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ERASER, ERASING MATERIAL, AND A METHOD OF FORMING THE SAME

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The invention relates to compositions of matter and more particularly it relates to a composition of matter and a method of manufacturing the same whereby it is adapted for use as an abrasive eraser.

It is one of the objects of the invention to provide a novel composition of matter adapted to be used as an eraser in selectively removing marks, lines, letters and other characters more or less permanently formed with ink, indelible pencils, and the like on paper and similar material.

It is another object of the invention to provide an improved erasing material consisting of a novel combination of ingredients in proportions and of physical qualities such that its application under pressure to a sheet of paper will remove or erase characters with which it contacts and leave no evidence of the existence of such characters.

A further object of the invention is the provision of an improved erasing material which, upon frictional contact with a sheet of paper, is not only adapted to completely remove any evidence of the existence of the erased characters but also removes the same with a minimum of wear or abrasion of the material sheet on which such characters were formed and by smoothing and polishing the abraded surfaces all evidence of such erasures disappear.

Still another object of the invention is the provision of an eraser of the kind described having physical qualities adapted to completely and satisfactorily abrasively remove characters formed with waxy crayons, hectograph and similar inks which have hitherto been found impossible of removal without mutilation or stains except by the use of chemical eradicators.

A still further object of the invention is the provision of an improved, tough, relatively hard erasing material which does not deteriorate with age and which is preferably formed in the shape of pencils for easy manual manipulation, such pencils being adapted to be sharpened in the same way as an ordinary lead pencil and the pointed ends applied under pressure on characters to be erased whereby the abrasion is selectively confined to restricted areas.

Another object of the invention is the provision of a novel abrasive erasing material of the same color as the paper to which it is to be applied and preferably taking the form of a sharpened pencil, such material, when abrasively and frictionally applied to the paper being adapted to wear away and leave a fine residue adhering to the paper, said residue under pressure forming

a glossed surface simulating that of the un-abraded paper and as capable of taking ink without blurring.

A further object of the invention is the provision of a novel method of mixing and heating the ingredients of an erasing material to produce a composition of matter having the aforesaid physical qualities.

Many other objects and advantages of the erasing material and method of forming same herein described will be obvious to those skilled in the art from the description herein given.

To this end my invention consists in the novel composition of matter and method of forming same described herein and more particularly pointed out in the appended claims.

The ingredients and their approximate relative proportions by weight to provide a composition of matter embodying the principles of the invention and adapted as erasers for abrasive contact with white paper are as follows:

	Per cent
Lithopone	00.20
Powdered English whiting	00.88
Plaster of Paris	1.33
Pure gelatine flakes	2.20
#FF Italian Am. Grd. pumice stone	95.39

The steps in the preparation of a suitable batch of the material are as follows:

Mix one pound of the gelatine in seven quarts of hot water and stir until thoroughly dissolved, keeping the same at a high temperature without burning the gelatine. Add to one quart of the gelatinous liquid, 728 grains lithopone, 353 grains of the powdered English whiting, and 533 grains of the plaster of Paris, keeping the mixture warm and stirring until of uniform consistency. If colored erasers are to be manufactured, 1000 grains of suitable powdered coloring material such as basic ferric chromate are to be substituted for the English whiting, the color of such material to be similar to the color of the paper to which the erasers are to be applied. Next add 87 ounces of the powdered pumice stone and thoroughly stir to provide a mixture of uniform crumbly consistency.

The foregoing ingredients and proportions are preferred but it is found that satisfactory erasing material is obtained if the ingredients are varied within the following limits; one to one and three-quarter ounces of pure flaked gelatine; four hundred to seven hundred-fifty grains of lithopone; two hundred-fifty to three hundred-fifty grains of the English whiting or, as

a substitute for the whiting, from six hundred to one thousand grains of a powder of suitable color; three hundred to nine hundred grains of plaster of Paris; and from sixty to seventy ounces of the #FF powdered pumice stone. The alternative proportions of materials are added to hot water in proper amount to secure the same consistency as above described, the composition being kept at the temperatures described above, and thoroughly stirred until the mass reaches the same desired crumbly consistency.

The pumice stone constituent of erasers is old and no originality is claimed for it as an abrasive ingredient. However, the use of gelatine as an ingredient of erasing material is both new and important since it provides the flexible adhesive qualities. An eraser having gelatine as a constituent not only acts as an abrasive but in wearing away it provides finely divided particles which because of the gelatinous content will adhere to the paper and form a smooth polished surface on the abraded paper enabling it to be written over without blurring. The polishing and glossing is due to the pressure concentrated on the sharpened end of the eraser and the adhering deposits conceal any stains that might remain because the depth of impregnation of the ink rendering their entire removal impossible without mutilation of the paper to a degree such that it is unfit for writing over. A second grade of gelatine can be substituted for the pure gelatine, but use of the latter is preferable, since it effectively prevents scratching of the surface which may occasionally occur if an inferior grade of gelatine is used, but does not occur if pure gelatine is used. The proportions of pure gelatine described as a constituent of an eraser provides perfect adhesion and adaptation for polishing, when pressure is applied thereto, without marring the polished surface and leaving it in suitable condition to be written over with ink.

