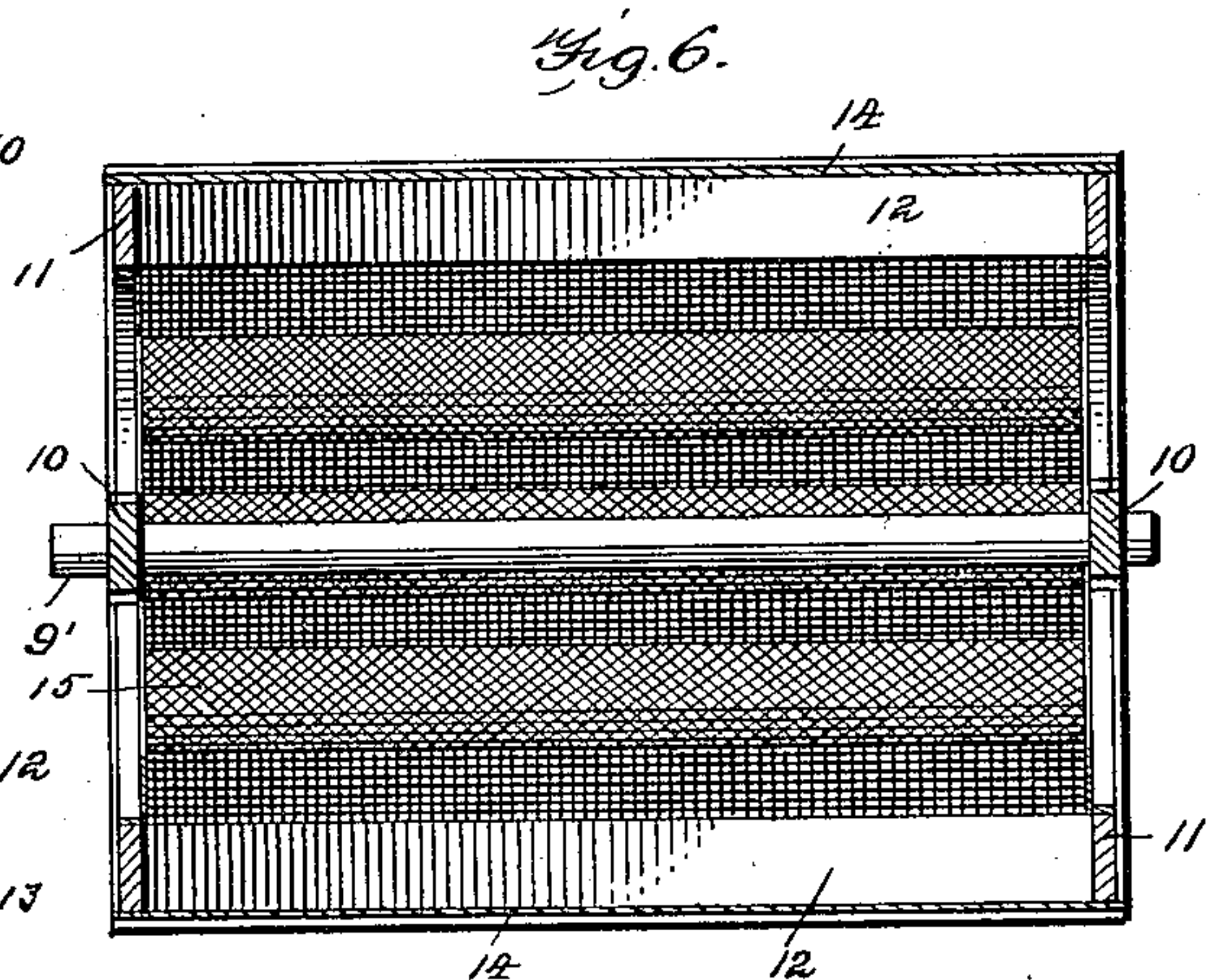
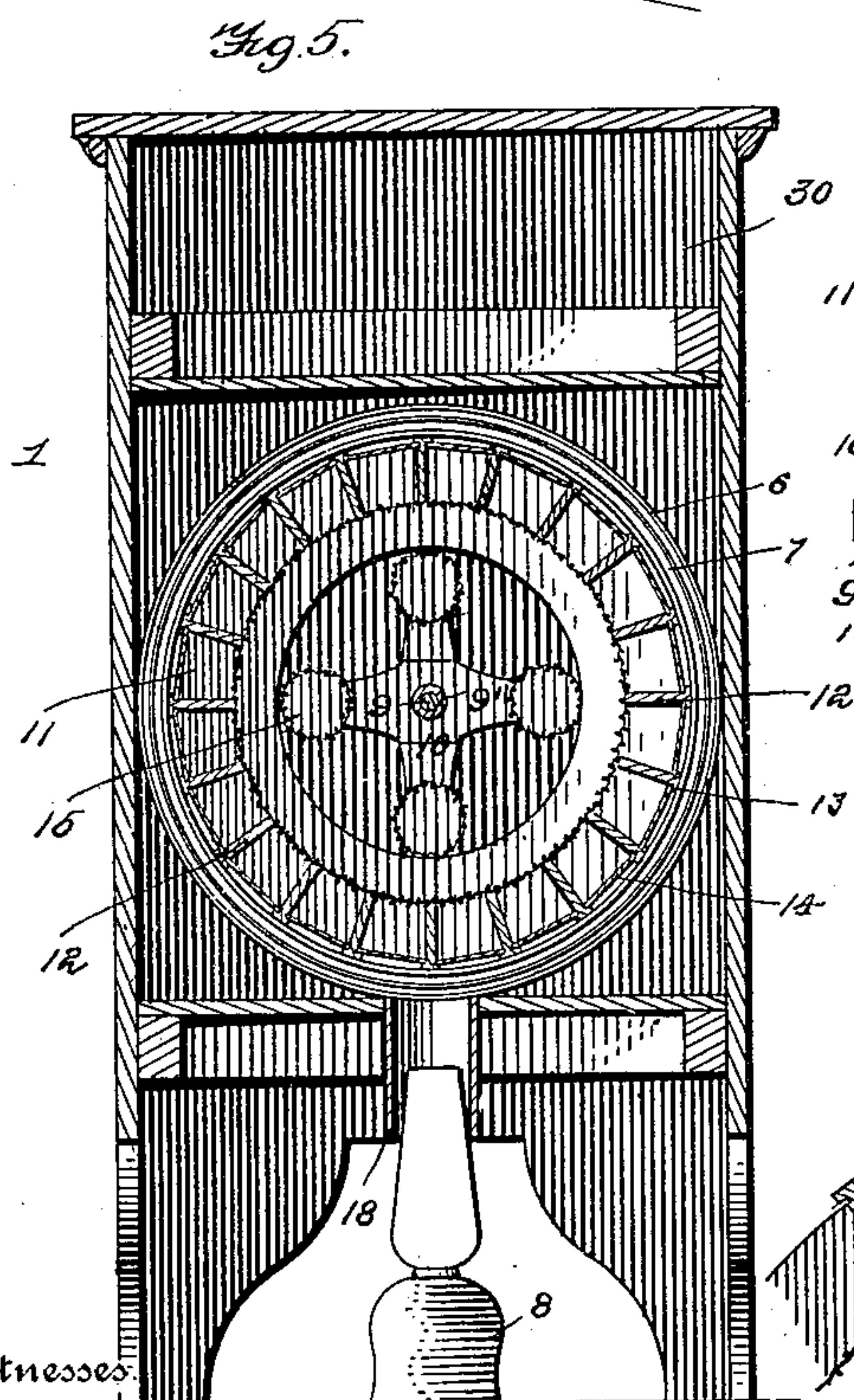
