

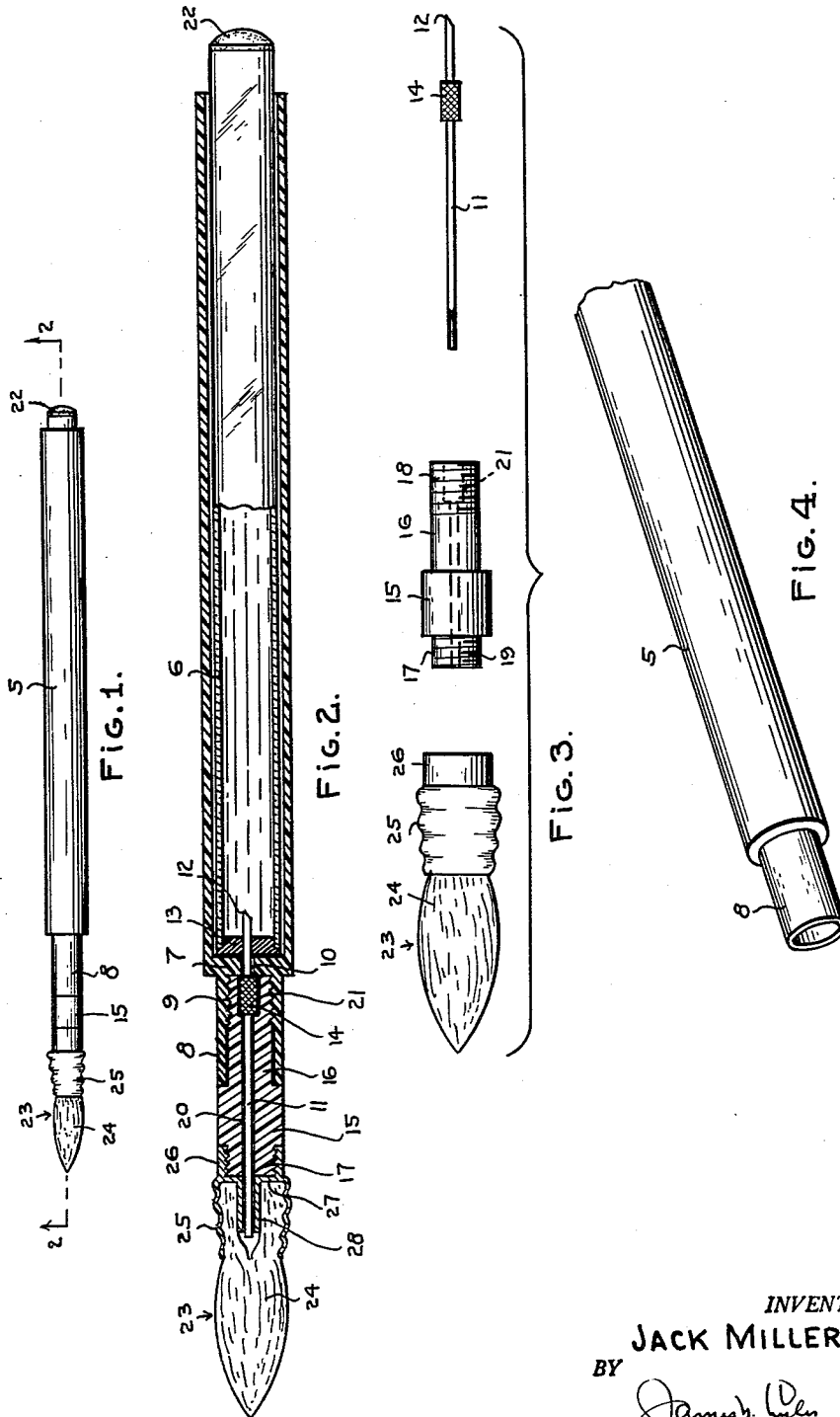
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FORCE FEED FOUNTAIN TYPE BRUSH

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FORCE FEED FOUNTAIN TYPE BRUSH

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1 Claim. (Cl. 15—539)

This invention relates to a fountain type applicator brush.

