United States Patent [19]

Kloosterhouse

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[54] **MASKING FLUID APPLICATOR**

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[52] **U.S. Cl.** **401/130,** 401/261

[51] **Int. Cl.** **A45d 33/00**

[58] **Field of Search** 401/263, 118–130, 401/261

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Primary Examiner—Lawrence Charles

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[57] **ABSTRACT**

A masking fluid applicator comprising, a hollow elongated barrel with masking fluid therein, an elongated applicator in the barrel with a free end portion, means on said free end portion to retain only an amount of masking fluid on the free end portion of the applicator sufficient to mask a character of type or print or the like, and means in the barrel so constructed and arranged as to limit application of said masking fluid only to the free end portion of said elongated applicator.

8 Claims, 10 Drawing Figures

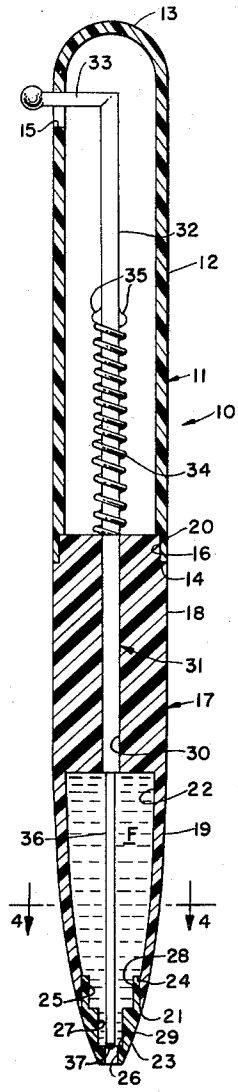


FIG. 1.

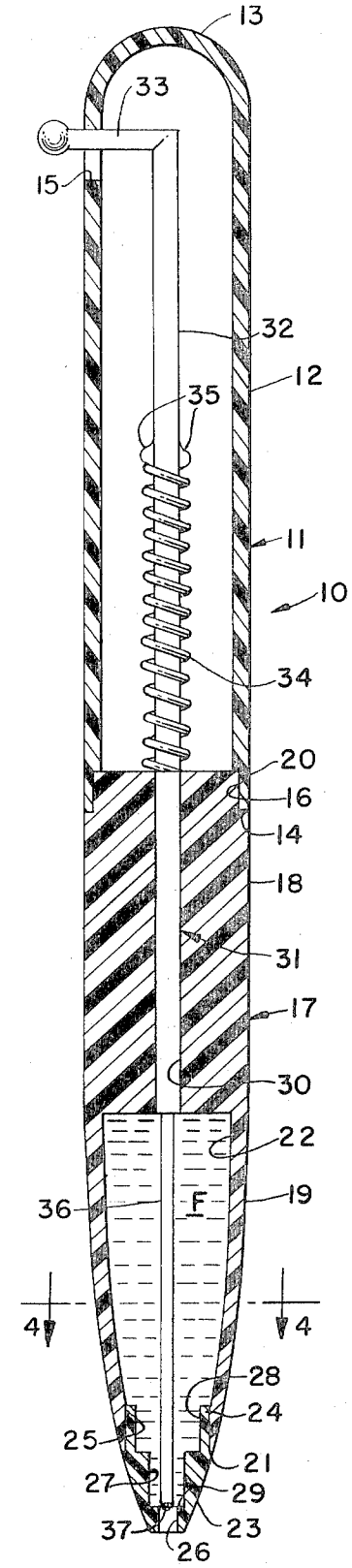


FIG. 2.

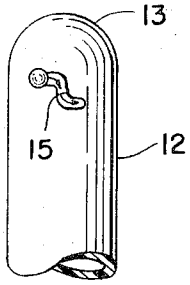
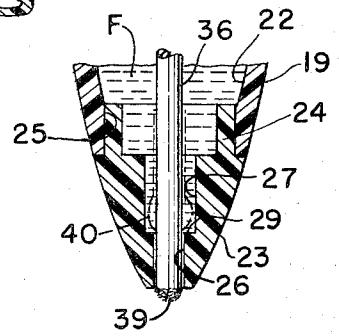


FIG. 3.



