

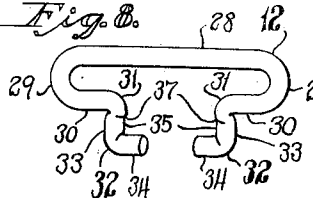
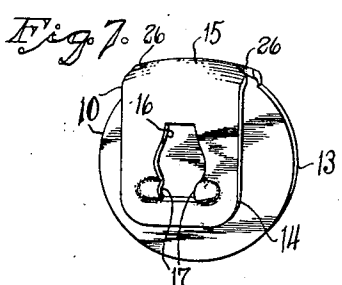
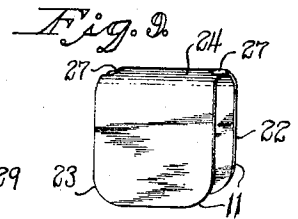
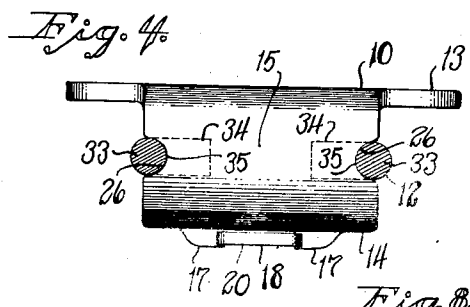
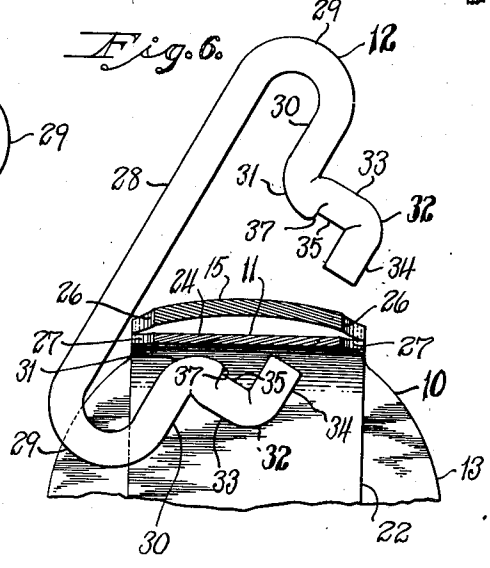
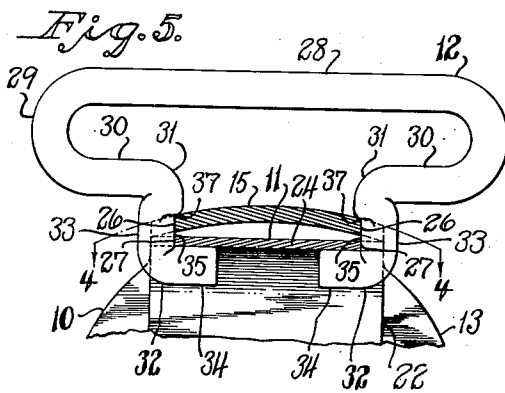
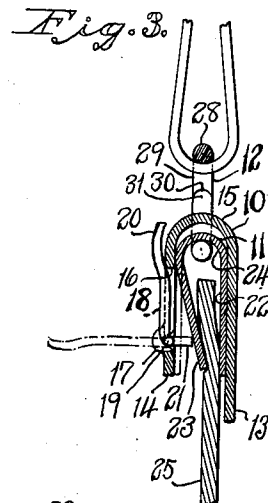
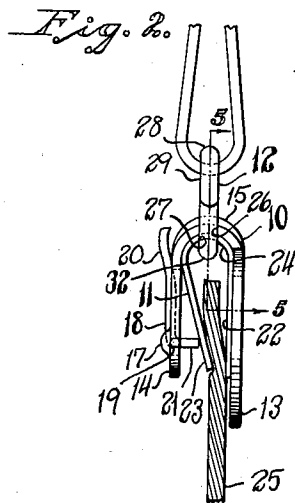
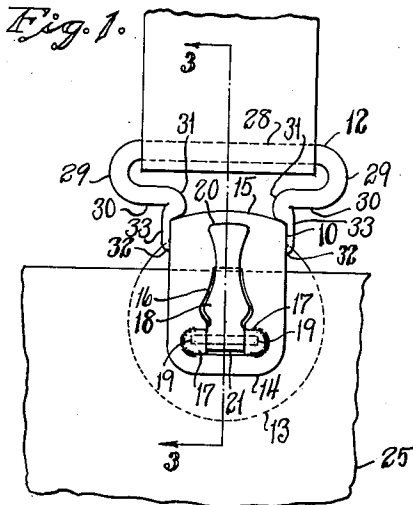
March 5, 1940.

