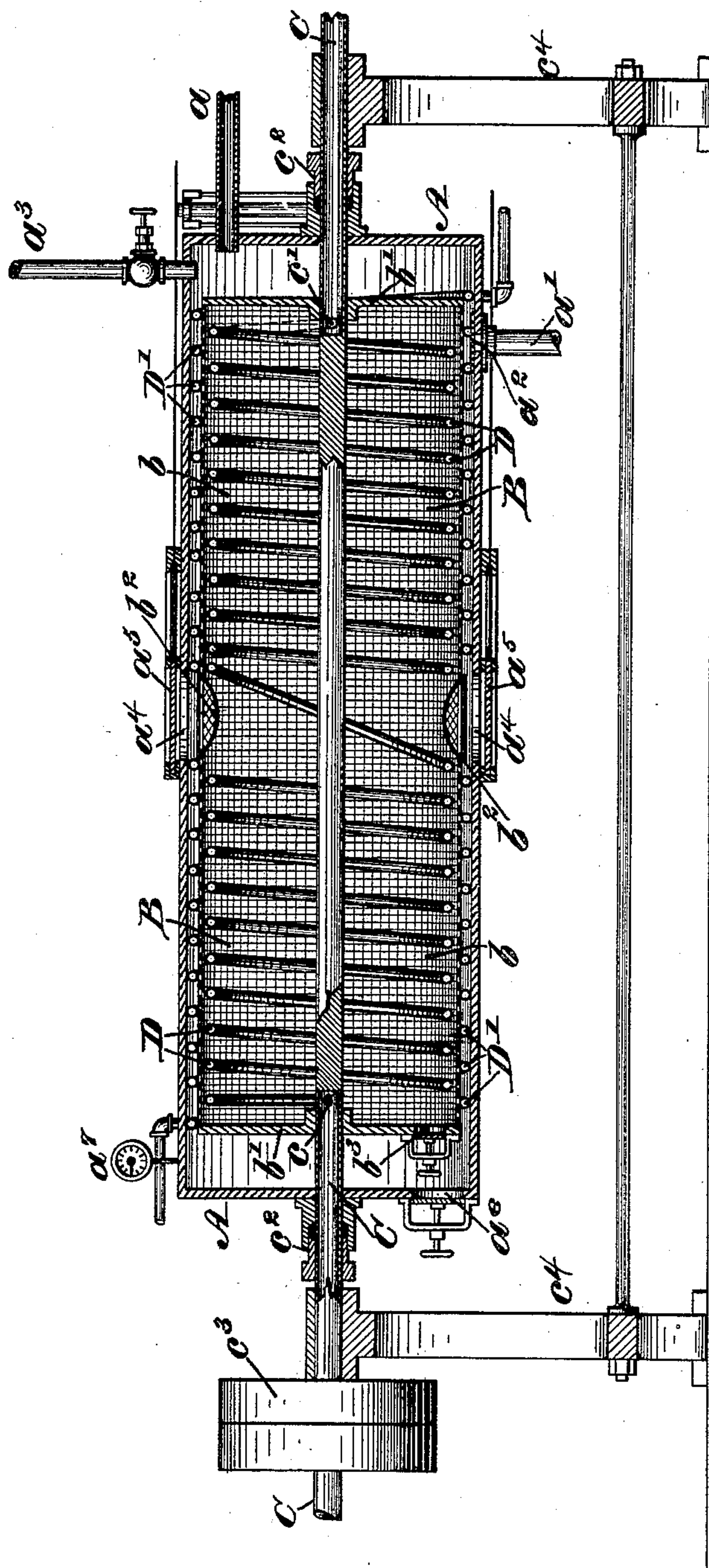


(No Model.)

P. C. VOGELLUS.
COMBINED DRIER AND DIGESTER.

No. 428,978.

Patented May 27, 1890.



~~WITNESSES:~~

L. Houville
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INVENTOR:

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UNITED STATES PATENT OFFICE.

PETER C. VOGELLUS, OF PHILADELPHIA, PENNSYLVANIA.

COMBINED DRIER AND DIGESTER.

SPECIFICATION forming part of Letters Patent No. 428,978, dated May 27, 1890.

Application filed April 26, 1888. Serial No. 271,887. (No model.)

To all whom it may concern:

Be it known that I, PETER C. VOGELLUS, a subject of the King of Denmark, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Combined Driers and Digesters, which improvement is fully set forth in the following specification and accompanying drawing.

My invention relates to improvements in combined driers and digesters; and the object of the invention is to provide an apparatus by means of which materials or substances may be thoroughly and perfectly dried in a very short time, and which apparatus will also by means of a suitable menstruum extract the valuable parts from any substance.

A further object of the invention is the provision of a combined drier and digester which will permit of easy and ready access to all its parts for the purpose of cleansing and repairs.