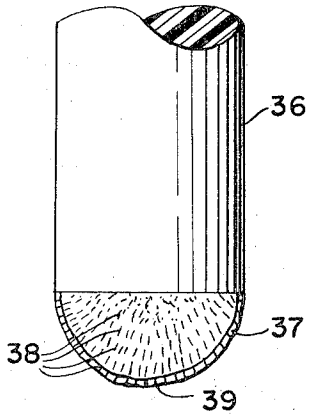


FIG. 5.

FIG. 4.

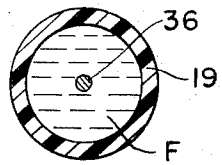


FIG. 6.

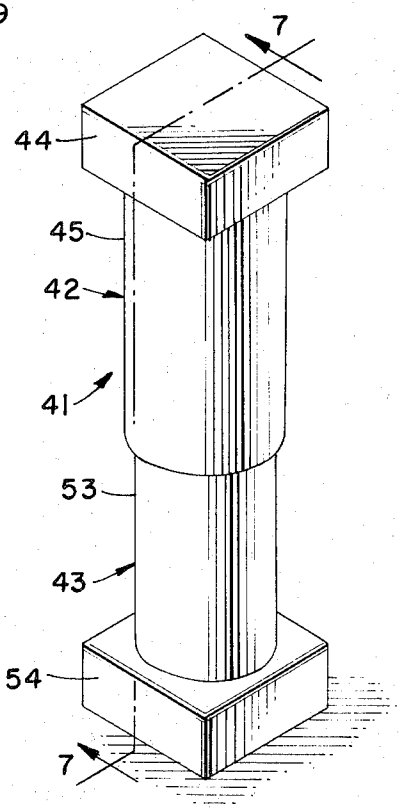


FIG. 7.

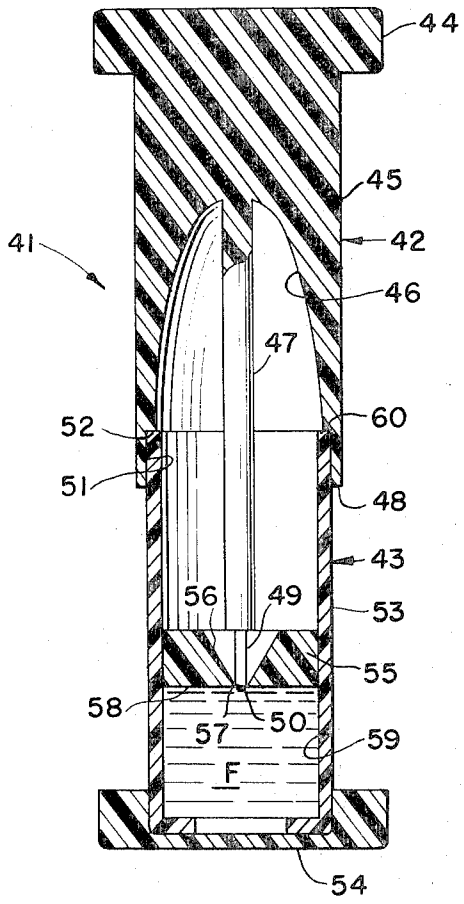


FIG. 8.

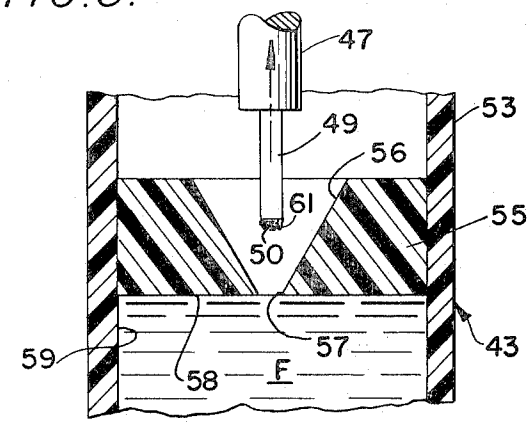


FIG. 9.