W. S. PAINTER

2,192,604

CLASP-SUSPENSION COUPLING

Filed Feb. 18, 1939



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UNITED STATES PATENT OFFICE

2,192,604

CLASP-SUSPENSION COUPLING

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Application February 18, 1939, Serial No. 257,161

9 Claims. (Cl. 24—258)

This invention relates to suspension-couplings for clasps and more especially to suspension-couplings of a type suitable for connecting garment-clasps to suspenders, garters, and the like.

The primary object of the invention is to provide a suspension-coupling of improved construction suitable for various kinds of clasps which are to be suspended by straps, webs, or the like for detachably supporting garments or other articles.

One object of the invention is to provide an improved suspension-coupling for clasps to facilitate the attachment of suspension-loops thereto and thereby to effect a reduction in manufacturing costs during the assembly stage in quantity production.

Another object of the invention is to provide an improved suspension-coupling for clasps of the character referred to and comprising detachably-connected suspension-loop-and-clasp members to permit the latter to be separated from the former for separate manipulation when the suspension-loop is more or less permanently connected up with a strap, fabric, or the like.

Still another object of the invention is to provide an improved suspension-clasp construction in which the clasp is detachably connected to a suspension-loop by means of a coupling which retains the clasp and suspension-loop in fixed relation.

With the above and other objects in view, as will appear to those skilled in the art from the present disclosure, this invention includes all features in the said disclosure which are novel over the prior art and which are not claimed in any separate application.

In the accompanying drawing:

Fig. 1 is a view in front elevation of a clasp of suitable form to have the present invention adapted thereto, the clasp being shown in gripping relation to a garment to be supported and having its suspension-loop attached to a supporting-web or strap;

Fig. 2 is a view in side elevation of the assembly shown in Fig. 1;

Fig. 3 is a vertical medial section of the same taken on the line 3—3 of Fig. 1;

Fig. 4 is an enlarged top plan view of the clasp, corresponding to line 4—4 of Fig. 5, with the laterally-spaced coupling-bars of the suspension-loop shown in section;

Fig. 5 is an enlarged view in vertical section taken on the line 5—5 of Fig. 2;

Fig. 6 is a view similar to Fig. 5 with the sus-

pension-loop shown in process of being disassembled from the clasp;

Fig. 7 is a perspective view of the gripper-mounting frame or yoke, detached;

Fig. 8 is a perspective view of the suspension-loop, detached; and

Fig. 9 is a perspective view of the U-loop gripper-spring, detached.

The clasp may be of any desired construction suitable for adaptation to the purposes of the present invention and, in the form herein shown for illustration, comprises a gripper-mounting frame or yoke generally designated by the reference character 10; a U-loop gripper-spring generally designated by the reference character 11; and a suspension-loop generally designated by the reference character 12.

As shown particularly well in Fig. 7, the frame or yoke 10 comprises a relatively-large disk-like back plate 13; a substantially-rectangular front plate 14; and an arcuate top wall 15 which is integrally formed with and unites the front plate 14 to the back plate 13. The front plate 14 is provided with an opening 16 extending therethrough to accommodate a gripper-operating lever and, at the lower edge of the said opening, with laterally-spaced trunnion-sockets 17—17. The gripper-operating lever is in the form of a bent lever which is generally designated by the reference character 18 and provided with trunnions 19—19 which are pivotally mounted in the trunnion-sockets 17—17, respectively. The bent lever 18 comprises, with its trunnions 19—19, an operating-arm 20 and a gripper-actuating arm 21.

