July 15, 1969 R. L. PROPST ET AL 3,455,529

DISPOSABLE WASTE HOLDER

Filed July 28, 1966 2 Sheets-Sheet 1

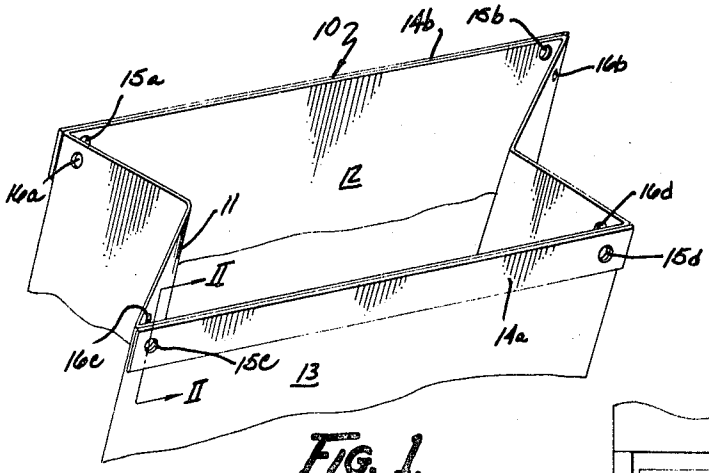


FIG. 1.

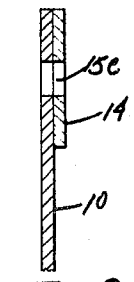


FIG. 2.

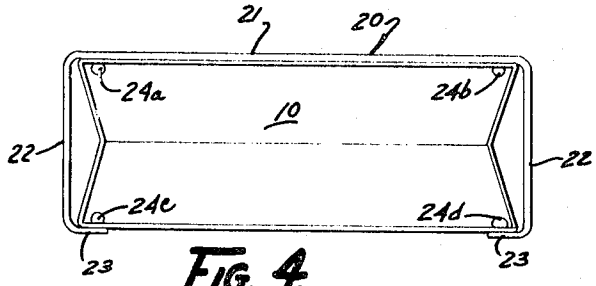


FIG. 4.

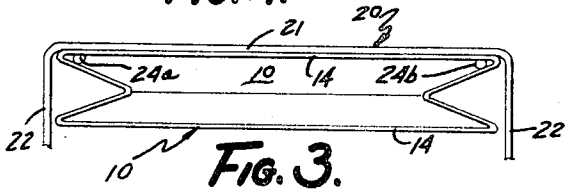


FIG. 3.

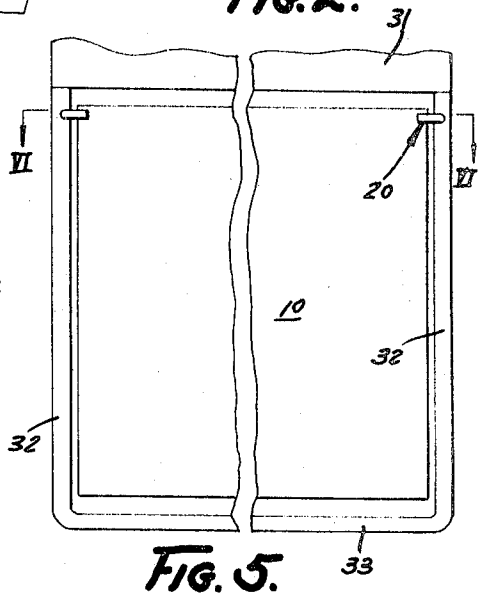


FIG. 5.

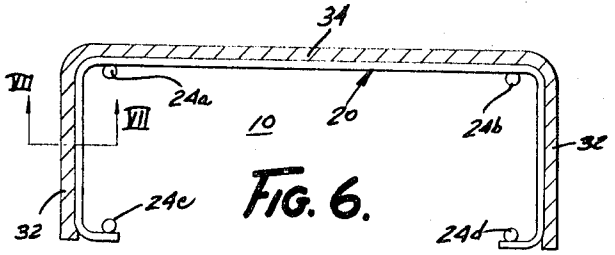


FIG. 6.

