March 6, 1934. F. HARROLD 1,949,607

TUBE HOLDER

Filed Feb. 15, 1933

Fig. 1.

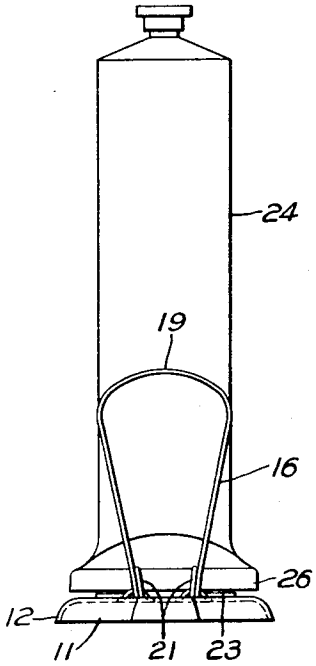


Fig. 2.

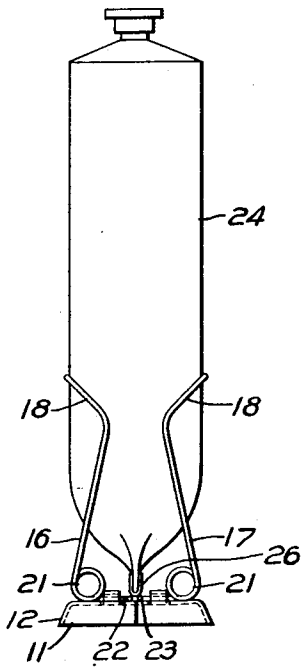


Fig. 3.

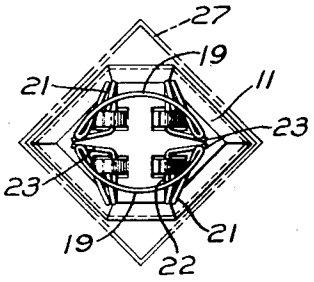


Fig. 4.

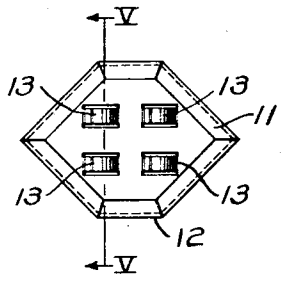
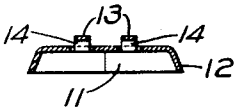


Fig. 5.



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TUBE HOLDER

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Application February 15, 1933, Serial No. 656,786

5 Claims. (Cl. 248—41)

My invention relates to supports and particularly to supports or holders for collapsible tubes.

An object of my invention is to provide a relatively simple, compact, highly efficient and easily manufactured holder for collapsible tubes containing tooth paste or similar material.

Another object of my invention is to provide a holder for such collapsible tubes that shall be easily and quickly associated with a tube or be removed therefrom.

Another object of my invention is to provide a tube holder that shall enable a tube to be supported in an upright position thereby until the tube is empty.

Another object of my invention is to provide a tube holder comprising a minimum number of parts than can be easily and quickly assembled.

Another object of my invention is to provide a tube holder that can be placed in proper operative position on a tube and be placed therewith in a pasteboard carton of the kind usually employed to contain tubes of glue, liquid cement, tooth paste and other similar materials.

Other objects of my invention will either be evident from the description of the device to be given hereinafter, or will be specifically pointed out in the description of one embodiment of my invention shown in the drawing, in which,

Figure 1 is a view, in front elevation, of a device embodying my invention associated with a collapsible tube,

Fig. 2 is a view, in side elevation thereof,

Fig. 3 is a top plan view of the device with the tube removed therefrom,

Fig. 4 is a top plan view of the base of the support, and,

Fig. 5 is a view in section therethrough, taken on the line V—V of Fig. 4.

It is well known that the ordinary collapsible tube containing tooth paste for instance, is a very efficient article insofar as the question of keeping the contents thereof in proper condition is concerned, as well as to its ability to deliver any desired quantity of the contents of the tube. The question of supporting these tubes on the shelf of a medicine cabinet, for instance, is one which apparently has not yet been satisfactorily solved, with the result that an unsupported tube of this kind is very apt to fall off or be inadvertently knocked off the supporting shelf.

It is to this aspect of the use of collapsible tubes that my invention is directed with the object of providing an inconspicuous tube holder that will support the tube in an upright position irrespective of the quantity of the original contents remaining therein. The holder includes a base, which may be made of sheet metal, or of some suitable composite molded material, and two similar resilient springs, of substantially inverted U-shape, having interlocking engagement with the base, from which they may be removed by a separate twisting movement of each leg portion of each spring.

