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ABSTRACT: A string and the like detention system particularly suited for detention of shoe laces in a selective secured and releasable condition with respect to a shoe including a spoollike lashing button fixed to an article and including a circular base, a centrally open circular hub portion above and integral with the base, a flange integrated with and positioned above the hub and vertically spaced from the base, a plurality of resilient members in the nature of prongs being secured peripherally around, and on the upper surface of, the flange, a recess is provided in the periphery of the flange adapted for coacting with guide means on the base, and constituting a guide for passage therethrough of an end of the string and the like, for subsequent winding of the string about the hub and the prongs, following insertion of a string end through the guide means on the base and the recess in the flange for releasable detention of a string end, release being effected by inward pressure on the resilient prongs to permit the wound string end to be vertically lifted from engagement with the prongs and subsequent removal from the button.

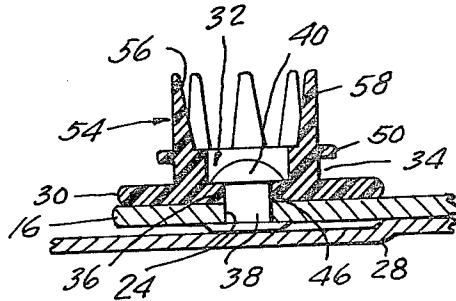


FIG. 1.

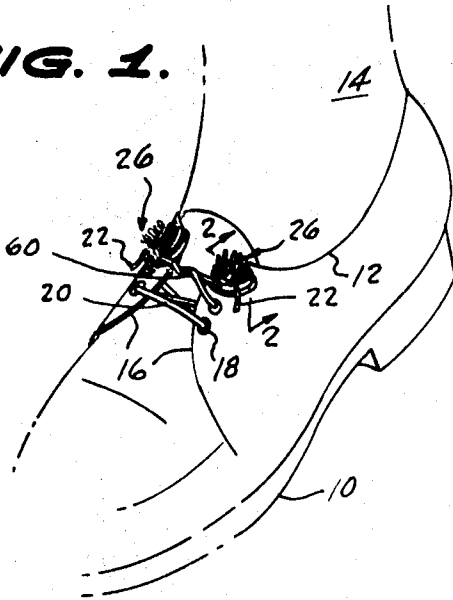


FIG. 2.

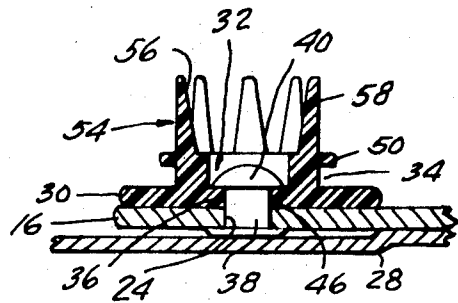


FIG. 3.

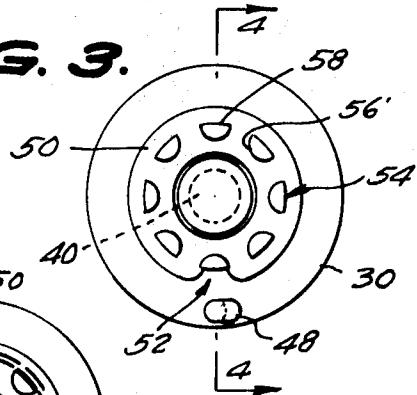


FIG. 5.

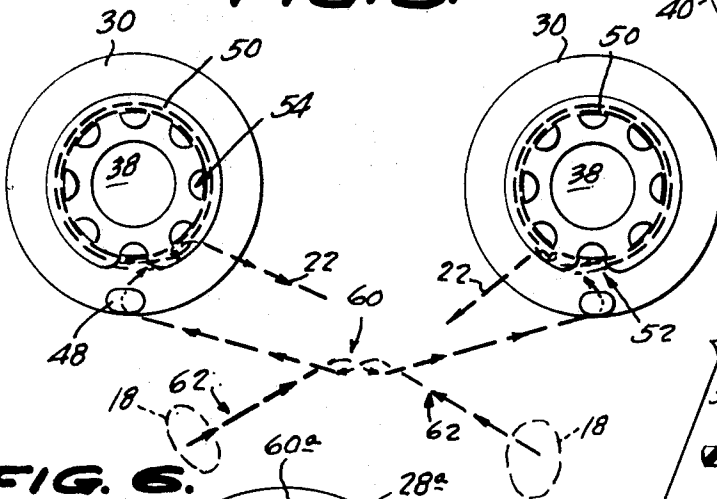


FIG. 6.