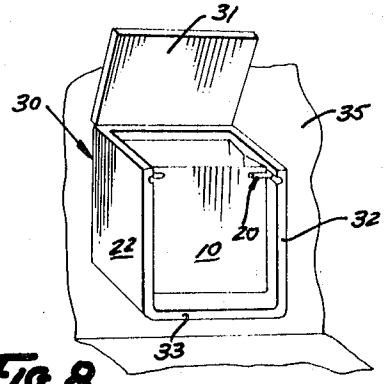


FIG. 8.

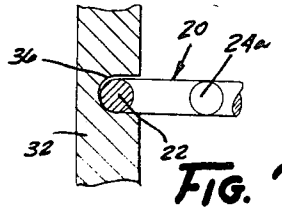


FIG. 7.

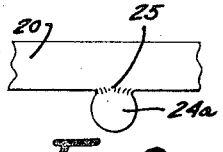


FIG. 9.

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DISPOSABLE WASTE HOLDER

Filed July 28, 1966 2 Sheets-Sheet 2

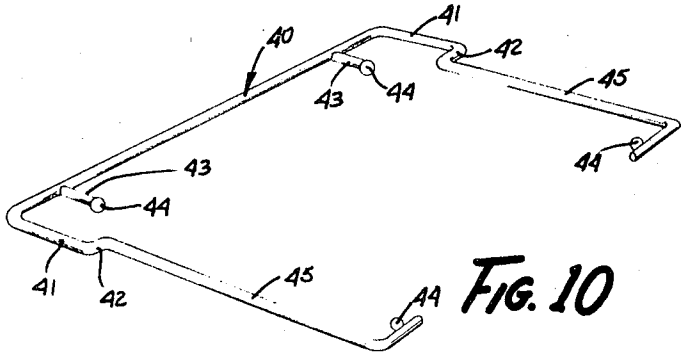


FIG. 10

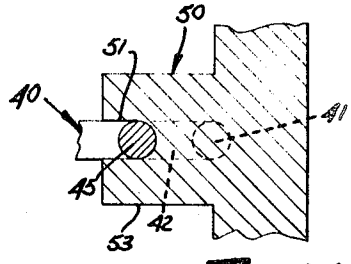


FIG. 14

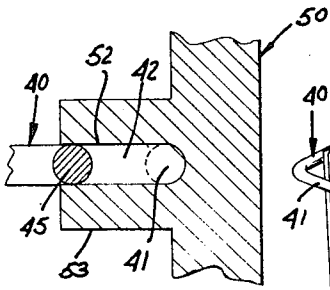


FIG. 13

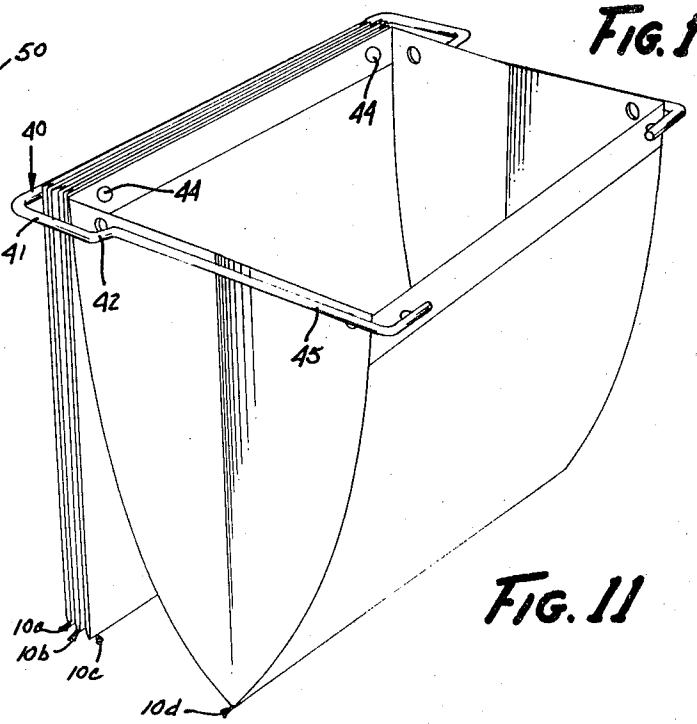


FIG. 11

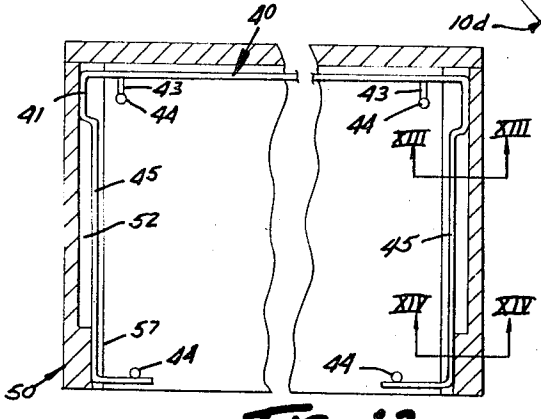


FIG. 12

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DISPOSABLE WASTE HOLDER

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U.S. Cl. 248—100 8 Claims

ABSTRACT OF THE DISCLOSURE

A disposable waste structure comprising a supporting frame adapted to be mounted either in exposed fashion on a wall or within a cabinet in slidable fashion. The structure is provided at its interior with a series of spherical bagged keepers from which disposable paper or the like bags are suspended with the mouth of the bag in open fashion. The rear keepers have a neck section of sufficient size to permit storage of bags thereon for sequential use within the structure. It is understood that this abstract is not to be utilized to limit the scope of this disclosure.

This invention relates to waste holders and, more particularly, to disposable waste holders which may be discarded along with the articles which have been deposited in them when they are filled.

In a number of different types of institutions, particularly in hospitals, a great deal of emphasis is accorded to premise sterility. That is to say, that any accumulation of germs in a particular area is highly undesirable, particularly where the environment is such that these germs may be spread by body contact, air and the like. A particular problem has been encountered insofar as regards the disposal of waste products such as tissues, disposable sheets, and disposable towels. In any given room these articles may, and usually are, deposited in suitable waste containers which are periodically emptied. It is rather obvious that these containers become contaminated through this process and must be periodically disinfected in order to maintain minimum sterility standards.

The particular container which is utilized for intermittent storage of the disposables may take the form of a conventional metal can, a launderable cloth bag, or any of several other types of suitable containers. Each time these containers are emptied, and particularly when patients within a given room are changed, these containers must be sterilized along with the entire room, an operation involving much expense and an unusual amount of direct labor costs.

