

No. 696,222.

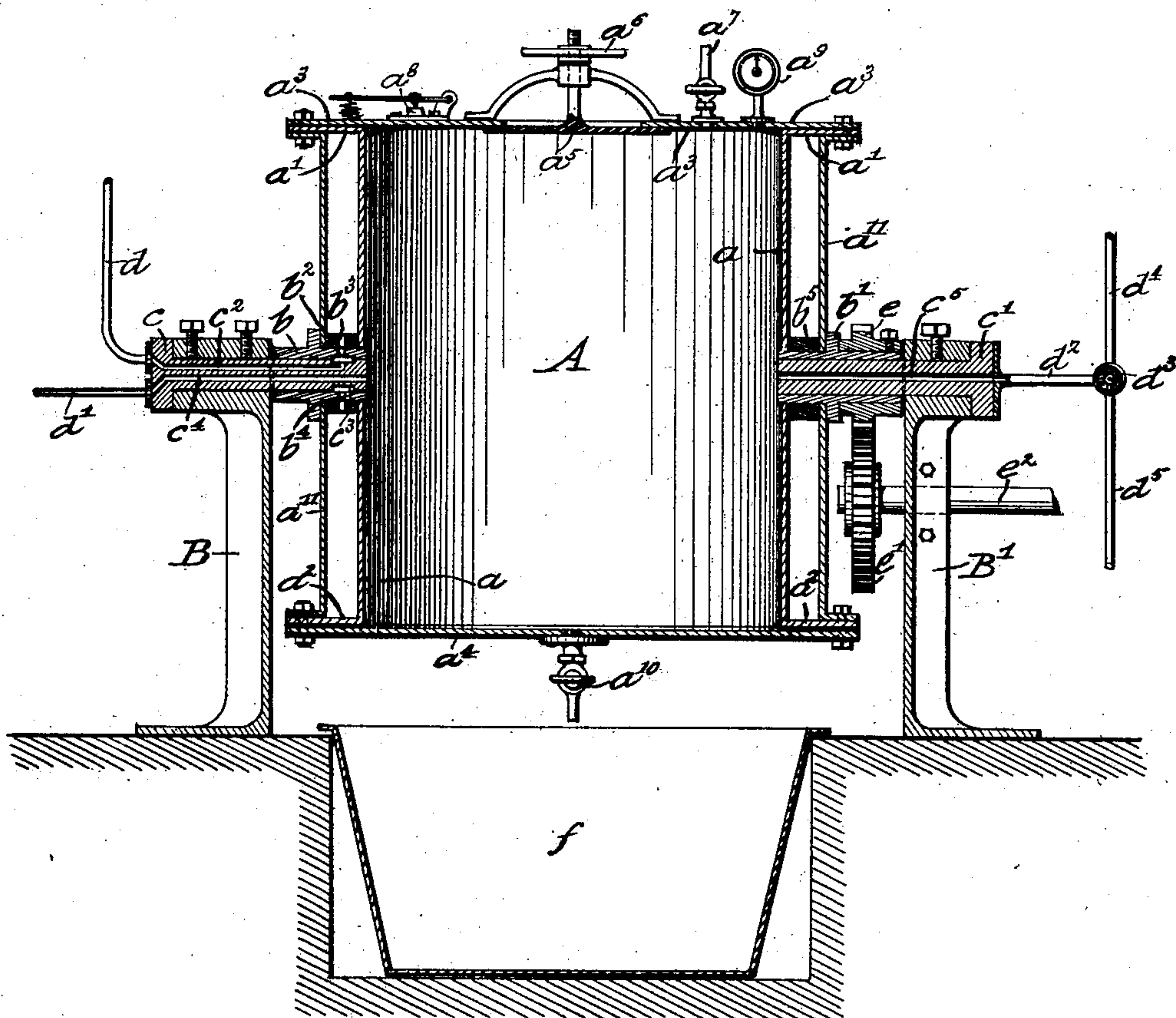
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F. ARLEDTER.

