

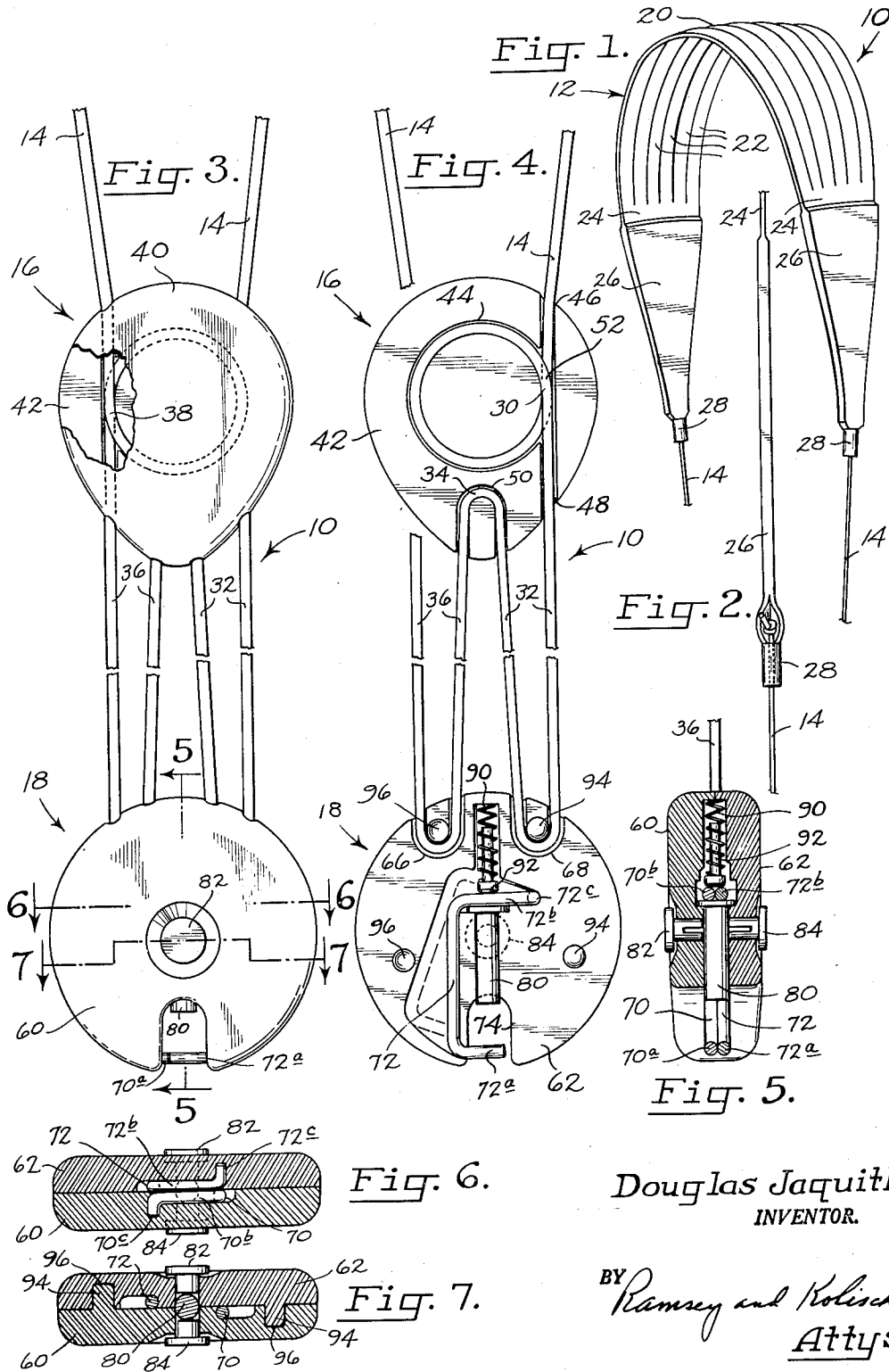
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MUSICAL INSTRUMENT SUPPORT

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MUSICAL INSTRUMENT SUPPORT

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This invention relates to an instrument support, and more particularly to a harness that is slung over the neck and includes means for securing it to an instrument to enable the harness dependently to support the instrument.

