Aug. 14, 1956 W. E. MORRIS ET AL 2,758,723

CONTAINER TUBE SUPPORT

Filed Sept. 27, 1952

Fig. 1

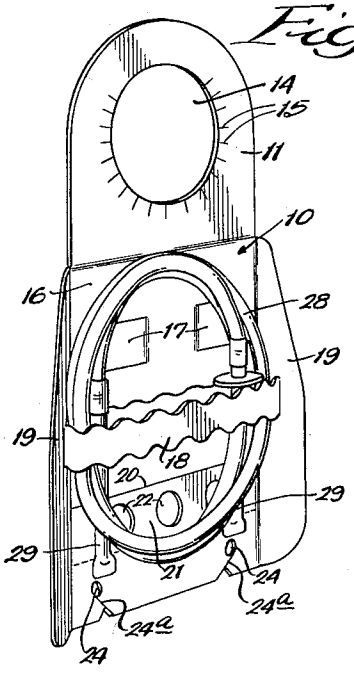


Fig. 2

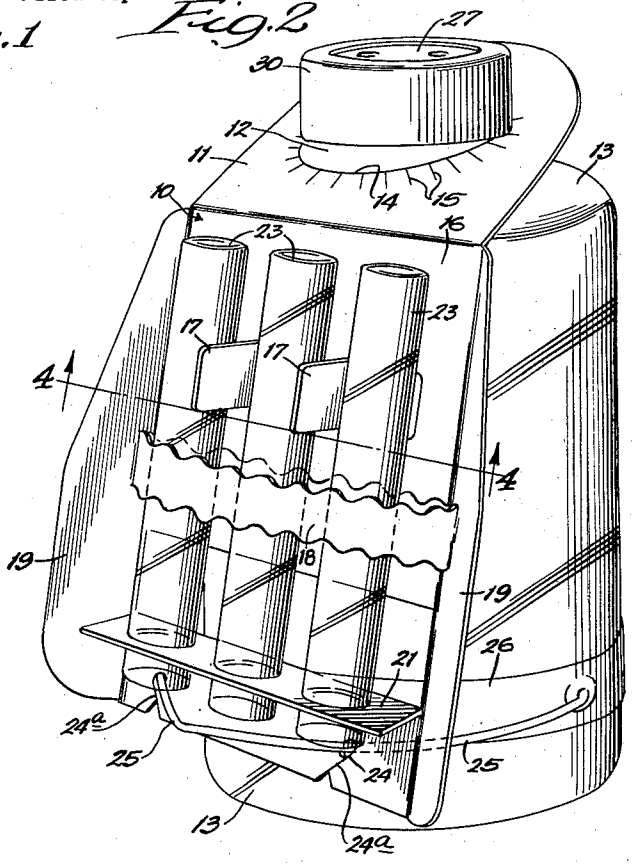


Fig. 3

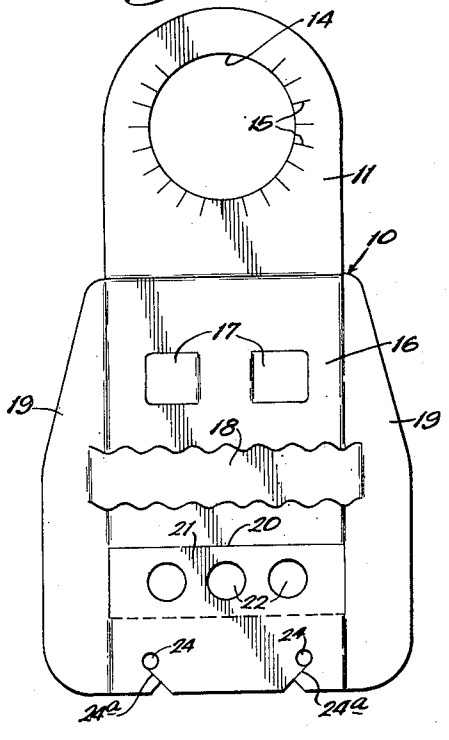
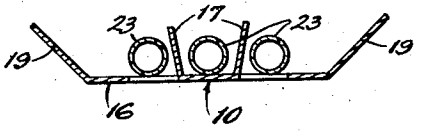


Fig. 4



INVENTORS:
William E. Morris and
Theodore R. Gewecke
BY Dawson, Tilton & Graham,
ATTORNEYS

