Oct. 10, 1961 J. H. WILSON 3,003,816

TIGHTENER APPARATUS FOR REMOVABLE COVER OF CHAIR BACK OR CHAIR SEAT AND THE LIKE

Filed Sept. 27, 1957 2 Sheets-Sheet 1

Fig. 1

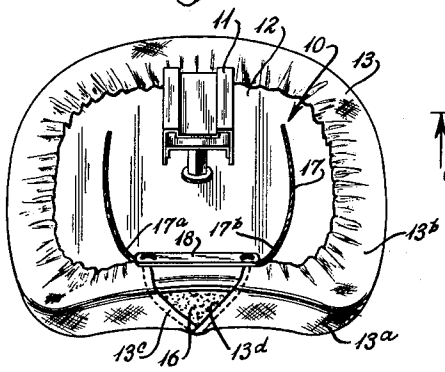


Fig. 4

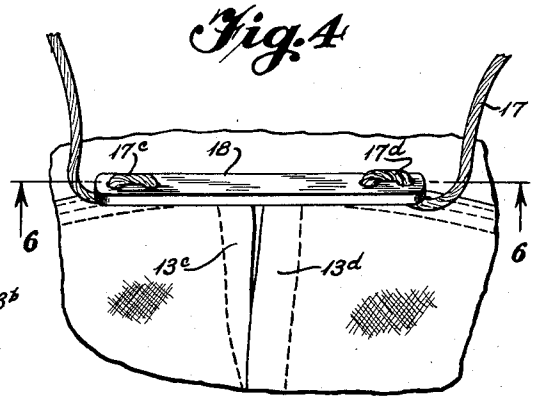


Fig. 2

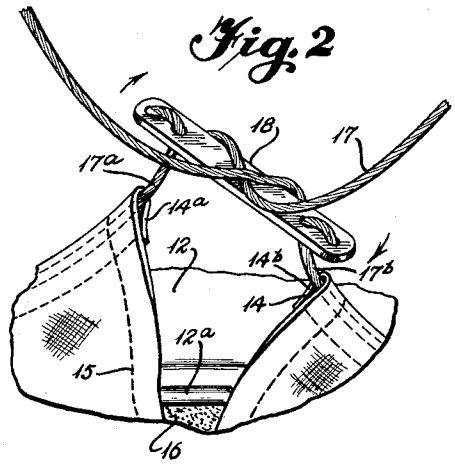


Fig. 5

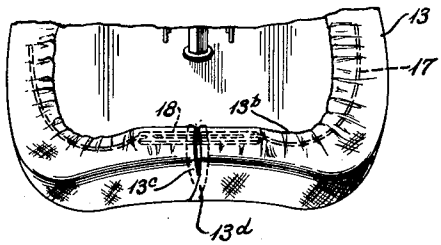


Fig. 11

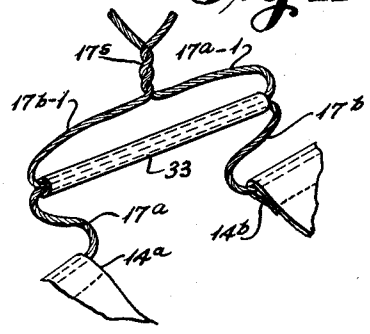
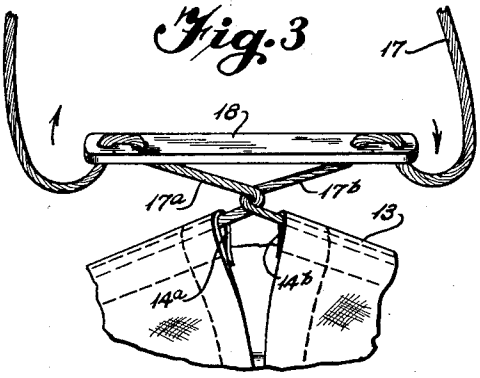


