

No. 710,190.

Patented Sept. 30, 1902.

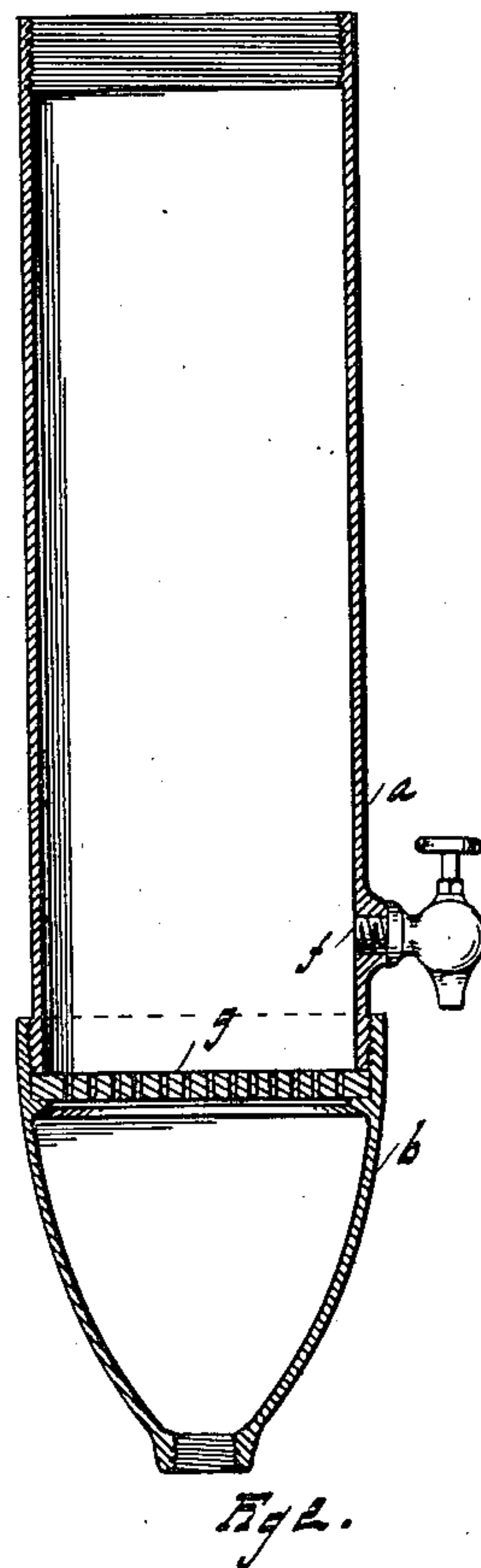
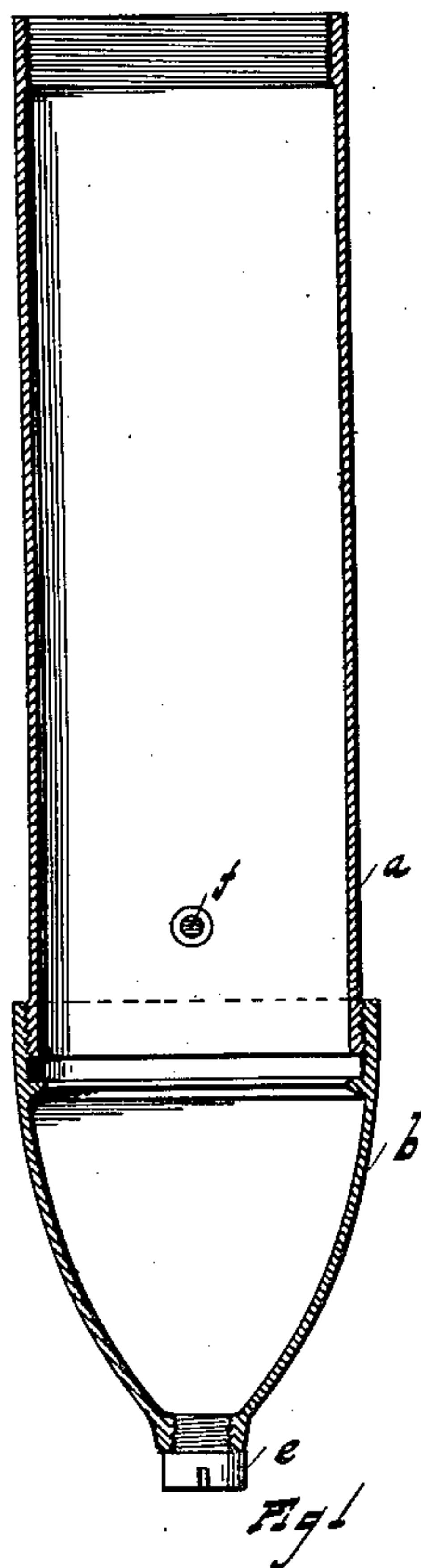
F. W. GAERTNER.

