May 17, 1966 R. K. DUKE ETAL 3,251,299

TUMBLER BED STAMP WITH CARTRIDGE INK SUPPLY

Filed May 23, 1963 2 Sheets-Sheet 1

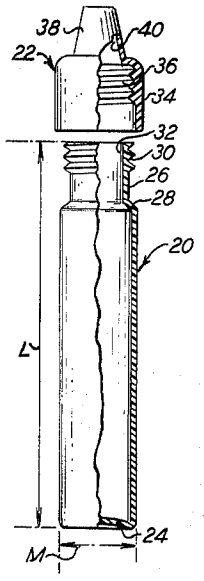


Fig. 1

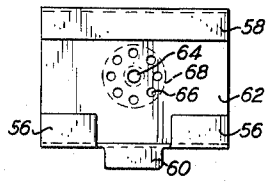


Fig. 3

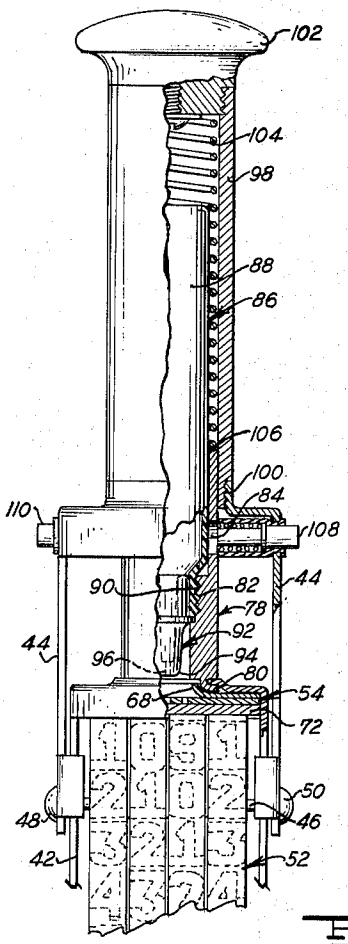


Fig. 2

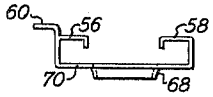


Fig. 4

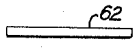


Fig. 5

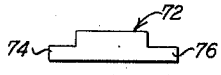


Fig. 6

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TUMBLER BED STAMP WITH CARTRIDGE INK SUPPLY

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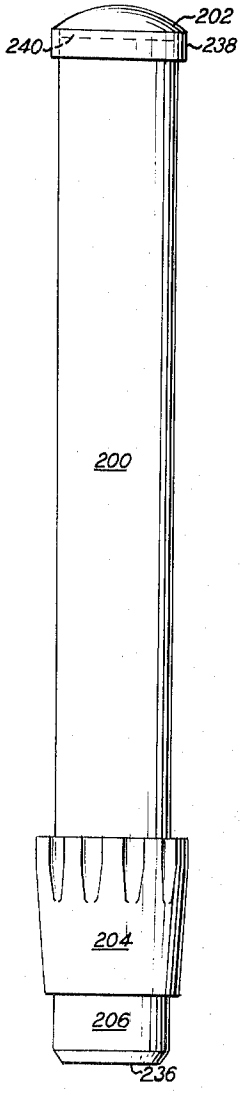


