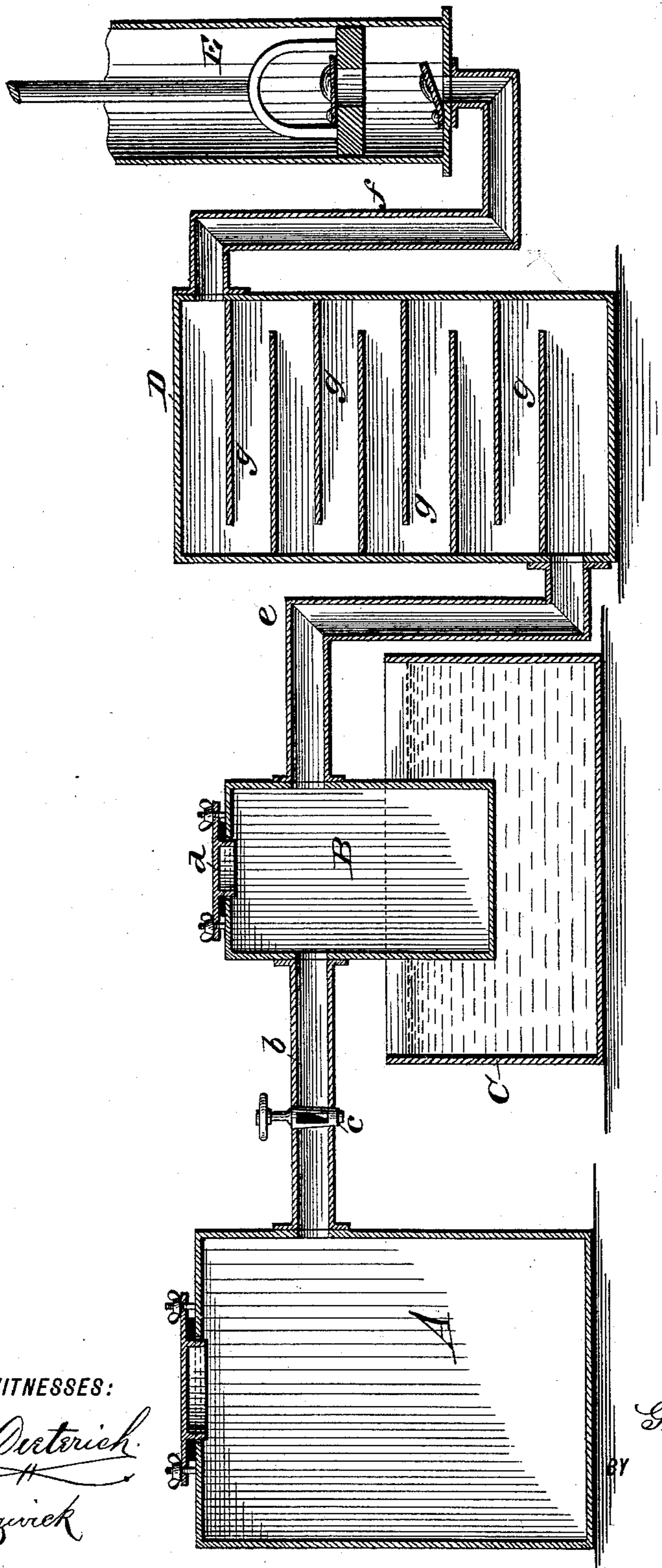


(No Model.)

G. D. NELLENSTEYN.
ENFLEURAGE.

No. 409,859.

Patented Aug. 27, 1889.



WITNESSES:

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GYSBERT DIRK NELLENSTEYN, OF AMSTERDAM, HOLLAND.

ENFLEURAGE.

SPECIFICATION forming part of Letters Patent No. 409,859, dated August 27, 1889.

Application filed December 12, 1888. Serial No. 293,353. (No model.)

To all whom it may concern:

Be it known that I, GYSBERT DIRK NELLENSTEYN, of Amsterdam, Holland, have invented a new and useful Improvement in Extracting
5 Volatile Oils and Aromatic Essences from Flowers and other Substances, of which the following is a full, clear, and exact description.

This invention relates to the treatment of
10 flowers and other substances containing ethereal or volatile oils and aromatic parts or principles for the purpose of obtaining perfumes.

The object of the invention is to obtain directly or by a single operation in a cheap, simple, and easy manner and in a pure condition the perfumes or extracts as above from the flowers or substances being treated.