United States Patent Office

2,758,723

Patented Aug. 14, 1956

2,758,723

CONTAINER TUBE SUPPORT

William E. Morris, Evanston, and Theodore H. Gewecke, Glenview, Ill., assignors to Baxter Laboratories, Inc., Morton Grove, Ill., a corporation of Delaware

Application September 27, 1952, Serial No. 311,922

2 Claims. (Cl. 211—73)

This invention relates to a container tube support, and more particularly to a card support for tubes adapted to be secured to a bail-equipped bottle. The invention is particularly useful in connection with a container for blood plasma and the like, and for the supporting of test tubes employed in connection with the testing of blood.

An object of the invention is to provide a tube support adapted to support tubes firmly upon a container. A further object is to provide a collapsible support which may be readily attached to a bottle for firm support thereon while providing means for receiving test tubes upon the support. Yet another object is to provide a support adapted to be employed with a container having a neck portion and a bail secured to its bottom portion, the support being equipped with means for engaging the neck of the container and with means at its opposite end for engaging the bail of the container to provide a tube support. A still further object is to provide a card support adapted to receive a tube and needle combination to protect the same during shipment and adapted also to be unfolded to provide a tube support adapted to be secured firmly to a bottle. Other specific objects and advantages will appear as the specification proceeds.

The invention is shown in an illustrative embodiment by the accompanying drawing, in which—

Figure 1 is a perspective view of a card support arranged for supporting a tube and needle structure; Fig. 2, a perspective view showing the tube and needle structure removed and the support folded for engagement with the container and receiving test tubes thereon; Fig. 3, a top plan view of the cardboard support after the board has been die cut and before the structure has been bent to the positions illustrated in Figs. 1 and 2; and Fig. 4, a transverse sectional view, the section being taken as indicated at line 4—4 of Fig. 2.

While the holder may be formed, if desired, of separate parts secured together, we prefer to use a single die cut board **10**, as illustrated in Fig. 3. In this structure, the board is provided with a top flange **11**, which is adapted to be folded backward to almost a horizontal position for engagement with the neck **12** of a bottle **13**. The flange **11** is provided with a central aperture **14** and we prefer to provide the flange **11** about the aperture **13** with a series of slits **15** for facilitating the extension of the flange over the neck **12** of the bottle **13**.

The main body portion **16** of the support is provided centrally with two spaced tabs **17** which may be drawn forwardly to provide dividers, as illustrated more clearly in Fig. 2. Below the tabs, we provide a scalloped band **18** which is adapted to be employed as a holder for articles, as will be later described. The band **18** extends laterally into the folded sides **19** of the support, whereby inward movement of the sides **19** cause the holder band **18** to move forwardly in spaced relation from the body wall **16** of the support. The board is cut along U-shaped line **20** to provide a tube platform **21**, as shown more clearly in Fig. 2, and the platform is provided with openings **22** adapted to receive test tubes **23**. Near the bottom, the

support panel **16** is provided with a pair of spaced openings **24** connected to the bottom of the panel by an inclined slit **24a**. The openings **24** are adapted to receive the bail **25**, which is connected by a band **26** to the bottom portion of the bottle **13**.

The bottle **13** is a container used commonly for receiving and storing blood and later for dispensing the blood. The band **26** is received within an annular recess within the bottle, and the bail **25** is pivotally secured to the band **26**. Since this structure is well known, a further detailed description is believed unnecessary.

The container **13** may be of any general type employed for dispensing liquids, but we have found that the invention herein is advantageously employed in connection with containers which are used for the collection of blood. Such a container is evacuated and sealed in evacuated condition, employing a rubber or resilient closure **27**. A tube having needles at both ends is employed to connect the interior of the container with the vein of the donor, one needle entering the vein and the other needle being passed through the resilient closure or diaphragm thereof so as to communicate with the interior of the container. The partial vacuum within the container facilitates the withdrawal of blood.

We have found that the support **10** is useful for packaging and protecting the tube and needles required for the withdrawal of blood. In Fig. 1, the holder band **18** is shown receiving the tube **28**, and the protector tubes or needle holders **29** within which the needles are sealed in sterile condition. Since the tube **28** is sterilized prior to packaging and connected with needle adapters carrying sterilized needles, it is only necessary for the medical attendants to remove the protector tubes **29** about the needles and the tube and needles are immediately ready for use.