Fig. 8

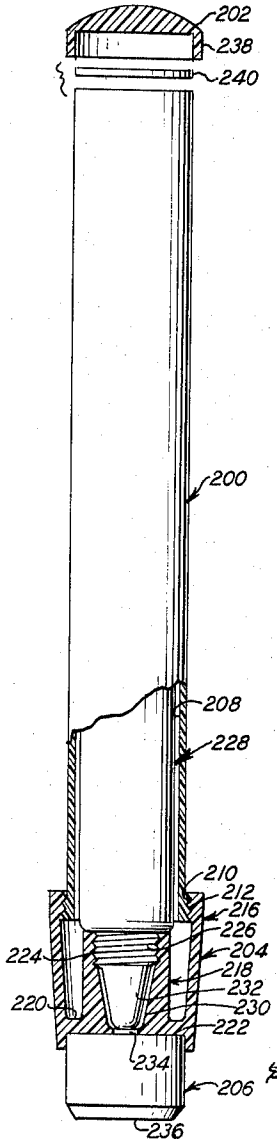


Fig. 9

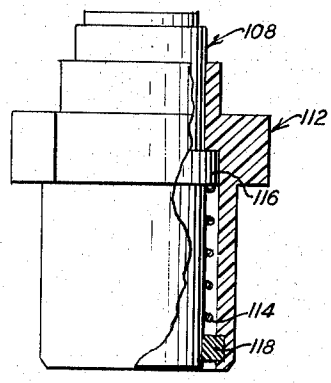


Fig. 7

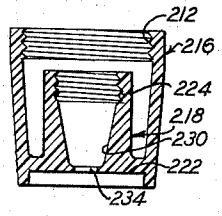


Fig. 10

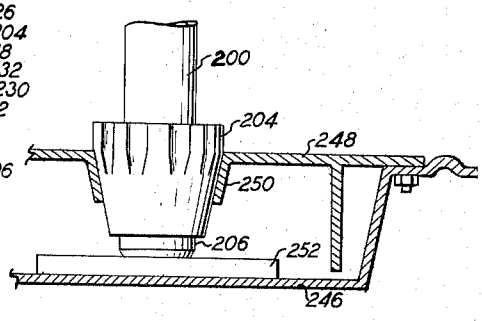


Fig. 11

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United States Patent Office 3,251,299 Patented May 17, 1966

3,251,299

TUMBLER BED STAMP WITH CARTRIDGE INK SUPPLY

Ronald K. Duke and Thomas F. Gambon, St. Louis, Mo., assignors to Garvey Corporation, St. Louis, Mo.

Filed May 23, 1963, Ser. No. 282,677
6 Claims. (Cl. 101—334)

This invention relates to improved ink cartridges, marker devices and associated methods.

It is an object of the invention to provide an improved ink cartridge and method for manufacturing the same.

A further object of the invention is to provide an improved ink cartridge capable of retaining its fluid contents while providing for the ready dispersing of the same in response to a very slight pressure of a predetermined nature.

It is a further object of the invention to provide an improved ink cartridge the contents of which are readily accessible despite a construction which results in minimum leakage and evaporation.

Yet another object of the invention is to provide an improved ink cartridge adapted for being produced with mass production techniques at minimum cost.

A feature of the invention is the provision of a semi-automatic marker device incorporating the aforesaid ink cartridge.

Another object of the invention relates to the provision of an improved marking device containing its own detachable ink supply.

Yet another object of the invention is the provision of an improved marker device which may be readily disassembled to replace the ink supply thereof and in which the ink supply is protected against accidental discharge.

Still a further object of the invention is to incorporate the aforesaid ink cartridge into a manual-type marker in association with a porous rubber marking element or the like.

As will be seen hereinafter, the invention contemplates the provision of an ink cartridge adapted for many and varied uses. Two particular applications of the cartridge are described by way of example and in the form of preferred embodiments.

The ink cartridge contemplated in accordance with the invention comprises an elongated cylinder, preferably of polyethylene tubing having a length to maximum diameter ratio of about 5 to 7:1. This cylinder includes a neck portion of reduced diameter and has an open end portion and a closed end portion at respective extremities, the said neck portion including an external thread and having a smooth internal bore into which is inserted a polyethylene plug which is sealed to the neck portion. The plug includes a generally conical tip protruding from the bore, the plug having a passage of about .010 to .015 inch communicating with the interior of the cylinder. A marking ink of conventional nature is provided in the cylinder.

The preferred method of manufacturing the aforesaid ink cartridge comprises blow molding a cylinder of polyethylene with closed and opened ends and with a threaded exterior at the open end, and molding a plastic plug with a passage therethrough which, after ink is charged into the cylinder, is employed to obturate the cylinder, the plug being heat sealed to the cylinder whereby the ink can exit via the aforesaid passage only. The threaded exterior of the cylinder may be engaged in a threaded support as will be indicated hereinafter.

One preferred marking device provided in accordance with the invention comprises a generally vertical support frame with a horizontal ink pad support detachably affixed to the frame and including an upwardly opening collar, a horizontal fibre spacer being provided in the support below the collar, the fibre spacer having an opening therein in correspondence with the collar and further having a circular arrangement of openings encircling the first said opening.