When playing a saxophone, clarinet and the like, it is common to use a support harness for the instrument in order better to free the hands and arms for playing purposes. Generally such a harness should be comfortable and easily adjusted to different lengths. The support should be able to hang loosely on a person without shifting or twisting thereof. Further, the mechanism used to attach the support to an instrument should be fast and reliable, and should be capable of holding the instrument firmly without the possibility of the instrument inadvertently becoming detached.

The support of this invention comprises an elongated flexible element formed as an endless overall loop. The flexible element is folded to define a neck-engaging loop portion adapted to be placed over a person's neck, plural pendent loop portions at the base of the support that provide a means for adjusting the length of the support and that carry a clasp for attachment to an instrument, and annular loop portions intermediate the ends of the support which function as a means frictionally for holding the support in various adjusted lengths. A slide element is provided which has tunnels or ways for mounting the annular loops. The furled flexible element slides through these ways upon adjustment in length of the support, but grips the walls of the tunnels between adjustments thus to hold the support to a given length. The clasp at the base of the support has tunnels or ways for receiving the bases of the pendent loops, and these ways are so placed that the latter loops are spread apart and lie side by side. The slide and clasp coact in maintaining the various runs of the flexible element in spaced, substantially parallel relationship, with the element thus prevented from twisting and turning.

At the top of the neck-encircling loop is a neckband portion of considerable width. This band portion comprises plural flat strip portions set side by side and joined at their ends. The strip portions are yieldable laterally of each other intermediate their ends and readily conformable to different support shapes, and thus when the neckband portion is placed over a person's neck the support is worn quite comfortably. The strip portions enable the neckband to give readily and permit the runs of the support connected to the band portion to fall smoothly down over the front of a wearer.

The clasp at the base of the instrument support is characterized by a number of novel features which make the clasp easily attachable to an instrument, and once attached, securely held against inadvertent release. Thus the clasp comprises a body having a recess formed therein for receiving the attaching eye of an instrument. A pair of jaw members are provided which have a set of ends cooperating in closing off the recess. The jaw members are set opposite to each other, and have pivot connections so disposed that on the application of an external pressure directed inwardly against the jaw members they tend to pivot to one side and open up the recess. The clasp is attached to an instrument by bringing it up against the attaching buckle or eye of an instrument and pressing it against these jaw members. Once attached, the jaw members are prevented from opening by reason of a spring biasing means which urges the jaws to a closed

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position. To remove an instrument, a plunger is depressed which functions to open the jaw members and then laterally extending, digitally actuated brake members are actuated to maintain the jaw members in their opened position. The instrument may then be removed, and the jaw members fall back to a close position on release of the brake members.

Thus, objects of the invention are to provide a novel instrument support which comprises an elongated flexible element having a series of loops and bends organized so that the instrument support is readily adjustable in length and to provide an instrument support wherein the loops and bends are situated so as to maintain the slide provided intermediate the ends of the support and the clasp provided at the end of the support in proper wearing position.

Other objects are to provide a novel clasp mechanism for the instrument support which comprises jaw members mounted so as to be self-opening on the application of an external force thereagainst, novel means for opening the jaw members, and novel means for holding these jaw members in opened position thus to permit the release of an instrument.

The invention is described hereinbelow in conjunction with the accompanying drawing, wherein:

FIG. 1 is a view in perspective of the neckband portion of the instrument support;

FIG. 2 is a view of the base of one end of the neckband portion, slightly enlarged, and showing how a cord is suspended therefrom;

FIG. 3 illustrates the friction slide and clasp provided at lower portions of the instrument harness and the runs of the cord which extend between these two elements;

FIG. 4 is similar to FIG. 3, save that portions of the slide and clasp are removed to illustrate details; and

FIGS. 5, 6 and 7 are section views along the lines 5-5, 6-6 and 7-7, respectively, in FIG. 3.

Referring now to the drawings, a support harness indicated generally at 10 constructed according to an embodiment of this invention comprises a neck-engaging or neckband portion 12 (best illustrated in FIGS. 1 and 2), a cord 14 secured at its ends to the ends of neckband portion 12 and arranged in loops and bights to be described, a slide 16, and a clasp 18. The slide is intermediate the ends of the support, and clasp 18 is at the base of the support. The latter element is provided with mechanism for attaching onto an instrument.

