June 22, 1965 F. PARSONS 3,189,965

FASTENING DEVICES

Filed April 16, 1963

FIG. 1.

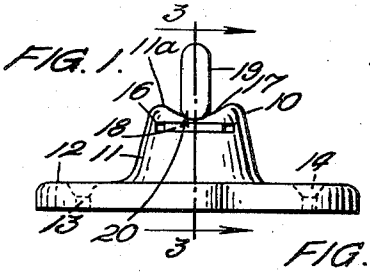



FIG. 2.

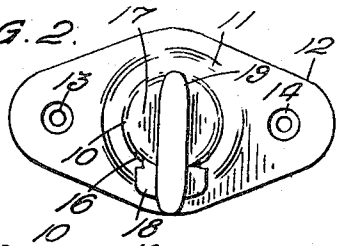



FIG. 3.

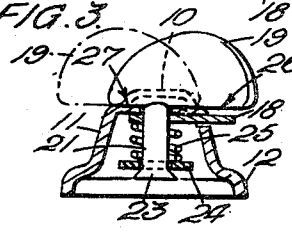



FIG. 4.

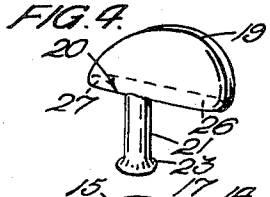
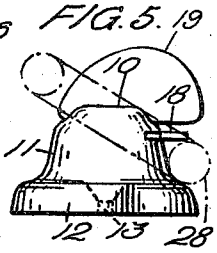



FIG. 5.



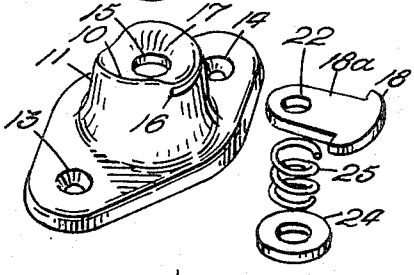




FIG. 6.

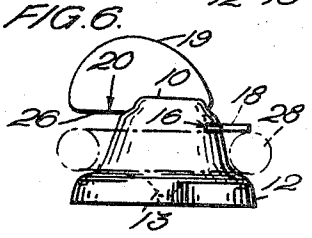



FIG. 7.

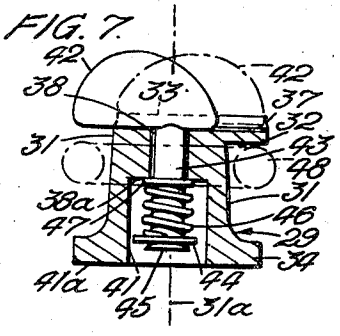



FIG. 8.

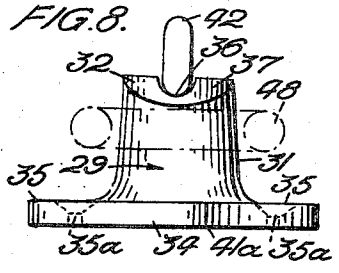



FIG. 9.

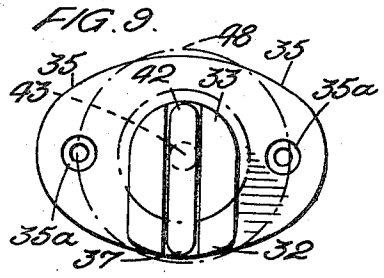
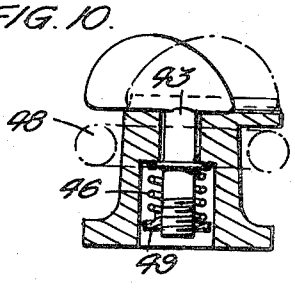



FIG. 10.



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3,189,965

# FASTENING DEVICES

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Claims priority, application Great Britain, Apr. 16, 1962, 14,692/62
5 Claims. (Cl. 24—221)

This invention relates to fastening devices which may be attached to rings, eyelets or like members that may be secured for example to canvas, sailcloth or a waterproof covering material.

