

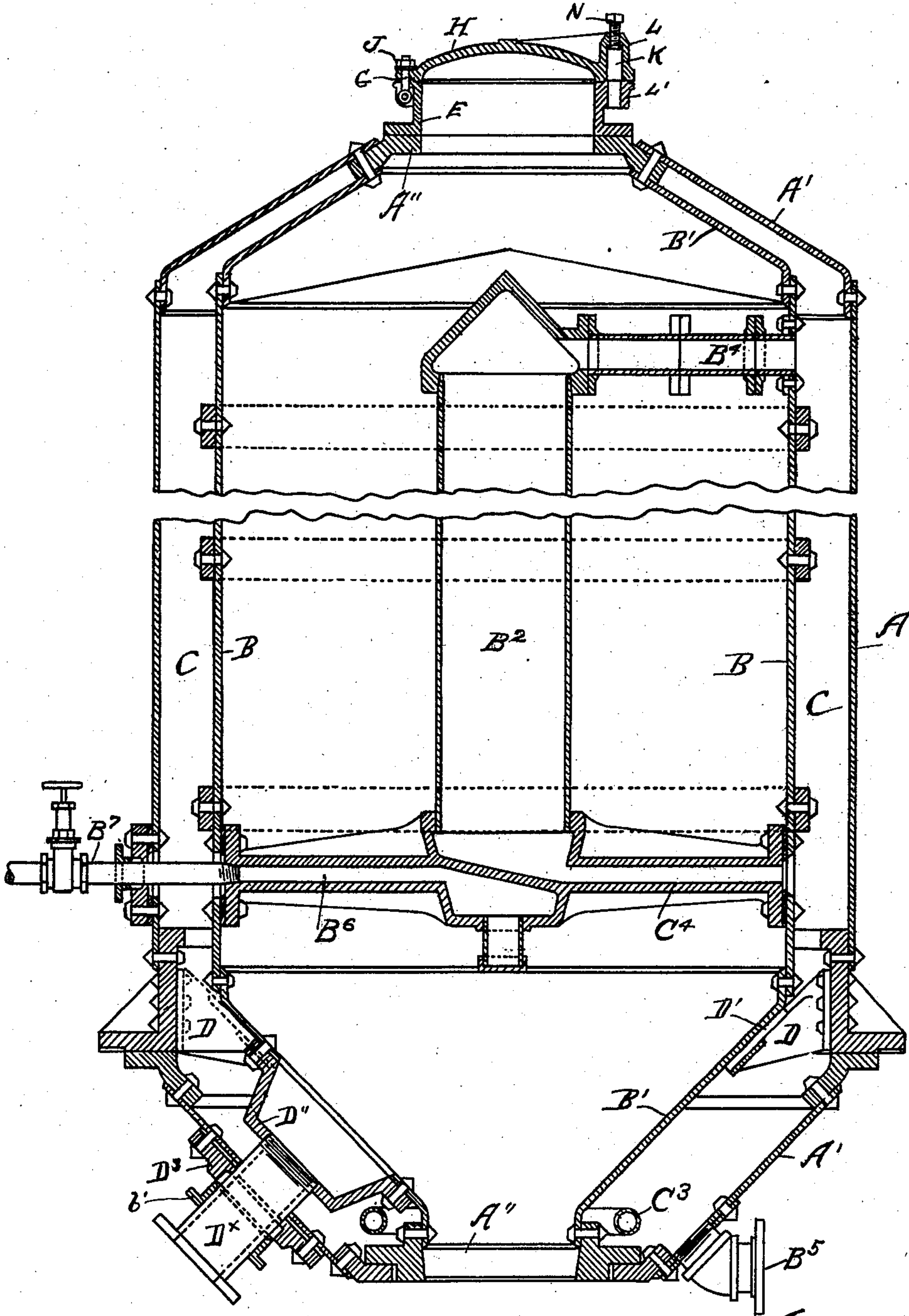
No. 712,127.

Patented Oct. 28, 1902.

A. GIESLER.
DIGESTER.

(Application filed Apr. 18, 1902.)

(No Model.)



WITNESSES.

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UNITED STATES PATENT OFFICE.

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DIGESTER.

SPECIFICATION forming part of Letters Patent No. 712,127, dated October 28, 1902.

Application filed April 18, 1902. Serial No. 103,507. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR GIESLER, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Digesters; and I do 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, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which forms a part of this specification.

This invention relates to improvements in apparatus for digesting and rendering oil or grease from meats, fish, &c.

The invention has specific reference to means for properly supporting the interior shell of the digester, so that the said interior shell may be free to expand and contract under the varying degrees of heat introduced thereto.

In practice the digester is filled with the material from which the grease, oils, or fats are to be extracted, the weight of such material varying often between from five to ten tons. Such weight must be sustained in the inner shell, and if a proper provision is not made for sustaining the inner shell and at the same time permitting said inner shell to contract and expand freely the same will become inefficient, owing to the joints and rivet-holes becoming separated or enlarged, and thereby permitting a leakage of the contents.

Heretofore it has been customary to rivet the brackets in positions upon both the inner and outer shells, the said brackets thus becoming practically integral parts of both shells. By thus uniting the brackets to the inner shell as well as the outer shell the expansion and contraction of said inner shell will cause the seams and rivet-holes to leak. In other words, the inner shell being rigidly secured to the brackets, the expansion of said shell will cause the rivets to become loose. The present invention overcomes this serious objection, the said brackets being so placed within the digester that they afford a proper support for the weight of the inner shell and at the same time permit of a free expansion and contraction of the same.