Neckband portion 12 comprises an elongated center portion 20 of flexible material such as leather, plastic, fabric and the like, which is adapted to be placed over the back of the neck. During use, the ends of center portion 20 are drawn downwardly by the weight of the instrument, and provision is made for the center portion yieldably to conform to the outline of the neck and afford comfort. Thus the center comprises plural strip portions 22 laid side by side and extending over an area of substantial width. The strip portions are joined at their ends by an interconnecting web of material 24. Triangular portions 26 connected to webs 24 as by sewing, adhesive, etc. extend downwardly to where they are joined with the upper ends of the cord 14. The connection may be made as shown in FIG. 2, by passing an end of the cord through a sleeve 28 and knotting the cord above the sleeve (the sleeve and the base of a triangular piece 26 being integral).

Progressing downwardly from the base end of a triangular piece 26 (considering the right-hand run of the cord in FIGS. 3 and 4), the cord first passes through slide 16 where it is furled to define an annular bight 30. From bight 30 the cord progresses downwardly and thence passes into and out of the body of clasp 18 to define a pendent, open loop 32. Thence the cord makes a re-

verse turn 34 within the interior of slide 16, and passes downwardly again to define a second pendent, open loop portion 36. Thence the cord passes upwardly through slide 16 while defining an annular loop or bight 38, and continues to where its other end is connected to the base of the other triangular portion 26. From this it can be seen that the neck-bearing portion and cord form a flexible element which is formed into an endless overall loop.

Slide 16 is comprised of two identical pieces, a front and a back 40, 42, respectively. Each has an annular groove 44 formed therein which connects with the outside of the half by inlets and exits 46, 48. Each also has a U-shaped groove 50 at the base thereof. The annular groove 44 is made wide enough to accommodate the overlap of the cord which occurs at 52. Since the front and back halves are identical, when the front is turned over to face the back, the annular groove in this portion assumes an allochiral relationship with respect to the annular groove in the other of the halves. The U-shaped grooves meet exactly. The front and back sections are secured together by any suitable means, as by adhesive, with the various groove portions defining encompassing ways or tunnels for the bights of cord passing there-through. The walls of the tunnels accommodate sliding movement of the cord, but friction present (particularly at the location of the annular loops) prevents the cord from moving until a predetermined tension is exerted on the cord.

Considering now clasp portion 18, this (like slide portion 16) comprises front and back sections 60, 62, which are identical. Each has a pair of U-shaped grooves 66, 68 at the top edge thereof which receive bends of cord. When the two sections are turned face to face, the U-shaped grooves meet exactly. The grooves, through their lateral spacing from each other, hold the pendent loops in a laterally spaced relationship and in substantially a common plane. This spacing is continued by the tunnels or ways of the clasp. The annular loops or bights of cord 30, 38 in the slide are set one in front of the other by grooves 44, and on leaving the slide the runs of cord are returned to a laterally spaced relationship. Thus when the suspension strap is worn, the various runs of cord function to keep the harness in proper position on the front of the wearer and without twisting. The front and back sections of the slides and clasp are made flat and expansive, and these rest flatly on the front of a wearer and assist in maintaining the harness in proper position.

Considering again the construction of the clasp 18, sections 60, 62 have cutouts at their base edges that define a recess 74. Mounted within the clasp and between the front and back sections are a pair of U-shaped jaw members 70, 72. These face each other and have an outer set of legs 70a, 72a normally exposed in recess 74 and parallel to each other. The other set of legs 70b, 72b of the jaw members are parallel to each other and mounted side by side within the clasp. It will be noted that the outer legs or ends of the jaw members project into recess 74 from opposite sides. The other legs terminate in turned-over end portions (indicated at 70c, 72c) which pivot in sections 60, 62. The pivot connection for each jaw member is located inwardly from the recess, and is disposed on the side of the recess opposite to the side from which its outer leg projects into the recess. Thus when either of the jaw members is pivoted to an opened position (and its outer leg is moved to one side of the recess) the outer leg of the jaw member at the same time tends to move inwardly. The jaw members for this reason are "self-opening," and when an external object such as the ring or eye which is a part of the usual instrument and is used in connecting the instrument to a support strap is thrust against the outer legs of the jaw members, the jaw members tend to separate and open up the entrance to recess 74.