The invention contemplates a handle forming barrel for the reception of a removable ink cartridge, a coupling device and a brush that is detachably connected with the coupling device and with an ink feed tube extending into the barrel to engage within the ink cartridge as the means for dispensing ink or other fluids to the brush.

Novel features of construction and operation of the device will be more clearly apparent during the course of the following description, reference being had to the accompanying drawings wherein has been illustrated a preferred form of the device and wherein like characters of reference are employed to denote like parts throughout the several figures.

In the drawings:

FIGURE 1 is a side elevation of a device constructed in accordance with the invention,

FIGURE 2 is an enlarged longitudinal section taken substantially on line 2—2 of FIGURE 1,

FIGURE 3 is an exploded view illustrating the detachable brush, the coupling device and the fluid feed tube and,

FIGURE 4 is a fragmentary perspective view of the barrel.

Referring specifically to the drawings, the numeral 5 designates a preferably molded plastic cylindrical barrel open at one end, the barrel 5 constitutes a handle and a supporting medium for an ink containing cartridge 6. The barrel at its opposite end is closed by a partition wall 7. The barrel is extended outwardly from the wall 7 to form an open cylindrical extension 8 that is concentric to the barrel. The extension 8 is threaded internally at its inner end as at 9. The partition 7 is axially apertured as at 10, for the passage of an ink feed tube 11. The feed tube at one end is sharpened at 12, for puncturing engagement with a preferably rubber diaphragm 13 that is fitted into one end of the cartridge 6. The feed tube 11 downwardly from its sharpened end is provided with a fixed stop collar 14 and whereby to limit the insertion of the feed tube into the cartridge 6.

Detachably connected with the extension 8, is a coupling nut 15. The nut 15 is extended in opposite directions to form cylindrical extensions 16 and 17 of a reduced diameter and these extensions are threaded at 18 and 19. The nut 15 is axially bored as at 20 for engagement over the feed tube 11. It will be apparent, as shown in FIGURE 2, that the nut 15 functions to hold the feed tube 11 in its engagement with the barrel 5 and the extension 16 is recessed at 21 concentric to the bore 20 to engage over the collar 14. In the assembly so far described, the feed tube 11 is engaged through the bore 20 of the nut 15 to the point where the collar 14 seats within the recess 21. The nut and its extension 16 is then engaged with the tubular extension 8 of the barrel to the point where the threads 18 engage the threads 9 in which position, the feed tube is firmly anchored with respect to the barrel and with its sharpened end 12 projecting inwardly of the barrel to the aperture 10. The feed tube is thus fixedly held against longitudinal movement so that, when a cartridge 6 is inserted into the barrel, it may be pressed downwardly to cause the sharpened point 12 to pierce the diaphragm 13, thus establishing communication between the feed tube 11 and the ink within the cartridge 6. The ink is forced downwardly in minute quantities by

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pressure upon a bulbous head 22 connected to the opposite end of the cartridge 6. The bulb 22 thus constitutes a pump, the action of which being limited to forcing substantially one drop of ink through the feed tube 11.

Detachably connected with the extension 17, is an applicator brush, indicated as a whole by the numerical 23. The brush 23 embodies the usual bristles 24 that are crimped within a ferrule 25, preferably formed of aluminum or other relatively non-corrosive material. The ferrule 25 is provided with an internally threaded sleeve 26 that has detachably threaded engagement with the extension 17. An upper wall portion 27 of the ferrule is provided with an inwardly extending sleeve 28 that receives the extended end of the feed tube 11 when the parts are in the assembled relation. The feed tube 11 extends slightly below the sleeve 28 to engage substantially centrally of the bristles 24. The sleeve 28 maintains the bristles spaced so that the feed tube 11 can be inserted into the brush. The ferrule 25 and the sleeves 26 and 28 are all preferably formed integral and may either be molded or otherwise formed. The brush 23 obviously is detachable and replaceable and the fact that the brush is detachable, greatly facilitates the cleaning of the brush after it has been used.