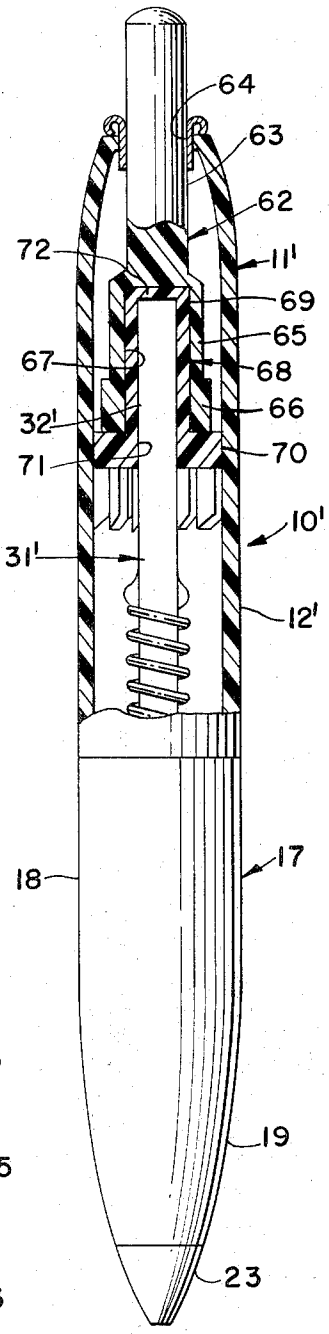
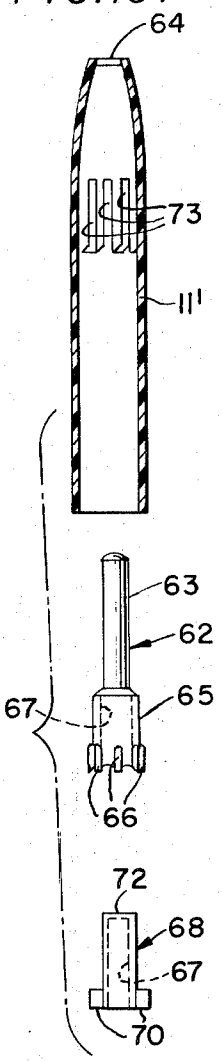


FIG. 10.



MASKING FLUID APPLICATOR

BACKGROUND OF THE INVENTION

This invention relates to an applicator means for applying an amount of masking fluid to a character of type or print or the like in a quantity sufficient only to blot out or mask the character.

There are several different types of conventional masking fluid applicators for applying a masking fluid to a character to blot out or mask the character, but such conventional applicators have several serious drawbacks. For example, one conventional applicator comprises a small brush which is adapted to be immersed in a masking fluid for retaining or picking up a quantity of masking fluid on the bristles of the brush, which masking fluid is then applied to a character or the like to blot out or mask the character. This type of applicator is relatively difficult to use since the amount of masking fluid retained on the bristles for application to a character cannot be accurately regulated; and consequently, either an excessive amount of masking fluid is applied to the character resulting in an unsightly appearance, or the excess masking fluid must be wiped off the brush applicator prior to application of the fluid remaining on the brush to a character. This results in a wasteful and time consuming procedure for masking characters and a substantially increased cost to the user.

In other conventional masking fluid applicators, the masking fluid comes in contact with operating means for the applicator and quickly renders such devices inoperable when the fluid dries or hardens in the applicator.