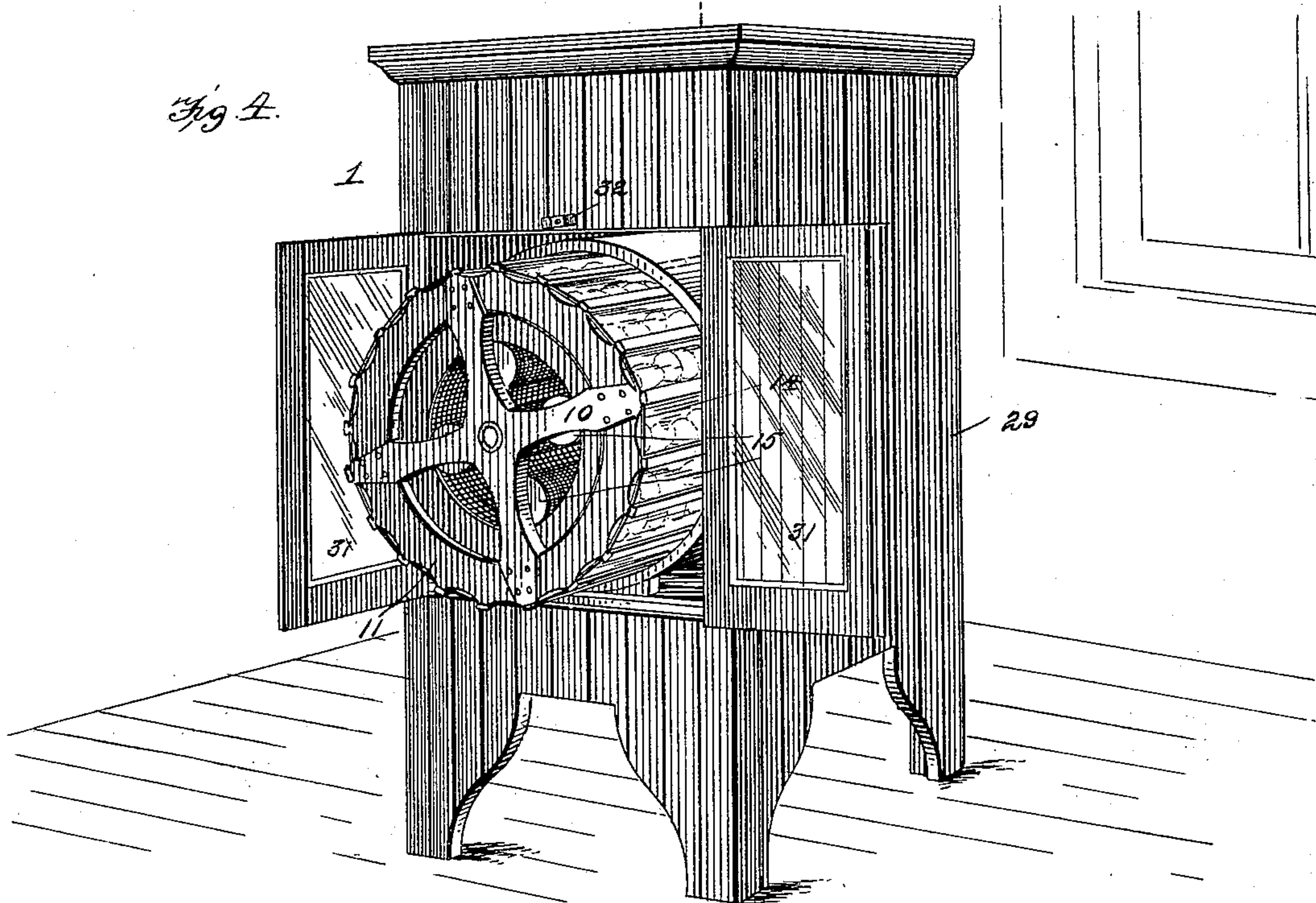
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3 Sheets—Sheet 2.