PROCESS OF EXTRACTING VEGETABLE ALBUMEN.

(Application filed Jan. 27, 1902.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES

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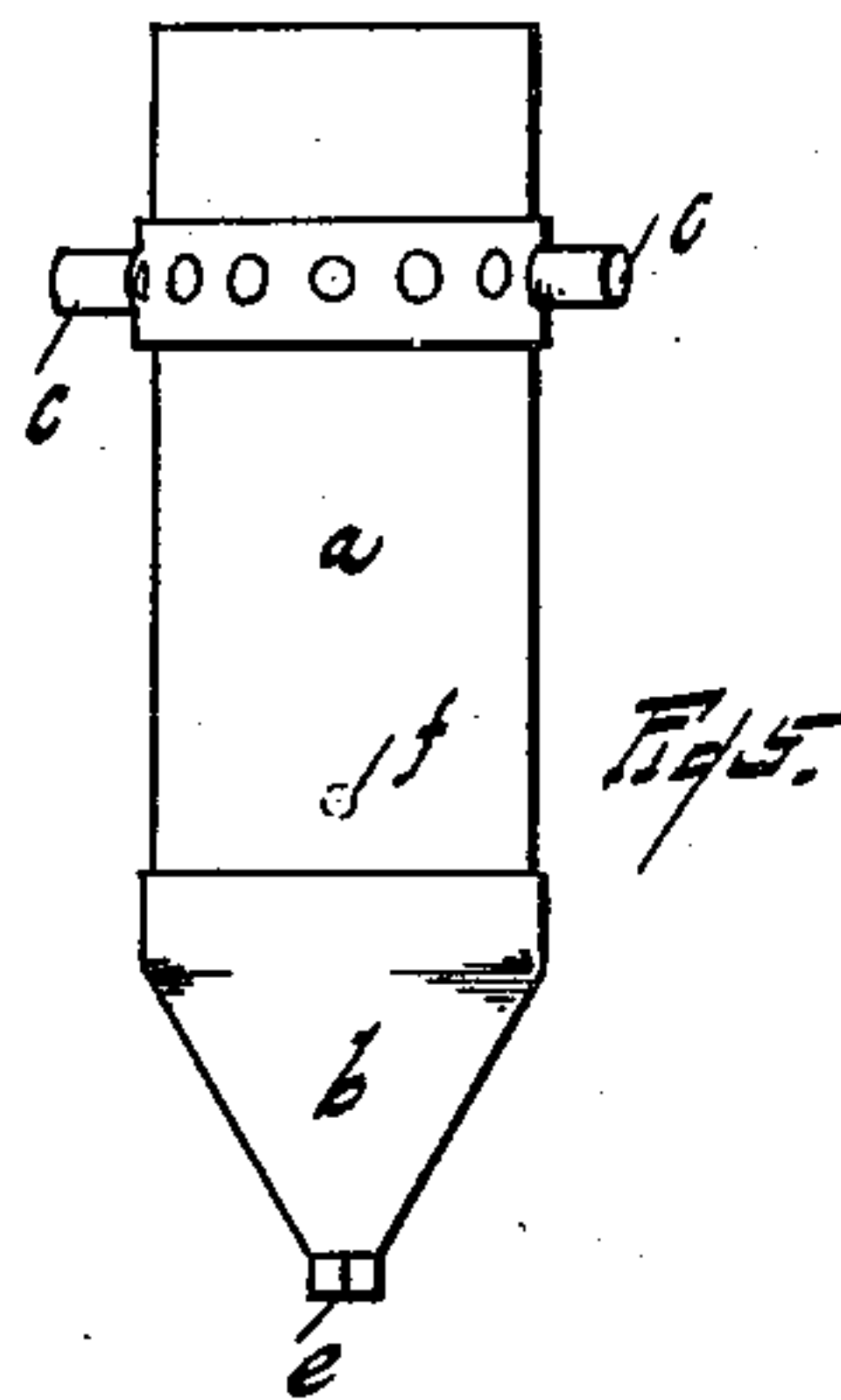
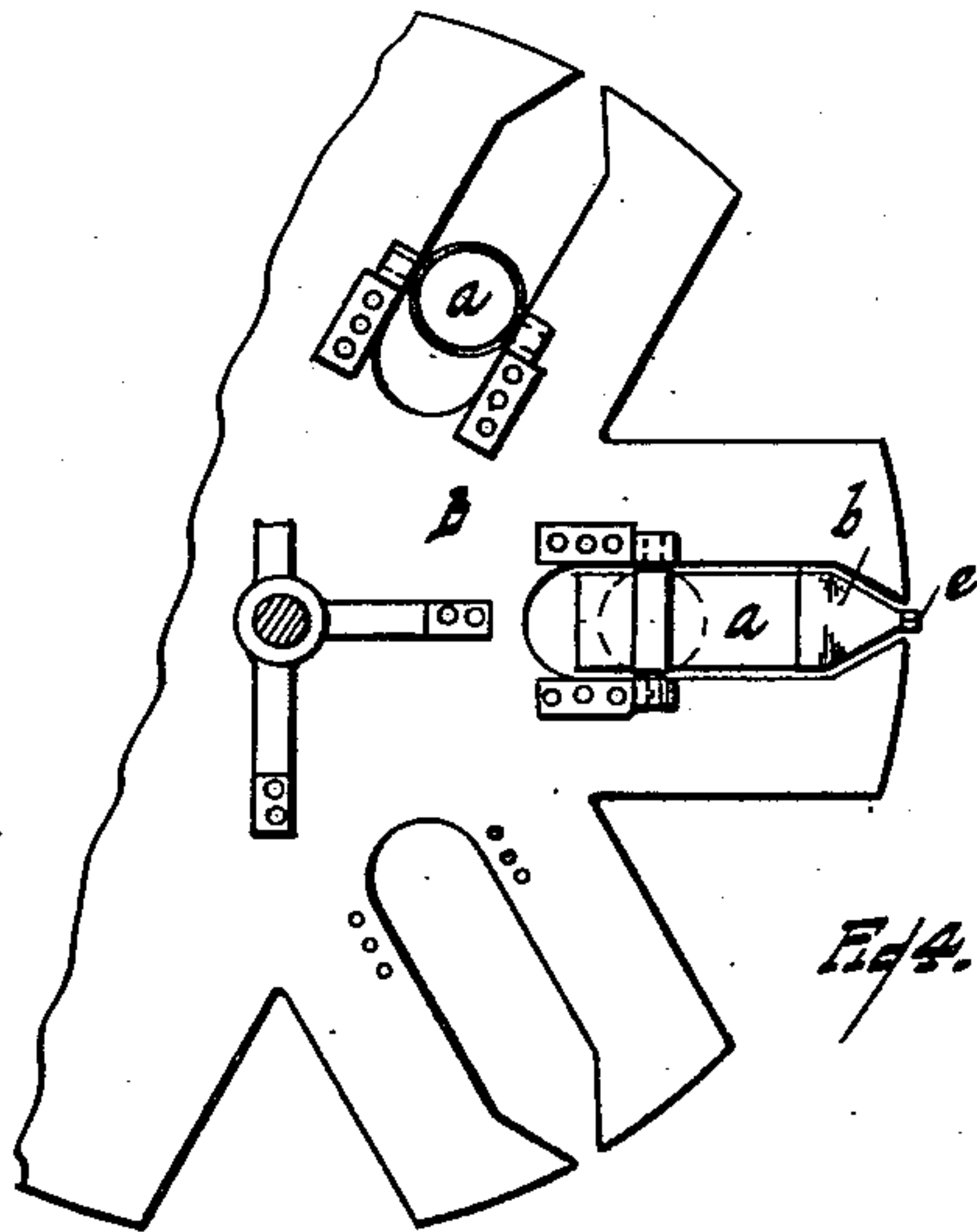
