UNITED STATES PATENT OFFICE.

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GRINDING COMPOUND.

1,380,382. Specification of Letters Patent. **Patented June 7, 1921.**

No Drawing. Application filed September 27, 1920. Serial No. 413,073.

To all whom it may concern:

Be it known that I, HAROLD S. HOLMES, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Grinding Compound, of which the following is a specification.

This invention relates to a grinding compound particularly designed for use in grinding engine valves and other similar parts for which a perfect fit is attained by rubbing or grinding the parts on each other. Such compounds as heretofore commonly used have been mixed with oil and the effectiveness of the abrasive has been reduced by the lubricating action of the oil.

It is the object of my present invention to provide a grinding compound in which the abrasive material is mixed with water instead of oil, with important resultant advantages. My invention relates more particularly to a grinding compound having the several ingredients hereinafter described and more particularly defined in the appended claims.

In its preferred form, my improved grinding compound is composed of the following ingredients in substantially the proportions stated:

Carbid of silicon or other abrasive material	38%
Water	48%
Starch	5%
Glycerin	½%
Formaldehyde	½%
Calcium chlorid	8%

The utility of the different ingredients is as follows:

The abrasive material, if mixed with water alone, would not remain in suspension but would immediately settle to the bottom of the container. Starch or other suitable binder is therefore added and the materials are cooked for a sufficient time to give the mixture a thin jelly-like composition, thus holding the abrasive in suspension.

This combination of starch, abrasive material and water would, however, eventually dry and change to a hard cake if these materials alone were used. By the addition of glycerin this tendency to harden is much reduced.

The mixture of starch and water, if exposed to air, is also subject to fermentation and I preferably add a small percentage of formaldehyde or other preservative to prevent such action of the elements. The glycerin also has a certain effect upon the combination of starch and formaldehyde which prevents the formation of a hard stone-like substance which might otherwise occur.

The calcium chlorid is added to the combination to lower the freezing point of the mixture so that it will not freeze at an ordinary temperature, as it is found that freezing changes the mixture to a flaky substance not wholly satisfactory for grinding purposes.

The mixture thus defined is found very efficient for the purposes specified, as the abrasive particles flow more easily in a water mixed compound and have less tendency to stick to one or the other of the surfaces to be ground, in which event grooves or scratches are frequently formed. Furthermore, the water lacks the lubricating qualities found in all oils and consequently interferes less with the grinding action of the abrasive.

Having thus described my invention, it will be evident that changes and modifications in composition and proportions may be made by those skilled in the art within the spirit and scope of my invention as set forth in the claims and I do not wish to be otherwise limited to the details herein disclosed but what I claim is:—

1. An abrasive compound comprising a finely divided abrasive material, water, starch, glycerin, calcium chlorid, and a preservative.

2. An abrasive compound comprising approximately thirty-eight per cent. abrasive material, forty-eight per cent. water, eight per cent. calcium chlorid, five per cent. starch, one-half per cent. glycerin and one-half per cent. formaldehyde.

3. An abrasive compound comprising a finely divided abrasive material, water, starch, a non-drying ingredient, a non-freezing ingredient and a preservative.

4. An abrasive compound comprising a finely divided abrasive material, water, a binder, a non-drying ingredient, and a preservative.

In testimony whereof I have hereunto affixed my signature.

HAROLD S. HOLMES.