In the present invention, a hollow elongate barrel is provided having means therein for containing an amount of masking fluid within the barrel and an elongated applicator with a free end is positioned within the barrel in operative cooperation with means in the barrel for limiting the application of masking fluid to only the free end portion of the elongated applicator, and the free end of the applicator has means limiting the amount of masking fluid retained on the free end to only an amount sufficient to mask a character or the like, the masking fluid being confined to the free end portion of the applicator to avoid waste of the masking fluid and to prevent the masking fluid from contacting operating means for the applicator and thus rendering it inoperative. Moreover, the masking fluid used in the applicator of the invention has a consistency or viscosity such that, in cooperation with the means on the free end of the applicator, only the proper amount of fluid is retained on the applicator, and the masking fluid is rewettable, so that as the applicator is repositioned in the barrel after each use thereof, any fluid remaining on the applicator is dissolved by the fluid in the barrel, and accumulation or hardening of fluid on the applicator is thus avoided.

The applicator according to the present invention is thus reliable in operation and is accurate and economical since only the amount of masking fluid necessary to mask the character is deposited or left remaining on the applicator when it is withdrawn from the barrel for use.

The applicator according to the invention is economically manufactured and is thrown away after the supply of masking fluid therein is exhausted.

OBJECTS OF THE INVENTION

It is an object of this invention to provide a masking fluid applicator which is economical to make and is simple and reliable in operation.

Another object of this invention is to provide a masking fluid applicator which is accurate and easy to use, the amount of fluid retained on the applicator for blotting out or masking a character being substantially the same each time.

A further object of this invention is to provide a masking fluid applicator wherein means are provided for applying an amount of masking fluid to an extreme or free end portion only of the applicator in a quantity sufficient only to blot out a character or the like.

An even further object of this invention is to provide a masking fluid applicator as aforesaid which is thrown away after the supply of masking fluid contained therein is exhausted, and wherein the masking fluid used in the applicator is rewettable to prevent accumulation or hardening of masking fluid on the applicator as it is used.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a greatly enlarged sectional view in elevation of a first form of the invention.

FIG. **2** is a fragmentary view in elevation of a portion of the operating mechanism for projecting and retracting the applicator out of and into the barrel in the first form of the invention.

FIG. **3** is a greatly enlarged, fragmentary, sectional view in elevation of an end portion of the first form of applicator showing the manner in which the applicator is extended through a wiping means or opening for limiting the application of masking fluid to the extreme or free end only of the applicator and in an amount sufficient only to blot out or mask a character.

FIG. **4** is a sectional view taken along line **4—4** in FIG. **1.**

FIG. **5** is a greatly enlarged fragmentary view in elevation of an applicator tip or free end according to the invention, showing the construction of the free end of the applicator which insures retention of an amount of masking fluid thereon sufficient only to blot out or mask a character.

FIG. **6** is an enlarged perspective view of a second form of the invention.

FIG. **7** is an enlarged sectional view taken along line **7—7** in FIG. **6.**

FIG. **8** is a greatly enlarged, fragmentary, sectional view of a portion of the applicator shown in FIG. **7,** with the extreme or free end portion of the applicator retracted from the means within the barrel for limiting the application of masking fluid to only the extreme or free end portion of the applicator.

FIG. **9** is an enlarged, part sectional view of a third form of the invention.

FIG. **10** is an exploded view of a portion of the operating mechanism for the applicator shown in FIG. **9.**

DETAILED DESCRIPTION OF THE INVENTION

In the drawings, wherein like reference numerals indicate like parts throughout the several views, a first form of masking fluid applicator according to the invention is indicated generally at **10** in FIG. **1.** The applicator **10** comprises an elongate tubular housing or barrel **11** having a hollow upper portion **12** with a

closed end 13 and an open end 14. A generally Z-shaped opening or slot 15 is in one side of the upper portion 12 adjacent the closed end 13 thereof and an enlarged diameter recess 16 is formed at the open end 14 thereof.