Fig. 3



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Fig. 6

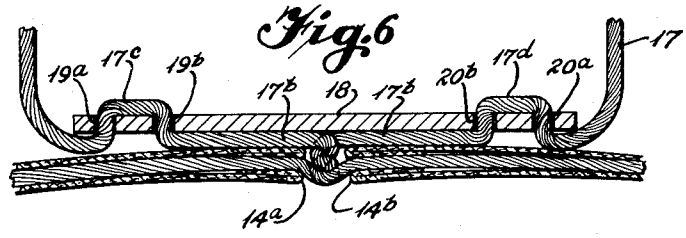


Fig. 7

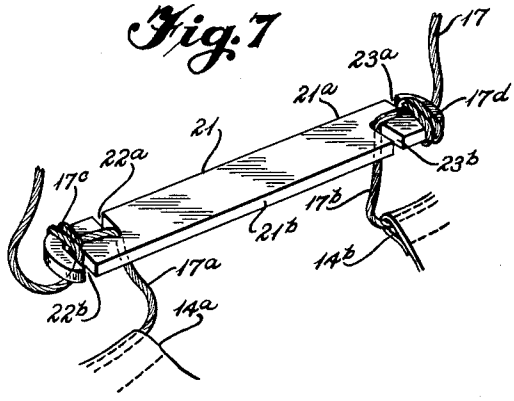


Fig. 9

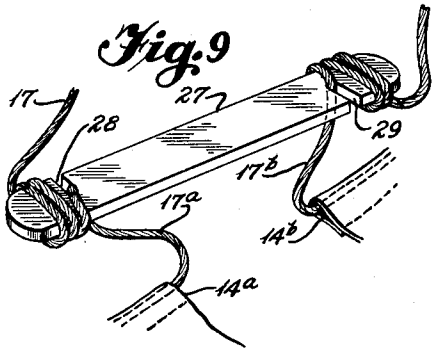


Fig. 8

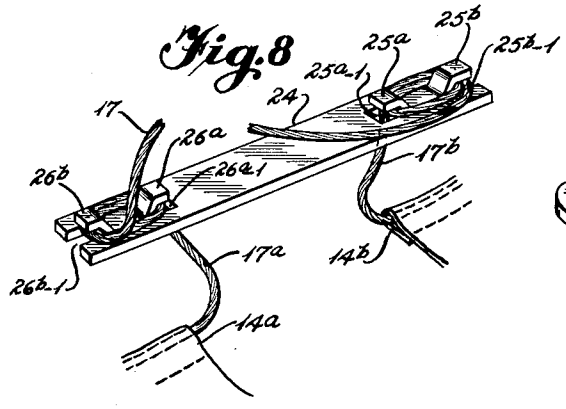
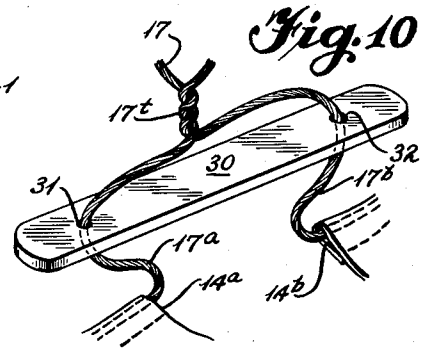


Fig. 10



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3,003,816
TIGHTENER APPARATUS FOR REMOVABLE COVER OF CHAIR BACK OR CHAIR SEAT AND THE LIKE

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3 Claims. (Cl. 297—219)

The invention is directed to tightening means for a removable fabric cover of a chair back or a chair seat.

It is an object of my invention to provide a tightener apparatus which may be applied to a removable cover of a chair back or seat to tighten same and to untighten same for removal of the cover for cleaning and replacement.

Another object of my invention is to provide a tightener apparatus which may be manipulated by the hands or fingers of the operator without any special or other tools to tighten the cover of a seat and which may be left affixed to the cover and again used to remove the cover and replace same after the cover has been cleaned or replaced by another cover.

A still further object of my invention is to provide an easily manufactured and simple apparatus that may be affixed to a chair cover to tighten same on the chair portion such as back or seat which may be hid from view when tightening has been completed and yet easily placed in operation for removal and replacement of the cover.

Yet a still further object of my invention is to provide tightener aparatus wherein the cover to be applied has a tubular hem portion to receive a flexible wire with said wire ends adapted to receive an elongated rigid member which is first used and applied to take up the slack in the wire and shorten the length of wire in the tubular hem portion of the seat cover and then utilize the elongated rigid member to apply mechanical advantage by being twisted end for end by the fingers of the operator to tighten the wires by twisting them together and further shortening the length of wire within the tubular portion of the skirt.

