UNITED STATES PATENT OFFICE.

JAMES PARK, OF TROY, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO RALPH R. OSGOOD, OF SAME PLACE.

IMPROVEMENT IN COMPOSITIONS FOR TEMPERING, LUBRICATING, &c.

Specification forming part of Letters Patent No. **204,076**, dated May 21, 1878; application filed March 2, 1878.

To all whom it may concern:

Be it known that I, JAMES PARK, of Troy, county of Rensselaer, and State of New York, have invented certain new and useful Improvements in Compounds for Metal-Workers' Use and for Lubricating Purposes, of which the following is a full, clear, and exact description.

The principal object of my invention is to produce a chemical compound which shall be capable facilitating the cutting of metals in all sorts of mechanical operations, be easily and cheaply made, and be more effective and more cleanly in use than common machine-oil, which is now applied for similar purposes.

To accomplish all of this, the invention consists in the novel union of certain chemicals, as will be hereinafter first fully described, and then pointed out in the claim.

The employment of oil in connection with metal-cutting tools of all descriptions, principally in turning, drilling, planing, screw-cutting, &c., is a common and well-known practice. No satisfactory theory has been advanced to account for the beneficial results obtained by use of the oil; but the fact remains that its employment does facilitate the cutting.

Ordinary machine-oil has heretofore been regarded as the only compound which would do the required work in connection with the cutting of metals, such as iron, brass, &c.; and this is objectionable in the several points desired to be remedied by the present invention, as above stated.

The drilling of glass by a steel tool, so far as is at present known, is practically impossible, unless the drill be first moistened with spirits of turpentine, when the operation becomes remarkably easy.

The improved compound herein described operates upon the same general principles (whatever they may be) as do the oil and the turpentine, but with increased facility and advantage in several respects.

To prepare the improved compound, I use the following materials in about the proportions named: One gallon of water, eight ounces of sal-soda, one ounce of quicklime.

The water—preferably "soft," though "hard" may be employed—is first brought to about blood-heat, or 98° Fahrenheit. Into each gallon of water so heated I introduce about eight ounces of sal-soda. This mixture is kept heated until the sal-soda is completely dissolved, when about one ounce of the quicklime is added and the vessel covered up. It should remain covered for a few hours, when the mixture may be drawn off, and is ready for use.

I find by experiment that the proportions named may be slightly varied without any marked deterioration in the qualities of the liquids, but that those specified give the best results. I desire it understood, however, that the usual latitude as to proportions of ingredients is intended to be covered hereby.

The compound as thus prepared is found to be remarkably efficient for the purposes intended, and to admirably answer the several objects of the invention, as previously stated.

It is further found to be a very good lubricator, and well adapted to supply the place of oil in the lubrication of all classes of bearings or wearing-surfaces; and, still further, experiments show that it is exceedingly valuable as a bath in which to temper steel and other metals, giving results fully equal to, if not better than, any other bath of which I have knowledge. It is therefore intended to employ the liquid in such situations and for such purposes, as well as in connection with cutting implements.

The manifold uses to which the invention may be applied in and around the shop, the ease with which it may be prepared, and its trifling expense, it is believed will recommend it to pretty general public favor.

I am aware that soda and lime have before been dissolved in water, as in the numerous washing-fluids and for medicinal purposes.

I am also aware that a solution of these materials has been employed to prevent incrustation in boilers.

In all these instances the compound produced is intended to act chemically upon matters with which it comes in contact, and in each instance the proportions of ingredients

are such as to render the compound inoperative for the purposes to which I propose to apply it.

I do not, therefore, desire to be understood as laying a broad claim to the solution of lime in water in the presence of soda, nor to the use of a similar solution, except for purposes analogous to those hereinbefore mentioned; but,

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

The herein-described compound for metal-workers' use, for lubrication, and for tempering of metals, the same consisting of water, sal-soda, and quicklime, united in about the proportions—that is, to one gallon of water eight ounces of the soda and one ounce of the lime—and in a manner substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

JAMES PARK.

Witnesses:
COLE H. DENIO,
A. CUNNINGHAM.