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METHOD OF PREPARING POLISHING MATERIAL FOR TUMBLING BARRELS

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1 Claim. (Cl. 51—293)

This invention relates to improvements in method of preparing polishing material for tumbling barrels.

The main objects of this invention are:

First, to provide a material for the tumbling barrel smoothing and polishing of articles, particularly metal articles such for example as stampings, die castings, castings, as well as non-metallic parts, which is highly efficient and results in a very satisfactory polish.

Second, to provide a tumbling material having these advantages which is very economical.

Third, to provide a novel aggregate for use in tumbling barrel finishing and polishing which is effective on work of varying sizes and shapes and configuration.

Further objects and advantages will appear from the following description. The invention is defined and pointed out in the claims.

The applicants are aware that tumbling barrel smoothing and finishing has been practiced for many years and that various materials have been used as an aggregate along with numerous types of abradant, the abradant material frequently being varied according to the material being finished or polished—that is, a relatively coarse harsh abradant being sometimes used where quick cutting is desired and the finer abradants used where fine work is required or in the finishing step. Applicants are also aware that mixtures of abradant materials have been used. However, the tumbling material of the applicants' invention has numerous advantages both in the matter of economy and results over any materials with which the applicants are familiar due, to a substantial extent, to the gentle abrasive action of the stone itself.

The applicants employ as an aggregate or as polishing elements, irregular angular fragments of crushed stone, preferably limestone, the fragments being of various sizes and shapes. Applicants have found that the sizes may range roughly from one-eighth inch to one and a half inches in the longer dimensions with highly satisfactory results.

These irregular fragments of stone, preferably natural stone although certain artificial stone composition may be used, where the work to be treated is of a relatively delicate character, are preferably initially treated in or tumbled in a tumbling barrel to substantially eliminate therefrom the sharp edges resulting from the fracturing of the stone.

The applicants preferably practice a dry two-step process—that is, a treatment of the articles to be polished by what is commonly designated as a roughened step or in a roughing compound in which the burrs and die marks or other sharp edges of the work are worn away, and a finishing step using a finishing compound in which the final polishing is accomplished.

The following is a suitable formula or compound for the "roughing compounds"—irregular fragments of crushed stone, hardwood sawdust, powdered pumice, powdered oyster shell, rouge, stearic acid, and kerosene. This may be compounded as follows:

Hardwood sawdust	75	lbs.
Powdered pumice	25	lbs.
Powdered oyster shell	12	lbs.
Rouge	1 lb. 7	ozs.
Stearic acid	5	lbs.
Kerosene	5	quarts

This compound is then used in various proportions with crushed stone, depending on the nature of the material to be polished, the size, and shape of the part.

We have found the following to be very satisfactory as a tumbling material—crushed stone, cob meal, tripoli, oyster shell, lime, rouge, stearic acid, and kerosene. This may be proportioned or compounded as follows with satisfactory results:

Cob meal	pounds	112
Tripoli	do	17
Oyster shell	do	8
Lime	do	5
Rouge	do	2
Stearic acid	do	3
Kerosene	quarts	5

The same proportion of this compound to stone is used on the finishing operation.

We desire, however, to point out that there are many other abrasive powders or polishing powders that may be used and oils and greases may be substituted for the stearic acid and kerosene and the proportions may be varied considerably but it is not intended that the oils and greases shall be used in such proportion as to make a wet mixture. The cob meal or ground corncob is in itself possessed of polishing qualities and is sometimes used for polishing. Leather fragments or cloth fragments may be used with advantage for certain materials.

While the proportions given in the foregoing formula produce very satisfactory results, it will be understood that they may be considerably varied. The character of the abradant powders

or polishing powders should be considered in connection with the character of the material to be polished—that is, whether the parts are steel or of relatively hard material or are brass or copper, and of course the harder materials may require a longer period of treatment than the softer. The crushed stone itself is an effective abradant.

We have found that the use of irregular fragments of crushed limestone produces highly satisfactory results and may be used with satisfactory results in work of varying configurations and having relatively small recesses, openings, or the like.

It is believed that the foregoing disclosures will enable those skilled in the art to embody or adapt our invention to the various uses for which it is adapted and desirable.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:

The method of finishing including the step of tumbling work in a mixture including an abrasive, an emulsifiable oil, and fragments of limestone of widely varying irregular outline and sizes having the sharp point and edges thereof previously removed without destroying the shape thereof, and having substantially smooth surfaces.

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