In order to simplify the decontaminating procedures for these types of disposal units, it has become customary in many hospitals to utilize disposable bags for lining the containers in which the waste materials are to be deposited. When a particular bag is filled, it is simply removed from the container and discarded along with the waste materials contained therein. While these disposable bags have done a great deal towards improving the sterility conditions of waste disposals and reducing the labor costs involved in sterilizing them, they have not proved satisfactory for a variety of reasons.

First, and perhaps most important, no means have ever been developed whereby the liner bags may be easily affixed at their opening edges to the container in which they are intended to serve as a liner. Secondly, even though the container has been lined, the relatively high sterility requirements necessitate sterilization of the container itself with each change of patient and sometimes at each change of liner. Thirdly, once the lines

have been positioned within the container they have a tendency to tear away at their opening edges, thus allowing waste material to spill into the container and further contaminate it. Fourthly, when the bags are being removed for disposal they tend to tear easily, often resulting in waste material being scattered, not only on the inside of the container itself, but over the surrounding premises.

Another problem with existing liners is that they are difficult to manipulate, often forcing the operator to come into contact with the waste materials when attempting to remove and close the liner.

The rather obvious solution to a number of the prior art defects outlined above, is to fabricate the bag or liner from a heavier material which will not be so susceptible to ripping and tearing when being handled. This solution, however has not been practical heretofore because of the lack of suitable means for affixing the relatively unpliable opening edges of the bag to the container.

This invention eliminates these problems by providing a readily removable liner support so designed that the liner can be readily attached and removed without rupture of the liner and without contact between the operator's hands and the liner's contents. It permits the liner to be closed before it is fully detached from its support. The invention permits the top or mouth of the liner to be so reinforced that ripping is prevented, handling is facilitated, and yet the main body of the container remains sufficiently flexible to be readily handled.