Several further objects and the entire scope of applicability of my invention will become apparent from the disclosure and detailed description given hereinafter. It should be understood that the detailed description and specific examples are given by way of illustration only, and, while indicating preferred embodiments of the invention, are not given by way of limitation, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from this detailed description.

For a more complete understanding of the nature and scope of my invention, reference may be had to the following detailed description taken in connection with the accompanying drawing in which;

FIG. 1 is a perspective view looking at the rear of a chair back detached from the chair and showing a removable cover secured thereto using the tightener apparatus according to the invention;

FIG. 2 is an enlarged detailed showing in perspective of a step of using the tightening apparatus as the tightener body is being twisted;

FIG. 3 shows a further step in using the tightener apparatus after twisting it 360° from the position shown in FIG. 2, and just before it has been twisted another 360° and is ready to be tucked in under the skirt of the cover;

FIG. 5 is a view similar to FIG. 1 after the showing in step 4 has been completed and after the rigid elongated member or bar and ends of the flexible wire have been tucked in under the skirt of the flexible cover;

FIG. 6 is a drawing on an enlarged scale showing a section through the apparatus of FIG. 4 along line 6—6;

FIG. 7 is a view similar to FIG. 2 of a modified form of the rigid elongated tightener bar;

FIG. 8 shows a further modification of the rigid tightener elongated tightener bar;

FIG. 9 is a view similar to FIG. 2 showing a still further modification of the rigid tightener member;

FIG. 10 is a view similar to FIG. 2 illustrating a still further modification of the rigid elongated bar member; and

FIG. 11 is a still further modification of the rigid elongated tightener member.

Throughout the description like reference numerals refer to similar parts.

With the advance of office furniture and equipment such as secretarial chairs, there has been devised removable slipcovers for backs and seats having foam rubber cushion material. These slipcovers are made and installed at the factory and are tight and smooth when installed, but it is difficult to remove same for cleaning and to replace same with the tightness and smoothness of the original installation.

To overcome this difficulty, this invention is directed to providing tightening apparatus which may be permanently installed with the cover and utilized to take up the slack in the cover and hold same tight and yet be available for removal of the cover for replacement and retightening when replaced on the chair back or seat.

In FIG. 1 I have shown a typical chair back **10** removed from the support at the back of the chair and turned upside down. The seat back **10** has a fastener or attaching element **11** attached to its back face **10** at about the center thereof. A slipcover of fabric material generally indicated at **13** has a front face which lies contiguous to the front face of the seat or back **10**, a skirt portion **13***a* which extends over the edge of the back or seat and an overlying back portion **13***b* which is turned over onto itself along the periphery to form the tubular peripheral portion, see FIG. 2, at **14**. The skirt portions **13***a* and **13***b* have ends **13***c* and **13***d* which overlay or abut when in installed position as shown in FIG. 5. In FIG. 2 the broken lines show the stitching such as **15**.

This tubular portion **14** is what is generally known as the tubular draw string receiving portion of the flexible cover. The back face or back of the seat **13**, as indicated at **12**, is usually a metal plate that is cut and bent to proper shape and has attached thereto, as shown in FIGS. 1 and 2, the normal foam rubber backing as indicated at **16**. The edge of the back **12** of metal is rolled over to form a rolled edge as at **12***a* in FIGS. 1 and 2.

The problem is to draw up tightly the skirt portions **13***a* and **13***b* and secure them in a position such as shown in FIG. 5 and to hide any tightening apparatus, yet make it available for removal of the seat cover for replacement. This will provide a means for cleaning the seat cover or replacing it with another seat cover. To accomplish this, there is provided a tightener comprising a flexible wire member **17** which is fed through the tubular portion **14** of the cover **13** and has outwardly extending end portions **17***a* and **17***b* respectively adjacent the tubular end portions **14***a* and **14***b*. The wire end portions **17***a* and **17***b* are sufficiently long as to provide hand grasping by the operator so that they may be pulled hand tight when first slack is taken out of the cover. In cooperation with the flexible tightening wire **17**, there is provided a rigid elongated bar or member **18** which is relatively narrow and is approximately two inches in length so as to be easily grasped by the fingers of a person and used as a lever. This narrow elongated member **18** as shown in FIGS. 1–6 is here shown as being made of metal stock and it is about one-quarter of an inch wide and about a sixteenth of an inch thick. Other materials and sizes within reason may be utilized. The member **18** is pro-