Witnesses.

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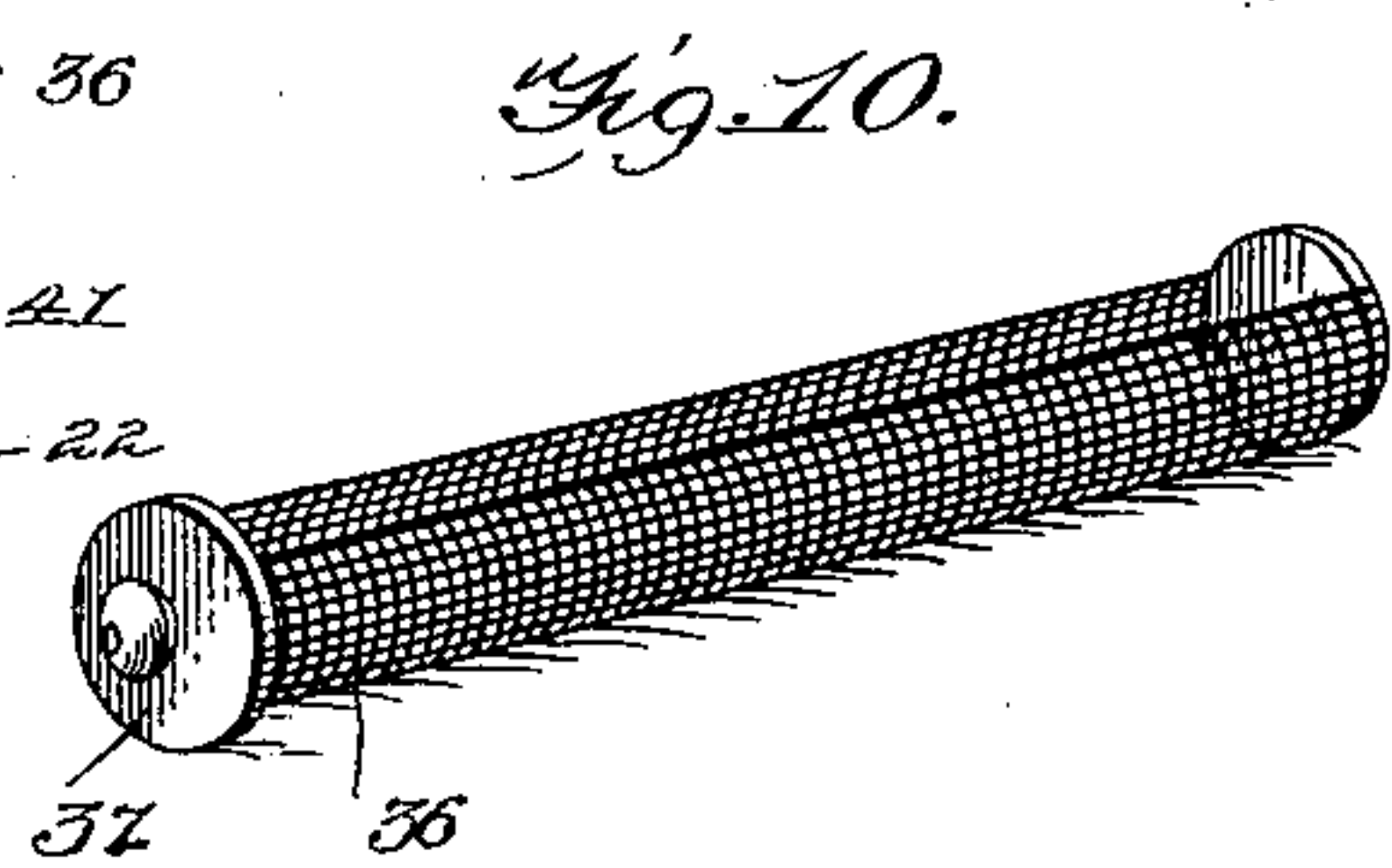
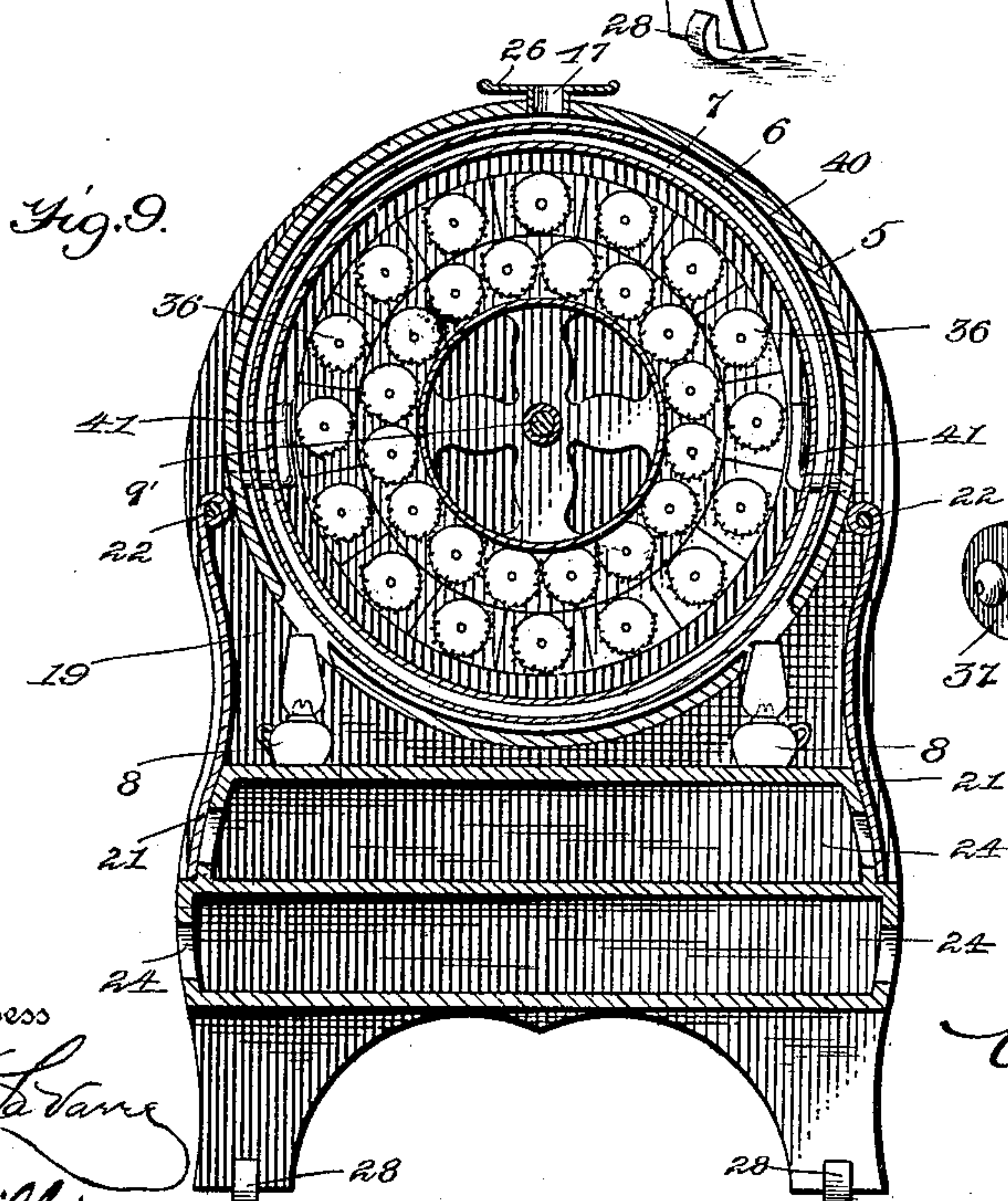