A further object is the provision of an apparatus of the character and for the purpose mentioned which will be simple, inexpensive, and strong, durable in construction, and thoroughly efficient in operation.

The invention consists in a stationary outer vessel having within the same a cylinder or vessel provided with a covering of reticulated material, the inner cylinder being secured to a pipe passing through both of said cylinders and having suitable bearings without the same, and provided with pulleys whereby the said inner cylinder may be rotated. Within the cylinders are steam or heating pipes properly connected to a steam or heat supply and an exhaust. Each of the cylinders is provided with inlet and outlet pipes and openings, as herein set forth in the claim.

The figure of the drawing represents a vertical longitudinal sectional view of a combined drier and digester constructed in accordance with and embodying my invention.

Referring to the drawing, A designates the outer cylinder or vessel of my apparatus, which is constructed of metal or wood and of the desired size for the purpose. This cylinder or vessel A is provided with a pipe a , for feeding the menstruum to the apparatus, a discharge-pipe a' , provided with a strainer or

filter a^2 , for discharging the extract which has been removed from the substance placed in the apparatus, a pipe a^3 , having a cock therein, for leading the vapors from the menstruum, after it has been used, to a condenser, if desired to save the same, openings a^4 , valves a^5 , for controlling said openings, man-holes a^6 , and a pressure-gage a^7 .

B designates the inner cylinder, arranged within the outer cylinder, and the inner cylinder is formed of wire-cloth or metallic netting b , with closed heads b' , or the entire cylinder may be formed of wire-cloth or metallic netting. This cylinder B is provided with the openings b^2 , which receive the material that is passed through the openings a^4 , and a man-hole b^3 to allow said cylinder to be cleaned.

C designates a pipe passing through the heads of the inner and outer cylinders for supplying steam at the inlet c and carrying off the exhaust-steam at c' . The pipe C, which passes through stuffing-boxes c^2 , is revolved by means of the pulley c^3 , and is supported and bears in standards or uprights c^4 , secured to the floor or other surface.

D designates coiled pipes arranged in the inner cylinder, communicating with the supply-pipe C at one end and the exhaust at the other end.

D' designates coiled pipes arranged in the outer vessel, which receive their supply of steam from the pipe C if they revolve, and if these pipes D' remain stationary steam will be supplied from a separate pipe.

I have stated that coiled pipes are employed; but I would have it understood that I do not confine myself to such character of pipes, as horizontal or other pipes will answer.

The operation is as follows: If the apparatus is to be employed for drying, the material to be dried is passed through one of the openings a^4 of the outer cylinder or vessel and b^2 of the inner cylinder. The openings a^4 and b^2 are then closed, the steam allowed to enter the pipes, and the inner cylinder revolved by means of the pulley, causing an agitation of the material, and the heat passing through the same, drying it rapidly and perfectly, after which the material is removed in a dry state through the said openings. When desired to use the apparatus for digesting or extracting,

the material is placed in the inner cylinder. The menstruum enters the outer cylinder or vessel A by the pipe *a* and passes through the netting *b* to the inner cylinder. The inner cylinder, containing the material or substance and the menstruum or dissolving liquid, is then rotated and a perfect heating and agitation is insured, the menstruum removing the desired extract, which passes through the discharge-pipe to a receiver, and when all the extract has been removed the menstruum, if desired to be saved, can be passed to a condenser and the apparatus stopped and the substance which has been acted upon removed.

It will be understood that by imparting a rotary motion to the inner cylinder a complete agitation and distribution of the heat is insured, and there is no danger of the metallic cloth becoming clogged, as is the case in the present form of digesters.

The many advantages of my machine will be readily apparent to all skilled in the art and need no further comment herein.

I would have it understood that I may make minor changes in the construction and arrangement of the parts of my apparatus without departing from the spirit or scope or sacrificing any of the advantages of the invention. If desired, the heated vapors from the menstruum may be passed to a condenser or other vessel and then drawn from the same. The inner cylinder may also be constructed in

two parts loosely connected together by means of a collar, in order to revolve in said collar, which is itself stationary and provided with a filling-opening which aligns with one of the openings of the outer cylinder. By this construction the cylinder is permitted to revolve in the collar and the filling and discharge openings thereof are always in line with the similar openings of the outer cylinder.

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

The combined drier and digester herein described, consisting of a stationary outer vessel with a menstruum inlet and discharge pipe and a vapor-pipe, an inner cylinder with wire-net covering, a pipe forming a rotary journal for said inner cylinder and passing through said outer cylinder and supported on standards, coiled pipes within said cylinder leading from the inlet end of the journal-pipe to the outlet end thereof, and coiled pipes within said outer cylinder encircling said inner cylinder and leading from one end of the journal-pipe to the other end thereof, said parts being combined substantially as and for the purpose set forth.

PETER C. VOGELLUS.

Witnesses:

WM. N. MOORE,

A. P. JENNINGS.