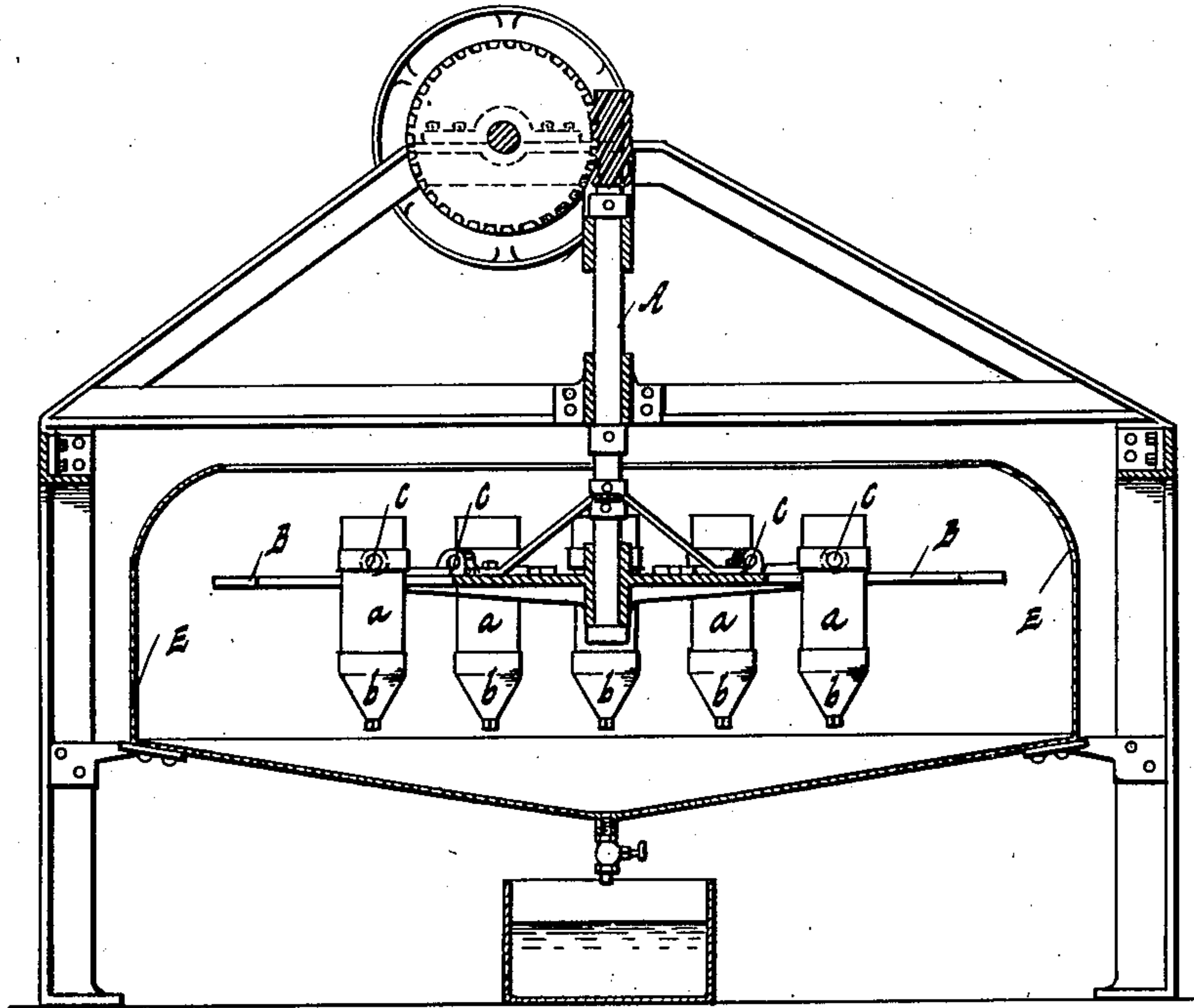
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WITNESSES