The barrel 11 also includes a lower portion 17 having a substantially solid upper half or end 18 and a hollow lower half or end 19. An axially extending, reduced diameter projection 20 is on the upper end 18 and the projection is suitably secured in the recess 16 in the upper barrel portion 12, as with an adhesive, or a sonic weld or the like. The lower, hollow half 19 of lower barrel portion 17 is gradually tapered inwardly to an open, lower, pointed end 21, so that the applicator may be accurately positioned relative to a character to be blotted or masked out with masking fluid. A chamber 22 is in the hollow lower portion 19, containing a quantity of masking fluid F therein.

A cap or plug 23 is secured to the pointed end 21 of lower portion 19 and has an annular, upstanding wall 24 thereon fitted within a cylindrical bore portion 25 in the pointed end 21, and suitably secured thereto as with an adhesive or a sonic weld or the like. The cap 23 has a stepped diameter bore therethrough, including a centrally located aperture 26 at the lower end thereof and enlarged diameter portions 27 and 28. The aperture 26 and bore portion 27 define an axially upwardly facing shoulder or wiping edge 29.

A central guide bore 30 extends longitudinally through the upper half 18 of lower barrel portion 17 and an elongated masking fluid applicating member 31 is slidably received through the bore 30. The masking fluid applicating member 31 extends upwardly beyond the upper end of lower barrel portion 17 and coaxially within upper barrel portion 12 and defines an actuating member 32 having a right angularly extending portion or actuator 33 extended outwardly through the Z-shaped opening 15 in the side of upper portion 12 for access exteriorly of the barrel to operate the applicator 31. A coil compression spring 34 is fitted coaxially around actuating portion 32 and is disposed between the upper end 20 of lower barrel portion 17 and a pair of oppositely directed ears or lugs 35 approximately midway of the ends of actuating portion 32.

A relatively thin, elongated masking fluid applicator 36, of reduced diameter relative to the actuator portion 32, extends downwardly from adjacent the lower end of bore 30 to a position normally disposed just above the shoulder 29 and bore 26 through cap 23. This is the retracted position of the applicator and the applicator 36 is disposed entirely within the masking fluid F, with a small portion of the masking fluid F disposed below the extreme or free end 37 of applicator 36 adjacent the opening into bore 26. The free end 37 of applicator 36 is substantially hemispherical and is suitably roughened, as by chemical etching or mechanical abrasion, to define a plurality of small, fibre-like projections 38 on the free end 37 of the applicator, the projections 38 collecting and holding an amount of masking fluid F on the end of the applicator sufficient only to blot out or mask a character.

When the applicator 36 is projected through the bore 26 by means of the actuator 32, 33, the extreme of free end 37 pushes a small film or dab 39 of the masking fluid through the bore 26, and the shoulder 29 at the entrance to bore 26 wipes excess masking fluid F from the surface of applicator 36 as indicated in dotted lines at 40 in FIG. 3, and thus prevents the masking fluid from entering into the bore 26 and eventually clogging up and rendering the applicator inoperative. Further, the fit of the actuating portion 32 within guide bore 30, is such that no leakage of the masking fluid occurs along the applicator member 31 into contact with the actuating portion 32.

By way of specific example, the masking fluid applicator 10 is approximately 5 to 6 inches long and ½ inch in diameter. Approximately one-fourth of a fluid ounce of masking fluid F is contained within the chamber 22 and the elongated, thin applicator 36 is approximately 1/16 of an inch in diameter and is preferably formed of plastic or the like. The diameter of applicator 36 and the size of the projections 38 is determined such as to retain a predetermined quantity of masking fluid 39 on the extreme end 37 thereof sufficient just to blot out or mask a character or the like without any excess fluid being applied to the character or otherwise wasted.

The wiping action of bore 26 and shoulder 29 on the applicator 36 removes excess fluid from the end and thus prevents the fluid from building up within bore 26 and eventually hardening therein and thus rendering the masking fluid applicator inoperative.

The applicator barrel or housing portions are preferably formed of a suitable plastic material and once the supply of fluid F within chamber 22 is exhausted, the masking fluid applicator is thrown away.

