

# UNITED STATES PATENT OFFICE.

DAVID BAKER, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF  
HIS RIGHT TO WILLARD I. HUMPHREY, OF SAME PLACE.

## IMPROVEMENT IN MARINERS' COMPASSES.

Specification forming part of Letters Patent No. **163,840**, dated June 1, 1875; application filed  
October 21, 1874.

*To all whom it may concern:*

Be it known that I, DAVID BAKER, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Liquids for Filling Magnetic Compasses, of which the following is a specification:

The object of my invention is to provide a liquid for filling magnetic compasses which will not oxidize the magnets, and, further, serve to lubricate the pivot upon which the compass-card turns; and it consists in the employment or use of oil, or liquid of which oil is a component part, and in sufficient proportion to counteract any tendency to oxidization of the magnets and pivot-bearings of the compass-card.

I find by experiments that kerosene-oil is well adapted for filling the bowls of all magnetic liquid compasses, as it allows the quick working of the card when in operation.

By the use of my invention or discovery, a steel pivot and bearing-cap for the card may be used, thus rendering the pivot-point very durable, and of nice adjustment. It being always lubricated, the card is rendered very sensitive to quick or slight variations of the compass-bowl.

Heretofore liquid compasses have been filled with alcohol and water, which, in order to prevent oxidization of the magnets, it has been found necessary to incase them or coat them

with cement, porcelain, or other substances, and as such coatings greatly increase their weight, buoyant cards, so called, have been provided to remove the friction from the pivot, caused by such increased weight; but their increased bulk within the liquid has caused a corresponding increase of friction upon or within the same, thus rendering the card so sluggish that when thrown from its true position by sudden movements of the compass-bowl its return is so slow as to cause great inconvenience to the mariner.

In carrying out the application of my discovery I find I am enabled to simplify and reduce the expense of constructing the compass-card, as the sheets of mica or paper of which the card is composed may be joined with paste, as it is not deleteriously affected by the oil in which it is submerged when in place or in use.

Having thus described my invention or discovery, what I claim is—

A liquid compass in which the liquid that comes in direct contact with the pivot, card, and needle is oil, or a liquid in which oil predominates sufficiently to prevent oxidization, substantially as specified, and for the purpose set forth.

DAVID BAKER.

Witnesses:

SYLVENUS WALKER,  
GEO. A. BAKER.