vided with a pair of spaced apart apertures **19***a* and **19***b* at one end and **20***a* and **20***b* at the opposite end. The apertures lie adjacent one end along the longitudinal center line such as shown by the section line **6—6** of FIG. 4 and are of a diameter to freely accommodate the flexible wire **17**. The apertures at each end are spaced in adjacent the end and are on the longitudinal axis of the member **18** and are spaced apart about a quarter of an inch. The nearest or inner apertures **19***b* and **20***b* receive the adjacent ends of the wire **17** which are fed upwardly therethrough and then the wire is passed downwardly through the apertures **19***a* and **20***a* respectively. The member **18** is moved down towards the ends **14***a* and **14***b* of the tubular portion of the slipcover and the slack is taken out to shorten the length of flexible wire **17** within the tubular portion **14** thereof. After this is accomplished, the ends of the flexible wire passing downwardly through the respective apertures **19***a* and **20***a* secure the elongated narrow member **18** in place as shown in FIG. 1 to hold the slack in wire **17** and skirt portions **13***a* and **13***b* which has been taken up easily by the operator. The elongated member **18** is now ready to be used as a lever between the fingers of the hand of the operator and twisted to take up further slack as shown in the first movement in FIG. 2 where it is twisted clockwise in the direction of the arrows there shown.

In FIG. 3 the member **18** has been turned 360° or end for end and one twist of the wire portion **17***a* has been placed over portion **17***b* adjacent the openings of the tubular portion as indicated at **14***a* and **14***b*.

Referring to FIG. 4, the member **18** has been twisted one complete additional turn and as shown in FIG. 6 the twisted portion of the wires **17** lie between the abutting end portions **14***a* and **14***b* of the tubular portion of the cover. The wire portions adjacent the member **18** between the apertures lie contiguous thereto, as shown at **17***c* and **17***d*.

In FIG. 5 there is shown in broken line the position of the flexible wire **17** and the cooperating elongated narrow rigid member **18** tucked under the skirt portion **13***b* to hide them from view and to make them readily available for removal from their tucked position so as to carry out the reversal of the operation to remove the twists and slack in the cover and thus loosen it and to permit removal of the elongated narrow rigid member **18** and thence the cover from the seat back **10**.

In FIG. 7 the elongated rigid narrow member is shown as a modified form at **21** with elongated edges **21***a* and **21***b* opposite each other and parallel to the bars longitudinal axis (not shown) extending from end to end between the side edges **21***a* and **21***b*. As securing means for the wire **17**, there is provided a pair of slots at each end designated **22***a* and **22***b* at one end and **23***a* and **23***b* at the other end. These slots extend generally transversely to the longitudinal axis through the elongated member **21** and to a position where they terminate adjacent the longitudinal axis at the center through the longitudinal direction of the member **21**. These slots **23***a* and **23***b* adjacent one end are spaced about a quarter of an inch apart as are the apertures adjacent each end in the member **18**. These slots **23***a* and **23***b* extend in opposite directions as do the slots **22***a* and **22***b*. The flexible wire portions there adjacent at **17***a* and **17***b* as they extend out of the ends of the tubular portions **14***a* and **14***b* are threaded upwardly through the slots **22***a* and **23***a* and thence over the top and down through the slots **22***b* and **23***b* and then they are passed around the adjacent end portion of the member **21** as indicated at **17***c* and **17***d* respectively for the ends of the flexible wire to secure same. The same steps are followed as explained above for member **18** to tighten the skirt and to store the member **21**. The first step is of course the taking up of the slack wherein the member **21** holds the slack taken and then the member **21** is used as a lever and twisted end for end to shorten the length of flexible wire **17** within the tubular portion **14** of the skirt.