The gripper-spring 11 comprises a rear gripper-spring arm 22; a front gripper-spring arm 23; and a U-bend 24 which is integrally formed with and constitutes a connecting wall between the rear and front gripper-spring arms 22 and 23, respectively.

As shown particularly well in Figs. 2 and 3, in the assembled positions of the parts of the clasp, the U-loop gripper-spring 11 is arranged between the back plate 13 and the front plate 14 of the frame or yoke 10, with the rear gripper-spring arm 22 seated upon the back plate 13 and the front gripper-spring arm 23 in flatwise engagement with the front plate 14 of the frame or yoke 10, as shown in dotted lines in Fig. 3, when the operating-arm 20 is moved outwardly into dotted-line position as shown in this figure. According to the embodied form of the clasp shown on the drawing, the gripper-spring 11 is constructed equal in width to the front plate 14

of the yoke or frame 10 and, as shown especially well in Figs. 5 and 6, the said gripper-spring is arranged with the U-bend 24 therein in engagement with the arcuate top wall 15 of the frame or yoke 10, and with the lateral edges of the front gripper-spring arm 23 arranged flush with the lateral edges of the front plate 14 of the frame or yoke 10. It will be understood from an inspection of Figs. 2 and 3 that, as the operating-arm 20 is moved about its trunnions from its dotted-line position shown in Fig. 3 to the full-line position shown in the said figure, the actuating-arm 21 of the bent lever 18 is caused to wipe over the front gripper-spring arm 23 and to depress it into gripping engagement with a garment or fabric 25, which is thereby gripped between the spring-gripper arms 22 and 23.

As shown in Fig. 7, the arched top wall 15 of the gripper-frame is provided with oppositely-facing coupling-sockets 26—26. As shown in Fig. 9, the U-loop gripper-spring 11 is provided in the arched wall 24 thereof with oppositely-facing coupling-sockets 27—27. In the assembled position of the parts, as shown exceptionally well in Figs. 5 and 6, the coupling-sockets 26 and 27 are in vertical alignment in substantially a vertical plane of suspension, as shown in Fig. 4.

Referring now to Fig. 8, the suspension-loop 12 comprises a transverse suspension-bar 28 which, at opposite ends thereof, is connected by outwardly-bowed side-reaches 29—29 to inwardly-extending intermediate limbs 30—30 which are arranged substantially in alignment below the suspension-bar 28. Integrally united to the inner ends of the intermediate limbs 30—30, by means of rounded elbows 31—31, are oppositely-arranged coupling-arms generally designated by the reference character 32—32. The said coupling-arms 32—32 comprise laterally-spaced vertical coupling-bars 33—33 which are constructed and arranged to snugly interfit with the coupling-sockets 26 and 27 formed in opposite edges of the arched walls 15 and 24, and clasp-suspending fingers 34—34 which are constructed and arranged to project inwardly into supportable engagement with the suspension-portion of the clasp comprising arched wall 24 of the U-loop gripper-spring 11 and arcuate wall 15 of the frame or yoke 10. The coupling-bars 33—33 are laterally offset outwardly from the rounded elbows 31—31 to provide coupling-recesses 35—35 extending between the clasp-supporting fingers 34—34, and laterally-spaced detent-shoulders 37—37.

From the foregoing, it will now be readily understood that the operation of assembling the clasps and suspension-loops therefor is rendered simple, facile and rapid.