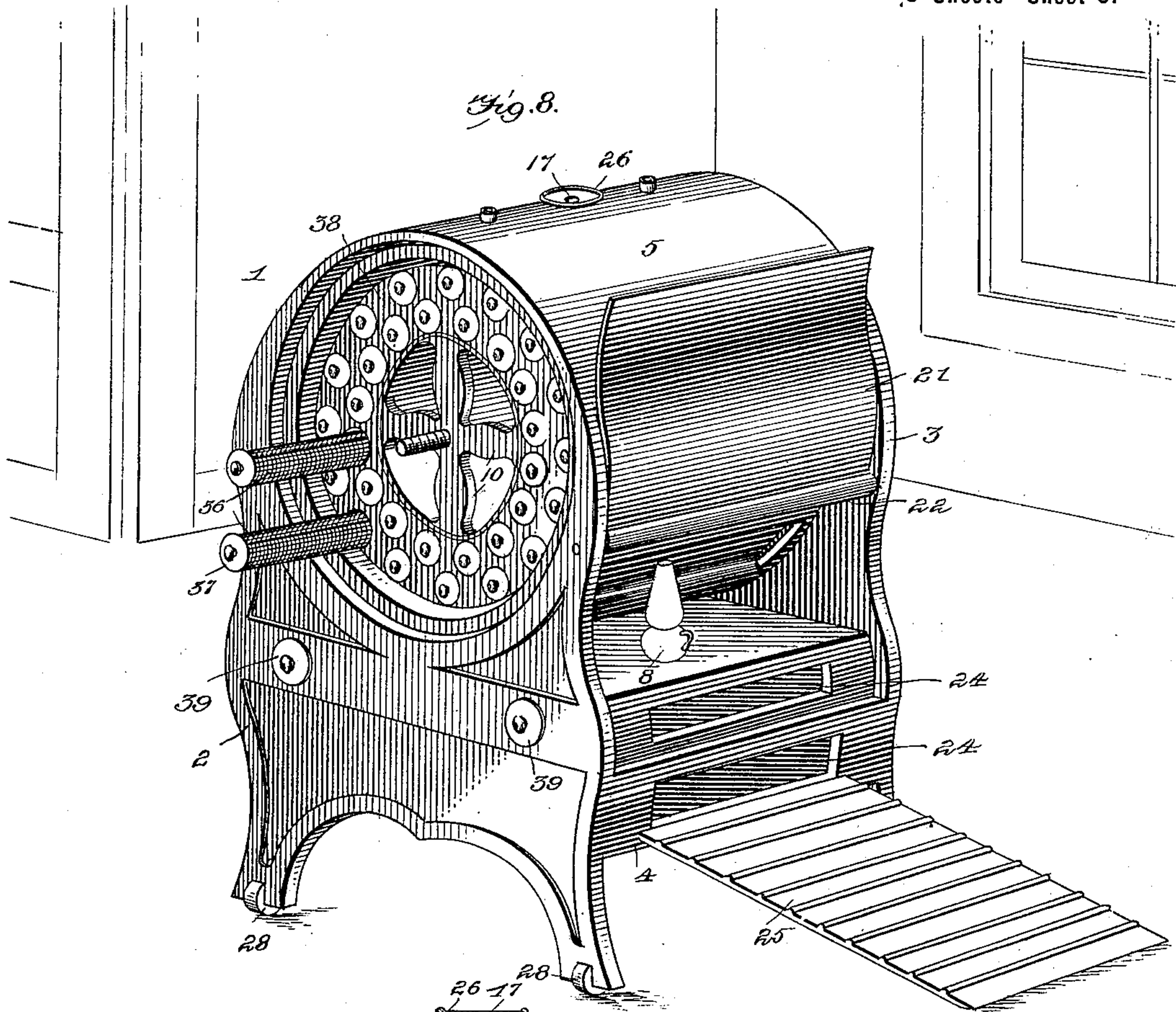
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

