

[54] TYPING ERROR CORRECTION SYSTEM

[76] Inventor: William E. Brown, 413 Fall Creek Dr., Richardson, Tex. 75080

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Related U.S. Application Data

[63] Continuation of Ser. No. 54,368, July 13, 1970, abandoned.

[52] U.S. Cl. 239/337, 239/288.5, 239/350, 239/573

[51] Int. Cl. B05b 7/32, F23d 13/04

[58] Field of Search 239/288.3, 288.5, 239/337, 573, 350

[56] References Cited

UNITED STATES PATENTS

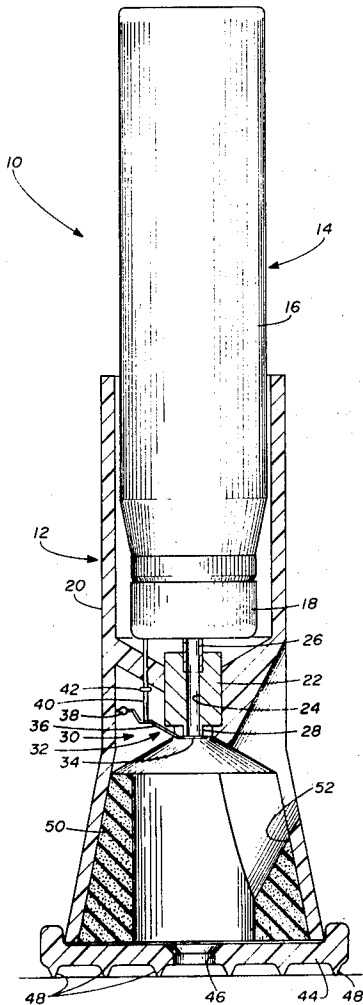
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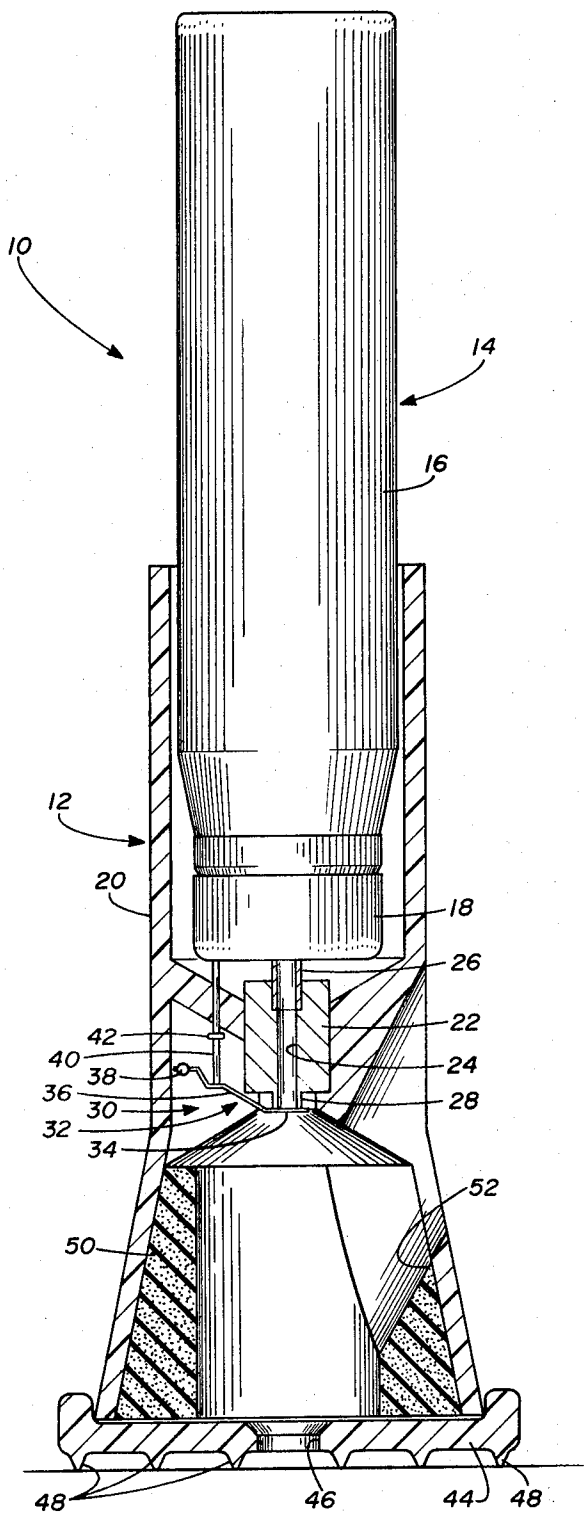
Primary Examiner—Lloyd L. King
Attorney—Richards, Harris and Hubbard