For example, the gripper-frame or yoke 10 may be grasped between the thumb and fingers of the left hand, and while the said frame or yoke is held in a vertical position, such as that represented in Fig. 6, the suspension-loop 12, arranged in the manner shown in Fig. 6, may be moved from left to right, with the inturned clasp-supporting fingers 34—34 moving transversely of and within and without the arched walls 15 and 24, respectively. As the right-hand clasp-suspending finger 34 passes beyond the coupling-sockets 26 and 27 at the right, the suspension-loop 12 may be tilted in a clockwise direction for the purpose of seating the coupling-sockets 26 and 27 within the right-hand coupling-recess 35. While applying pressure to the right-hand clasp-engaging arm 32, to retain the

right-hand coupling-bar 33 in pivotal relation to the coupling-sockets 26 and 27 at the right, the left-hand side-reach portion 29 of the suspension-loop may be grasped between the fingers and thumb of the left hand to move the rounded inner surface of the elbow 31 at the left into camming engagement with the outer corner of the coupling-socket 27 formed in the left edge of the arched wall 24 of the gripper-spring 11. A continuation of this clockwise tilting movement of the suspension-loop 12 about the right-hand coupling-sockets 26 and 27 serves to spring the left-hand clasp-engaging arm 32 outwardly until the detent 37 at the left hand snaps over the inner edge of coupling-recess 26 at the top under the inherent resilience of the metal of which the suspension-loop 12 is constructed.

As shown particularly well in Figs. 5 and 6, in its assembled position with respect to the clasp, the suspension-loop 12 is releasably coupled to the clasp and, normally, retained in immobile relation thereto in a common plane of suspension extending midway between and substantially parallel to the front and back plates 14 and 13 of the clasp. It is to be noted that in this assembled relationship of the parts, the suspension-loop 12 is held against forward or backward tilting movement from the common suspension plane by the interlocking coupling-connection between the coupling-side-bars 33—33 and the coupling-sockets 26, 27 at opposite sides of the pendant-clasp at the top.

The clasp-suspending fingers 34—34 are constructed and arranged to engage the under surface of the return-bend 24 of the gripper-spring 11 to prevent the downward displacement of the clasp from the suspension-loop 12 in the direction in which it is normally under stress. On the other hand, for the purpose of preventing an accidental downward dislodgment of either of the suspension-fingers 34—34 from supportable engagement with the clasp, the oppositely-disposed detent-shoulders 37—37 are arranged to snap into engagement with opposite edges of the arcuate top wall 15 of frame 10.

As shown particularly well in Fig. 5, the coupling-bars 33—33 together with the suspension-fingers 34—34 immediately below, and the detent-shoulders 37—37 immediately above, provide coupling-recesses 35—35, wherein, under all normal conditions, the arcuate top wall 15 and return-bend 24, which constitute the suspension-portion of the clasp, are normally interlocked with the suspension-loop 12 against unintentional or accidental tilting displacement in lateral, as well as in forward and rearward, directions. For this purpose, the suspension-loop 12 is made sufficiently inflexible to retain the clasp and suspension-loop in immobile relation to each other under the usual stresses to which they are subjected when in use but sufficiently flexible to permit either detent-shoulder 37 to be wedged outwardly by an intentional forcible displacement thereof past the coupling-sockets 26, 27 when it is desired to remove the clasp from its suspension-loop.

The invention may be carried out in other specific ways than those herein set forth without departing from the spirit and essential characteristics of the invention, and the present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive, and all changes coming within the meaning and equivalency range of the appended claims are intended to be embraced therein.

I claim:

1. In combination with a clasp having a gripper-frame comprising a front plate, a back plate, and an arched wall integrally uniting said front and back plate; a U-loop gripper-spring comprising a front gripper-arm, a back gripper-arm, and an arched wall integrally uniting said gripper-arms; said U-loop gripper-spring being interposed between the front and back plates of said gripper-frame with its arched wall nested within the said arched wall of the gripper-frame; at least one of said arched walls being provided with coupling-sockets; and a suspension-loop provided with coupling-arms comprising laterally-spaced coupling-bars provided with inwardly-facing coupling-recesses constructed and arranged to interlock with the said coupling-sockets of the gripper-frame, and intumed clasp-suspending fingers in supporting engagement with one of said arched walls.

