

# UNITED STATES PATENT OFFICE.

CHARLES GLASER, OF BALTIMORE, MARYLAND.

METHOD OF PRODUCING CAMPHOR FROM CAMPHENE, ISOBORNEOL, OR OTHER  
CAMPHOR-PRODUCING SUBSTANCES.

No. 875,062.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed January 26, 1906. Serial No. 298,055.

*To all whom it may concern:*

Be it known that I, CHARLES GLASER, a citizen of the United States of America, and resident of the city of Baltimore, State of Maryland, have invented certain new and useful Improvements in Methods of Producing Camphor from Camphene, Isoborneol, or other Camphor-Producing Substances, of which the following is a specification.

10 My invention relates to a method of producing camphor from camphene, isoborneol, or other camphor producing substance.

In an application for patent filed by me in the United States Patent Office January 15 18th, 1906, Serial No. 296651, I have described a process of oxidizing any of the substances named above to camphor by the action of a solution of a hypochlorite. This result can be accomplished in another way. If 20 a solution of a chlorid is subjected to the action of an electric current, camphene, isoborneol, or borneol, or other camphor yielding substance may be oxidized to camphor.

The process may be performed as follows: 25 make a solution of common salt (sodium chlorid) of such a strength that it will easily conduct an electric current.  $2\frac{1}{2}\%$  to 5% will suffice. A suitable cell containing a porous diaphragm, such as a porous cup, is then half 30 filled with this solution, both outside and inside of the porous cup, to the same height. A current is now connected to the cell, placing the anode on the inside of the porous cup and the cathode on the outside. I then 35 place a suitable quantity of, for instance, isoborneol on top of the electrolyte in the anode-room, i. e. on the inside of the porous

cup, and pass a current of about one ampere to each sq. cm. of cathode surface. The usual electrolysis of the chlorid will take 40 place, the chlorine will appear in the form of hypochlorous ions in the interior of the porous cup or anode-room, and cause a rapid oxidation of isoborneol to camphor. Isoborneol and borneol are thus rapidly and 45 completely oxidized, while camphene is acted upon more slowly. Heating of the solution will accelerate the action.

About 40 parts of sodium chlorid are sufficient for 100 parts isoborneol, but it is advantageous to use an excess of sodium 50 chlorid. Since the sodium chlorid is largely regenerated after the current is stopped, it is possible to convert large quantities of camphor-yielding substances with a given quantity of chlorid of sodium. 55

What I claim as new and desire to secure by Letters Patent is:

1. The process of obtaining camphor which consists in suspending isoborneol in a solution of an alkali metal chlorid, passing 60 an electric current through the mixture, and separating the camphor.

2. The process of obtaining camphor, which consists in suspending isoborneol in a 65 solution of sodium chlorid, passing an electric current through the mixture and separating the camphor.

Signed by me at Baltimore, Maryland, this 24th day of January, 1906.

CHARLES GLASER.

Witnesses:

W. E. STRAUS,  
FLORENCE BARRETT.