CHARLES S. NEWSOM, OF ATHENS, OHIO, ASSIGNOR OF ONE-HALF TO LIZZIE J. PETERS, OF SAME PLACE.

COMBINED INCUBATOR AND BROODER.

SPECIFICATION forming part of Letters Patent No. 614,493, dated November 22, 1898.

Application filed August 13, 1897. Serial No. 648,136. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. NEWSOM, a citizen of the United States, residing at Athens, in the county of Athens and State of Ohio, have invented certain new and useful Improvements in a Combined Incubator and Brooder; 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.

As will be hereinafter fully described, claimed, and illustrated in the accompanying drawings, my invention has relation to a combined incubator and brooder, and relates more particularly to certain details of construction and arrangement of parts deemed necessary to produce a combined incubator and brooder which will be simple and inexpensive in construction and reliably efficient in operation.

The object of my invention, among others, is to provide combined incubating and brooding chambers and means for establishing and maintaining a uniform temperature and to provide in the incubating-chamber a series of movable rotatable egg-holding trays so constructed and arranged that the contents carried thereby will be at all times readily accessible to the operator, making it possible to easily gain access to any of the eggs for the purpose of removal or replacement, a very important and valuable desideratum.

The essential feature of novelty therefore of my invention consists in providing a rotatable tray-holding section designed to be received within a jacket or reservoir, the latter being designed to hold the desired quantity of water upon which dependence is had for maintaining a uniform degree of temperature within the chamber in which the rotatable section is mounted.

In the accompanying drawings, Figure 1 is a perspective view of the outside appearance of the preferred form of body or housing. Fig. 2 is a longitudinal central section of Fig. 1. Fig. 3 is a transverse central section of Fig. 1. Fig. 4 shows a modified construction for the body or housing. Fig. 5 is a transverse vertical central section thereof. Fig. 6 is a longitudinal central section of the ro-

tatable egg-holding section. Fig. 7 is a detail showing a slightly-enlarged cross-section of part of Fig. 6. Fig. 8 shows a modified construction of Fig. 1. Fig. 9 is a transverse central section of Fig. 8. Fig. 10 is a detail of the egg-tray.

For convenience of designating the several details involved in my invention and the accessories deemed necessary in operatively assembling the same figures will be employed, the same numeral being used to designate the same part in all the views.

Describing my invention in detail, 1 represents the housing of my improved incubator ready for use, 2 and 3 being the end walls, suitably connected with each other and with the side sections 4 by locking-bolts or other preferred means.

5 is a cylindrical continuation of the side sections 4, designed to provide a suitable chamber in which the double cylindrical jacket having the annular chambers 6 and 7 is mounted and secured in a stationary manner by any suitable means, as by bolts, in engagement with the outer casing.

The outer chamber 6 provides a means for conveying heat from the lamp 8 into intimate engagement with the annular water-chamber 7, by means of which a reliably-uniform temperature is maintained, thus protecting the contents of the interior.

To indicate the temperature of the incubator, I locate a thermometer in one end of the same, which is covered by a glass or other transparent substance 36, as is clearly shown in Figs. 1 and 2.

Inside of the inner walls of the chamber provided by the water compartment or reservoir 7 I mount upon the axle 9 the series of arms 10, which being provided with a suitable aperture for receiving said axle will enable said arms and the rim-sections 11, carried thereby, to freely rotate thereon. The axle has radial arms 10 and a narrow circular rim 11 secured to the outer ends of the radial arms in order that the hot air may freely enter through the rims and thereby come in contact with the inner surfaces of the eggs. By this means the entire surface of the eggs is subjected to the influence of the hot air. It is understood that the inner end of the axle 9 is

to be permanently and securely attached to the rear part of the casing, and, if necessary, a tubular sleeve 9' may extend loosely around the axle and be connected at either end to the arms 10.

The rim-sections 11 are rigidly connected with each other by a series of partitions 12, located a sufficient distance apart to snugly accommodate a row of eggs between them. In order to provide a yielding bottom for each of the series of longitudinally-disposed compartments, I prefer to form the bottom of each of wire-netting, though other preferred means may be adopted. In order that the eggs within the series of compartments may be readily placed under the vision of the attendant, I prefer to form a series of grooves 13 near the upper part of the walls 12, which is designed to receive the edge of a section of glass 14, thus permitting the glass slide to be freely withdrawn from the grooves when access to the eggs is desired. By this arrangement it will be apparent that when the rotatable egg-compartments are rotated or turned upon the axle 9 the slides just referred to will alternately become the top and the bottom of the longitudinal compartments to which they are applied and that when it is desired to remove or replace the eggs the compartment to be used should be brought to the top by properly rotating the entire rotatable section formed by the arms 10, the rim 11, and other parts just referred to.