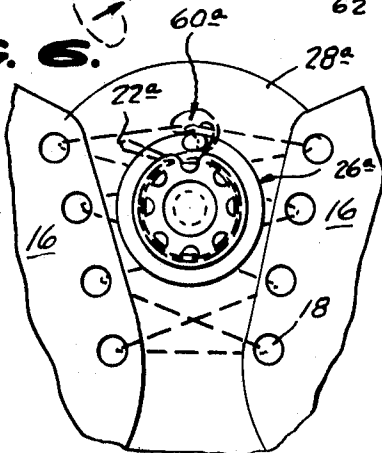
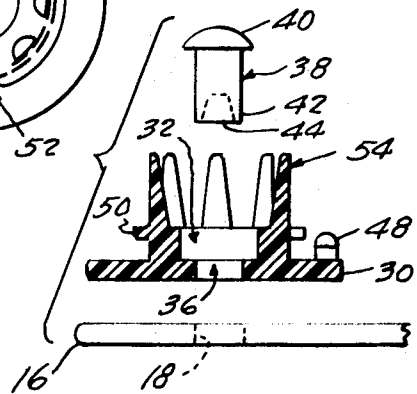


FIG. 4.



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STRING AND THE LIKE DETENTION SYSTEM

BACKGROUND OF THE INVENTION

The present invention pertains to a string end detention system and is very well adapted for the releasable detention or securement of a shoe lace end by cooperating with a lace detention button associated with a vamp or tongue of a shoe. The system is, of course, more widely useable with any article on which it is desired to fasten string or the like ends.

Conventional securement of a shoe, for example, on the foot of a wearer, includes use of shoe eyelets with the lace ends being passed therethrough, and the ends are first tied one to another by a reefing hitch or the like, and subsequently are tied in a bowknot. This known securement many times degenerates into a knot formation which does not readily lend itself to detachment. The present invention overcomes drawbacks and difficulties encountered with known types of, for example, shoe lace ends with a simple attachment to an article of a detention button, which attachment is exceptionally easy to use and prevents entanglement of the lace ends and provides for easy and substantially foolproof securement and detachment to release the lace and permit removal of a shoe from the foot of a wearer.

The invention is particularly suited to prevent unintentional or inadvertent loosening of laces by small children, and in known cases of flexing of laces resulting when tied laces are subjected to strenuous exercise by a shoe wearer. In actual useage it has been found that the invention overcomes these frequently encountered difficulties, and insures a simple and easy detention means with quick application and release of shoe lace ends.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the invention to provide detention or securing means for string ends such as shoe laces and the like, which are readily and easily attached to an article, and adapted to facilitate securing of the string ends in a manner in which rapid and simple release of the string can be effected.

A further object of the invention is to provide a shoe lace detention or securement specifically adapted to replace commonly known and used bowknot ties and eliminate difficulties encountered therewith. The present device is at least as simple to untie as a bowknot and prevents the disintegration of the bowknot into an unmanageable tangle of tight knots.

The invention is simple in manufacture by mass production methods and readily lends itself to mass marketing. The device is useable on all types of equipment and is especially adapted for use with shoes and footwear of a broadly diverse nature and effectively prevents inadvertent loosening of a shoe lace or difficulties related thereto.

An additional object is to provide a securing means exhibiting universal appeal due to security of shoe closures and the device presenting a neat, well groomed appearance in contrast to the well known usual bowknots and untidy lace ends.

Other objects and advantages will be apparent from the following description of embodiments of the invention when taken together with the accompanying drawings in which:

FIG. 1 is a perspective view of a shoe, shown on a simulated foot and leg portion of a wearer, embodying a form of a shoe lace detention system in accordance with the invention;

FIG. 2 is an enlarged sectional view of the shoe lace detention system as applied to a shoe, taken on line 2-2 of FIG. 1;

FIG. 3 is an enlarged plan view of a shoe lace detention device as taught by the invention;

FIG. 4 is an enlarged exploded view of the shoe lace detention system of the invention taken on line 4-4 of FIG. 3;

FIG. 5 is an enlarged plan view of the shoe lace detention system of FIG. 1, the shoe lace being partially shown in dotted lines, and revealing the operative application of the system to a shoe; and

FIG. 6 is an enlarged fragmentary view of another construction showing utilization of a single shoe lace detention device

incorporating the features of the double system shown in FIG. 1 and which can be secured to shoe tongue or other suitable area.