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# UNITED STATES PATENT OFFICE.

FREDERICK W. GAERTNER, OF SAGINAW, MICHIGAN.

## PROCESS OF EXTRACTING VEGETABLE ALBUMEN.

SPECIFICATION forming part of Letters Patent No. 710,190, dated September 30, 1902.

Application filed January 27, 1902. Serial No. 91,334. (No specimens.)

*To all whom it may concern:*

Be it known that I, FREDERICK W. GAERTNER, a subject of the Emperor of Germany, residing at Saginaw, county of Saginaw, State of Michigan, have invented a certain new and useful Improvement in Processes of Extracting Vegetable Albumen; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to the extraction and preparation of vegetable albumen, and has for its object an improved process by which vegetable albumen may be obtained in a pure state, fit for food, cheaply and expeditiously.

In carrying out the process I employ a centrifugal machine, and for the sake of conveying a clear idea of my process I will briefly describe such machine and its parts.

In the drawings, Figure 1 shows in longitudinal cross-section a tube or receptacle into which the material to be subjected to the action of the centrifugal machine is placed. Fig. 2 is a section similar to Fig. 1, the cutting-plane being at right angles to that of Fig. 1, the stopper being removed and a porcelain diaphragm inserted. Fig. 3 is a sectional elevation of a centrifugal machine. Fig. 4 is a detail of a portion of the revolving frame of the machine, showing two tubes in place. Fig. 5 is a detail view of one of the tubes or receptacles ready to be mounted in the revolving frame.

*a* is the cylindrical portion of the receptacle for the liquid to be operated upon.

*b* is a conical cap adapted to screw over the end of the cylindrical portion. The lower or outer end of the cap *b* is provided with a threaded aperture adapted to be closed by a screw-threaded plug *e*.

*f* is a cock in the walls of the cylinder *a*, near the lower and outer end thereof.

*g* is a perforated diaphragm of porcelain adapted to be clamped between the end of the cylindrical part *a* and a flange on the conical part. This tube or receptacle may be made of aluminium.

In Fig. 3, *A* is a vertically-extending spin-

dle. The apparatus for spinning said spindle is indicated at its upper end.

*B* is a circular frame having openings extending inward from its periphery. 55

The tubes or receptacles above described are provided with trunnions *c* toward their ends opposite to the caps *b*. The trunnions *c* rest in bearings upon the frame *B*, so that their capped end shall extend through the openings in said frame, hang vertically when the machine is at rest, and extend radially when the frame is in rapid motion. When the tubes or receptacles are in the frame *B* and the machine is at rest, it is convenient to remove the upper end of said receptacles to fill them. 65

*E* is a shield surrounding the frame *B* and acting to intercept any liquid that escapes from the whirling receptacles and gather the same into a convenient vessel. 70

I prefer to employ rape-seed as the source of the vegetable albumen manufactured by this process. I take the cake from which the oil has been extracted without cooking it and in which the albumen remains uncoagulated, reduce this cake to flour, and subject it to about its own weight of water for a period of about five hours, keeping the temperature of the water at about 40° centigrade, stirring the mixture all the time. The albumen of the seed will now be dissolved in the water. I then separate the flour from the liquid by filtration, which may be done in whole or in part by placing the mixture in the cylinder *a* with the porcelain diaphragm in place and a suitable filtering material laid on said diaphragm and setting the machine in motion, the plugs *e* being removed, or the plug may be left in place, in which case the liquid will gather in the conical chambers of the caps *b* and may be easily removed. To the filtered liquid solution is added its own volume of alcohol. This has a multiple effect or function. In the first place it dissolves the oil and bitter matter, and, secondly, it throws the albumen down as an insoluble precipitate and in a pure and wholesome condition. The liquid may now be decanted from the precipitated albumen and the last portion of the liquid removed in the centrifugal machine, as above described with reference to 100



the flour. The albumen may be washed with alcohol or ether in the receptacles *a b*.

When the albumen is separated from the liquid, the alcohol is distilled from the latter  
5 and may be used again, only a small loss being incident to the process. Instead of decanting the liquid after allowing the albumen to settle, a more expeditious method may be employed, which is as follows: As soon as the  
10 alcohol is added to the liquid in which the albumen is dissolved the fluid is placed in the receptacles *a b*, or the alcohol may be added to the mixture while in said receptacles. The machine is then set in motion, throwing the  
15 albumen into the conical cap-pieces. The liquid may then be withdrawn through the cock *f* and the albumen transferred to the cylindrical part of the receptacles and dried, as above described.

What I claim is—

1. The process of extracting vegetable albumen from vegetable matter, which consists in subjecting the vegetable matter reduced

to powdered form to water at a temperature below that which would coagulate the albumen, rendering the dissolved albumen insol- 25  
uble by adding alcohol and separating the precipitated albumen from the liquid by centrifugal action.

2. The process of extracting vegetable albumen from vegetable matter, which consists in subjecting the vegetable matter reduced to powdered form to water at a temperature below that which would coagulate the albumen, rendering the dissolved albumen insol- 30  
uble by adding alcohol to the mixture, extracting the albumen from the liquid in a centrifugal machine, and drying the same in the same centrifugal machine. 35

In testimony whereof I sign this specification in the presence of two witnesses. 40

FREDERICK W. GAERTNER.

Witnesses:

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