It will be understood that a series of compartments (see Figs. 4, 8, and 9) concentrically mounted within the rotatable section may be provided, thus enabling utilization to be made of the entire space around the axle and between the inner walls of the water-compartment. I have shown this interior occupied by four cylinders 15, which are preferably formed of wire-gauze, though other suitable material may be employed in which the desired number of eggs may be placed, thus enabling the interior to be effectively employed.

It will be further apparent that instead of providing a series of walls 12 the longitudinally-disposed chambers provided by said walls may be formed by a series of the cylindrical compartments 15, which, being properly secured at either end to the arms 10, the eggs may be held in place by the spring action of the compartments. The open slot being slightly narrower than the thickness of an egg will hold it in place. The eggs are inserted near the middle of the compartment and then pushed to either end until the compartment is full.

From the construction I have set forth it will be readily apparent that I have provided a reliable means for permitting all of the eggs to be simultaneously moved, which, as is well known, is a very important part of the process of incubation. No other means will be required for turning the eggs from time to time except that which I have illustrated and described, as a simple rotation or partial ro-

tation of the interior section mounted upon the axle 9 will reliably perform this office.

In order to provide means for conveniently introducing water into the reservoir 7, I provide the nozzle 16, which should have a suitable ceiling-cap to prevent undue evaporation.

I provide for the escape of the products of combustion from the lamp by means of the vent 17, suitably connected with the upper part of the chamber 6, which vent, it will be understood, may be located at any preferred part deemed conducive of the best results.

While I have shown the lamp or other means relied upon for supplying the requisite heat as being located under the central portion of the water-jacket and connected directly therewith by means of the tubular throat 18, it will of course be understood that the location of said lamp is to be governed by the judgment of the manufacturer.

It is well known in practice that the process of incubation must be supplemented by a reliable kind of brooder, and having this point in view I have combined with my improved incubator a brooder-compartment 19, located, preferably, beneath the water and hot-air compartment and immediately surrounding the tubular throat 18, through which the lamp-chimney is designed to extend. If deemed necessary, the tubular throat 18 may be surrounded with a protection of wire-netting 20 in order to prevent the young chicks from being crowded against the tubular section and the resulting injury.

In order that the interior of the brooder-compartment 19 may be readily accessible for the purpose of cleaning the same, I provide upon either side flap-doors 21, suitably mounted upon the hinges or rods 22, thus permitting the lower edge of said doors to be readily drawn outward by means of the button 23 and turned up against the cylindrical section 5.

In order to permit the chicks to pass out of the brooder in suitable weather, I provide the opening 24, which may, if deemed necessary, be provided with a suitable form of door. An inclined walk 25 is also provided, the purpose of which will be readily apparent.

It will be observed that the vent 17 terminates in an enlarged circular plate, upon which a disk may rest, and the heat be thereby utilized for the raising of bread, or for heating food and water for the young chickens, as occasion may require, or for any other useful purpose.

In order that the interior of the brooder-chamber 19 may be reliably ventilated, I provide the air-inlet 27, which may be multiplied in number as deemed requisite for the purpose, and for convenience in moving the combined incubator and brooder I provide the casters 28.

In Figs. 4 and 5 I have shown the outer part of the housing 29 as being formed of wood, in which case I prefer to locate the

brooder-chamber 30 immediately above the rotatable egg-compartment, access to which may be readily gained by a suitable lid formed in the top of the house, which will of course
 5 be readily understood. While the housing formed of wood may perhaps be desirable in cases requiring cheap construction, yet I do not wish to be confined to either form of housing, as any suitable means may be adopted
 10 for mounting the rotatable egg-compartment and holding in connection therewith a uniform temperature provided from the lamp of any preferred variety or other suitable means.

In Fig. 4 I have shown a pair of glass doors
 15 31, by means of which the open or front section is completely closed, the doors being held in said position by the button or latch 32. In Figs. 1 and 2 I have shown the movable door
 20 33, which enables access to be gained to the interior. The section 33 is preferably circular, and the axle 9 is of sufficient length to take entirely through a central aperture provided therein, and as the end of said axle is threaded locking-nut 34 is all that is neces-
 25 sary to hold the section in an adjusted position. The inner edge of the section 33 is cut away, providing the annular peripheral seat 35, designed to receive the outer edges of the casing 5, and thus enable the said section 33,
 30 when locked in position by the nut 34, to reliably support the outer end of the axle 9 and the rotatable chamber carried thereon.

It will be readily apparent that by simply removing the nut 34 and the section 33 the
 35 entire rotatable egg-holding compartment will be withdrawn from within the chamber formed by the inner walls of the water-reservoir 7, thus enabling the contents to be removed or replaced, as the outer ends of the
 40 partitions 12 will support the load of the chamber, and thus enable one after the other of the longitudinal compartments to be filled or emptied, as the case may be.