These and other objects of this invention will be fully understood by reference to the following specification and accompanying drawings in which:

FIG. 1 is a fragmentary perspective view of the top of the liner bag;

FIG. 2 is a fragmentary cross-sectional view taken along the plane II—II of FIG. 1;

FIG. 3 is a fragmentary plan view illustrating the manner in which the liner bag is attached or removed from its supporting frame;

FIG. 4 is a plan-view of the support frame with the liner bag attached thereto;

FIG. 5 is a front-elevational view of a typical cabinet fixture having the support frame and disposable bag positioned therein;

FIG. 6 is a cross-sectional view taken along the plane VI—VI of FIG. 5;

FIG. 7 is a fragmentary cross-sectional view taken along plane VII—VII of FIG. 6;

FIG. 8 is a fragmentary perspective view of a wall showing the cabinet fixture affixed thereto;

FIG. 9 is a fragmentary plan view indicating the shape of the keeper elements and the manner in which they are affixed to the support bar;

FIG. 10 is a perspective view of a modified support frame;

FIG. 11 is a perspective view of the modified support frame having a number of disposable containers mounted thereon;

FIG. 12 is a broken plan view partially in cross-section of a modified storage cabinet designed for reception of the modified support frame;

FIG. 13 is a fragmentary cross-sectional view taken along line XIII—XIII of FIG. 12; and

FIG. 14 is a fragmentary cross-sectional view taken along line XIV—XIV of FIG. 12.

Briefly, this invention utilizes a cabinet-like fixture, preferably detachably wall-hung, having a support frame slidably disposed therein and supported thereby. The support frame has a plurality of bag keeper elements affixed thereto which mate in accordian fashion with the keeper apertures in the disposable bag. The keeper elements are disposed on the frame such that they engage the bag as it

is moved into open position and release the bag as it is moved into the closed position.

Referring now to the figures, a preferred embodiment of this invention will be described in detail. FIG. 1 shows the upper section of a bag **10** having accordian folded sides **11**. Bag **10** has a back panel **12** and a front panel **13** which are connected in conventional manner by the accordian folding sides **11**. Reinforcing strips **14** and **14***a* are secured such as by gluing to the outer upper edges of each of the back and front panels respectively as indicated in FIG. 1. In these strips are punched a plurality of supporting apertures **15***a*, **15***b*, **15***c* and **15***d*. These supporting apertures may be punched conveniently by merely forcing two ties into the bag when its sides **11** are in closed position. This, of course, results in a series of closure and guide apertures **16***a*, **16***b*, **16***c* and **16***d* in the side walls of the liner. The relative alignment of the supporting apertures and the closure and guide apertures are such that when the top of the bag is in folded position—i.e. with the accordian sides collapsed—the four apertures on each side thereof will be aligned. Thus, the punching operation may be effected in a single stroke, forming all the apertures simultaneously. The bottom of the bag (not shown) is preferably pointed so as to permit opening and closing of the mouth thereof with relative ease.

Referring now to FIGS. 3, 4 and 9, the support frame **20** has a rear section **21**, a pair of sides sections **22** extending perpendicularly therefrom at the extremeties thereof, and a pair of short front sections **23**, which converge towards each other parallel to rear section **21**. The support frame is preferably bent from a single piece of material which may be rod or tube and may have any convenient cross-sectional configuration.

Affixed to each of the inner facing surfaces of rear section **21** and front sections **23**, are a pair of keeper knobs or elements **24***a*, **24***b*, **24***c* and **24***d*. As indicated best in FIG. 9, keeper elements **24** are spherical in shape and are affixed to their respective support frame sections by any convenient means such as welding. Such welding forms a shoulder **25**, which supports the bag after its keeper receiving aperture **15** has been pushed over the keeper. The spherical shape of the knobs **24** provides a smoothly increasing cross section at either side thereof to assist in placing the bag thereonto or removing it therefrom without fear of tearing the boundary portions of apertures **24**. The apertures **15***a*, **15***b*, **15***c* and **15***d* are punched slightly smaller than the keeper knobs. This creates a slight resistance to installation and a small but positive restraint against detachment.

Referring now to FIGS. 5, 6, 7, and 8, there is shown a cabinet-like fixture **30**, having a hingedly mounted top **31**, sides **32** and a back **34**. A bottom **33** is illustrated, but it is not essential. Back **34** may be hung on the wall **35** in any conventional manner. The bottom **33** is preferably elevated from the floor to facilitate cleaning thereunder.