In the assembly of the device, the feed tube is engaged through the bore of the nut 15 to the point where the collar 14 seats within the recess 21. In this assembled relation, the nut 15 is engaged into the extension 8 and screwed firmly into position, clamping the collar 14 against the side of the partition 7 in which position, the sharpened end of the feed tube is disposed through the aperture 10 to a predetermined position within the barrel 5. Any suitable brush having the structural features just described, is engaged with the extension 17 of the nut, causing the feed tube 11 to project downwardly toward the bristles of the brush and through the sleeve 28, the sleeve forming an adequate guide for that portion of the feed tube that extends below the nut 15. A cartridge of the character described is then inserted through the open end of the barrel 5 and forced downwardly, causing the sharpened point 12 to pierce the diaphragm 13, in which position the assembly is ready for use. Then, by pressing downwardly upon the bulb 22, ink is forced through the feed tube 11 to be projected into the bristles 24 of the brush. The pumping action of the bulb 22 is continued from time to time as becomes necessary to furnish an adequate supply of the fluid to the bristles. When the application is completed, the brush is unscrewed from the extension 17 to be immersed in any suitable cleaning fluid. The nut 15 is then unscrewed from the sleeve 8 and the nut and the feed tube are removed from the barrel. Any suitable cleaning wire may be inserted through the feed tube to prevent clogging of the ink due to drying or evaporation. When the feed tube is removed, the diaphragm will be automatically sealed. The cartridge 6 may also be removed and replaced with respect to the barrel from time to time.

It will be apparent from the foregoing that a very novel form of an applicator brush has been provided. The coupling nut 15 furnishes a rigid mounting for the feed tube 11 whereby the sharpened end is accurately positioned for insertion through the aperture 10. The nut 15 thus offers a coupling device for both the feed tube and the applicator brush and with all of the parts being quickly and easily disassembled for cleaning. It is contemplated that the cartridges shall be furnished wherein inks of different colors are supplied and with the brushes being quickly and easily attached and detached where a brush has previously been employed for a particular color, it can be again assembled for a particular color of ink carried by the cartridge in the barrel. The structure is

simple, economical to form and highly effective as a fountain type pressure feed applicator brush.

It is to be understood that the invention is not limited to the precise construction shown, but that changes are contemplated as readily fall within the spirit of the invention as shall be determined by the scope of the subjoined claim.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

A fountain type applicator brush of the character described that comprises a molded cylindrical handle forming barrel, the barrel being open at its upper end and closed at its lower end, the barrel also being provided with a concentric tubular extension that is threaded adjacent its inner end, the closure for the lower end of the barrel being centrally and axially apertured, a slender feed tube that is sharpened at one end and with the feed tube being provided with a fixed collar, the sharpened end of the feed tube adapted to extend into the barrel and limited in such movement by the collar, a coupling device that includes a nut having oppositely extending reduced cylindrical extensions, the extensions being threaded, the coupling device being axially bored to receive the lower portion of the feed tube, one extension of the coupling device being bored upon a larger radius to form a seat for the collar of the feed tube and whereby the feed tube is held with respect to the barrel, a brush device that includes bristles, a ferrule that is clamped upon the upper portion of the bristles, the ferrule being provided with a concentric collar that is internally threaded for the threaded reception of the opposite threaded extension of

the coupling device, the ferrule also being provided with an axially arranged sleeve that extends into the bristles of the brush and whereby to receive the lower end of the feed tube for disposing the feed tube in discharge relation to the bristles of the brush, an ink holding cartridge that is insertable into the barrel from its open end, the cartridge being provided at one end with a puncturable diaphragm that engages the sharpened end of the feed tube, the opposite end of the cartridge being provided with a bulbous pump device that is operable to force the ink through the feed tube and into the bristles of the brush, the coupling device being provided with one relatively long extension and one relatively short extension, the long extension being engageable into the tubular extension, the said feed tube having a length whereby the sharpened end will project into the barrel for puncturable engagement with the diaphragm and with the feed tube extending through the bore of the coupling device and the sleeve of the ferrule to project slightly therebeyond and to discharge the ink to the several bristles of the brush simultaneously, the bore of the coupling device and the sleeve of the ferrule being axially arranged and whereby a discharge end of the feed tube will discharge ink into the center of the group of bristles.

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