According to the present invention there is provided a fastening device which may be attached to a ring, eyelet or like member and which comprises a trunk having one end adapted to pass through the said member, and a key located at the said one end of the trunk and pivoted about an axis between an inoperative position in which substantially the whole key overlies the trunk so that the said one end of the trunk can pass through the said member and an operative position in which the key projects beyond the trunk to prevent the said one end passing through the said member.

The trunk may comprise a main part and a tongue part projecting therefrom at or near the said one end, in which case at least part of the key will overlie the tongue part when the key is in its inoperative position.

The main part and tongue part may be integral. The trunk may comprise a moulded synthetic plastic such as polypropylene.

Alternatively the tongue part may be separate from the main part. In this case the tongue part may be a flat strip, for example, of metal. The main part may be hollow, in which case preferably the tongue part may pass through an opening in the side of the main part.

The device can further comprise means for resiliently holding the key in its operative and inoperative positions.

The afore-mentioned end of the trunk may be grooved or recessed to locate the key in its operative and inoperative positions.

Preferably the axis about which the key pivots is coincident or substantially coincident with the axis of the trunk and the key extends to a greater extent on one side of the pivot axis than on the other side. It is preferred also that the key should project upwardly from the end of the trunk, the upward slope of the key on the afore-mentioned one side of the pivot axis being greater than the upward slope at the afore-mentioned other side to facilitate passing the key and the said one end of the trunk through the member when the key is in its inoperative position.

The key may be rotatable on a spindle and may be integral with the said spindle.

Two embodiments of the invention will now be described by way of reference to the accompanying drawings, in which:

FIGURES 1 and 2 are respectively a side view and a plan view of a device of the invention,

FIGURE 3 is a section on line 3—3 of FIGURE 1,

FIGURE 4 is an exploded view of the device of FIGURE 1,

FIGURES 5 and 6 are side views of the device with the key in its inoperative position and operative position respectively,

FIGURE 7 is a vertical section of another device of the invention,

FIGURE 8 is an end view of the device shown in FIGURE 7,

FIGURE 9 is a plan view of the device shown in FIGURE 7 with the key in its inoperative position, and



FIGURE 10 is a vertical section of a further device of the invention.

Referring to FIGURES 1 to 6 of the drawings, the device shown in these figures comprises a trunk **10** having a hollow main part **11** which may be a sheet metal pressing. This main part **11** is of circular cross-section, is closed at one end **11***a* and has a flange **12** at the other end. The flange **12** is extended in two diametrically opposite directions. These extensions of the flange **12** have formed therein respectively two holes **13** and **14** for screws or bolts whereby the device may be secured to a fixed member, or to canvas or other flexible material.

The closed end **11***a* of the hollow main part **11** has a central aperture **15**, (see FIGURE 4). A slot-like opening **16** is formed in the side of the main part **11** near its closed end **11***a*. The closed end also has a diametrical groove or recess **17** running from above approximately the centre of the opening **16** and at right angles to the said extensions of the flange **12**.

A separate tongue part, in the form of a flat metal strip **18**, passes through the opening **16** and projects beyond the main part **11**. Within the main part **11**, the tongue part **18** has a shank **18***a* having an opening **22** therethrough.

A flat key **19** which is slightly narrower than the groove **17** is provided on the trunk **10**. This key **19** has a rounded undersurface **20** which rests on the closed end **11***a* of the main part **11** and which fits the groove **17**. A spindle **21** integral with the key **19** projects from the rounded undersurface **20** at a position spaced from the centre of the undersurface **20**. The spindle **21** passes through the central aperture **15** in the closed end **11***a* and the opening **22** in the tongue shank **18***a*. The end of the spindle **21** remote from the key **19** is burred over at **23** to support a washer **24**. A compression spring **25** abuts against the shank **18***a* and washer **24** resiliently to urge the key **19** into the groove **17**.

