W. C. GEER.

WRITING IMPLEMENT OR DEVICE.

APPLICATION FILED APR. 9, 1917.

1,230,149. Patented June 19, 1917.

Fig. 1.

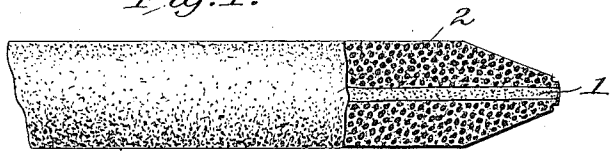
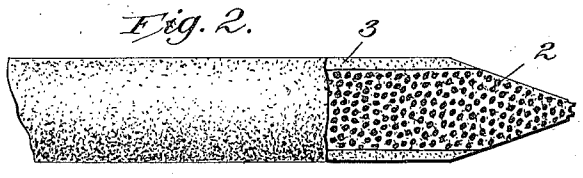


Fig. 2.



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WRITING IMPLEMENT OR DEVICE.

1,230,149. Specification of Letters Patent. Patented June 19, 1917.

Continuation in part of application Serial No. 75,099, filed January 29, 1916. This application filed April 9, 1917. Serial No. 160,869.

To all whom it may concern:

Be it known that I, WILLIAM C. GEER, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a certain new and useful Improvement in Writing Implements or Devices, of which the following is a specification.

My present invention pertains to an improved writing implement or device, and is designed to take the place of the implements or devices now commonly in use, such as pens (both ordinary and fountain), pencils, crayons and the like.

The implement or device is designed to produce what may be termed an ink writing, that is to say, writing which sinks into the surface of the paper to a greater or less degree, as contradistinguished from the ordinary pencil or crayon mark under which the writing material or mark is superficial to the paper or surface upon which it appears.

Ink writing is, of course, much more permanent and also more difficult of alteration than pencil writing, and the main object of the present invention is to produce a writing implement which while having all the advantages of producing ink writing will not be subject to the disadvantages incident to the use of a pen, namely, spilling of ink (with its attendant destructive circumstances), blotting, soiling of the fingers, the necessity of using blotters, and such other objections as will readily suggest themselves.

In the accompanying drawings I have sought to illustrate the invention, Figures 1 and 2 being different forms or embodiments of the same, shown upon an enlarged or magnified scale.

The structure which forms the basis of the present invention may, in general terms, be said to consist of a body of material susceptible of being worn away by attrition in the act of writing, and containing or employing, as a part and parcel of its structure, minute particles of writing fluid which will be set free and flow as the cell walls of the particles are worn away. Stated in another way, the device may be said to comprise a cellular structure capable of being worn away, wherein the cells are small and filled with a fluid writing material.

The material which is chosen for the body is taken from among those which when molten are immiscible (or partly miscible) with the fluid writing material or ink. Such body material and the ink are separately weighed and are heated in a suitable vessel until the body or wall material melts and there are present in the vessel two liquid layers. The vessel is then shaken or the mixture stirred rapidly until an emulsion is formed; that is to say, until the ink takes the form of fine drops or particles throughout the mass of body or wall material. While in this state the mass is poured or drawn into small tubes in which it is cooled, the body material solidifying and the ink remaining liquid. There is thus produced a body having a cellular structure, each cell of which is filled with ink.

The following is a simple exemplification of the manner of producing my improved device or implement and of the ingredients which may be employed:

A given quantity of carnauba wax or the like is melted and heated to 80° C.; into this liquid is stirred an equal weight of finely-ground pumice-stone, or the wax and pumice-stone may be mixed together in a dry state and the wax then melted; there results a liquid which solidifies at about 60° C.; 20 cc., by volume, of the liquid are poured into a 200 cc. flask and to it are added 30 cc. of ink previously heated to 80° C. The flask is then placed in a water-bath at 100° C. for ten minutes to insure uniformity of temperature. The flask is then tightly corked and shaken vigorously for about three minutes to emulsify the contents. The emulsion is then drawn into small-sized glass or paper tubes heated to 80° C. When full, the tubes are quickly immersed in cold water which chills and solidifies the wax mixture, resulting in the implement above specified.

