Oct. 31, 1933. M. WINTERHALTER 1,933,290

RIPPING CLOSURE AND THE LIKE

Filed April 10, 1930

Fig. 1

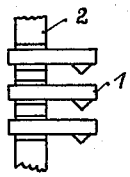


Fig. 2

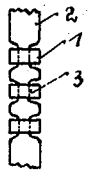


Fig. 3

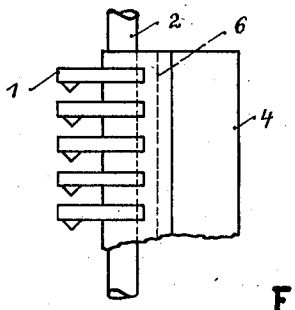


Fig. 4

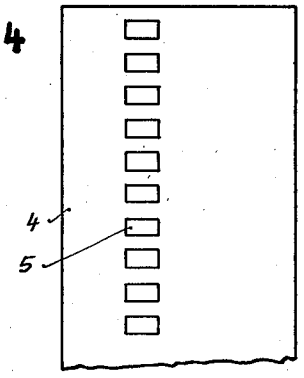


Fig. 5

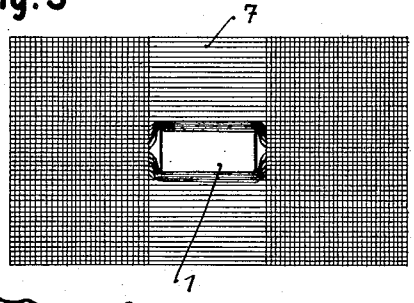
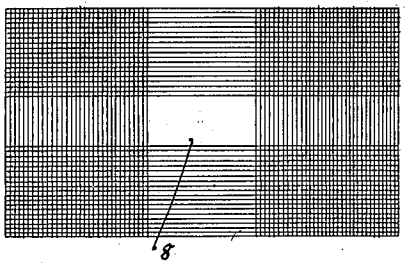


Fig. 6



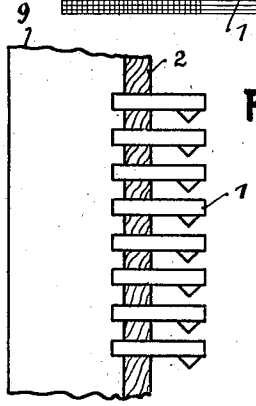


Fig. 7

Fig. 8

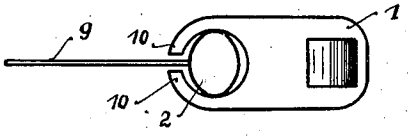


Fig. 9

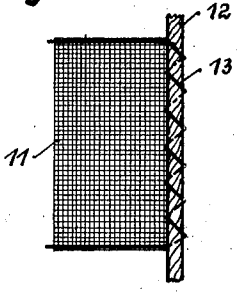


Fig. 12

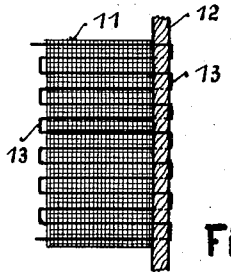
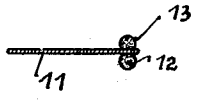
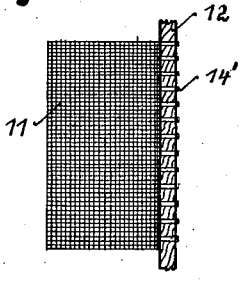


Fig. 10

Fig. 11





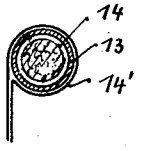


Fig. 13

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RIPPING CLOSURE AND THE LIKE

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Application April 10, 1930, Serial No. 443,165, and in Great Britain May 13, 1929

6 Claims. (Cl. 24—205)

The invention relates to separable fasteners in which the locking members are retained by clamping the same on the edge of a support or stringer provided with a beaded edge. The fastener members herein consist of thin plates and these plates are provided with elevations and corresponding depressions which act as fastener elements.