Mounted within the body of clasp 18 is a retractor plunger 80. This plunger has an enlarged inner end which bears against the parallel legs 70b, 72b. The other end of the plunger is exposed at the base of recess 74. The plunger is slidable to and fro within the body of the clasp, from the position shown in FIG. 4 to a retracted position wherein the plunger is totally within the body of clasp 18. On inward movement of the plunger, the enlarged inner end of the plunger moves the legs 70b, 72b to cause the jaw members to pivot to an opened position.

Extending laterally to either side of the clasp body and located centrally of the broad inner and outer faces of the clasp are a pair of digitally actuated brake or hold members 82, 84. These have split inner ends with halves which diverge slightly and function to hold the brake members on the clasp without their falling out. The inner ends of the brake members are aligned over the plunger and are forced against the sides of the plunger when digital pressure is applied to the outer ends of the brake members and they are depressed. When depressed, the brake members hold the plunger in the position it then occupies.

Above the inner legs of the jaw members is a compression spring 90. This is aligned with the plunger and encircles a pin 92. The pin has an enlarged head which bears against the inner legs of the jaw members. The spring is compressed by opening of the jaws, and when compressed exerts a bias on the jaws urging them to their original position wherein the recess is closed.

The front and back sections 60, 62 of clasp 18 are suitably hollowed out to receive the parts just described. Ordinarily they would be made of a molded plastic. Since the jaw members are identical, and the pins and spring are symmetrical, the front and back sections may be made from the same mold. The sections may be secured together using adhesive. Pins 94 and pin-receiving apertures 96 are provided in the sections to enable them to be locked securely together.

With respect to the operation of the clasp, when the attaching eye of an instrument is brought inwardly against the outer legs at the opening of the recess, and this is forced inwardly against the legs, the jaw members pivot aside as described with the outer legs of the jaws also moving inwardly slightly. At the same time, spring 90 is compressed. As the center of the eye moves over the outer legs of the jaws, the jaws are free to move to their closed position under the urging of spring 90. The jaws may then be opened by pushing the eye inwardly against plunger 80. This alone, however, does not permit the eye to be released, since as soon as the eye is moved off the plunger, spring 90 automatically returns the jaws to their closed position.

To release the attaching eye of an instrument, the musician holds the clasp with one hand and with his other hand moves the attaching eye inwardly against plunger 80. After the plunger has moved inwardly so as to move the jaws to their opened position, digital pressure is applied to the brake members 82, 84. These then grasp the body of plunger 80 and act to hold the plunger in its retracted position. The attaching eye may then be moved free of the clasp. Subsequently, when pressure is removed from the brake members, the jaws return to their original position.

With respect to the operation of the instrument support as a whole, the annular loops described in connection with the slide and clasp enable easy adjustment of the length of the support. To elongate the support harness, the slide is pulled toward the clasp, which has the effect of decreasing the length of the runs of cord in the pendent loop portions. Conversely, to shorten the support harness, the slide is moved away from the clasp, to place a greater proportion of the cord in the pendent loops.

It is claimed and desired to secure by Letters Patent:

1. In an elongated instrument support comprising an elongated flexible element, the latter defining a neck-en-

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gaging loop portion, two annular friction loop portions intermediate the ends of the support and adjacent the bottom of the support, two pendant loop portions joined at their tops by a reverse bend portion, the improvement comprising a slide intermediate the ends of the support and a clasp adjacent the lower end of the support, each having a flat body bounded on opposite sides by broad, substantially parallel inner and outer faces whereby it is adapted to lie flatwise against a wearer's body, the body of said friction slide defining closely encompassing ways disposed substantially parallel to the planes of its faces receiving the two annular friction loop portions and said reverse bend portion, the body of said instrument clasp defining closely encompassing ways substantially parallel to the planes of its faces receiving the bottoms of the two pendant loop portions, the ways of said clasp being spaced apart in a direction parallel to the planes of its faces whereby the bottoms of the two pendant loop portions are spread apart in the same direction.