The invention is shown and described herein as applied to shoes for detention or securement of shoe lace ends but manifestly is suitable for other applications which will be apparent and the scope of the invention is not to be limited to use in connection with a shoe. The scope of the appended claims are meant to encompass any and all structures, applications and uses incorporating the features of the invention.

Referring now more specifically to the drawings, FIGS. 1-5 disclose one form of the invention in which two securing devices are used and are applied to a shoe, whereas FIG. 6 discloses use of a single one of the devices in a simplified application.

In the first illustrated construction and application a shoe, generally designated 10, is shown on a user's foot 12, and a fragmentary portion of the leg is shown at 14. The shoe vamps 16 are provided with the usual eyelets 18 through which a shoe lace 20 is threaded in a usual known manner such as when the lace ends 22 are to be secured by a bowknot. The method of lacing is the same as conventionally used, but the lace ends are not threaded directly through the uppermost eyelets 24. In lieu of the heretofore used manner of application, a detention device, generally designated 26, is operatively associated with the top eyelets 24. Referring to FIG. 2, a shoe tongue is fragmentarily shown at 28 underlying the vamps 16.

The detention devices 26 are preferably in the shape of a spool and include a circular-shaped base 30 of a size to facilitate mounting on the opposed vamps in a manner hereinafter described. The spool is hollow, as indicated at 32, by a virtue of a center bore extending through hub portion 34, and a central hole 36 is provided in base 30 adapted for superimposed alignment over top eyelets 24. A rivet 38, or the like, extends through the central bore or hollow 32 and the eyelet opening 24.

The upper ends of rivets 38 have the usual head 40, the lower edge of which seats in the base of bore 32, and the lower end 42 of the rivet has recess 44, in a known manner, adapted to be swaged or flared to abut the lower surface 46, of vamps 16, and thereby secure the device 26 with respect to the shoe and prevent rotation thereof, this being clearly shown in FIG. 2.

The base 30 has a lace guide 48 in proximity to the periphery thereof and around which the lace ends 22 are threaded when the laces are to be pulled taut and subsequently tied. A flange 50 is formed extending outwardly from hub portion 34 and is vertically spaced above base 30. The base 30 and flange 50 form therebetween a restricted lace confining area which serves to prevent, primarily, upward displacement of the laces, as will be set forth hereinafter. The flange 50 has a recess 52 formed in proximity to its periphery thereof in substantial alignment with guide 48 to facilitate guiding or threading of the lace ends into the primary detention area above the flange 50.

Flange 50 also serves as a base for mounting of a plurality of resilient prongs or fingers 54 which extend vertically upward therefrom. In the drawings the prongs are eight in number and are evenly spaced around flange 50. Obviously a greater or a fewer number of the prongs can be used. In cross section the prongs taper from the bottom to the top with the rear face 56 being circular, in the preferred embodiment, and have flat outer faces 58. The prongs can be separate from the hollow spool 32 and attached to the upper face of the flange in any desired manner such as by an adhesive. If desired the entire spool can be integrated by molding or other suitable method, providing that the prongs are resilient.

Operation of the device will be apparent from the foregoing description but is briefly summarized below. The lace ends initially pass through the eyelets next below the upper eyelets 24, to the upper sides of vamps 16 and are crossed and formed into a reefing knot at 60 (see FIG. 5) in the same manner as

employed preliminary to forming a usual bowknot. The lace ends are then passed upwardly above base 30, outwardly of the periphery thereof and round the respective guides 48 of the two detention buttons. A desired number of turns, consisting of at least one complete turn, are wound around the hub portion 34 between base 30 and flange 50. Excess length of lace can appropriately be wound around the hub portion, and prevented from upward vertical movement of the lace or displacement from the spool. The lace is then passed upwardly through recess 52 and circled around prongs 54, the arrows 62 in FIG. 5, showing the direction and paths of the lace, with the outer faces of the prongs forming in essence a second drum extending above flange 50 and coaxial with hub portion 34. The open area formed internally of the prongs affords a nesting space for the lace ends after securement about the prongs so that the free ends do not dangle and additionally the free ends are readily accessible to start an unraveling process of the detention devices. This circling of the lace on the prongs continues until the lace again reaches recess 52 and is led under the lace turned on the prongs to form a first hitch and thence again around the prongs in opposite direction from the first wrap, and the lace is then led underneath the entering portion of this latter wrap forming a second hitch; the two hitches in effect constituting a clove hitch of the opposing encirclements of the prongs, and which counteract the forces in the individual encirclements. The detention action is enhanced by the direct detention of the lace end from the reefing know resulting from passage through the guide. The opposite button and lace ends are then wrapped in the same manner but starting and continuing in opposite directions.