In further accordance with the preferred embodiment, an inking pad is provided in the support and is exposed upwardly through the openings and the collar, a supplemental frame vertically displaceable on the support frame supporting marking means within the support frame with the marking means being responsive to relative movement between the frames for being displaced between an inking position in engagement with the pad and a marking position facing away from the pad.

A cartridge sleeve is provided extending upwardly from the support frame in alignment with the collar, the sleeve including an internal threaded portion and having diametrically opposed openings spaced above the threaded portion.

The aforesaid ink cartridge is mounted in the sleeve with the external thread on the neck portion being engaged with the threaded portion in the sleeve, the conical tip being directed through the collar and first said opening in the spacer towards the aforesaid pad.

A hollow handle is provided extending upwardly from the supplemental frame and slidably receiving the sleeve with the cylinder therein, a cap being threadably engaged on the handle to operate against a spring which is effective between the cap and support frame to urge the supplemental frame to a position whereat the marking means is in inking position.

Push buttons are provided, according to the invention, which are coaxially aligned on the supplemental frame and diametrically aligned relative to the sleeve, the push buttons being adapted for alignment with and insertion into the openings in the sleeve with the frame in predetermined relationship in accordance with which the marking means is removed from inking position.

Springs are employed to urge the push buttons outwardly away from the sleeve, the push buttons being displaceable through the opposed openings against the inking cartridge cylinder to eject ink via the tip onto the aforesaid pad.

According to yet a further embodiment of the invention, a marking apparatus is provided which comprises an elongated hollow tube of generally rigid material with a threaded extremity and with a closure member in the other of the extremities. There is moreover provided a mount including rigidly connected concentric elements, the outer of which includes an internally threaded portion engaging the threaded extremity of the tube, the ink cartridge being threadably engaged with the inner of the concentric elements, there being further provided a porous marking element in the mount adapted for being charged with ink from the aforesaid cartridge.

Advantageously, the cartridge and the marker devices of the invention are readily assembled by the user without the need for detailed instructions.

Other objects, features and advantages of the invention will be apparent from the following detailed description of the aforenoted preferred embodiments as illustrated in the accompanying drawing, in which:

FIGURE 1 is an exploded view of two of the components of the ink cartridge provided in accordance with a preferred embodiment of the invention;

FIGURE 2 is a side view of an automatic marking apparatus, half in cross-sectional view, employing the ink cartridge of FIG. 1;

FIGURE 3 is a top plan view of an ink pad holder employed in the apparatus of FIG. 2, shown with a fibre spacer therein;

FIGURE 4 is a side view of the holder element of FIG. 3 with the fibre spacer removed;

FIGURE 5 is an end view of the fibre spacer;

FIGURE 6 is an end view of an ink pad employed in the holder of FIG. 3;

FIGURE 7 is a side view, half in cross-section, of a push button assembly involved in the marker apparatus of the invention;

FIGURE 8 is a side view of a second marker apparatus provided in accordance with the invention;

FIGURE 9 is an exploded view of the marker apparatus of FIG. 8, without the cartridge being shown therein;

FIGURE 10 is a side view, half in cross-section, of the component of the latter said marker apparatus in which the ink cartridge of FIG. 1 is supported; and

FIGURE 11 illustrates a base for a mount for the marker apparatus of FIG. 8.

The basic element with which the invention is concerned is an ink cartridge adapted for dispensing a marking ink suitable for use in marking apparatus in response to forces exerted laterally thereon.

The ink cartridge of the invention is preferably capable of storing a marking ink for an extended period of time without substantial loss through evaporation and with no loss due to leakage and is capable of responding to lateral forces of relatively low magnitudes for efficiently dispensing marking ink onto an inking pad or the like.

Two of the essential components of an ink cartridge of the invention are illustrated in FIG. 1 wherein is generally illustrated a cylinder **20** and a cap **22**, a plug or dispensing nozzle being hereinafter illustrated and described for use with the elements **20** and **22**.