A second form of the invention is illustrated in FIGS. 6, 7 and 8, and in this form of the invention, the masking fluid applicator is indicated generally at 41 and comprises an upper or top tubular portion 42 and a lower or bottom tubular portion 43. The upper tubular portion includes an enlarged, generally square shaped end portion 44 and a cylindrical, reduced diameter portion 45, having a hollowed out cavity 46 in the lower end thereof and extending the major portion of the length of tubular portion 42. An elongated masking fluid applicator 47 is formed integrally with tubular portion 42 and projects axially thereof through an open end 48 of the tubular portion 42.

A relatively short, reduced diameter masking fluid applicator tip 49 extends coaxially from the lower end of applicator 47 and terminates at a point spaced substantially outwardly of opening 48. The applicator tip 49 terminates in a free end 50, which is identical to the free end 37 of applicator 36. The lower, open end 48 of the tubular portion 42 has an enlared diameter recess 51 therein, defining an axially outwardly facing shoulder 52.

The lower tubular portion 43 includes a relatively thin, cylindrical wall 53 having a generally square shaped end cap 54 closing the lower end thereof and a wall or plug 55, having a conically shaped opening 56 therethrough, terminating in an aperture 57 at the bottom surface 58 of the plug 55, is fixedly mounted within tubular portion 53 approximately midway the ends thereof and defines with the tubular wall 53 and the end cap 54 a hollow chamber 59 containing a quantity of masking fluid F therein. The cap 54 is permanently sealed on the end of the applicator after the masking fluid F is placed in chamber 59 through the open end of tubular portion 53. The upper end 60 of tubular portion 53 is slidably fitted within the diametrically enlarged portion 51 at the open end 48 of tubular portion 42 and against the shoulder 52, which serves as a stop, and the two portions 42 and 43 are normally main-

tained in the position shown in FIG. 7 by the frictional engagement between the adjacent end portions **48** and **60** thereof.

Engagement between end **60** and shoulder **52** limits the relative axial position of tubular portions **42** and **43** toward one another and is selected such that the extreme or free end portion **50** only of masking fluid applicator tip **49** is disposed substantially in the plane of the bottom surface **58** of wall or plug **55** and is in contact with the fluid F contained within chamber **59.** The frusto-conical opening **56** guides the tip **49** into the aperture **57.**

When the two tubular portions **42** and **43** are separated, the masking fluid applicator **49** is withdrawn from opening **57** and a dab or film **61** of masking fluid F is retained on the extreme end **50** thereof in a quantity sufficient to blot out or mask a character or the like.

By way of specific example, the masking fluid applicator illustrated in FIGS. **6, 7** and **8** is approximately 2 inches in length and the ends **44** and **54** are approximately 1 inch square. The chamber **59** holds approximately one-fourth of a fluid ounce of masking fluid, and the applicator tip **49** is approximately 1/16 of an inch in diameter and is preferably formed of plastic, with the roughened end **50** as in FIGS. **1–5.**

In FIGS. **9** and **10,** a third form of the invention is illustrated, and in this form of the invention, the masking fluid applicator is identical in every respect with the applicator shown in FIG. **1** with the exception of the actuator means.

In the form of the invention shown in FIGS. **9** and **10,** the masking fluid applicator is indicated generally at **10′** and has an upper portion **11′** and a lower portion **17** with a pointed end **23.** The upper portion **11′** contains a push plunger project-retract mechanism **62,** wherein an elongated plunger operator **63** extends axially upwardly through an opening **64** in the upper end of upper barrel portion **11′.** The plunger operator **63** has an enlarged diameter tubular lower portion **65** with a plurality of teeth **66** arranged about the lower marginal edge thereof and an internal bore **67** therein. A rotating shaft mechanism **68** includes an axially extending tubular part **69** slidably and rotatably fitted within bore **67** of plunger operator **63** and has a plurality of teeth **70** arranged around the lower marginal edge thereof. An internal bore **71** extends through the lower end of rotating shaft mechanism **68** and terminates at an upper closed end **72.**

A masking fluid applicator **31′** includes an axially extending upper actuating end **32′** received within the bore **71** in tubular part **69** of rotating shaft mechanism **68,** and has projecting ears or lugs **35** and a coil spring **34** as in the FIG. **1** embodiment.