The support **10** may, after removal of the tube and needles, be folded into the position shown in Fig. 2 with the flange **11** turned rearwardly to bring the opening **14** thereof over the neck **12** of the bottle. Ordinarily, a metal closure cap or ring **30** engages the top portion of the neck and the flange **11** partially engages such a ring. The sides **19** of the support are swung inwardly, causing the band **18** to flex forwardly. At the same time, the tube holder platform **21** is swung to the horizontal position shown in Fig. 2, and the dividers **17** are swung forwardly, as illustrated in Fig. 2. The test tubes **23** are thus received in spaced relation, with their lower ends extending through the openings **22** of the platform **21** and with the tubes held securely against the support by the band **18**. The tendency for the side flanges **19** of the support to return to their normal position aligned with the body panel **16** causes the band **18** to be resiliently urged against the tubes to hold them tightly against the support. At the same time, the side flanges **19**, into which the band **18** partially extends, form a means for flexing the band **18** forwardly when it is desired to insert or remove the tubes **23**.

The lower portion of the body panel **16** is held inwardly against the bottle **13** by the engagement of bail **25** with the openings **24** in the lower portion of the panel, as illustrated in Fig. 2. Thus a very firm support is provided for the tubes upon the bottle, the weight and size of the bottle providing thus a very strong support for the tubes. After the tests have been made, the support **10** may be discarded and a new support used in connection with another group of containers.

The board or sheet structure **10** is preferably formed from one integral structure, but may, if desired, be formed by combining various parts. In the structure shown, we have provided a single die cut sheet of cardboard, from which the various supporting structures are struck. It will be understood that any suitable material such as

cardboard, plastic, thin metal, and a variety of other materials, may be used, if desired.

While in the foregoing specification, we have shown a specific structure in considerable detail for the purpose of illustrating an embodiment of the invention, it will be understood that such details of structure may be varied widely by those skilled in the art without departing from the spirit of our invention.

We claim:

1. A support structure adapted in one form to mount and protect a tube and needle combination, and in another form adapted to receive and support blood sample test tubes while said support is affixed to a blood collection bottle comprising a flat board equipped with integral resilient side flanges normally urged to a position of alignment with said board, a band connecting said side flanges, said band being in different spaced relation to said board upon different flexing of said flanges, permitting ready insertion and removal of said tube and needle combination and said test tubes, an aperture in said board for affixing said board to the neck of a blood collection bottle, and spacer flanges in said board foldable out of alignment with said board, said spacer flanges, flanges, band, and board all cooperating to mount said test tubes securely against inadvertent displacement.

2. A support for a blood sample tube comprising a board equipped with resilient side flanges normally urged toward a position aligned with said board, a band connecting said side flanges, said band and said flanges cooperating with said board to mount blood sample test tubes, spacer flanges in said board above said band foldable out of alignment with said board, a horizontal platform foldable out of alignment with said board and apertured to receive said test tubes, and a rearwardly extending horizontal flange apertured to adapt it for receiving the neck of a blood collection bottle, the lower portion of said support being also provided with spaced apertures for receiving a bail attached to said bottle.

References Cited in the file of this patent

UNITED STATES PATENTS

255,399	Upham	Mar. 21, 1882
361,583	Fleming	Apr. 19, 1887
1,086,200	Michie	Feb. 3, 1914
1,276,735	Devney	Aug. 27, 1918
1,684,753	Zareko	Sept. 18, 1928
1,687,859	Fontaine	Oct. 16, 1928
1,941,071	Baxter	Dec. 26, 1933
1,971,528	Klebanow	Aug. 28, 1934
2,042,351	Mehaffey	May 26, 1936
2,084,635	Friedrich et al.	June 22, 1937
2,135,093	Abrams	Nov. 1, 1938
2,250,666	Godefroy	July 29, 1941
2,340,719	Walter	Feb. 1, 1944
2,341,570	Reachi	Feb. 15, 1944
2,474,543	McLellan	June 28, 1949
2,598,492	Boes	May 27, 1952
2,606,654	Davis et al.	Aug. 12, 1952
2,616,558	Kay	Nov. 4, 1952

FOREIGN PATENTS

375,775	France	May 22, 1907
756,121	France	May 26, 1933