The cylinder **20** is preferably blow molded from a plastic material such as polyethylene having a wall thickness in the general order of about $\frac{1}{32}$ of an inch in order to provide for flexibility. The blow molding technique is employed in order to provide a closed, one piece end **24** through which no leakage or evaporation can take place.

Cylinder **20**, in order to be able to respond to lateral forces for dispensing ink, is preferably provided with a length to maximum diameter ratio (L/M) of 5 to 7:1, a preferred ratio within this range being 3.25 inches to .5937 inch.

The cylinder **20** includes at the end thereof remote from end **24** a neck portion **26** of reduced diameter which defines with the main portion of the cylinder **20** a shoulder **28**.

Neck portion **26** is provided with an external thread **30** having a two-fold purpose as will become hereinafter apparent.

Neck portion **26** is, moreover, provided with a smooth internal bore **32** to accommodate a plug, or dispensing nozzle, as will hereinafter be shown.

The cylinder **20** is provided with the cap **22**, as aforesaid, said cap including a skirt portion **34** having an internal thread **36** adapted for threadably engaging the thread **30** of the cylinder **20**.

Moreover, cap **22** includes a central portion **38** having the shape of a cone and defining an interior conical recess **40** which serves to accommodate the dispensing nozzle, as will hereinafter be shown.

The dispensing nozzle, which is preferably fabricated of a plastic, is inserted after the cylinder **20** has been suitably charged with a conventional marking ink. The nozzle is received within the smooth internal bore **32** and is heat sealed according to a preferred embodiment of the invention to the cylinder **20** to provide a continuous fluid-tight and/or hermetic seal.

The cartridge thus formed may be stored with a cap **22**, the removal of which exposes the thread **30** for purposes of threadable engagement with a threaded support, as will hereinafter become apparent.

FIGURE 2 illustrates one of the preferred marking devices into which the inking cartridge described above is incorporated. This marking apparatus is shown with

the lower portion of its frame work broken away since the complete operational details of the marking apparatus are not essential to an understanding of this invention.

Generally speaking, however, the marking apparatus comprises a support frame **42**, the lower half of which is broken away, said support frame having a rectangular shape and being generally vertically disposed. Operatively associated with support frame **42** is a supplemental frame **44** which is slidably displaceable relative to frame **42**, as will be indicated.

To this end, the support frame **42** is provided with a slot (not shown) in which rides a pin **46**, the heads **48** and **50** of which retain the pin in engagement with supplemental frame **44**.

By reason of the shape of the slot in the support frame the pin **46** is given a rotary pivotal type of movement which is imparted to the marking means **52** connected thereto. The marking means is a conventional marking device consisting of a number of bands of rubber having numbers or other characters thereon and the active portion of which is adapted for being positioned upwardly against an inking pad (to be described hereinafter) in inking position or downwardly in a marking position for application to an article to be marked.

Support frame **42** detachably receives and supports an ink pad holder **54** which along with its auxiliary components is illustrated in greater detail in FIGS. 3–6.

The ink holder with a fibre spacer therein is shown in top plan view in FIG. 3 wherein is illustrated the two lip portions **56** and **58** thereof along with the handle **60** by means of which the holder is manipulated. As seen in this figure, the fibre spacer **62** arranged in the holder is provided with a central opening **64** with a circular arrangement of holes or openings **66** concentric therewith.

In FIG. 4 it is seen that a collar **68** protrudes from the main portion **70** of the holder, said collar being concentric with the opening **64** as shown by dotted lines in FIG. 3.

An end view of the fibre spacer **62** is given in FIG. 5, this fibre spacer being generally employed to give backing to the felt pad **72** illustrated in FIG. 6 with its flanges **74** and **76** adapted for being positioned beneath lips **56** and **58**.

As is best seen in FIG. 2, the ink pad **72** is open downwardly to enable contact by marking means **52**, the ink pad being exposed upwardly through the opening **64** in fibre spacer **62** as well as through holes **66** and also through the collar **68**.

Rigidly mounted on the support frame **42** is a sleeve **78** engaged with support frame **42** by means of a lip **80**. Said sleeve has a threaded internal portion **82** above which are located two diametrically opposed holes of which the hole **84** is illustrated.