Preceding a detail description of the invention reference is made to the accompanying drawing, which comprises a longitudinal vertical sectional elevation of a digester made in accordance with my invention.

In a detail description of my invention similar reference-letters indicate corresponding parts.

A designates the outer containing-shell of the digester, having its upper and lower ends terminating in conical walls A', which are united to rings A'' and A''', through which ingress and egress are had to and from the interior of the digester.

B is the inner shell of the digester, having its upper end terminating in conical walls B', with suitable space between the inner and outer shells, the said conical walls of the inner shell being likewise united to the rings A''. The bottom of the inner shell B being of conical shape and called upon to support a great weight will in consequence thereof be subjected to some expansion and contraction lengthwise; but the major degree of such expansion and contraction will be crosswise. The space C between the two shells is for the steam or water circulation, as is well known.

C³ designates steam-inlet pipes communicating with the lower portion of the chamber C.

C⁴ is a casting arranged above the lower end of the apparatus and on the interior thereof. This casting provides ducts B⁶ for the admission of air or water through pipe B⁷ for cleansing purposes and B³ for drainage of condensed water.

B⁴ is a steam-inlet from the chamber C to an upright steam-drum B².

B⁵ is an outlet for the drain of water.

By alternately admitting steam between the two shells or in the inner shell a degree of expansion and contraction manifests itself when opposed by any rigid attachment of the inner shell, as hereinbefore mentioned. To obviate this is one of the main objects of the invention.

D designates a series of brackets which are annularly disposed around the lower interior of the outer shell. These brackets are riveted or otherwise rigidly secured on the interior of the outer shell and have their inner

inclined faces D' in such position as to receive the conical bottom of the inner shell, and thereby support said inner shell. These inner inclined faces D' of said brackets have
 5 each an angle similar to the angle or inclination of the conical bottom B' of said inner shell, so that a proper contact is provided between said conical bottom and said brackets. It will be observed that these brackets have
 10 no attachment with said inner shell, while they serve as supports to hold said inner shell in a central position within the outer shell. Owing to this manner of arranging said brackets the inner shell is free to contract
 15 and expand without any detrimental effects. The said inner shell in contracting and expanding will move at each end, thus causing the lower or supported end of said inner shell to contract and expand without breaking or
 20 loosening the brackets. The result of this is that the digester will be free from the well-known defects of leakage and will remain in a serviceable condition for a much greater time than heretofore.

25 The digester is inclosed at its upper end by a cover consisting of the following parts:

E designates a flanged ring, which is suitably united to the upper ring A'', which incloses or surrounds the opening or mouth of
 30 the digester. This flanged ring E has a series of slots arranged around its upper rim, said slots extending inwardly from the margin of said rim. Within said slots there are pivoted a series of bolts G, which are adapted
 35 to be lowered to a horizontal position in said slots and to be raised to a vertical position.

H designates a cover, which has a number of slots arranged around its rim corresponding in number and position to the slots in
 40 the flanged ring E and into and out of which the bolts G are movable. When the said bolts are elevated to the position shown in the drawing, the cover H is tightened against the flanged ring E by means of nuts J, which
 45 are secured on said bolts.

K is a pin having two diameters and penetrates openings in lugs L and L' on the cover H and the ring E. The said openings are also
 50 of two diameters.

N is a screw which screws against the upper end of the pin K, said screw having a screw-threaded engagement with the lug L. By means of this screw N the cover H may be
 55 slightly elevated from the ring E after the screws G are lowered to a horizontal position, and the said cover may be then swung around to one side of the opening or mouth of the digester.

60 The outlet from the interior of the digester is through a pipe or nozzle D^x, which is secured to a cup D'', the latter being riveted to the conical end of the inner shell on one

side thereof. The said nozzle D^x is free to move with the inner shell under the contracting and expanding movements thereof, owing
 65 to said nozzle not being in rigid connection with anything but the inner shell. The said nozzle projects through the outer shell and through a flange D³, which is riveted to said
 70 outer shell. The said flange has a suitable space for a packing-ring, which provides a tight joint around the nozzle, which at the same time permits said nozzle to have the
 75 necessary movement in and out due to the expansion and contraction of the inner shell. Other forms of connection between the shells of the digester and the nozzle D^x may be
 made whereby the said nozzle will be allowed to have the necessary movement.

Having described my invention, I claim— 80

1. In a digester, the combination with inner and outer shells having conical-shaped ends, the said conical-shaped ends being rigidly united, of a series of brackets annularly
 85 disposed around the lower conical-shaped ends of said shells, said brackets having a rigid connection within the interior of the outer shell and essentially free from any connection with the inner shell, the inner faces of
 90 said brackets being on angles coinciding with the conical end of the inner shell and providing a support for said inner shell which permits said inner shell to freely contract and expand, substantially as set forth.

2. In a digester, the combination with inner and outer shells terminating at both ends in conical shapes and united at such ends, the said inner and outer shells providing a steam-chamber, a series of supporting-brackets annularly
 95 disposed in the lower portion of the apparatus, said brackets being rigidly united to the interior surface of the outer shell and having their surfaces coinciding with the inclination of the lower portion of the interior
 100 shell to provide a support for said shell which permits of a free expansion and contraction of said inner shell, an outlet from the interior of the apparatus comprising a cup-shaped portion D'', a nozzle D^x secured
 110 around an opening in the outer shell and through which said nozzle projects and is permitted to have movement under the expanding and contracting actions of the inner shell, and a suitable packing-ring providing
 115 a joint at the point where said nozzle projects through the flange D³, substantially as set forth.

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

ARTHUR GIESLER.

Witnesses:

R. J. McCARTY,
 JOHN W. KALBFUS.