

# UNITED STATES PATENT OFFICE.

WILLIS R. WHITNEY, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

## MEANS FOR REDUCING THE FREEZING-POINT OF OIL.

No. 919,506.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed October 1, 1904. Serial No. 226,796.

*To all whom it may concern:*

Be it known that I, WILLIS R. WHITNEY, a citizen of the United States, residing at Schenectady, in the county of Schenectady and State of New York, have invented certain new and useful Improvements in Means for Reducing the Freezing-Point of Oil, of which the following is a specification.

In cases where the oil ordinarily used in electric transformers, oil-switches, or the like, is used under conditions where freezing of the oil is to be feared, it has sometimes been found advisable to mix with the oil a material which will reduce its freezing point. The qualities demanded of such a material are very hard to find combined in a single substance. The material must, of course, in the first place mix intimately with the oil and reduce its freezing point. It must not volatilize readily since after a time it would be entirely driven off from the oil. It must not decrease the insulating properties of the oil, nor must it lower the flashing point which, in an oil of this character, is relatively high. Certain materials have heretofore been used for the purpose indicated but these have been found unsatisfactory by reason of a lack of some of the qualities above mentioned. I have found, however, that benzyl chlorid,

which is a hydrocarbon containing substituted halogen atoms, is a satisfactory material for mixture with oil and fulfils the exacting requirements. This material is easily made from toluene and chlorin, and may be manufactured at moderate cost.

What I claim as new and desire to secure by Letters Patent of the United States, is,

1. A low freezing point insulating fluid, consisting of high flashing point mineral oil mixed with a hydrocarbon compound containing substituted halogen atoms.

2. A low freezing point insulating fluid, consisting of high flashing point mineral oil mixed with a hydrocarbon compound containing substituted chlorin atoms.

3. A composition of matter consisting of oil and benzyl chlorid.

4. A low freezing point insulating fluid, consisting of high flashing point mineral oil mixed with a substance containing a halogen and combined with carbon and hydrogen.

In witness whereof, I have hereunto set my hand this 30th day of September, 1904.

WILLIS R. WHITNEY.

Witnesses:

HELEN ORFORD,  
G. C. HOLLISTER.