The marking apparatus employs an ink cartridge of the aforedescribed type. Such an ink cartridge is indicated generally by reference character **86**. As noted above, it includes an elongated cylinder **88** having a threaded neck **90**. The threaded neck **90** of cylinder **88** is in threaded engagement with the threaded portion **82** of sleeve **78** so that the ink cartridge **86** is held firmly in position.

FIG. 2 of course illustrates the ink cartridge with the cap removed and serves additionally to illustrate the plug or dispensing nozzle **92** referred to above. This nozzle is accommodated within the neck portion of the cylinder **88** and is heat-sealed thereto. It includes a generally conical tip **94** having therein a passageway **96** which communicates with the interior of the cylinder **88**. Said passageway is preferably, for marking inks of conventional type, of the order of .010 to .015 inch which is small enough to prevent a discharge of ink under the sole influence of gravity and until a lateral dispensing force is applied to the cylinder **88**.

A hollow tubular handle **98** is threadably engaged atop supplemental frame **44** by means of engaged thread **100**. In the top of the hollow handle **98** is threadably engaged

a cap 102 against which seats a spring 104 of the helical compression type. This spring encircles the cylinder 88 of ink cartridge 86 and seats against the upper end 106 of sleeve 78 so that it is effective to urge frames 42 and 44 apart, with the marking means 52 being urged to inking position against the ink pad 72.

With the frames urged by spring 104 to predetermined relative limit positions, holes 84 are positioned above where they are illustrated in FIG. 2 and are therefore out of alignment with push buttons 108 and 110. Manual operation of these buttons will therefore merely bring the same against the exterior surface of sleeve 78 and the buttons will not be effective to enter the holes 84 and engage the cylinder 88.

With a downward force exerted against cap 102, the buttons 108 and 110 will be brought into alignment with holes 84 such that manual forces exerted on these buttons will bring them to bear against the sides of cylinder 88 whereupon the increased pressure within the ink cartridge will cause ink to be dispensed via passageway 96 onto ink pad 72.

Details of a push button assembly suitable for the above operation appear in FIG. 7 wherein is shown a cylindrical frame 112 adapted for accommodating a push button, say 108, therein for slidable displacement. Said push button is encircled by a spring 114 seating against a shoulder 116 at one end and a ring 118 at the other end, button 108 being displaceable relative to cylindrical frame 112 to the extent necessary to penetrate openings 84 to engage cartridge 86 (FIG. 2).

Shoulder 120 on frame 112 (FIG. 7) engages against supplemental frame 44 and frame 112 may be affixed to the frame 44 by a supplemental ring (not shown).

In ink dispensing arrangements heretofore employed, the ink dispensing forces have generally been applied at the upper end of the cartridge. This has not been found satisfactory when the ink supply in the associated cartridge is nearing its point of exhaustion. The lateral forces employed according to the invention enable ink to be discharged efficiently and effectively irrespective of the amount remaining within the cartridge. Moreover, it has been found of great advantage to position the controlling elements for ink dispensing remote from the zone at which pressure is applied to operate the marker apparatus.

A second form of marker device provided in accordance with the invention is illustrated in FIGS. 8–11.

The second marker device is illustrated in FIG. 8 as comprising an outer tubular holder 200 obturated at its upper end by a closure member 202 and including as lower extremity a cartridge mount 204 in the bottom of which is a porous marking element 206.

The construction of the tubular holder 200 is better seen in FIG. 9 wherein it is clear that this element is a right cylinder having an internal bore 208, said element being preferably fabricated of a generally rigid material such as styrene, metal or the like.

It will be further observed that the lower extremity of the holder 200 is constituted by a threaded portion 210, the purpose of which is to engage the threaded internal portion 212 of the mount 204 which consists of generally concentric elements 216 and 218, the element 216 being the outer concentric element and the element 218 being the inner concentric element.

Elements 216 and 218 are rigidly held in fixed relationship by a web 220 which constitutes the bottom of a recess 222 in which porous marking element 206 is accommodated.

The outer concentric element 216 is provided with the above noted thread 212 which threadably engages the threaded portion 210 at the lower end of holder 200. Inner concentric element 218 is also provided with an internal thread 224, the purpose of which is to engage the threaded neck 226 of an ink cartridge 228 of the type described in detail above.