As shown best in FIGS. 6 and 7, support frame **20** is slidably received within sides **32** of cabinet **30** by means of a pair of facing grooves **36**, which preferably extend the entire depth of the cabinet-like fixture **30**. Support frame **20** may be slid into fixture **30** by merely aligning its rear section **21** with the facing grooves **36** and pushing it rearwardly. The sides sections **22** of support frame **20** are slidably engaged by receiving grooves **36** and thus positive vertical support within fixture **30**. It will be obvious, that when support bar **20** is utilized in this fashion, it must be fabricated from sufficiently rigid material to retain side sections **22** in their expanded position, and preventing the front of the support frame from being pulled free of receiving grooves **36**.

In use, support fixture **30** is mounted on any convenient wall within the confines of the room to be serviced. Its open front allows its inner faces to be thoroughly and easily disinfected prior to insertion of support bar **20**. A sterilized support bar is then slidably inserted into retaining grooves **36** by merely holding it horizontally and sliding it through the open front of fixture **30** into the grooves **36**. The support frame **20** is slid rearwardly until its rear section **21** abuts the rear section **34** of fixture **30** (see FIG. 6). If necessary, additional vertical support may be gained by providing another groove in the interior face of rear panel **34** for receiving rear section **21** of support frame **20**.

A disposable bag **10** is then inserted into the fixture by placing the index fingers of each hand into the accordian folded side **11** and gripping the front and rear panels of the bag with the thumbs and forefingers respectively. Keeper receiving apertures **15***a* and **15***b* are then pushed over spherical keeper elements **24***a* and **24***b*. The apertures, being slightly smaller than the keeper elements or knobs, produce a small but distinct resistance to being pushed over the knobs. As the keeper receiving apertures pass over their respective keepers, they slide down onto the restricted sections **25** thereof and are retained in fixed relationship with respect to these keepers. Front panel **13** is then pulled toward the installer until such time as keeper receiving apertures **15***c* and **15***d* mate with and are engaged by spherical keeper elements **24***c* and **24***d*. The disposable bag is then ready for use. The slight resistance resulting from the size differential between the apertures and the keeper elements, provides a positive restraint preventing the back of the bag from pulling free of the keeper elements as the front wall of the bag is pulled forward and the sides unfolded.

After bag **10** has been filled, it may be removed by simply grasping the front panel **13** and its associated sides **11**, and pushing rearwardly with sufficient force to disengage keeper apertures **15***c* and **15***d* from spherical keeper elements **24***c* and **24***d*. The accordian-fold nature of sides **11** allows the mouth of bag **10** to be sealed by merely pushing front panel **13** towards rear panel **12** (see FIG. 3). After the keeper receiving apertures **15***c* and **15***d* come into abutting relationship with keeper elements **24***a* and **24***b*, the operator's grip may be changed to clench front panel **13** against rear panel **12**. Keeper receiving apertures **15***a* and **15***b* are then pulled free from keeper elements **24***a* and **24***b*, and the bag removed and discarded.

Should it be necessary or desirable to re-sterilize support frame **20** and fixture **30**, support frame **20** may be removed by merely pulling it forwardly and thus sliding side sections **22** out of and free from engaging relationship with receiving grooves **36**. The inside of fixture **30** may be disinfected and a recently sterilized support frame **20** reinserted therein. Another bag **10** is placed on support frame **20** in an identical manner.

It will be noted from FIG. 8 that fixture **30** also incorporates a hingedly mounted top **31**. Top **31**, when closed, serves to render the contents of the bag invisible and thus improve the appearance of the entire unit.

Referring now to FIGS. 10 through 14 the details of a modified support frame and enclosure therefor will be described. Support frame **40** differs from that previously illustrated in that it includes a widened rear section **41** and a pair of elongated neck members **43** which support the rear bag retainers **44**. The widened rear sections **41** form, in conjunction with sections **45** of the frame, a pair of shoulders **42** which function in the manner of drawer stops.

The provision of elongated necks **43** provide means whereby extra bags may be stored within the cabinet. As indicated in FIG. 10, bags **10***a*, **10***b* and **10***c* have been inserted over rear keepers **44** and are retained there for storage. The forwardmost bag **10***d* has been expanded and is ready to receive waste material. When bag **10***d* becomes filled it may be removed in the manner described previously and fresh bag **10***c* placed into waste receiving position by merely pulling the forward side thereof off from rear keepers **44** and engaging them on forward keepers **44** so as to expand the bag in accordian fashion.