PROCESS OF REFINING RESINS, OILS, OR FATS.

(Application filed July 16, 1901.)

(No Model.)



WITNESSES:

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PROCESS OF REFINING RESINS, OILS, OR FATS.

SPECIFICATION forming part of Letters Patent No. 696,222, dated March 25, 1902.

Application filed July 16, 1901. Serial No. 68,517. (No specimens.)

To all whom it may concern:

Be it known that I, FRITZ ARLEDTER, a citizen of the Empire of Austria-Hungary, residing in New York, borough of Manhattan, and State of New York, have invented certain new and useful Improvements in Processes of Purifying and Decolorizing Resins, Oils, or Fats, of which the following is a specification.

10 This invention relates to improvements in processes of purifying and decolorizing resins, oils, and fats. Many of these substances as they at present come into the market contain coloring-matters which render them impure and unsuitable in the crude state for many applications in the arts.

15 The object of the present invention is to provide a process by which such resins, oils, and fats can be purified and freed from these coloring-matters, whereby their value is increased and their scope of use broadened. For this purpose the invention consists in the process herein described of purifying and decolorizing resins, oils, or fats, which comprises the steps of mixing the same with a solution of a suitable alkali, subjecting the mixture to contact with carbonic-acid gas, and separating the resulting resin, oil, or fat from the lye.

20 In the accompanying drawing, which shows in vertical longitudinal section an apparatus suitable for carrying on the process, A indicates a mixing-drum, in which the mixing of the resin, oil, or fat and the alkali solution in the presence of carbonic-acid gas is effected. The drum A is composed of a cylindrical shell a , provided at opposite ends with flanges a' a^2 . To the flange a' is bolted the head a^3 and to the flange a^2 the head a^4 . The head a^3 is provided with an elliptical manhole of considerable size, which is closed by a suitable manhole cover or gate a^5 , located at the inner side of the head and provided with a screw-threaded shank extending to the outside of the drum, which shank is engaged by a hand-wheel a^6 , which bears upon a suitably-arched support at the outside of the head, as clearly shown in the drawing. A vent-cock a^7 , spring-actuated safety-valve a^8 , and a pressure-gage a^9 are mounted on the head a^3 and communicate with the interior of the drum. To the oppo-

site head a^4 is attached a discharge-cock a^{10} , which also communicates with the interior of the drum A. The shell a is surrounded by a jacket a^{11} , which extends between the flanges a' and a^2 and forms, with the shell and flanges, a heating-chamber for the drum. At the opposite sides of the drum and approximately equidistant between the heads tubular hubs b b' are secured in the shell and jacket a^{11} . A strengthening-ring b^2 incloses the hub b between the jacket and shell and is provided with radial perforations b^3 , communicating with the heating-chamber and with radial perforations b^4 in the hub. A non-perforated strengthening-ring b^5 incloses the hub b' between the jacket and the chamber. The drum is rotatably supported between suitable standards B' and B^2 by means of trunnions c c' , secured stationarily in said standards and entering the tubular hubs b b' , respectively. The trunnion c is provided with a bore c^2 , communicating at one end with a supply-pipe d and at the other end with an annular groove c^3 of the trunnion, which registers with the perforations b^4 . The trunnion c is also provided with a bore c^4 , communicating at one end with a supply-pipe d' and at the other end with the interior of the drum. The trunnion c' is provided with a bore c^5 , communicating at one end with a supply-pipe d^2 and at the other end with the interior of the drum. The pipe d is connected with a suitable source of steam, the pipe d' with sources of water and steam, and the pipe d^2 by means of a three-way cock d^3 with a discharge-pipe d^5 and with a pipe d^4 , connected with a suitable source of carbonic-acid gas under pressure. The drum is rotated by means of a pinion e upon the hub b' , which meshes with a gear e' upon a shaft e^2 , which may be journaled in a bearing supported on the standard B' and driven by any suitable power mechanism. Below the drum, in line with the discharge-cock a^{10} , is located a pan f or other suitable receiving vessel.