The mass of crumbly consistency, which results after addition of the pumice stone is to be kept warm and covered, preliminary to forcing it under high pressure through an orifice and at a temperature of approximately 180° Fahrenheit to form bars or rods of any desired length. Rods of the material formed at high pressure and the suggested temperature have the requisite solidity, do not crack and are easily cut to suitable lengths for pencils. The mass is preferably subjected to pressure by feeding it into a revolving worm gear. The addition of heat may be necessary during the initial stages of pressure to maintain the mass at a temperature of 180° F. but after a few minutes of operation the desired temperature is maintained by the friction within the gear or other pressure device which is used.

The rods or bars have a cross sectional area preferably equal to that of an ordinary pencil and may be circular, hexagonal or of any other shape suitable or desirable for a pencil. The pencils are seasoned or dried for two days by being subjected to a temperature of 70° Fahrenheit, following which they are sharpened or provided with a conical end. The conical ends may be formed by the use of a device having steel grinders similar to those found in an automatic pencil sharpener. Such conical ends may also be formed by applying the pencils to a piece of No. 1 or similar sandpaper.

The lithopone ingredient of the eraser makes the mixture slightly slippery when wet and thereby facilitates the forming of the pencil rods by forcing them under pressure through an orifice as

described. The high degree of suspension of the lithopone particles in the liquid gelatine also adds to the general white appearance of the mass. The plaster of Paris adds rigidity to the eraser material while it is being exuded from the orifice and increases the strength after such material has become dried out. The English whiting not only absorbs greasy inks and waxy crayons, but during the last few movements of the eraser, whitens the erased paper and aids in preventing ink from adhering to the eraser and causing its discoloration. The same dusting properties of the white eraser are to be found in the colored erasers. Yellow erasers being suitable for yellow paper, pink erasers for use with pink paper etcetera, and the erasing is accomplished without in any way changing the color of the paper on which there has been erasures.

In addition to the qualities already described as inherent in erasers constructed of the herein described materials, there are outstanding advantages resulting from imparting to erasers the general shape of a pencil. The eraser should always be kept dry and preferably sharp. It is preferably applied by rubbing it over the matter to be erased with a light rotary motion, and blowing the surplus powdered material away. The pencil being always kept sharp is adapted to be selectively applied to areas, large or small, wide or narrow, the sharp cone shaped end enabling one to see exactly what is being erased and thereby to do precision work in erasing.

Thus it will be seen that I have provided a novel composition of matter adapted as a durable, tough and relatively rigid erasing material suitable for general use in removing ink and printed characters of all kinds; which after erasure leaves the paper clean and smooth; is of a texture enabling it to be easily sharpened and therefore adapted for selective use on the thinnest of papers; leaves no stains, discolorations or other visible signs of erasure on the paper; does not deteriorate with age; enables the erased surfaces to be written over without blurring; and is easily held for selective manipulation over the work.

Having thus described my invention it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention, hence I do not wish to be understood as limiting myself to the exact form, construction, or combination of ingredients herein described, or uses mentioned.

I claim:

1. A pencil shaped eraser of the kind described consisting of a tenacious composition having ingredients in approximately the following proportions: 728 grains of lithopone, 353 grains of powdered English whiting, 533 grains of plaster of Paris, 728 grains of pure gelatine and 87 ounces of pumice stone and with water in an amount such that the mass initially has a crumbly consistency.

2. A pencil shaped eraser of the kind described consisting of a tenacious composition having uniformly disseminated ingredients in approximately the following proportions: 728 grains of lithopone, 1000 grains of basic ferric chromate, 533 grains of plaster of Paris, 728 grains of pure gelatine, and 87 ounces of pumice stone.

3. The process of making an ink eraser which consists in compounding a mixture comprising lithopone, powdered ink absorbing minerals such as English whiting or basic ferric chromate, plaster of Paris, gelatine, and ground pumice stone, in approximately the proportions de-

scribed, then adding water heated to approximately 180° Fahrenheit, then compressing the mass into the form of a slender rod at a temperature of approximately 180° Fahrenheit, and maintaining the rod at a temperature of approximately 70° Fahrenheit until it is thoroughly dry.

4. The process of making an ink eraser which consists in compounding a mixture comprising lithopone, plaster of Paris, gelatine, ground pumice stone and a powdered ink absorbing material such as powdered English whiting or basic ferric chromate in approximately the proportions described, then adding water heated to approximately 180° Fahrenheit, then compressing the mass into the form of an elongated slender rod at a temperature of approximately 180° Fahrenheit, then severing the rod into sections of suitable length, then maintaining said sections at a temperature of approximately 70° Fahrenheit until thoroughly dry.

5. A tenacious composition of material suitable for an eraser of the kind described comprising uniformly disseminated ingredients in approximately the following proportions: 728 grains of

lithopone, 353 grains of powdered English whiting, 533 grains of plaster of Paris, 728 grains of gelatine, and 87 ounces of pumice stone, the composition having a permanent moisture content sufficient to preserve its tenacity.

6. A tenacious composition of material suitable for an eraser of the kind described comprising uniformly disseminated ingredients in approximately the following proportions: 728 grains of lithopone, 1000 grains of ferric chromate, 533 grains of plaster of Paris, 728 grains of gelatine, and 87 ounces of pumice stone, the composition having a moisture content sufficient to preserve its tenacity.

7. A tenacious composition of material suitable for an eraser of the kind described comprising uniformly disseminated ingredients in approximately the following proportions: 728 grains of lithopone, 1000 grains of colored material such as basic ferric chromate, 533 grains of plaster of Paris, 728 grains of gelatine, and 87 ounces of pumice stone, the composition having a moisture content adapted to preserve its tenacity.

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