The spindle **21** divides the undersurface **20** into a longer part **26** which is longer than the radius of the main part **11** and a shorter part **27** which is of approximately the same length as the said radius. When the key **19** engages in the groove **17** in one position (herein referred to as the inoperative position) as shown in FIGURES 2 and 5, substantially the whole key **19** overlies the trunk, i.e. the main part **11** and projecting tongue **18**. When the key **19** engages the groove **17** in the reverse position (herein referred to as the operative position) as shown in FIGURE 6, the longer part **26** projects beyond the trunk.

The key **19** is generally rounded in shape but having the side rising from the end of the longer part **26** more steep than the side rising from the end of the shorter part **27**.

The device is used as follows to secure an eyelet **28** having an internal diameter slightly greater than the diameter of the main part **11**. The trunk is fixed in position by means of screws passing through the holes **13** and **14** in the flange **12**. The key **19** is turned to its inoperative position. The eyelet or ring **28** is hooked under the tongue part **18** and is pivoted about the hooked part to pass over the key **19** as shown in FIGURE 5. When the eyelet or ring **28** rests on the flange **12**, as shown in FIGURE 6, the key **19** is turned through 180° to its operative position in which it holds the eyelet or ring **28** about the main part **11**. When so secured, the eyelet or ring **28** can turn freely about the main part.

Referring now to FIGURES 7 to 9 the embodiment there shown comprises a trunk part **29** of moulded polypropylene. The trunk part **29** comprises a cylindrical main part **31** having a flat tongue part **32** projecting from one end **33** and a flange **34** at the other end **35**. The tongue part **32** extends at right angles to the axis **31***a* of the main part **31** and its upper surface forms a continua-

tion of the surface of the end 33. The flange 34 has projecting parts 35 extending at right angles to the tongue part 32 and having holes 35*a* for screws or bolts whereby the device may be secured to a fixed member, or to canvas or other flexible material.

A round-bottomed groove 36 is provided across the end 33 of the main part extending centrally along the upper surface of the tongue part 32 to its end 37. A concentric bore 38 extends through the main part 31 from end 33. This bore 38 is stepped at 38*a* to a bore 41 of larger diameter which extends to the other end 41*a* of the main part.

A key 42 similar to the key 19 of the embodiment of FIGURES 1 to 6 and having a base length equal to the length of the groove 36 is also provided. This key has a spindle 43 integral therewith which spindle passes through the bore 38 and projects into the bore 41. The spindle 43 supports a washer 44 at its free end by means of a burred flange 45 formed thereon. A compression spring 46 is held between the washer 44 and a second washer 47 which abuts the step 38*a* so that the key 42 is drawn into the groove 36.

FIGURE 10 shows a further device of the invention which device is generally similar to that shown in FIGURES 7 to 9, the major difference being in that the compression spring 46 is held in compression about the spindle 43 by means of a circular nut 49 screwed on to the free end of the spindle 43. The nut 49 may be slotted for co-operation with a screw-driver.

The devices according to FIGURE 7 to 10 operate to secure a ring or eyelet 48 in a manner similar to that described with reference to the device of FIGURES 1 to 6, the key being movable from an operative position (as shown in full lines in FIGURES 7 and 10) to an inoperative position (as shown in chain lines) as aforedescribed.

The invention is not limited to the precise constructional details herein described and illustrated in the drawings. For example, the main part may be of sufficient axial length to accommodate two or more eyelets or rings.

The fastening device of the present invention may be used for example, as a fitting in a boat or like vessel.