The discharge-cock a^{10} being closed, the resin, oil, or fat to be purified and decolorized in quantity—for example, one-fourth of the cubic capacity of the drum—is introduced through the manhole and followed by a quantity of a suitable alkali—such as potassium hydrate, sodium hydrate, ammonium carbon-

ate, sodium carbonate, or bicarbonate—the quantity of alkali being below that necessary to cause saponification during the subsequent operations. This quantity will vary with different substances, but will be usually from one to three per cent. of the weight of the resin, oil, or fat treated. The manhole is then closed and a quantity of water admitted through the pipe d' and trunnion c , the quantity of water being sufficient to fill the drum approximately one-half full. Steam is admitted to the heating-chamber surrounding the drum, such steam being preferably under pressure and above 100° centigrade, but not exceeding 200° centigrade, in temperature. The supply of water through pipe d' is shut off and steam admitted to the interior of the drum. Carbonic-acid gas is admitted through the pipe d^2 and trunnion c' , the pressure of both being so regulated that a pressure of between one and ten atmospheres is indicated on the pressure-gage. The drum is then set in motion. The drum is continuously rotated for from two to four hours. The temperature in the drum is sufficient to render the resin, oil, or fat liquid. The presence of carbonic-acid gas is maintained in the drum during the operation. This treatment produces an effective separation of the coloring-matters from the resin, oil, or fat, such matters entering into the alkali solution or lye and the resin, oil, or fat being effectively clarified. At the end of the period of agitation the entire mass is run off through cock a^{10} into the vessel f . The lye may be separated from the purified resin, oil, or fat by any suitable means, according to the nature of the material, as by allowing the mass to stand and settle until the purified material separates from the lye, the latter being then drawn off. If necessary, the resin, oil, or fat may be thereafter heated, so as to drive off any water remaining in the same.

The carbonic-acid gas employed serves two purposes. For the changes normally taking place in the apparatus it furnishes an indifferent atmosphere, whereas atmospheric air is not such an indifferent atmosphere. It performs an additional function, however, in case a resinate, sebate or oleate of alkali should form during the operation. The effect of the carbonic-acid gas in this case is to decompose such compound or compounds into an alkali carbonate or bicarbonate and purified resin, oil, or fat, as the case may be.

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

1. The process herein described of purifying and decolorizing resins, oils and fats, which consists in mixing the same with a solution of a suitable alkali, subjecting the mixture to contact with carbonic-acid gas, and separating the resulting purified resin, oil or fat from the lye, substantially as set forth.

2. The process herein described of purifying and decolorizing resins, oils or fats, which consists in mixing the same with a solution of a suitable alkali, subjecting the mixture to agitation in an atmosphere of carbonic-acid gas, and separating the resulting purified resin, oil or fat from the lye, substantially as set forth.

3. The process herein described of purifying and decolorizing resins, oils or fats, which consists in mixing the same with a solution of a suitable alkali, the latter in quantity insufficient to cause saponification, heating the mixture, simultaneously agitating the same in contact with carbonic-acid gas under pressure, and separating the resulting purified resin, oil or fat from the lye, substantially as set forth.

4. The process herein described of purifying and decolorizing resins, oils or fats, which consists in mixing the same with a solution of a suitable alkali, the latter in quantity insufficient to cause saponification, heating the mixture, simultaneously agitating the same in contact with steam and with carbonic-acid gas, and separating the resulting purified resin, oil or fat from the lye, substantially as set forth.

5. The process herein described of purifying and decolorizing resins, oils or fats, which consists in mixing the same with an aqueous solution of a suitable alkali, the latter in quantity insufficient to cause saponification, heating the mixture, simultaneously agitating the same in contact with steam and carbonic-acid gas under pressure, and separating the resulting purified resin, oil or fat from the lye, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

FRITZ ARLEDTER.

Witnesses:

PAUL GOEPEL,
GEORGE GEIBEL.