[57] ABSTRACT

In a typing error correction system, typing error correction fluid is sprayed from an aerosol spray assembly through an aperture in a mask and onto a typing error. The mask comprises a portion of a spray discharge assembly that receives and supports the aerosol spray assembly. A discharge head mounted in the spray discharge assembly actuates the aerosol spray assembly upon movement of the aerosol spray assembly into the spray discharge assembly, and includes a normally sealed spray discharge passageway which is opened to permit discharge of the spray. A reticular foam collar mounted in the spray discharge assembly absorbs spurious spray, and a viewing port formed through the spray discharge assembly facilitates alignment of the aperture in the mask with a typing error.

20 Claims, 1 Drawing Figure





INVENTOR:
WILLIAM E. BROWN

Richards, Harris & Hubbard
ATTORNEYS

TYPING ERROR CORRECTION SYSTEM

This is a continuation of application Ser. No. 054,368, filed July 13, 1970, now abandoned.

This invention relates to a typing error correction system, and more particularly to a system for spraying

typing error correction fluid onto typing errors. At the present time, a variety of typing error correction systems are in use. Perhaps the oldest system is the conventional eraser, which operates to remove the error. More recently, systems for covering typing errors have been developed.

In accordance with one error correction system in which errors are covered, a white film is applied to one side of a length of plastic tape. The tape is positioned over a typing error and the key corresponding to the error is struck. As the type pallet strikes the tape, the error is covered by film from the tape.

Another error correction system of the error covering type comprises a small container of typing error correction fluid. Fluid from the container is applied to typing errors by means of a small brush. Presently available systems of this type are less than wholly satisfactory because the brush does not provide adequate control over either the amount of fluid applied or the area of application, and often leaves a brush streaked finish. Also, typing error correction fluid tends to thicken and it is often necessary to add a solvent to the fluid in order to restore its original consistency.

The present invention comprises a typing error correction system in which typing error correction fluid is applied in spray form. The system includes an aerosol spray assembly that delivers a measured amount of typing error correction fluid. The fluid is applied to a typing error through an aperture that corresponds in size and shape to a typed character. Thus, both the quantity of fluid applied and the area of application are optimized, and the correction has a superior appearance. Also, because the typing error correction fluid is stored in an aerosol assembly, the use of the invention eliminates the problem of fluid thickening.

A more complete understanding of the invention may be had by referring to the following detailed description when taken in conjunction with the drawing, which comprises a partial sectional view of a typing error correction system employing the invention.

Referring now to the drawing, a typing error correction system 10 employing the present invention is shown. The correction system 10 includes a spray discharge assembly 12 and an aerosol spray assembly 14. The aerosol spray assembly 14 includes a can 16 of the type commonly employed in aerosol spray containers, and a valve assembly 18.

The can 16 of the aerosol spray assembly 14 contains approximately equal quantities by weight of a typing error correction fluid and an aerosol propellant. The typing error correction fluid preferably comprises one of the commercially available varieties. For example, a suitable typing error correction fluid is identified as Federal Specification 0-C-00650 and is formed by mixing 11.7 pounds titanium dioxide pigment, 23.8 pounds acrylic resin of the type sold by the Rohm and Hass Company and identified as "ACRYLOID B-82," 4.8 pounds nitrocellulose of the type sold by the Hercules Company and identified as "SS NITROCELLULOSE ½ SEC.," 2 pounds plasticiser of the type sold by the Monsanto Chemical Company and identified as "SANTICIZER 140," 23.3 pounds isopropyl acetate