The invention consists in a novel method or
20 process by which this is accomplished, the treatment of the flowers or aromatic substances being *in vacuo* and the extracts obtained being exposed to a chilling or cooling action, substantially as hereinafter described, and pointed out in the claims.

For the purpose of explaining how my invention is or may be carried into practice, I shall here illustrate and describe an apparatus suitable thereto and the *modus operandi*
30 in connection therewith, reference being had to the accompanying drawing, which forms part of this specification, and which represents vertical longitudinal section of such apparatus.

35 A is a reservoir or vessel made of any suitable material and of sufficient strength when a vacuum is produced within it to resist external atmospheric pressure. Said vessel is provided with a lid capable of being hermetically sealed or closed. This vessel is connected with a receiver B by a pipe *b*, having a cock *c*, to establish communication or not, as required with the vessel A, said receiver also being provided with a hermetically-closing lid *d*. The receiver B is placed in a cooler C, which may contain a mixture of sulphate of soda with hydrochloric acid or ice with chloride of sodium; or any other substances or means may be used to chill or lower
45 the temperature of the receiver B. Furthermore said receiver B is connected, as by a pipe

e, with a chamber D, which is provided with several separated layers or sheets *g* of vaseline, suet, or other suitable absorbent material of aromatic extracts, arranged to produce a zigzag or other suitable circulation and interception of ethereal essences passing up or within the chamber D. This chamber D may in some cases be dispensed with. Connected with this chamber D, or, when it is dispensed with, with the receiver B, as by a pipe *f*, is an exhaust-air pump E; or any other means for exhausting the air from the apparatus may be used.

The operation of the apparatus as used in carrying out my process is as follows: The reservoir A is charged with the flowers or other substances containing ethereal oils or aromatic principles or essences and then hermetically closed. The air is then exhausted from the reservoir A, receiver B, and chamber D by the pump E or otherwise, the cock *c* being opened either immediately or gradually to establish communication of the reservoir A with the receiver B and chamber D. By the exhaustion of the air from the apparatus, or carrying out the process *in vacuo*, and the cooling or low temperature to which the receiver B is exposed, parts of the volatile oils evaporated from the flowers or other suitable materials will be condensed either in a liquid or other state within the receiver B for subsequent removal, as required. Furthermore, as all the air being exhausted has to pass through the chamber D, over or among the sheets or surfaces *g* of absorbent material, as described, it will carry along with it or deliver any volatile parts or essences not condensed in the receiver B; but, if desired, the intercepting absorbents of vaseline or other substance suitable for the purpose might be dispensed with.

Among the flowers which may be treated by this process may be named the heliotrope, the jasmine, lavender, thyme, rosemary, lily of the valley, daffodil, lemon, orange, rose, hyacinth, lilac, violet, geranium, verbena, and many others. The quantity treated at a time will necessarily vary, as also the length of time of treatment and the proportion of essential oil recovered, much depending upon the quality or condition of the flowers, size or

power of the apparatus employed, and other circumstances. The process virtually amounts to enfleurage *in vacuo* and by a lower temperature than usual. The advantages of this
5 are the perfumes thus obtained will be perfectly pure and without that odor known to perfumers as "the flavor of the still," while by distillation at a high temperature the more unstable perfumes are destroyed, and by
10 using any fatty matter as a solvent the product is impaired. The process, too, is exceedingly simple, cheap, and economical in its effect, consisting of evaporating by the aid of a vacuum and condensing by the cooling action of the perfuming parts, and perfumes of
15 many flowers which it has been difficult to heretofore extract or only in a very impure condition—such as those of lilacs and hyacinths—can be very perfectly obtained by this
20 process.

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

1. The within-described process of obtaining perfumes from flowers and other substances, which consists in extracting the volatile oils or aromatic parts therefrom by exposing them in a vacuum, so that evaporation of the volatile parts takes place at ordinary temperature and condensation of them at a lower
25 temperature, as set forth. 30

2. In the within-described process of extracting volatile oils or aromatic essences from flowers and other substances, first exposing said flowers or substances in a vacuum, where-
35 by evaporation of the volatile parts takes place, then condensing the volatile oils or extracts at a lower temperature also *in vacuo*, and finally intercepting and absorbing any escaping volatile parts not previously con-
40 densed, substantially as specified.

GYSBERT DIRK NELLENSTEYN.

Witnesses:

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H. M. NORNEER.