The device embodying my invention includes a base 11, which as shown in Figs. 3 and 4 of the drawing, may be of substantially lozenge shape, but having six sides. In one form of such base I may make it out of punched and shaped thin sheet metal, the periphery being in the form of a depending flange portion 12, whereby the upper surface of the base is raised a small distance above the plane of the shelf or table supporting the same. It is not believed necessary to further describe the construction or manufacture of a base of this kind as any suitable or desired method of manufacture of the base itself may be employed.

A plurality of pairs of struck-up portions 13 are provided in the top of the base, which portions are integral with the top and are punched therefrom to provide a space below each portion 13 indicated by the numeral 14, which provides an opening between the upper surface of the base 11 and the central part of the struck-up portions 13. While I have illustrated a metal base, I do not desire to be limited thereto, as other materials may be used.

A pair of spring members, indicated by numerals 16 and 17, are provided, each spring being of substantially inverted U-shape, and made of a relatively thin but highly resilient wire. The upper part of each of the wire springs 16 and 17 is bent in a plane extending angularly relatively to the general plane of the leg portions of the spring, this portion being indicated by numeral 18 in Fig. 2 of the drawing. Reference to Fig. 3 of the drawing will show that the intermediate or connecting portion of each spring is bent into substantially arcuate shape, as shown at 19 in this figure of the drawing.

Near the lower end portion of each leg of a spring there is provided an integral return-bent portion 21, which may also be described as an eye portion. I prefer to provide this eye portion in each leg immediately above the base in order to obtain greater resiliency of each of the two springs. The end portion of each leg immediately adjacent to an eye portion, indicated by numeral 22 in Fig. 3 of the drawing, is then bent at substantially right angles to the general plane of the leg portions, the angle therebetween being

somewhat less than a right angle. The extreme end portion 23 (see Fig. 3) is then bent at substantially right angles to the portion 22, and it may be noted by reference to the drawing that the two extreme end portions 23 on each spring are bent away from each other.

I prefer to make the struck-up portions 13 of the base rather long as compared to the size of wire constituting the springs 16 and 17, so that the two springs may be easily and quickly assembled on the base 11 in substantially the following manner:—the assembler may grasp a base 11 in one hand and a spring 17 in the other hand, preferably at an eye portion 21. Let it be assumed that he initially grasps hold of spring 17 by the right hand eye portion 21, as viewed in Fig. 3 of the drawing. He will then insert the extreme end portion 23 into an opening 14 under one of the struck-up portions 13, then turn the spring slightly to the right to cause portion 22 to enter the opening 14 and will then push the right hand end portions 22 and 23 into substantially the positions shown in Fig. 3 of the drawing. He may then grasp the left hand eye portion of the spring with either his hand or with a small pair of pliers and twist it to the right a sufficient amount to permit of introducing the end portions 23 of the left hand leg into the other opening 14, push it inwardly until end portion 22 enters the opening 14, after which the left hand leg portion will spring into the position shown in Fig. 3 of the drawing, thereby completing the mounting of one spring on a base. The other spring can then be mounted on the base in substantially the same manner.

It may be here noted that each of the springs 16 and 17, which are exact duplicates of each other, are so manufactured that the leg portions of each spring will be parallel to each other initially, but the outer end portions are caused to be located closer together in the assembled device, as may be noted particularly by reference to Fig. 1 of the drawing. It has hereinbefore been set forth that the end portions 22 and 23 are located in a single plane substantially at right angles to the plane of the leg portions, and it is therefore obvious that each leg portion of each spring is under an initial stress when assembled on a base. That is, each end portion 23 would normally be located in a plane at right angles to its leg portion, which would bring its outer end below the plane of the base. This initially stressed engagement of each end portion with the base is considered by me to be an important element of my invention as it makes not only for greater rigidity, but also prevents immediate straight-line disengagement of each spring end from the base. Disengagement of a spring from the base can be effected by a twisting or turning movement of each leg portion in substantially the opposite manner as was hereinbefore described when assembling the device.