and 23.5 pounds toluol. Similarly, the aerosol propellant preferably comprises one of the commercially available aerosol propellants. For example, the propellant may comprise "FREON 12," a mixture of "FREON 11" and "FREON 12" or a mixture of "FREON 12" and "FREON 114," all of which are sold by E. I. duPont de Nemours and Co., Inc. In accordance with conventional aerosol propellant formulating practices, the propellant may further include nitrogen, butane and/or propane, if desired. The can 16 may also contain one of the commercially available aerosol paints. For example, the aerosol paint manufactured by the Illinois Bronze Powder & Paint Co., of Lake Zurich, Illinois and identified as No. 150 Soft White may be employed in the practice of the invention.

The valve assembly 18 of the aerosol spray assembly 14 is also conventional in design. Preferably, the valve assembly 18 comprises one of the commercially available metering valve assemblies, and therefore discharges a predetermined quantity of typing error correction fluid and propellant upon each actuation of the aerosol spray assembly 14. For example, a metering valve assembly similar to the valve assembly sold by the Valve Corporation of America and identified as Model B18F may be employed in the aerosol spray assembly 14. When the above-identified aerosol paint is contained in the can 16, the valve assembly 18 is so constructed that approximately fifty milligrams of aerosol paint is discharged upon each actuation of the aerosol spray assembly 14.

The spray discharge assembly 12 includes a cylindrical housing 20 which receives, supports and retains the aerosol spray assembly 14. A discharge head 22 is mounted in the housing 20 adjacent the valve assembly 18 of the aerosol spray assembly 14. A discharge passageway 24 is formed through the discharge head 22, and extends from a valve actuating tube 26 mounted on the lower end of the valve assembly 18 to a closure nipple 28 formed at the lower end of the head 22. The passageway 24 may include an expansion chamber for modifying the spray pattern of the aerosol spray assembly 14. The tube 26 comprises an actuating linkage for the valve assembly 18 of the aerosol spray assembly 14 and, accordingly, whenever the assembly 14 is moved into the housing 20, the tube 26 actuates the aerosol spray assembly 14, whereupon a predetermined quantity of typing error correction fluid and propellant is discharged through the passageway 24.

The closure nipple 28 of the discharge head 22 is normally sealed by the closure assembly 30. The assembly 30 includes an integral spring and closure member 32, including a cover portion 34 that cooperates with the nipple 28 to seal the passageway 24, and a spring portion 36. The closure member 32 is supported in the housing 20 by a pin 38 that is fixed against rotation relative to the housing 20. An actuator pin 40 is slidably supported in the housing 20 and is retained by a collar 42. The pin 40 is positioned in the path of the aerosol spray container 14 as the assembly 14 is moved into the housing 20. Thus, upon actuation of the aerosol spray assembly 14 to discharge spray therefrom, the pin 40 engages the closure member 32 and moves the cover portion 34 out of engagement with the closure nipple 28 against the action of the spring portion 36. Because of the closure assembly 30, typing error correction fluid does not dry within the discharge passageway 34, and the passageway does not become clogged.

The housing 20 of the spray discharge assembly 12 extends to a mask 44 having an aperture 46 formed through it. In accordance with the preferred embodiment of the invention, the aperture 46 is rectangular in shape and has dimensions corresponding to the maximum dimensions of a typed character. However, apertures of other shapes and having greater or lesser dimensions can be employed in the practice of the invention, if desired. The mask 44 is preferably detachably mounted on the housing 20 to permit the use of apertures 46 of various configurations. Also, the mask is preferably provided with pointed projections 48 on its lower surface to assure the production of a connection having a feathered edge.

The aperture 46 is positioned to receive spray discharged through the passageway 24 of the discharge head 22. A reticular foam liner 50 is mounted within the housing 20 to receive and retain any spurious spray. Also, a viewing port 52 is formed through the housing 20 and through the foam liner 28 to facilitate the positioning of the aperture 46 in alignment with a typing error to be corrected.