A plurality of grooves **73** are in the inside surface of the upper barrel portion **11′** in a position to cooperate with the teeth **66** and **70** on push plunger mechanism **62** and rotating shaft mechanism **68,** respectively, whereby upon actuation of the plunger **63** the applicator **31′** is projected down through bore **30** in lower barrel portion **17,** as in the FIG. **1** embodiment, to obtain a quantity of masking fluid for masking a character or the like.

The specific manner of operation of the operating mechanism is the same as a conventional ball point pen actuator and is more fully described in U.S. Pat. No. 3,191,329.

The masking fluid F in each of the above-described forms of the invention has a viscosity and consistency such that it will not flow through the openings and out of the masking fluid applicator when the applicator is tipped or overturned, and such that in cooperation with the roughened end of the applicator, only an amount sufficient to blot out or mask a character is retained on the free end of the applicator. Further, the masking fluid is a water base, rewettable fluid such that, in use, when the applicator is returned into the barrel into contact with the masking fluid therein, any masking fluid remaining on the applicator is rewet, or dissolved, and accordingly, there is no build up or accumulation of fluid on the applicator tip or other parts of the device.

As this invention may be embodied in several forms without departing from the spirit or essential characteristics thereof, the present embodiment is therefore illustrative and not restrictive, since the scope of the invention is defined by the appended claims rather than by the description preceding them, and all changes that fall within the metes and bounds of the claims or that form their functional as well as conjointly cooperative equivalents, are therefore intended to be embraced by those claims.

What is claimed is:

1. A masking fluid applicator for applying masking fluid to a character or the like to blot or mask the character, comprising an elongate, hollow, top tubular member and an elongate, hollow, bottom tubular member axially removably joined together at adjacent ends thereof and defining a hollow, elongate barrel having top and bottom ends, a transverse wall in said bottom member defining a masking fluid containing chamber in said bottom member, said transverse wall having an aperture through the center thereof, an elongate masking fluid applicator carried by the top member coaxially therewithin and having a free end portion extending beyond the adjacent ends of said members and into said bottom member, said free end portion having a roughened surface at the tip end thereof to retain a quantity of masking fluid thereon to blot or mask a character or the like, the applicator having a length sufficient only to extend just through the aperture in said transverse wall when the top and bottom members are joined together in end-to-end relationship, whereby only said roughened tip of said applicator may be contacted and wetted by masking fluid in said chamber to retain said quantity of masking fluid thereon.

2. A masking fluid applicator as in claim **1,** wherein shoulder means are on said adjacent ends of said tubular portions for limiting movement of said tubular portions axially toward one another so as to position said free end of said masking fluid applicator substantially flush with the surface of said wall which is adjacent said masking fluid.

3. A masking fluid applicator as in claim **1,** wherein the upper and lower ends portions of said barrel are square in cross-section.

4. A masking fluid applicator as in claim **1,** wherein said masking fluid applicator is plastic.

5. A masking fluid applicator as in claim **1,** wherein the free end of said masking fluid applicator is substantially hemispherical.

6. A masking fluid applicator as in claim **5,** wherein the hemispherical free end of the applicator is roughened to define a plurality of closely spaced, short pro-

jections thereon to retain a predetermined quantity of masking fluid on the free end.

7. A masking fluid applicator as in claim **6,** wherein said applicator barrel is approximately 2 inches long and 1 inch thick.

8. A masking fluid applicator as in claim **6,** wherein said applicator and said hemispherical free end are about 1/16 of an inch in diameter.

* * * * *