Inner concentric element 218 is also provided with a conical recess 230, the purpose of which is to receive the generally conically shaped dispensing nozzle 232 on the cartridge 228. At the bottom of conical recess 230 is an opening 234 by means of which ink is discharged directly on to the porous marking element 206 which is fabricated of a porous material such as rubber having interconnecting cells such that ink discharged on top of the same will be dispersed throughout the element whereby it may be applied via the operative face 236 arranged to represent some intelligence.

The top of holder 200 is, as aforesaid, obturated by closure 202 which, for this purpose, is provided with a skirted portion 238 which fits over the bore 208 of holder 200, a washer 240 providing for a seal therebetween.

FIG. 10 illustrates the mount 204 in greater detail and in this figure can be readily viewed the construction of the concentric elements 216 and 218 with the web 220 therebetween, as well as a flange 242 peripherally bordering the recess 222 which is adapted to receive the above noted porous marking element. The mount 204 may be fabricated of a relatively rigid material such as styrene, although metal, hard rubber and the like, would also be satisfactory.

It will be noted that the mount 204 is provided with a knurl-like configuration as indicated at 244, this facilitating the engaging and disengaging of the holder 200 and the mount 204.

FIG. 11 illustrates a holder mechanism or base for the aforesaid marking device, this consisting generally of a bottom 246 and a top 248, the latter of which is provided with a frusto-conical wall 250 defining an opening in which is accommodated the mount 204 with the holder 200 in upright position. Mount 204 is inserted into the opening defined by wall 250 to the extent that porous element 206 is brought into contact with a firm rubber pad 252 positioned on the aforesaid bottom 246.

The material from which the porous element 206 is made can be any conventional material having interconnected cells such that ink discharged thereon will be dispersed through the same. Thus when it is necessary to remove the supply of ink in porous element 206, handle 200 is disengaged from mount 204 to expose the ink cartridge 208 which is rigidly maintained in available position by inner concentric element 218. A manually exerted lateral pressure on cartridge 228 will discharge ink through nozzle 232 via opening 234 on to porous element 206. Any excess will be absorbed by pad 252 when the marker device is in its holder.

When a conventional ink is employed in cartridge 228 the opening through nozzle 232 will be in the order of .010–.015", whereby the capillary action along with the pressure differential will be sufficient to retain the ink supply within the cartridge despite the fact that nozzle 232 opens downwardly.

In the above description there has been disclosed an ink cartridge suitable for use in many and varied applications. Two of these applications have been illustrated. It will be appreciated that the ink cartridge of the invention is stored prior to use or incorporation into a marker device with its cap firmly in position but readily removed simply by unscrewing.

Once the threaded neck of the ink cartridge of the invention has been exposed by removal of the cap, its threaded neck is then available for supporting the cartridge in position in an appropriately designed marker device.

According to one embodiment of the invention, there is provided a semi-automatic marker device having a threaded receptacle for an ink cartridge of the invention, the ink cartridge being exposed to diametral and lateral forces applied thereto by means of push buttons which are selectively brought into alignment with diametrically opposed holes in an associated sleeve.

In accordance with another embodiment of the invention, the ink cartridge thereof is accommodated within a substantially rigid tube which is removed when the ink cartridge is to be used so as to expose the cartridge for manually applied diametral forces.

The fabricating of the ink cartridge of the invention with one wholly closed integral end minimizes the possibility of loss by means of leakage or evaporation, the threadably engaged cap also preventing evaporation and leakage throughout the storage period.

The twofold function of the threaded neck of the cartridge in both accommodating a closure cap and in providing for rigidly maintaining the cartridge in ready position of availability constitutes a feature of the invention which, along with the employing of diametral forces to discharge the cartridge, results in a new improved structure.

There will now be obvious to those skilled in the art many modifications and variations of the structures and methods set forth above. These modifications and variations will not depart from the scope of the invention if defined by the following claims.