In fasteners of this type the above mentioned locking members have hitherto been attached on a stringer support having a beaded edge which, like the body portion of the stringer support, consisted of fibrous materials. The stringer supports were thus generally formed of woven strips or the like. A combination of metallic closure members and a support formed of woven material was produced in this manner. It was impossible to mount the closure members on such stringer supports with the required strength. In addition, it was also impossible to obtain the required accurate relative spacing of the locking members or to maintain it during use, because the stringer support consisting of fibrous material possessed a certain inherent elasticity which expanded or contracted undesirably, for example, according to temperature or moisture conditions.

With separable fasteners, the locking members of which are formed of wire loops, it has previously been proposed to arrange these loops in rows on a metallic support. In this arrangement the individual locking members are placed in rows close together. There are thus no interstices between the locking members, and as a result this construction does not present the problem as in the present case, because the plates always extend in only one plane. Also, in known cases, the wire, as a support, forms an independent member, which is embedded in a sheath, and is thus not an edge cord on a strip which is woven with the strip.

The above mentioned defect is eliminated by the present invention in that the cords, at least on their outside, are wholly or partly metallic. Thus, instead of the hitherto usual construction of the cord as a purely fibrous member, the use of metal is proposed for this purpose, at least to provide a metallic reinforcement for the cords.

The invention also provides that the cord supports should be partially of metal, for example, by reinforcing a suitable band or strip with metal and thus to attain certain durability independent of the manner in which the fastener is used.

The cord may thus, for example, consist of a metal strand, braid or the like. Known cords may also have metal interspersed therethrough. The metallic constituent may also be attached to the remainder of the stringer by a special metallic thread passed through as the weft thread. This constituent can thereby be wound around the cord and attached to the body of the support as a weft thread at spaced distances. The wire can also be passed continuously as a weft thread into the fabric comprising the cord and support.

It is old in separable fasteners to seat the support or stringer for the locking members upon a cord in a sheathing with the locking members passing out through window-like openings provided therein. An arrangement of this kind can also be used in the present case. According to the invention the sheath consists of a strip with weft and chain threads. The chain threads are interrupted and applied around the locking members so that they pass through the interruptions of the chain. Further details of the invention are shown by the drawing, wherein:

Figure 1 is a lateral elevation of an embodiment.

Figure 2 is a corresponding front elevation.

Figure 3 is the construction of Figs. 1 and 2 in combination with a sheath, in side elevation.

Figure 4 shows the sheath of Fig. 3 in extended state.

Figure 5 is a section of such sheath in fabric with the corresponding locking member in extended state.

Figure 6 is a second embodiment of such sheath.

Figure 7 is a lateral elevation of a construction modified relative to that of Figs. 1 and 2.

Figure 8 is a locking member according to Fig. 7 in plan view on enlarged scale.

Figure 9 shows an embodiment of a band or strip provided with cords, with metallic reinforcement.

Figure 10 is a second modification of such strip.

Figure 11 is a corresponding cross-section.

Figure 12 is a third modification of such strip.

Figure 13 is a corresponding cross-section on enlarged scale.

In the case of Figs. 1–9 the well known locking members 1, consisting of individual plates, are mounted in rows on a wire 2, a constant distance being maintained between them, the said wire 2 being pressed wide at the points, that is at 3, serving for the reception of the plates, so that the latter are securely fastened.

According to Figs. 3 and 4 the wire 2 is embedded in a sheath 4, which is assumed as being of leather, for example, but in any case not of fibrous material. The sheath 4 is provided with window-like openings, apertures or the like 5 through which the individual locking members 1

pass outwardly, while in addition the sheath is applied around the wire 2 in such manner that the closure or locking members lie freely in the usual manner, so that the slide belonging to the separable fastener can operate freely.

After the sheath has been applied in the manner described about the wire 2 and a hose-like part formed, the hose is closed by sewing, as shown on Fig. 3 by the line 6.

In the case of Fig. 5, it is assumed that the sheath consists of a woven fabric formed in the usual manner with warp and weft threads. In order to form the apertures the weft threads are interrupted at 7, while the warp threads are wound around the locking member 1, one only of which is shown on Fig. 5. If it is desired to avoid this, use may be made of the embodiment of Fig. 6 in which the warp threads, during the weaving, are so guided that the necessary free space 8 is produced. In this case also the hose formed is closed by sewing, as in the case of Fig. 3.