In the use of the typing error correction system 10, the aperture 46 in the mask 44 is aligned with a typing error to be corrected by observing the error through the viewing port 52 and the aperture 46. When the aperture 46 is properly aligned, the aerosol spray assembly 14 is depressed relative to the spray discharge assembly 12. As the aerosol spray assembly 14 moves into the housing 20, the pin 40 is engaged and moved downwardly. The pin 40 engages the closure member 32 and thereby moves the cover portion 34 out of alignment with the nipple 28, against the action of the spring portion 36.

Upon further movement of the aerosol spray assembly 14 into the housing 20, the valve actuating tube 26 of the discharge head 22 actuates the valve assembly 18, whereupon a measured quantity of typing error correction fluid and propellant is discharged from the can through the passageway 24 and through the aperture 46 onto the typing error to be corrected. The valve 18 and the aperture 46 cooperate to deliver exactly the right quantity of typing error correction fluid to exactly the right location. Also, because the typing error correction fluid is applied as a spray, and because of the construction of the mask 44, the resulting correction is characterized by a smooth finish and feathered edges.

Due to the construction of the valve 18, the same quantity of typing error correction fluid is discharged regardless of how long the aerosol spray assembly 14 is held depressed. When the assembly 14 is released, the spring portion 36 of the closure member 32 returns the cover portion 34 into engagement with the closure nipple 28. The cover portion 34 and the closure nipple 28 cooperate to seal the interior of the passageway 24. This prevents typing error correction fluid from drying within the passageway 24, and thereby prevents clogging of the passageway 24 due to dry fluid.

From the foregoing, it will be understood that the present invention comprises a typing error correction system including an aerosol spray assembly for discharging a predetermined quantity of typing error correction fluid and a spray discharge assembly for directing fluid onto a typing error. The use of the system is advantageous over the prior art in that it assures the application of the proper quantity of typing error correction fluid, in that it controls the application of the fluid

to a desired area, and in that it results in corrections having a smooth surface and feathered edges. The use of the system is further advantageous in that the storage of the typing error correction fluid in the aerosol spray assembly and the sealing of the discharge passageway when the system is not in use eliminate problems caused by drying and thickening of the fluid.

The present invention has been described in conjunction with the correction of typing errors. It will be understood, however, that the invention is adapted to other uses. For example, errors in written material produced other than by typing, such as by printing, xerography, lettering, etc. can be corrected by means of the present invention. Also, changes not strictly classified as errors, such as numberings, editing, address changes, and the like can be accomplished expediently when the present invention is used.

Although a single embodiment of the invention has been illustrated in the drawing and described herein, it will be understood that the invention is not limited to the embodiment disclosed, but is capable of rearrangement, modification and substitution of parts and elements without departing from the spirit of the invention.

What is claimed is:

1. A typing error correction system comprising an aerosol spray assembly containing correction fluid for discharging a predetermined quantity of a spray comprising atomized correction fluid, means including a mask having a spray controlling aperture formed through it for direction spray from the assembly onto a predetermined area encompassing a typing error and thereby covering the error, said mask comprising a portion of a housing which receives the aerosol spray assembly.

2. The typing error correction system according to claim 1 further including means for actuating the aerosol spray assembly to release a spray of correction fluid therefrom and wherein the aerosol spray assembly includes a metering valve assembly that delivers a predetermined quantity of correction fluid upon each actuation of the aerosol spray assembly.

3. The typing error correction system according to claim 1 further including means responsive to relative movement between the housing and the aerosol spray assembly for actuating the aerosol spray assembly to discharge a spray of correction fluid.

4. The typing error correction system according to claim 1 wherein the aerosol spray assembly further includes a spray discharge passageway and further including means for normally sealing the spray discharge passageway and actuator means for initially moving the sealing means out of engagement with the spray discharge passageway and for thereafter discharging correction fluid spray through the passageway.