What is claimed is:

1. Marker apparatus comprising a support frame, an ink pad support on said frame and including an upwardly opening collar, an ink pad in said support and exposed upwardly through said collar, a supplemental frame displaceable on said support frame, marking means supported by said supplemental frame within said support frame, said marking means being responsive to relative movement between the frames for being displaced between an inking position directed upwardly into engagement with said pad and a marking position facing downwardly away from said pad, a cartridge sleeve extending upwardly from the support frame in alignment with said collar, said sleeve including an internal threaded portion and having an opening spaced above said threaded portion, an ink cartridge including an external thread engaged with the threaded portion in the sleeve and further including a dispensing nozzle directed through said collar towards said pad, a spring effective between the frames to urge the supplemental frame to a position whereat the marking means is in inking position, and a push button diametrally aligned relative to said sleeve and adapted for insertion into said opening in said sleeve to engage said cartridge.

2. Marker apparatus comprising a generally vertical support frame, a horizontal ink pad support removably affixed on said frame and including an upwardly opening collar, a horizontal fibre spacer in said pad support below the collar and having an opening therein corresponding to said collar and a circle of smaller openings encircling the first said opening, a felt ink pad in support against said spacer and exposed upwardly through said openings and collar, a supplemental frame vertical displaceable on said support frame, marking means supported by said supplemental frame within said support frame, said marking means being responsive to relative movement between the frames for being displaced between an inking position in engagement with said pad and a marking position facing away from said pad, a cartridge sleeve extending upwardly from the support frame in alignment with said collar, said sleeve including an internal threaded portion and having diametrally opposed openings spaced above said threaded portion, an ink cartridge including an external thread engaged with the threaded portion in the sleeve and further including a dispensing nozzle protruding through said collar and the first said opening in the spacer towards said pad, a spring effective between the frames to urge the supplemental frame to a position whereat the marking means is in inking position, and push buttons coaxially aligned on the supplemental frame and diametrally aligned relative to said sleeve, said push buttons being adapted for alignment with and insertion into said openings in said sleeve to engage the cartridge with said frames in a predetermined relationship.

3. Marker apparatus comprising a generally vertical support frame, a horizontal ink pad support removably affixed on said frame and including an upwardly opening collar, a felt ink pad in said support and exposed upwardly through said collar, a supplemental frame vertically displaceable on said support frame, marking means supported by said supplemental frame within said support frame, said marking means being responsive to relative movement between the frames for being displaced between an inking position in engagement with said pad and a marking position facing away from said pad, a cartridge sleeve extending upwardly from the support frame in alignment with said collar, said sleeve including an internal threaded portion and having diametrically opposed openings above said threaded portion, an ink cartridge including an external thread engaged with the threaded portion in the sleeve and further including a dispensing nozzle directed through said collar towards said pad, a hollow handle extending upwardly from said supplemental frame and slidably receiving the sleeve, a cap threadably engaged on the handle, a spring in the handle effective between the cap and support frame to urge the supplemental frame to a postion whereat the marking means is in inking position, and push button coaxially aligned on the supplemental frame and diametrically aligned relative to said sleeve, said push buttons being adapted for alignment with and insertion into said openings in said sleeve with said frames in a predetermined relationship.

4. Marker apparatus comprising a generally vertical support frame, a horizontal ink pad support removably affixed on said frame and including an upwardly opening collar, a horizontal fibre spacer in said pad support below the collar and having an opening therein corresponding to said collar and a circle of smaller openings encircling the first said opening, a felt ink pad in said support against said spacer and exposed upwardly through said openings and collar, a supplemental frame vertically displaceable on said support frame, marking means supported by said supplemental frame within said support frame, said marking means being responsive to relative movement between the frames for being displaced between an inking position in engagement with said pad and a marking position facing away from said pad, a cartridge sleeve extending upwardly from the support frame in alignment with said collar, said sleeve including an internal threaded portion and having diametrically opposed openings spaced above said threaded portion, an ink cartridge engaged with the threaded portion in the sleeve and further including a dispensing nozzle protruding through said collar and the first said opening in the spacer towards said pad, a hollow handle extending upwardly from said supplemental frame and slidably receiving the sleeve, a cap threadably engaged on the handle, a spring in the handle effective between the cap and support frame to urge the supplemental frame to a position whereat the marking means is in inking position, push buttons coaxially aligned on the supplemental frame and diametrally aligned relative to said sleeve, said push buttons being adapted for alignment with and insertion into said openings in said sleeves with said frames in a predetermined relationship at which the marking means is removed from inking position, and springs urging the push buttons outwardly away from said sleeve, said push button being displaceable through said opposed openings against the cartridge.