When mounting the locking members with the use of a sheath as described in the latter case, care must be observed that the locking members cannot turn or rotate about the support 2. According to Figs. 1 and 2 the support is flattened at the points at which it is engaged by the locking members, thus making rotation thereabout impossible.

Figs. 7 and 8 incorporate another possibility, particularly in combination with a sheath, as shown in Figs. 3 to 6, in connection with which it is stated that the sheath 4 encompasses the support in hose-like fashion. In this case caution must be observed that the locking elements together with the base cannot turn around the support. For this purpose, according to Figs. 7 and 8, the wire 2 is provided with a web therealong, against which the free ends of the arms of the closure members are applied. It is to be noted that if the web 9 is of fibrous material the arms of the closure parts can be firmly forced or pressed in this material. If, however, the web is of metal, at least on its outer surface, such forcing or pressing is rendered difficult. This defect is overcome according to the present invention in that the arms are applied to clamp against the wire 2 and have extensions 10 which are applied in the above described manner against the web 9 of wire 2. Fig. 8 shows the arrangement in which the locking member is mounted on the combined wire 2 and web 9.

In connection with known modifications of woven strips provided with cords along the edge, Figs. 9–11 show examples of how the metallic reinforce can be provided. Attached to the strip 11 or body of the stripped stringer support are the cords 12 forming a beaded edge which serves in known manner for supporting the plate-shaped locking elements. In the case of Fig. 9 the cords themselves are wound with wire 13 and this wire at intervals extends into the body of the stringer support as a weft thread. In the case of Fig. 10, on the contrary, the wire 13 is passed at regular intervals, thus continuously as a weft thread, through the body of the stringer support and the cords. Fig. 11 is a cross-section showing the guiding. Operation can also be such that the wholly or partly metallic cord or cords can be attached to the body of the stringer support by the weft threads of the support themselves. An example of this is shown on Figs. 12 and 13. It is assumed therein that it involves a strip or web 11 one edge of which is provided at both sides with cords 12. For the cords it is assumed that use is made of one having a metallic covering 13, the cord 14 thus being of fibrous material. The cords are attached by the weft threads 14' of the strip or web 11 to the strip itself. In contrast to the exemplary embodiments of Figs. 9–11 no metallic weft threads serve for attaching the cords with the strip.

The above described modifications of the invention are to be construed as merely illustrative of the invention and not as limiting the invention in any way.

I claim:

1. A separable fastener comprising a stringer support having metallic reinforcements and a reinforced cord upon the edge of said support to reinforce the same, locking members formed of thin plates and having elevations and depressions designed to lock together, and said locking elements being clamped in spaced relation to the reinforced cord on the edge of said support.

2. A separable fastener comprising a fibrous stringer support having fibrous cords covered with wire upon the edge of said support to reinforce the same, locking members formed of thin plates and having elevations and depressions designed to lock together, and said locking elements being clamped in spaced relation to the wire covered fibrous cords on the edge of said support.

3. A separable fastener comprising a fibrous stringer support having warp and weft threads and having a cord mounted upon the edge of said support, a wire wound about said cord and threaded at spaced intervals into said support as weft threads for reinforcing both the cord and said support, locking members formed of thin plates and having elevations and depressions designed to lock together, and said locking elements being clamped in spaced relation to the cord on the edge of said support.

4. A separable fastener comprising a stringer support of fabric with fabric cords positioned upon the edge of said support, said support having metallic weft threads, locking members formed of thin plates and having elevations and depressions designed to lock together, and said locking elements being clamped in spaced relation to the fabric cords on the edge of said support.

5. A separable fastener comprising a stringer support having a partially metallic cord secured to the edge thereof by the weft threads of said support, locking members formed of thin plates and having elevations and depressions designed to lock together, and said locking elements being clamped in spaced relation to the cord on the edge of said support.

6. A separable fastener comprising a support having weft and warp threads and having a cord with metallic reinforcement secured to the edge of said support by the weft threads of said support, locking members formed of thin plates and having elevations and depressions designed to lock together, and said locking elements being clamped in spaced relation to the cord on the edge of said support.

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