2. The support of claim 1 wherein said flexible element further comprises an elongated neckband portion which forms the top of said neck-engaging loop portion comprising plural, elongated members set side by side and covering an area of substantial breadth, the latter members being joined at their ends and being laterally yieldable intermediate their ends, said neckband portion accommodating conforming movement of said flexible element downwardly from a wearer's neck and laterally across such wearer's side.

3. In an instrument clasp adapted to be suspended from a wearer and buckled onto a musical instrument thus to hold the same, a body portion, a recess indented into one side of said body portion, a pair of complementary jaw members having one set of ends normally extending into said recess thus to close it off, said one set of ends projecting into said recess from opposite sides, the other end of each jaw member being pivotally connected to said body at a point located inwardly from said recess and on the opposite side of the recess from the side that the one end for the member projects into the recess, the pivot connections accommodating pivotal movement of the one set of ends of the jaw members inwardly on their moving to the sides of the recess and to an opened position, bias means urging the jaw members to their closed position, and retractor means exposed within said recess and operatively connected to said jaw members so as to move the latter to an opened position whereby said recess is opened upon actuation of the retractor means.

4. In an instrument clasp adapted to be buckled onto a musical instrument thus to hold the same, a flat body portion having a recess indented in from one side thereof, a pair of complementary jaw members mounted within said body portion and having one set of ends that in a closed position for the jaw members project inwardly into the recess from opposite sides and are operable to close off said recess, each jaw member having a pivot connection with said body portion spaced inwardly from the recess and to the side of the recess opposite to the side from which said one end projects into the recess, said pivot connections accommodating movement of the jaw members to an opened position wherein said recess is opened up, bias means for urging the jaw members to a closed position, and digitally operated hold means extending laterally of the body portion for holding the jaw members in an opened position.

5. In an instrument clasp adapted to be buckled onto a musical instrument thus to hold the same, a relatively thin, flat body portion, a substantially U-shaped recess

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indented inwardly from one side of said body portion, a pair of U-shaped jaw members enclosed within said body portion and mounted in opposed relation and with their center portions disposed away from each other, each of said jaw members having one leg which projects into said recess from a location near the outer extremity thereof, the latter legs projecting inwardly from opposite sides of the recess, each of said jaw members having another leg which terminates in a pivot portion, each pivot portion being pivotally mounted within the interior of the body portion for the clasp at a point spaced on the side of the recess opposite to the side from which the one leg of the jaw member enters into the recess, the pivot mountings for the jaw members accommodating pivotal movement of the jaw members with their one legs moving to one side of said recess and inwardly, said other legs of the jaw members being mounted within said body portion adjacent and parallel to each other, a plunger mounted within said clasp body portion with one end bearing on the parallel legs and its other end projecting outwardly into said recess, said plunger being mounted for in and out movement, inward movement of said plunger being accompanied by swinging of said jaw members to an opened position for the jaw members wherein their one legs swing to one side of said recess, brake means comprising laterally extending and opposed depressor members operable when depressed to hold the plunger in a given position, and bias means mounted within said body portion operable to urge the jaw members to a position wherein their said one legs project into said recess.

6. The clasp of claim 5 wherein said bias means comprises a compression spring mounted within said clasp body portion and having one end bearing on said other legs of said jaw members, said compression spring being aligned substantially with said plunger and compressed on inward movement of the plunger.

7. A clasp comprising, in operative position, a body portion; a U-shaped recess indented into said body portion bounded by oppositely disposed sides and a base; at least one jaw member having one end portion extending into said recess from one of said sides of said recess and closing it off; said jaw member having a second end portion opposite said one end portion that is spaced, in a direction extending from said one side of said recess toward the side of said recess opposite, farther from said one side of said recess than its said one end portion; a pivot connection pivotally mounting said second end portion of the jaw member on said body portion with said one end portion pivoting toward said one side of said recess on pivotal movement of the jaw member; said pivot connection by reason of the position of said second end portion enabling movement of said one end portion toward said base of the recess on pivotal movement of said one end portion toward said one side of said recess; bias means operably connected to said jaw member inhibiting such pivotal movement of the jaw member; and retractor means constructed upon actuation to produce such pivotal movement of said jaw member.

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