2. In combination with a pendant-clasp provided with laterally-spaced coupling-sockets arranged in a common vertical plane of the clasp at the top; a suspension-loop having oppositely-arranged coupling-arms arranged in a common plane and comprising coaxially-arranged clasp-suspending fingers constructed and arranged to interengage with the clasp at the top and laterally-spaced coupling-bars constructed and arranged to interlock with the said coupling-sockets in the pendant-clasp to retain the clasp and suspension-loop in fixed relation to each other in respect to relative lateral displacement therebetween, as well as in respect to relative forward and rearward movements of one with respect to the other.

3. In combination with a clasp having an arched suspension-wall provided with oppositely-presented coupling-notches in opposite lateral edges thereof; a suspension-loop comprising a horizontal suspension-bar; outwardly-bowed side-reaches depending therefrom at opposite ends, aligned horizontal limbs extending inwardly from the lower ends of said side-reaches; elbows arranged at the inner ends of said horizontal limbs to have camming engagement with the said coupling-notches, respectively; parallel coupling-bars depending from and outwardly offset from said elbows to provide detent-shoulders at the upper ends of the former; and intumed terminal portions constructed and arranged to suspensibly interengage with opposite side-edges of the arched suspension-wall.

4. In combination with a suspension-clasp comprising front and back plates and an arched connecting-wall provided with oppositely-presented coupling-sockets arranged in a common plane substantially midway between the front and back plates of the clasp; a suspension-loop comprising a suspension-bar; outwardly-bowed side-reaches at the outer ends of the said suspension-bar; and coupling-arms depending from the said bowed side-reaches and comprising intermediate vertical portions constructed and arranged to have interlocking engagement with the coupling-sockets in the arched connecting-wall of the suspension-clasp; and intumed clasp-suspending fingers constructed and arranged to supportably engage the suspension-clasp below the said coupling-sockets; the said intermediate portions of the coupling-arms being provided with inwardly-presented detent-shoulders at the upper ends of said coupling-recesses; the said suspension-loop being constructed of material sufficiently resilient to permit the outward displacement of one of the clasp-supporting arms

relatively to the other to permit a tilting-movement of the suspension-clasp about the opposite coupling-recess and a subsequent lateral-movement of the arched connecting-wall to disengage it from the coupling-recess about which the tilting-movement occurs; the said coupling-arms being constructed and arranged to provide an intervening gap between the clasp-supporting fingers of sufficient width to permit the detachment of the arched connecting-wall from the said suspension-loop by a lateral-movement in the opposite direction.

5. In combination with a clasp having a gripper-frame comprising a front plate, a back plate, and an arched wall integrally uniting said front and back plates; a U-loop gripper-spring comprising a front gripper-arm, a back gripper-arm and an arched wall integrally uniting said gripper-arms; said U-loop gripper-spring being interposed between the front and back plates of said gripper-frame with its arched wall nested within the said arched wall of the gripper-frame; at least one of said arched walls being provided with coupling-sockets presented in opposite directions substantially in a plane of suspension extending between and in substantial parallelism with the front and back plates of the gripper-frame; and a suspension-loop comprising a transverse suspension-bar, laterally-spaced intermediate limbs arranged in alignment below and integrally united to the said suspension-bar by outwardly-bowed side-reaches to provide clearance-spaces for the transverse tilting movement of the said arched wall about one or the other of its lateral edges during the detachment of the suspension-loop from the clasp, laterally-spaced coupling-bars depending from the spaced inner ends of the said intermediate limbs and provided with inwardly-facing coupling-recesses constructed and arranged to interlock with the said coupling-sockets of the gripper-frame, and intumed clasp-suspending fingers in supporting engagement with at least one of said arched walls at opposite lateral edges thereof, the said coupling-bars being united to the inner ends of the said intermediate limbs of the suspension-loop by rounded elbows constructed and arranged for camming engagement with the said coupling-sockets during the assembling and disassembling of the clasp and suspension-loop.