The holding or detention of the lace can be removed by lifting of an encirclement, enabled by radial pressure above the second encirclement on the resilient prongs. This pressure is continued and results in lifting the encirclement over the tops of the prongs, and thereupon the lace previously detained is freed by release of the knots and hitches back to the reefing knot which, as is universally known is simple to release or untie.

Another method of creating the detention action, and which in some instances may be simpler in execution, is to form the initial hitch, which is formed openly and then passed intact over the prong circle and the extended end of lace is used to form the second or closing hitch again openly and passed over the prong circle, with the lead end therefrom being self-locked in the process. This method again forms in effect a clove hitch and the lace may be removed in a manner similar to that above described. The foregoing description is applicable when two detention devices are used.

FIG. 6 shows a manner of use in which only one detention device 26a is used instead of two as in the foregoing embodiment. The device is fixed on the tongue 28a intermediate the vamps. The device of this embodiment serves a double function in that the lace ends 22a emerging from the reefing knot 60a are considered and treated as constituting a single lace and the ends together are hitched to the detention device 26a on tongue 28a in the same manner as in the embodiment above described. The detention device in each embodiment is the same and release is also the same.

Manifestly minor changes in details of construction can be effected without departing from the spirit and scope of the invention as defined in and limited solely by the appended claims.

I claim:

1. A device for string and the like detention in selective secured and releasable conditions including a hub, a flange on said hub, a plurality of resilient prongs extending from said flange in spaced array thereon, said device being adapted for encirclement of a string end and the like tightly around the outer surfaces of said prongs in two opposite contiguous directions to form a secured clove hitchlike knot on said device around said prongs, release of the knot being effected by inward radial pressure on said resilient prongs to ease pressure against the encircling ends to permit passage of the string and the like ends over the top of said prongs.

2. A device as claimed in claim 1, wherein said resilient prongs taper inwardly from the bottom end thereof toward the top with resultant increased resiliency toward the top thereof.

3. A device as claimed in claim 2, said prongs being positioned in a circle on said flange to facilitate encirclement by the string or the like.

4. A device as claimed in claim 3, said flange having a recess therein, a guide positioned in proximity to said recess for guiding string and the like ends into and through said recess for subsequent encirclement of a string and the like end about the circular array of prongs.

5. A device as claimed in claim 4, a base for said device adapted for securement to an article having string and the like operatively associated therewith for securement of spaced article portions with respect to one another, a lower hub secured on said base below said flange, said lower hub being coaxially aligned with the flange carrying hub and forming with said flange a circular restricted area, therebetween a string confining space and in securing the string the end thereof first being wound around said lower hub in said restricted area and the string subsequently passing around said guide, through said recess and then encircled around said prongs.

6. A device as claimed in claim 5, said guide being secured on said base, said hub and said lower hub together with said flange and said base forming a spool like detention button with said resilient prongs extending thereabove.

7. A device as claimed in claim 6, said prongs having circular inner surfaces and substantially flat outer string end engaging faces.

8. A device as claimed in claim 7, a base on said hub, said flange and said base forming therebetween a restricting area for encirclement of initial winding thereon of encircling portions of string and the like.

9. A device as claimed in claim 8, said base, said flange and said hub forming a spool like device.

10. A device for a string and the like detention in selective secured and releasable conditions including a base, an upper hub extending from said base, a flange on said hub above said base, a plurality of resilient prongs extending from said flange in spaced circular array in proximity to the periphery thereof, the outer surfaces of said prongs forming said upper hub, a lower hub mounted on said base below and spaced from said flange, said device being adapted for encirclement of a string end and the like tightly around the outer surfaces of said prongs in two opposite contiguous directions to form a secured clove hitchlike knot on said device around said prongs, release of the knot being effected by inward radial pressure on said resilient prongs to ease pressure against the encircling ends and passage of the string and the like ends over the top of said prongs.