I claim:

1. A fastening device for attachment to a ring, eyelet or like member, which device comprises
(a) a trunk,
(b) a lateral projection at one end of the said trunk, the said end of the trunk with the said projection being able to pass through the said member,
(c) a recess in the said end of the trunk, the recess being directed towards the said lateral projection,
(d) a key pivoted and held to the trunk at the said end, said key being manually operable between a first position in which the key rests in the recess and substantially overlies the trunk, in which position the said end of the trunk is free to pass through the said member, and a second position in which the key also rests in the recess but projects beyond the side of the trunk, in which position the end of the trunk is prevented from passing through the said member by the said projection and the key, the part of the key by means of which the key is manually operated projecting upwardly from the said end of the trunk, the upward slope of the said part of the key at one side of the trunk being greater than the upward slope of the said part of the key at the other side of the trunk and being such that when the key is in the first position it coincides substantially with the locus of the inner circumference of the said member when the said member is swung from a position in which it is held in contact with the said lateral projection and encircling the said trunk, to a position in which it is retained under the said projection and has its plane substantially parallel to the axis of the trunk,



(e) means for resiliently holding the key to the trunk, and
(f) means whereby the key may be attached to an object to which the said member is to be fastened.

2. A fastening device as claimed in claim 1 wherein the said part of the key is of substantially uniform cross-section.

3. A fastening device for attachment to a ring, eyelet or like member which device comprises
(a) a trunk of generally circular cross-section,
(b) a lateral projection at one end of the trunk, the said end of the trunk with the said projection being able to pass through the said member,
(c) a recess in the said end of the trunk, said recess being diametrical to the end of the trunk and in line with the said projection,
(d) a key pivoted and held to the said end of the trunk, the key being pivoted on an axis coincidental with the major axis of the trunk, said key being manually operable between a first position in which the key rests in the recess and substantially overlies the trunk and partially overlies the said lateral projection, in which position the said end of the trunk is free to pass through the said member, and a second position at 180° to the first position, in which the key also rests in the recess but projects beyond the side of the trunk, in which position the said end of the trunk is prevented from passing through the said member by the said projection and the key,
(e) the part of the key by means of which the key is manually operated projecting upwardly from the said end of the trunk, the upward slope of the said part of the key at one side of the trunk being greater than the upward slope of the said part of the key at the other side of the trunk, the said upward slope of the key at the other side of the trunk being such that it coincides substantially with the locus of the inner circumference of the said member when the said member is swung from a position in which it is held in contact with the said projection and encircling the said trunk, to a position in which it is retained under the said projection and has its plane substantially parallel to the axis of the trunk,
(f) means for resiliently holding the key to the said end of the trunk, and
(g) means for attachment of the trunk to an object to which the said member is to be fastened.

4. The combination of a fastening device as claimed in claim 3 with a ring, eyelet or like member.

5. A fastening device for attachment to a ring, an eyelet or like member comprising
(a) a trunk having a
(b) centrally located longitudinally extending bore,
(c) a laterally extending projection at one end of the trunk, the outer face of said one end of the trunk having a
(d) diametral groove formed therein extending entirely across the said outer face in alignment with said projection,
(e) a key comprising
(f) an elongated head and a
(g) shank depending from the head eccentric to the longitudinal center of the key head so that a
(h) major length portion of the key head extends beyond one side of the shank to provide a finger engaging portion and
(i) a minor length portion extends beyond the opposite side of the shank,
(j) the minor length portion of the key head being of a substantial length so that it provides a substantial second finger engaging portion,
(k) said shank being received by the bore in the trunk to provide a pivotal connection between the key and the trunk so that the key is manually operable

between a first position in which the key head rests in the groove and overlies the trunk and the projection with the major length portion of the head overlies the projection, in which first position the said end of the trunk is free to pass through the said member, and a second position in which the key head also rests in the groove but with its major length portion projecting beyond the trunk and cooperates with the projection to prevent the trunk from passing through said member, and

(l) means for resiliently holding the key head in said groove, said projection comprising

(m) a tongue having

(n) an eccentrically located aperture therethrough, said trunk having



(o) a slot in one side thereof opening into said bore for receiving the apertured portion of said tongue,

(p) said shank extending through the aperture in the tongue, and said resilient means also serving to retain the tongue in position in the slot.

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