The cabinet **50** (see FIG. 12) differs from that previously described in that the grooves in the sides thereof vary in depth between the front and rear sections thereof,

A relatively deep groove **52** runs from the rear wall toward the front of the cabinet. As this groove approaches the front its depth is substantially reduced as indicated at **51** to form a shoulder **55** against which mating shoulder **42** on support **40** is adapted to abut when the frame **40** is pulled from the cabinet **50** in drawer-like fashion. This construction permits frame **40** to be pulled from the cabinet and waste material inserted in the bag without the danger of pulling frame **40** completely free from the cabinet and spilling the contents of the bag. The frame **40** may be inserted into the cabinet from the rear thereof or the wide section may be inserted into the deep grooves **52** diagonally and the arms bent upwardly so as to allow the frame to be aligned within the cabinet. In the latter case, of course, the resilient limit of the frame must not be exceeded.

While the support frame shown in FIG. 10 incorporates two modifications, it will be readily apparent that they are independent of each other. That is to say, that the elongated storage necks may be utilized without the stops **42** and the stops **42** may be utilized without the elongated storage necks **43**.

While a preferred embodiment of this invention and two modifications thereof have been described in detail, it will be obvious to those skilled in the art that a number of other modifications are possible without departing from the spirit and scope of this invention.

We claim:

1. A disposable waste holder comprising: a frame having a back portion with side portions extending forwardly from each extremity thereof and partial front portions extending inwardly in converging fashion from the forward extremities of said side portions, said front portions terminating short of abutment with one another to provide an opening for bag-like holder insertion and removal; said frame having a plurality of bag retainer mounted thereon and extending inwardly thereof and arranged to define a rectangular area therebetween, one of said retainers extending inwardly from each of said front portions of said frame, two of said retainers extending inwardly from positions on said rear portion opposite from the retainers on said front portions; each of said retainers having a head portion and a neck portion, said neck portion being adjacent said frame and of a lesser cross section than said head portion, the cross-sectional area of said head portions increasing smoothly from the frame-removed extremity thereof to a holder retaining point and then joining said neck section; a bag-like holder having apertures formed adjacent each side of its upper end, said apertures being smaller than the cross section of said head portions at said holder retaining point, the size differential being such that the head portions may be forced through said apertures without rupture of the srurounding material of said holder.

2. A disposable waste holder as described in claim **1** wherein the front and back top faces of said holder's upper end have reinforcement strips and said apertures are formed through said reinforcement strips.

3. A disposable waste holder as described in claim **2** wherein said holder has side panels which fold inwardly in accordian fashion when the front and back thereof are in abutting relationship, said apertures being aligned in said front and back of said holder and extending through said side panels.

4. The combination as set forth in claim **3** wherein at least two of said retainers have neck portions of sufficient length to permit storage of a plurality of said holders thereon.

5. The combination as set forth in claim **1** wherein said bag retainers each comprise a generally spherically shaped knob affixed to said support frame.

6. In combination with the disposable waste holder described in claim **1** a fixture, said fixture comprising an open faced cabinet having a groove in each opposite interior face thereof, said grooves adapted to slidably receive and retain said side portions.

7. The combination as set forth in claim **6** wherein said frame is slidable within said grooves it may be slid into and out of said fixture in drawer-like fashion, and wherein said fixture and said support are provided with stop means for preventing said support from sliding completely free from said fixture.

8. A disposable waste holder comprising: a frame having side portions and a back portion; said frame having a plurality of bag retainers mounted thereon and extending inwardly thereof and arranged to define a rectangular area therebetween; each of said retainers having a head portion and a neck portion, said neck portion being adjacent said frame and of a lesser cross section than said head portion; a bag-like holder having side panels which fold inwardly in accordion fashion when the front and back thereof are in abutting relationship, the front and back faces of said holders' upper end having reinforcement strips in abutment therewith, said holder having apertures formed adjacent each side of its upper end, said apertures being aligned in said front and back of said holder, extending through said side panels, and passing through said reinforcement strips, said apertures being smaller than said head portions, the size differential being such that the head portions may be forced through said apertures without rupture of the surrounding material of said holder, at least two of said retainers having neck portions of sufficient length to permit storage of a plurality of said holders thereon.

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