5. A typing error correction system comprising:

an aerosol spray assembly for discharging a spray comprising atomized typing error correction fluid from an outlet, and

a mask positioned a predetermined distance from the outlet and positioned in and extending across the path of the typing error correction fluid spray generated by the aerosol spray assembly and having an aperture formed through it so that a portion of the typing error correction fluid spray strikes the mask and the remainder of the spray passes through the aperture onto a typing error.

6. The typing error correction system according to claim 5 further comprising a housing extending between the aerosol spray assembly and the mask and including a discharge head portion for directing typing error correction fluid spray assembly toward the mask.

7. The typing error correction system according to claim 6 wherein the discharge head portion of the housing has a spray discharge passageway extending through it and further including means for sealing the spray discharge passageway except during the discharge of typing error correction fluid spray there-through.

8. The typing error correction system according to claim 7 wherein the sealing means includes a member normally positioned in sealing interengagement with the end of the spray discharge passageway remote from the aerosol spray assembly and further including means responsive to relative movement between the aerosol spray assembly and the housing for moving the sealing member out of engagement with the end of the spray discharge passageway and for thereafter discharging a typing error correction fluid spray through the spray discharge passageway.

9. The typing error correction system according to claim 6 further including a body of absorbent material mounted in the housing between the discharge head portion and the mask for receiving spurious typing error correction fluid spray.

10. The typing error correction system according to claim 6 further including a viewing port formed through the housing.

11. In a typing error correction system, a spray discharge assembly comprising:

a relatively large mask having a relatively small aperture formed through it for directing a spray of typing error correction fluid onto a typing error, and means forming a spray discharge passageway positioned in spaced relation to the mask for directing a spray of typing error correction fluid in a direction extending substantially perpendicularly to the mask so that the spray moves into engagement with the mask and through the aperture.

12. The typing error correction system according to claim 11 further including means for normally sealing the spray discharge passageway, and for opening the passageway to permit the discharge of a spray of typing error correction fluid therethrough.

13. The typing error correction system according to claim 11 further including an enclosure extending between the spray discharge passageway and the mask.

14. The typing error correction system according to claim 13 further including means mounted within the enclosure for absorbing spurious typing error correction fluid spray.

15. The typing error correction system according to claim 13 wherein the enclosure has a viewing port formed in it to facilitate the alignment of the aperture in the mask with a typing error.

16. A spray discharge system comprising:

an aerosol spray assembly for generating a spray comprising atomized material;

a discharge head positioned adjacent the aerosol spray assembly and having a spray discharge passageway formed through it for directing spray outwardly from the aerosol spray assembly;

a member normally positioned in sealing interengagement with the end of the spray discharge passageway remote from the aerosol spray assembly; and

means responsive to relative movement between the aerosol spray assembly and the discharge head for moving the sealing member out of engagement with the end of the spray discharge passageway and for thereafter discharging spray through the spray discharge passageway.

17. A spray discharge system comprising:

an aerosol spray assembly for generating a spray comprising atomized material;

a discharge head positioned adjacent the aerosol spray assembly and having a spray discharge passageway formed through it for directing spray outwardly from the aerosol spray assembly;

a member normally positioned in sealing interengagement with the end of the spray discharge passageway remote from the aerosol spray assembly; and

actuator means for initially moving the sealing member out of engagement with the end of the spray discharge passageway and for thereafter discharging spray from the aerosol spray assembly through the spray discharge passageway.

18. The spray discharge system according to claim 17 further characterized by a metering valve for discharging a predetermined quantity of atomized material from the aerosol spray assembly upon each operation of the actuator means.

19. The spray discharge system according to claim 18 wherein the discharge passageway in the discharge head directs spray in a predetermined path and further including a mask positioned in and extending across the path of the spray so that a portion of the spray strikes the mask and the remainder passes through the aperture in the mask.

20. The spray discharge system according to claim 19 wherein the mask comprises a portion of a housing which receives the aerosol spray assembly.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,756,514

Dated September 4, 1973

Inventor(s) WILLIAM E. BROWN

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 2, line 52 "coperates" should be --cooperates--;

Claim 1, line 31, "direction" should be --directing--.

Signed and sealed this 6th day of August 1974.

(SEAL)
Attest:

McCOY M. GIBSON, JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents