A. E. ENGLAND.

FASTENER.

APPLICATION FILED MAR. 31, 1910.

988,558. Patented Apr. 4, 1911.

Fig. 1

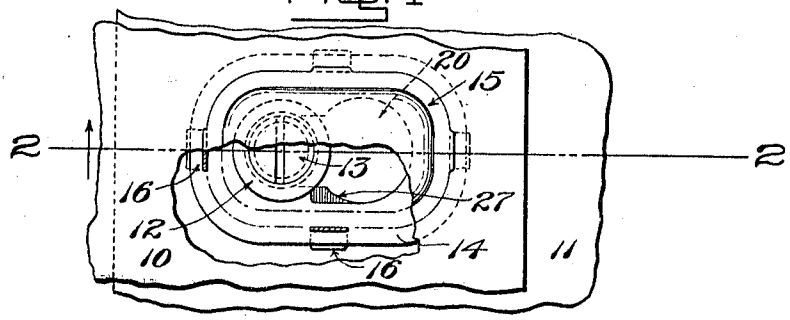


Fig. 2.

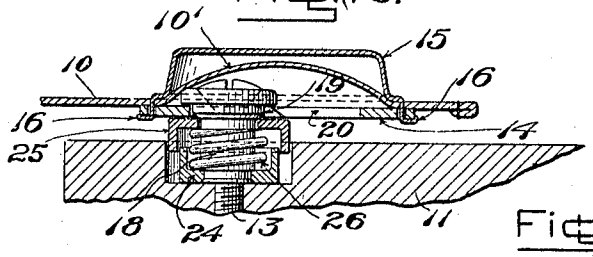


Fig. 3.

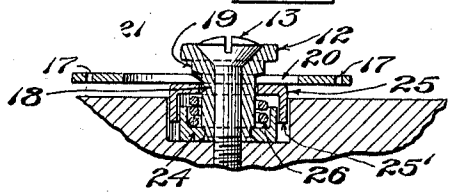


Fig. 4.

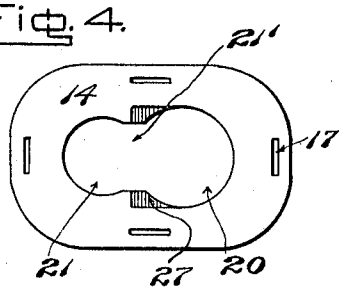


Fig. 5

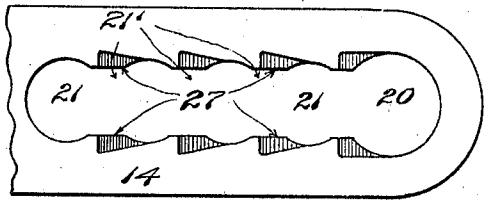
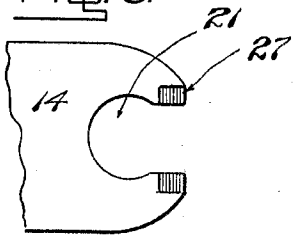


Fig. 6.



Witnesses:
M. S. Crozier.
Harold S. Lyon.

Inventor,
Arthur E. England.
by his Attys,
Mitchell, Chadwick & Kent

UNITED STATES PATENT OFFICE.

ARTHUR E. ENGLAND, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO FRED S. CARR, OF BROOKLINE, MASSACHUSETTS, AND EDWARD S. FOSTER, OF WINCHESTER, MASSACHUSETTS.

FASTENER.

988,558. Specification of Letters Patent. Patented Apr. 4, 1911.

Application filed March 31, 1910. Serial No. 552,670.

To all whom it may concern:

Be it known that I, ARTHUR E. ENGLAND, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Fasteners, of which the following is a specification.

This invention relates to improvements in fasteners. More particularly it is herein illustrated and described as it may be applied to fasteners adapted to hold protective curtains of automobiles, boats, carriages and the like, so that they are secure against detachment by wind. The invention may however be applied to fasteners for many other purposes.

Among the objects of the invention are to provide a fastener which when closed cannot be blown loose, or loosened by accident but which requires the exercise of intelligence to loosen it, and which at the same time may be loosened easily and instantly by one knowing how.

Other objects are to provide a fastening in which the parts are or may be practically flush with the surface holding it, a fastening capable of fixing a curtain or strap at several different stages of tension; one which is inexpensive in construction and durable in use; and, without here listing all of the objects and advantages, it may be said in general that it is the purpose of the invention to provide and of this patent to protect a device having the features of novelty which are incidental to the construction herein set forth.

An embodiment of the invention is shown in the accompanying drawings, in which—

Figure 1 is a face view or plan of apparatus embodying the invention; Fig. 2 is an elevation of the same in section on the line 2—2 of Fig. 1; Fig. 3 is an elevation of some of the same parts, showing the parts in operation; Fig. 4 is a plan of a detail, the eyelet; Fig. 5 is a plan of a modification of a detail; and Fig. 6 is a plan of another modification of the same detail.

In the drawings, 10 represents a curtain, strap or anything which it is desired to fasten at any place 11. A post having a head 12 is fixed in position by a screw 13 or other suitable means on the thing to which the fastening is to be made; and an eyelet plate 14 is fixed firmly on the curtain 10. As illustrated, the said eyelet plate is on the inner side of the curtain and the curtain itself is imperforate over the eyehole as at 10′, and is covered by a brass shell or raised plate 15, which has prongs 16 adapted to pass through the curtain and through holes 17 in the margin of the eyelet plate 14 and be clamped on the inner side thereof, thus holding the plate firm and at the same time protecting the outside of the curtain during handling. The hole in the plate consists of two portions or eyeholes 20 and 21, the former being large enough and the latter not large enough for the head 12 of the post to go through it; and the neck 21′ joining the eyeholes is narrower than the smaller of the eyeholes. The relative aspect of these eyeholes is more clearly seen in Fig. 4. The hole 21 is large enough to receive the part 19 of the post which is next under its head which may be called the bolt part because it corresponds to the bolt of a lock. The opening between holes 20 and 21 is not large enough for the bolt 19 to pass, but is large enough for passage of the shank part 18 of the post which is next farther away from the head and is smaller than the bolt 19, as clearly seen in Figs. 2 and 3. The length of the part 19 measured in the direction of axis of the post, may be not quite as great as the thickness of the eyelet piece 14 to permit the easy entrance of the wedge hereinafter described.

A ring-like keeper 25 is provided, fitting loosely on the portion 18 of the post, the spring 26 pressing it toward the shoulder between portions 19 and 18. The spring is supported in a cup 24, fastened on the remote end of the post by any suitable means, the means illustrated being an upsetting or spreading of the ends of the post, as clearly seen in Figs. 2 and 3, the post being tubular to receive screw 13. The screw holds the post firmly against the body to which the curtain is to be fastened and the cup 24 furnishes a broad base so that the attachment is secure. The post, cup and spring may be countersunk into the surface so that the inner side of the curtain is very close to the surface 10, the shoulder between parts 18 and 19 being set far enough above that surface to enable the eyelet piece 14 to pass under it. The keeper is preferably cup-shaped having flanges 25′ which overlap the flanges of the cup and thus inclose the spring. Obviously any other suitable arrangement may be substituted for the screw.

The neck 21′ between the eyeholes 20 and

21 is too narrow for the bolt 19 to pass through it, but wide enough to let the shank 18 through. Means is provided by which the bolt 19 may be slipped from eyehole 20 to eyehole 21 by pressure straight toward it, notwithstanding its exceeding the size of the neck, while, on the contrary, the bolt cannot be put out again by straight pressure or pull, but requires special and intelligent manipulation. This is effected by providing wedge-like inclines 27 on those portions of the plate which form the neck 21′ between the eyeholes, these wedges being at the entrance of the neck from eyehole 20 and pointing toward that hole and toward the under side thereof, as clearly represented in the drawings. The wedges, however, are not provided on the side of the neck toward the opening 21.

The operation of the device is as follows: To fasten the device, put the eyelet on the post and pull. This may be done with practically a single motion. The head of the post passes readily through the hole 20, and, once through, the pull brings the points of wedges 27 under the shoulder between parts 19 and 18 of the hooks, and as the pull continues, these wedges or inclines force the eyelet piece downward so that it follows their lead under the shoulder, incidentally depressing the keeper until the full thickness of the eyelet piece has past under the shoulder, the part 18 of the post going through the neck 21′ of the eyelet. To facilitate this, the shoulder between parts 19 and 18 may be formed at an incline so that a little space intervenes between the keeper and the lower end of portion 19, in which space points of the wedges naturally engage for starting the automatic depressing of the eyelet piece. When the eyelet piece has been pulled far enough to get its neck past the post, the hole 21 comes to the post, and as this is large enough to admit portion 19, the spring forces the eyelet piece back toward the head of the post, the portion 19 substantially filling the hole 21, as seen in Figs. 2 and 1. The parts are locked in this position by the spring and keeper, because portion 19 cannot pass laterally through neck 21′. Consequently, no amount of blowing by wind, nor any pulling can dislodge a curtain or strap thus fastened. However, any person desiring to loosen it may do so by merely depressing the eyelet piece enough to get it below the large part 19 of the post, and then the post portion 18 will readily slip through the neck 21′ and the eyelet may be taken off.

It will be observed that the portion 15 is not a necessary feature of the main part of the invention, nor need the strap or curtain be left imperforate at 10′, but these are advantages that may be obtained incidental to the other features, obtainable by the fact that the head of the post does not have to penetrate far on the outside of the eyelet, as in some fasteners now used. The imperforate character of the curtain saves leakage, and leaves a strength of fabric which makes a breakage or fraying of the fabric less likely to happen than when the fabric is punctured with the sizable hole required by a strong post; and the shell 15 is a cap or protection of brass by which the user may conveniently manipulate the eyelet piece without in so doing handling the fabric of the curtain itself; but obviously both of these may be omitted without affecting the other features described. The post is held rigidly and firmly in position by a single central screw, and it is, therefore, inconspicuous when the curtain is not attached and, by being countersunk, may sit so close to the surface that it is particularly unobtrusive. The simplicity of the parts makes the cost of manufacture and of assembling trifling.

Modifications of the eyelet are shown in Figs. 5 and 6. Fig. 5 shows an eyelet in which there are a succession of openings 21 performing the function of the opening 21 of Fig. 4, yet each having a neck leading into a further opening. This enables a curtain or strap to be fixed at several different degrees of tautness. Fig. 6 shows a fastening in which the portion of the eyelet piece inclosing the hole 20 is dispensed with and the eyelet merely has the hole 21 with a neck leading to the edge of the plate, to which the inclined planes or wedges 27 may be applied as before. This enables a strap or curtain to be fastened at its very edge. Other variations may be made from the precise form of the apparatus herein shown and described without departing from the scope of the invention as defined by the appended claims.

If the apparatus be used for curtains or in any location in which there is danger of the parts rattling, this may be prevented by making the plate 14 enough thicker than the length of the bolt 19 for the keeper 25 to bear firmly against it. As represented in Fig. 2, the upward movement of the keeper is limited by the beveled shoulder between 18 and 19, but by making the plate 14 thicker or by making the central hole through the keeper larger, the parts 25 and 14 would be in contact and the part 14 would be clamped against the head 12 by the spring 26. If the hole 21 be slightly larger than the bolt 19 the eyelet plate may be disengaged by a single movement of the thumb pressing downward on the casing 15 about in the direction of the arrow head leading to that casing from its numeral reference in Fig. 2. Such a depression would push downward the right hand side (as seen in the figure) of the eyelet plate 14 tilting it some-

what without pushing the left hand side down and in so doing would depress the keeper 25 sufficiently to get the plate 14 under the part 19, in which case the continuance of the pressure would push it along, with the shank 18 passing through neck 21', thus disengaging the fastening with a single motion. In some fastenings hitherto proposed, it has been customary to open them by a single pulling motion and when the device is used for fastening curtains, the effect of such a pull may result from the pressure of the wind within the vehicle causing the curtains to bulge outward. That result is not possible with the present fastening, because any outward pressure merely drives the plate 14 more firmly against the head 12, maintaining the bolt in locked position.

I claim—

1. A fastening comprising the combination of a plate having an eyehole with a relatively narrow edgewise entrance; a post having a head portion too large to go through the eyehole, a bolt portion which may go into the eyehole, but not through the edge entrance thereto, and a shank portion which may go through said entrance; the bolt portion being substantially perpendicular to the plate and adapted to form a catch engaging the thickness of the plate and positively resisting lateral stresses; and means tending to maintain the bolt portion in this position, there being wedges formed in the plate beside said entrance, adapted to engage between the end of the bolt and said maintaining means, the plate being flat, with the said wedges formed in the thickness thereof, and the bolt held by the metal in the thickness of the plate on each side of the entrance to the eyehole.

2. A fastening comprising the combination of a plate having an eyehole with a relatively narrow edgewise entrance; a post having a head portion too large to go through the eyehole, a bolt portion which may go into the eyehole, but not through the edge entrance thereto, and a shank portion which may go through said entrance; the bolt portion being substantially perpendicular to the plate and adapted to form a catch engaging the thickness of the plate and positively resisting lateral stresses; there being a keeper adapted to press toward the end of the bolt; means limiting the approach of the keeper, whereby an opening is afforded between the end of the bolt and the keeper; and wedges formed in the edge of the plate beside said entrance adapted to engage between said keeper and the end of the bolt.

3. A fastening comprising the combination of a plate having an eyehole with a relatively narrow edgewise entrance; a post having a head portion too large to go through the eyehole, a bolt portion which may go into the eyehole, but not through the edge entrance thereto, and a shank portion which may go through said entrance; the bolt portion being substantially perpendicular to the plate and adapted to form a catch engaging the thickness of the plate and positively resisting lateral stresses; means to fasten the post to material, a cup mounted thereon and a spring within the cup pushing toward the bolt.

4. A fastening comprising the combination of a plate having a multiplicity of eyeholes connected by intervening necks, a post having a head too large to pass through them, a bolt portion which may go into them, but not through the necks, and a shank portion which may go through said necks; said bolt portion being substantially perpendicular to the plate and adapted to form a catch engaging the thickness of the plate and positively resisting lateral stresses; and means tending to maintain the bolt in this position.

5. A fastening comprising a flat plate having an eyehole, a slot leading thereto, and inclined edges at the entrance of the slot; combined with a post having a shank portion to pass through the slot and a bolt portion too large for that but able to enter the eyehole; and means pressing the bolt at right angles to the plate in direction to enter the eyehole; said inclined edges being adapted to engage and displace the bolt in opposite direction a distance equal to the thickness of the plate when the post enters the slot toward the eyehole, and the bolt being held by the thickness of the plate when in the eyehole.

6. A fastening comprising the combination of a plate having an eyehole with a relatively narrow edgewise entrance; a tubular post having one end expanded forming a head too large to go through the eyehole, a bolt which may go into the eyehole, but not through the edge entrance thereto, the shank of the post being of size to go through said entrance; a spring surrounding the post, expansible in the axial direction; and bearing pieces at opposite ends of the spring, with flanges inclosing the spring.

Signed by me at Boston, Mass., this 29th day of March, 1910.

ARTHUR E. ENGLAND.

Witnesses:
EVERETT E. KENT,
JOSEPH T. BRENNAN.