It is of course obvious that the intermediate portions of the two springs 16 and 17 will be located relatively close together when no tube is located therebetween. A tube 24 having a lower knife edge 26 of the usual kind, may be easily and quickly slid into place between the springs, as the knife edge 26 will first engage the springs, after which the body of the tube will force the springs apart and fit in between the arcuate portions 19, the springs having then been forced apart or away from each other to substantially the positions shown in Fig. 2 of the drawing where the two arcuate portions 19 closely engage substantially one half of the periphery of a tube. It is of course obvious that if a slightly larger tube be inserted in the holder, the relatively close engagement described above may not be present, but in this case the end portions of the arcuate parts 19 will still be effective to engage the tube and to tightly clamp the same by the cooperating action of the two springs. The knife edge 26 will normally rest upon the top surface of the base 11 whereby a definite position of the tube relatively to the base itself is established.

Reference to Fig. 1 of the drawing shows that a relatively large portion of the tube 24 is exposed immediately below the arcuate portions 19 and between the leg portions, whereby it is possible for a user of the tube to apply pressure thereto at diametrally opposite points adjacent to the lower end of a tube. Attention is further called to the relatively large amount of space between the bottom portions of the two springs, between the eyes 21 and immediately thereabove, as may be seen by reference to Fig. 2 of the drawing. This space is provided to enable a user to roll up the bottom end of a tube to an appreciable extent, which may be well over one half of the total length of the tube. This will bring the upper end of the tube to just above the arcuate portions 19, after which a user may press the tube between his thumb and finger placed in the openings between the leg portions and the arcuate portion until the tube has been completely emptied.

It is thus evident that the device embodying my invention will support a tube in an upright position until the tube has been almost completely emptied, and it may further be noted that the center of gravity moves downwardly toward the base as the tube is emptied. Thus the assembly will be substantially as stable when the tube is only half full or only one third full, and therefore lighter in weight, as it was when entirely full and having its greatest weight.

The eyes 21 are provided to give a longer life to the springs, as well as to provide greater flexibility, whereby it is possible to use a single holder to support, at different times, tubes of different diameters.

I have indicated by numeral 27, in Fig. 3 of the drawing, the sectional outline of a square container or carton of the kind in which collapsible tubes are usually packed for shipment to the retailer and sold by him to a customer. The angle between each pair of longer sides of the base is a right angle and the dimensions of the base 11 are such, in relation to the knife edge 26 and the size of the tube 24 that the holder embodying my invention will fit easily into such a pasteboard box.

The device embodying my invention thus provides a relatively light weight tube holder of open construction, requiring but little space when associated with a tube to be supported thereby, and which will permit of substantially the usual manipulation or handling of such a tube. It requires but two different parts, one part being duplicated, and the assembly of the three parts may be done very quickly and simply without the use of any tool other than a pair of pliers.

Various modifications may be made in the device embodying my invention without departing from the spirit and scope thereof, and I desire therefore, that only such limitations shall be placed thereon as are imposed by the prior art or are set forth in the appended claims.

I claim as my invention:—

1. A tube holder including a base, a pair of

bow springs having a return bent eye portion near the end of each leg portion and a laterally bent end portion adjacent said eye portion interlocked with the base, said eye portion being positioned to contact the upper face of the base, said springs being of open construction to enable a tube held therebetween to be squeezed by the thumb and finger of an operator placed between the leg portions of each spring.

2. A tube holder including a base, a pair of opposing springs, each of substantially inverted U-shape, and having a part near the end of each leg portion bent laterally at substantially a right angle relatively to the general plane of the spring, said base having struck up portions to provide laterally facing openings, each said part being engaged within one of said openings and each end portion of each spring being bent angularly away from said laterally bent part.

3. A tube holder including a base, a pair of opposed springs, each of substantially inverted U-shape, and having a return bent or eye portion near the end of each leg thereof, each end portion being bent in two different directions in one plane extending substantially at right angles to the plane of the leg portions, and integral struck up means on said base constructed and arranged to hold the end portions in initially stressed engagement with the base.

4. A tube holder including a base having struck up laterally facing portions thereon providing openings, and a pair of opposed springs, each of substantially inverted U-shape, each spring end portion being bent in two different directions in a plane extending substantially at right angles to the plane of the leg portions and extending through the openings on the base to lie substantially in a plane parallel to the base and in a manner to bend the ends of said legs toward each other to effect initially stressed engagement with the openings and to prevent immediate release therefrom.

5. A tube holder including a base having pairs of lateral openings thereon, and a pair of opposed springs, each of substantially inverted U-shape, each end portion of the springs being bent in two different directions in a plane extending substantially at right angles to the plane of the leg portions, said end portions extending through the openings on the base in a manner to bend the ends of said legs towards each other to effect initially stressed engagement with said openings and releasable therefrom only by a twisting motion of each end portion.

FREDERICK HARROLD.