5. Marker apparatus comprising a generally vertical support frame, a horizontal ink pad support removably affixed on said frame and including an upwardly opening collar, a horizontal fibre spacer in said pad support below the collar and having an opening therein corresponding to said collar and a circle of smaller openings encircling the first said opening, a felt ink pad in said support against said spacer and exposed upwardly through said openings

and collar, a supplemental frame vertically displaceable on said support frame, marking means supported by said supplemental frame within said support frame, said marking means being responsive to relative movement between the frames for being displaced between an inking position in engagement with said pad and a marking position facing away from said pad, a cartridge sleeve extending upwardly from the support frame in alignment with said collar, said sleeve including an internal threaded portion and having diametrally opposed openings spaced above said threaded portion; an ink cartridge comprising an elongated plastic cylinder including a neck portion and a closed end portion at respective extremities thereof, said neck portion including an external thread, a polyethylene plug in and sealed to said neck portion and including a generally conical tip protruding from said neck portion, said plug having therein a passage communicating with the interior of said cylinder, and a marking ink in the cylinder; the external thread on said neck portion being engaged with the threaded portion in the sleeve with the conical tip protruding through said collar and the first said opening in the spacer towards said pad and with said cylinder extending through said sleeve, a hollow handle extending upwardly from said supplemental frame and slidably receiving the sleeve with the cylinder therein, a cap threadably engaged on the handle, a spring in the handle effective between the cap and support frame to urge the supplemental frame to a position whereat the marking means is in inking position, push buttons coaxially aligned on the supplemental frame and diametrally aligned relative to said sleeve, said push buttons being adapted for alignment with and insertion into said openings in said sleeve with said frames in a predetermined relationship at which the marking means is removed from inking position, and springs urging the push buttons outwardly away from said sleeve, said push buttons being displaceable through said opposed openings against the cartridge cylinder to eject ink via said tip onto said pad.

6. Marker apparatus comprising a generally vertical support frame, a horizontal ink pad support removably affixed on said frame and including an upwardly opening collar, a horizontal fibre spacer in said pad support below the collar and having an opening therein corresponding to said collar and a circle of smaller openings encircling the first said opening, a felt ink pad in said support against said spacer and exposed upwardly through said openings and collar, a supplemental frame vertically displaceable on said support frame, marking means supported by said supplemental frame within said support frame, said marking means being responsive to relative movement between the frames for being displaced between an inking position in engagement with said pad and a marking position facing away from said pad, a cartridge sleeve extending upwardly from the support frame in alignment with said collar, said sleeve including an internal threaded portion and having diametrally opposed openings spaced above said threaded portion; an ink cartridge comprising an elongated cylinder of polyethylene having a length to

maximum diameter ratio of about 5 to 7:1, said cylinder including a neck portion of reduced diameter defining an opening and a closed end portion at respective extremities thereof, said neck portion including an external thread and having a smooth internal bore, a polyethylene plug in said bore continuously and hermetically sealed to said neck portion and including a generally conical tip protruding from said bore, said plug having therein a passage of about .010 to .015 inch communicating with the interior of said cylinder, and a marking ink in the cylinder; the external thread on said neck portion being engaged with the threaded portion in the sleeve with the conical tip protruding through said collar and the first said opening in the spacer towards said pad and with said cylinder extending through said sleeve, a hollow handle extending upwardly from said supplemental frame and slidably receiving the sleeve with the cylinder thereon, a cap threadably engaged on the handle, a spring in the handle effective between the cap and support frame to urge the supplemental frame to a position whereat the marking means is in inking position, push buttons coaxially aligned on the supplemental frame and diametrically aligned relative to said sleeve, said push buttons being adapted for alignment with and insertion into said openings in said sleeve with said frames in a predetermined relationship at which the marking means is removed from inking position, and springs urging the push buttons outwardly away from said sleeve, said push buttons being displaceable through said opposed openings against the cartridge cylinder to eject ink via said tip onto said pad.

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