In Figs. 8, 9, and 10 I have illustrated a
 45 modified construction for the interior parts of my improved rotatable incubator and have also shown a double brooding-chamber. The lower brooding-chamber is designed to receive the chickens after they have attained to some
 50 size, and they do not, therefore, require as high a temperature as they do when they first leave the shell. It also prevents the crowding of two many chickens in the upper chamber, which would be the natural result when a
 55 large number of chickens were hatched at the same time. The essential feature of this part of my invention consists in providing a series of easily-removable egg-trays 36. (Illustrated in detail in Fig. 10.) The series of com-
 60 partments illustrated in the other views of the drawings, and more particularly in Figs. 3, 5, 6, and 7, may be regarded as complete in themselves, though it is thought that the use of the removable tray 36 will be advantageous, in-
 65 asmuch as the eggs can be readily and individually examined at any time by simply with-

drawing said tray by means of the handle or button 37.

It will be readily understood that in case the series of compartments formed by the
 70 walls 12 and the glass cover 14 are dispensed with a rim or disk 38 will be suitably connected to the arms 10, and thereby mounted in rotatable relationship with the axle. A
 75 disk or rim 38 being thus attached to either end of the axle and provided with a series of circular openings makes the interior of the chamber ready for the reception of a series
 80 of egg-trays, as indicated in Fig. 10, which, being introduced through the openings provided in said rims, will be reliably supported
 85 in position, and as each of the trays will be provided with a suitable lid the eggs during the process of rotation will be reliably held in the seat thus provided. It is thought that
 90 the advantages of using a removable tray will be readily apparent, some of the advantages arising from the fact that the process of incubation may be easily examined from time
 95 to time by simply withdrawing the tray, and, further, that when the process of incubation has been completed the tray may be entirely removed and the chicks introduced into the upper brooder through the apertures provided
 100 in the end wall and closed by a removable door 39.

In Figs. 8 and 9 I have shown the lamp as being located to one side of the center of the water-jacket, which will insure that the rising
 105 heat thus generated will impinge upon the periphery of said jacket, and thus reliably induce a circulation of the water therein. In Fig. 9 it will be seen that I have provided a reliable means for conserving the heat thus
 110 generated, inasmuch as I cover the outer casing 5 upon its interior face with a facing 40, formed of suitable non-conducting material, as asbestos or the like. In Fig. 9 it will be also observed that the annular draft or heat
 115 chamber 6 is formed by the outer wall of the water-chamber 7 and the casing 5.

In Fig. 9 I have shown by numeral 41 a ventilating-pipe passing through the wall or casing 5, thence through the annular heat-
 120 chamber 6 and water-jacket 7, and then up into the incubating-chamber, its function being to introduce fresh air into said chamber, as will be readily apparent. The pipe 41 may be multiplied in number as desired.

Believing that the construction, advantages, and use of my improved incubator and
 125 brooder will be made readily apparent from the foregoing description, considered in connection with the accompanying drawings, further description is dispensed with.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an incubator, a housing having an
 130 axle mounted therein, said axle having a series of radial arms carrying a flat, narrow, circular rim at each end thereof, thereby form-

ing large apertures in the end, egg-carriers supported by said rims and a source of heat connected with said incubator, all combined as set forth.

5 2. In an incubator, a housing having an axle mounted therein, said axle having a series of radial arms carrying a thin annulus at each end thereof, a concentric series of egg-compartments supported by said annuli and
10 a source of heat for the incubator, all combined as set forth.

3. In an incubator, the combination with a suitable housing of a rotatable egg-carrier having egg-receptacles on its periphery, a
15 shaft mounted therein and having radial arms extending from each end thereof engaging a rim surrounding their outer extremities, longitudinal partitions separating the egg-receptacles and having their ends in contact
20 with said rims respectively and means to heat the incubator, as set forth.

4. In an incubator, the combination with a suitable housing of a rotatable egg-carrier

having egg-receptacles on its periphery, longitudinal walls separating the egg-receptacles
25 and having grooves formed in their outer edges, glass slides fitting said grooves and a water-compartment surrounding the egg-receptacles, and means to heat the same, as set forth.
30

5. In an incubator, the combination with a suitable housing of a rotatable egg-carrier journaled therein and having egg-receptacles on its periphery, a cylindrical jacket surrounding said egg-carrier having an annular
35 inner water-chamber and an annular hot-air chamber exterior thereto and a source of heat connected with the hot-air chamber, all arranged as set forth.

In testimony whereof I affix my signature
40 in presence of two witnesses.

CHARLES S. NEWSOM.

Witnesses:

J. L. JONES,
M. L. MEANS.