The ink may be so treated when necessary that its physical properties permit it to distribute itself inside the cell-wall material when the liquids are emulsified. This may be effected by the use of a small quantity of a stiffening material in the ink, when the particular ink chosen is too fluid. The quantity of such material employed must be small enough to give the results desired at the temperature of emulsion and yet not make the ink so viscous at the writing temperature that it will not flow readily.

The above illustration is given as the

simplest method of preparing the implement. It is understood that the method of preparation is not limited to the process as described, but the implement may be made by the use of any material immiscible, or partly miscible, with ink but which requires any desired temperature to become fluid enough to emulsify. Thus, common resin, or a mixture of resin and a wax, raised to a temperature above 100° C. may be used with the ink, in a suitable vessel, the ink being kept in a liquid state instead of a gaseous condition by the application of pressure within the vessel. It is then agitated and poured into the molds under pressure.

The device may be inclosed or held for ease of writing in any desired holder made of wood like a lead-pencil, or paper or metal, similar to the metal pencil devices now in common use.

When employed in the act of writing, the abrasive action between the cell-walls and the paper, or whatever may be the surface upon which the writing is done, wears away the cell-walls, or the pressure of the effort of writing breaks the cell-walls, and the ink from the cells thus broken into flows along adjacent unbroken cell-walls to the paper and thus forms ink writing. For ink may be used any fluid or combination of materials which will flow like ink; for the cell-walls may be used any solid or any combination of materials which is solid enough when used to serve as the cell.

In Fig. 1 I have shown the device provided with a central core 1, surrounded by the body structure in which the particles of fluid writing material are shown in black and indicated by 2. This core piece may be formed of any desired and suitable material, but will preferably be made of the same material as that which is employed to produce the cellular portion of the structure and gives firmness and greater ease in writing.

In Fig. 2 the body portion is shown as provided with a reinforcing outside cover 3, and the ink cells are designated by 2, as in Fig. 1.

This application is a continuation of my prior application Serial No. 75,099, filed on or about January 29, 1916.

Having thus described my invention, what I claim is:

1. A writing implement, comprising a body susceptible of being worn away by friction, said body being cellular and the cells being filled with ink.

2. A writing implement, comprising a body susceptible of being worn away by friction, said body being impregnated with a writing fluid.

3. A writing implement, comprising a body susceptible of being worn away by friction, said body having a multiplicity of small cells distributed throughout the same, said cells containing a writing fluid.

4. As a new article of manufacture, a body composed of a material susceptible of being worn away by friction and having distributed throughout the same fluid ink.

5. As a new article of manufacture, a cellular ink-filled body susceptible of being worn away by friction.

6. As a new article of manufacture, a body composed of material susceptible of being worn away by friction and having imprisoned therein globules of fluid writing material.

7. As a new article of manufacture, a body composed of a non-absorptive material susceptible of being worn away by friction and having imprisoned therein closely associated globules of fluid writing material.

8. A writing implement, consisting of a plurality of closely associated, relatively small, thin-walled cells containing liquid ink.

9. A writing implement, consisting of a body composed essentially of a liquid-proof material having a series of small cells distributed throughout the same, said cells being filled with writing fluid.

10. A writing implement, consisting of a body composed of liquid-proof material and a finely-ground abrasive substance, the body having a series of small cells distributed throughout the same, said cells being filled with writing fluid.

11. A writing implement, consisting of a body composed of a homogeneous mixture of substantially equal parts of wax, and finely-ground abrasive material, the body having a series of small cells distributed throughout the same, said cells being filled with writing fluid.

12. A writing implement, consisting of a body composed of a mixture of carnauba wax and finely-ground pumice-stone, the body having a series of small cells distributed throughout the same, said cells being filled with writing fluid.

In testimony whereof I have signed my name to this specification.

WILLIAM C. GEER.