6. In combination with a pendant-clasp having front, back, and arched top-wall portions, said pendant-clasp being provided at the top and substantially in a common plane of suspension extending midway between and in parallelism with the front and back portions thereof, with outwardly-presented coupling-sockets; and a suspension-loop therefor provided with laterally-spaced coupling-arms including coupling-bars constructed and arranged to have interlocking connection with the said coupling-sockets of the pendant-clasp and intumed clasp-suspending fingers to supportably engage the pendant-clasp below the coupling-sockets therein for retaining the pendant-clasp against downward displacement relatively to the said coupling-loop; the said coupling-bars being provided with inwardly-presented detent-shoulders constructed and arranged to engage the pendant-clasp at the top to prevent relative upward displacement of the pendant-clasp with respect to the suspension-fingers.

7. In combination with a pendant-clasp provided at the top with laterally-spaced outwardly-

presented coupling-sockets arranged in a common plane of suspension extending in parallelism with and intermediately of the front and rear portions of the said pendant-clasp; a suspension-loop therefor having a substantially-inflexible suspension-bar with oppositely arranged coupling-arms depending therefrom substantially in the common plane of suspension and comprising side-bars constructed and arranged to have inflexible coupling connection with the coupling-sockets of the pendant-clasp and inturned clasp-supporting fingers in laterally-spaced alinement with each other and constructed and arranged to provide a clearance space through which the coupling-sockets of the pendant-clasp are movable into and out of position within the suspension-loop when the latter is in a laterally-tilted position with respect to the former for detachably connecting the pendant-clasp and the suspension-loop therefor.

8. In combination with a pendant-clasp comprising: a frame having front and back plates integrally united by an arched wall at the top and a U-loop gripper-spring interposed between the front and back plates of said frame with its return-bend arranged adjacent the arched wall thereof; the said arched wall of the frame and the return bend of the U-loop gripper-spring being provided with oppositely-presented vertically-aligned coupling-sockets arranged in a common plane of suspension extending between and in parallelism with the front and back plates of said frame; a suspension-loop therefor having a normally inflexible suspension-bar and oppositely-arranged depending coupling-arms disposed substantially in the common plane of suspension and comprising oppositely-arranged coupling side-bars constructed to interlock with the vertically-aligned coupling-sockets at opposite sides of the frame and U-loop gripper-spring, and inturned suspension-fingers in supportable engagement with the under-surface of the return-bend of the U-loop gripper-spring.

9. In combination with a pendant-clasp having a frame comprising a front plate, a back plate, and an arched wall integrally uniting said front and back plates; a U-loop gripper-spring arranged between the front and back plates of the frame of said clasp with the return-bend thereof arranged in close juxtaposition to the arched wall of the frame; the arched wall of the frame and the return-bend of the U-loop gripper-spring being provided at opposite edges of the pendant-clasp with vertically-aligned coupling-sockets arranged in a common plane of suspension extending between and in parallelism with the front and back plates of the frame of said clasp; and a suspension-loop for the pendant-clasp, comprising: a transverse suspension-bar; outwardly-bowed side-reaches depending at opposite ends from said suspension-bar; intermediate limbs extending inwardly from the lower end of the said side-reaches and in alignment with each other; and laterally-spaced coupling-arms depending from the inner ends of the said limbs, respectively, and having parallel coupling-bars constructed and arranged to interlock with the coupling-socket of said pendant-clasp, and inwardly-presented clasp-supporting fingers to engage the under-surface of the return-bend of the U-loop gripper-spring; the said coupling-bars being integrally-united to the said limbs by elbows provided with inwardly-presented detent-shoulders at the top of said coupling-bar for snap-lock engagement with the arched wall of the clasp frame; the said elbows being constructed and arranged to have camming-engagement with the coupling-sockets in said arched wall and return-bend on one or the other side of the clasp when the coupling-sockets on the opposite side thereof are movably disposed in engagement with the opposite coupling-bar.

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