A second modification is shown in FIG. 8 in the elongated narrow rigid member **24**. It is formed with stuck up lugs at each end which are designated **25***a* and **25***b* at one end and **26***a* and **26***b* at the opposite end. These lugs extend in opposite directions to each other at the ends and in the direction of the longitudinal axis of the member and are offset from the elongated member **24** so as to leave apertures therebelow where they are stuck up out of the member **24**. The respective apertures are indicated for lug **25***a* as **25***a*–**1** and for **25***b* the aperture **25***b*–**1**. The aperture for lug **25***a* is indicated at **26***a*–**1** while the aperture for lug **26***b* is **26***b*–**1**. The adjacent wire portions at **17***a* and **17***b* are threaded up through these apertures respectively **26***a*–**1** and **25***a*–**1**, thence around the lugs **25***a* and **25***b* for the end portion **17***b* and then the end portion **17***a* is threaded up through the apertures **26***a*–**1** around the lugs **26***a* and **26***b* to secure same. The same steps of first using the member **24** as a take up slack holder for the wire **17** which has been pulled hand tight is utilized as before. Thence, the member **24** is used as a lever by being twisted end for end between the fingers of the operator to easily twist the end portions **17***a* and **17***b* upon each other to form a tie. Thence, the assembly of ends of the flexible wire and the elongated member **24** are tucked under the skirt and stored. They equally as well may be removed and untwisted to remove the cover.

In FIG. 9 there is shown a third modification of narrow elongated rigid member at **27**. This is similar to the member **21** shown in FIG. 7 but is provided with a single transversely extending slot **28** at one end and **29** at the other which extend generally transversely to the elongated axis (not shown) along the middle of the member **27** to a position adjacent that axis. As in FIG. 7, the ends **17***a* and **17***b* of wire **17** are threaded respectively up through the slots **28** and **29** and thence secured by turns taken around the adjacent end portions of the member **27** after the slack has been taken out of the cover. The member **27** is then twisted by the fingers of the operator to tighten the skirt and smooth it out as described before. The member **27** and the adjacent ends of the flexible member **17** are tucked in under the skirt as before.

A fourth modification of the rigid elongated member is shown in FIG. 10 at **30**. This is somewhat similar to the member **18** except that only a single aperture extends upwardly through the member **30** and lies along the longitudinal axis thereof which passes through the middle and the apertures are indicated at **31** and **32** and they extend up through the member **30** in a position perpendicular to the longitudinal axis of the middle of the members. The flexible wire member **17** is lead up through these apertures **31** and **32** respectively at the ends and twisted together as at **17***t*. This takes place after the member **30** has been moved on the wire end portions **17***a* and **17***b* tightly against the tubular ends **14***a* and **14***b* to take up the slack in the skirt portions **13***a* and **13***b*. Following this the member **30** is twisted end for end and the wires **17***a* and **17***b* are twisted upon each other as before. The member **30** with the end portions are tucked in under the skirt portion **13***b* of the cover.

Reference to FIG. 11 shows the fifth modification comprising an elongated tube **33** of about two inches in length as is the approximate length of the other rigid elongated members. This tube **33** has an inside diameter sufficient to freely accommodate the ends of the wire **17** as they are passed therethrough in opposite directions. The wires are shown at their respective portions adjacent the tubular flexible member openings **14***a* and **14***b* respectively at **17***a* and **17***b* for the flexible wire member **17** after the ends of the flexible wire **17** have been passed through the tubular member **17** in opposite directions and

then they are brought back over the tubular member **13** as indicated at **17***b*–**1** and **17***a*–**1** and twisted together at **17***s*. As in the previous steps the member **33** is moved down adjacent the ends **14***a* and **14***b* of the tubular portion of the flexible cover **10** and slack is taken out of the skirt portion thereof, then the wire portions are twisted at **17***s* as the member **33** serves as a lever to be twisted end for end between the fingers of the hand of the operator so as to fully tighten and take the slack out of the cover and thus make it fit smoothly on its seat or back. The rigid member **33** is likewise tucked in under the skirt along with the wire end portions tucked therewith under the skirt. To remove the skirt for cleaning or replacement the tucked in rigid member **33** and the ends of the wire **17** are removed from their stored position. The twist in the wire portions **17***a* and **17***b* is removed and then the twist **17***s* is removed so as to take off the rigid tubular member **33** from the flexible wire ends and thereafter the wire ends **17***a* and **17***b* are loose in the tubular portion **14** and the seat cover may be easily removed.

There is provided in this novel tightener a flexible wire and an elongated rigid member means for holding the flexible wire tight by moving it adjacent the openings of the tubular member in the flexible covering. Thence, the ends are held fast or secured adjacent the ends of the elongated rigid member in each of the cases and the elongated rigid member is easily twisted end for end by the fingers of the operator so as to secure together the ends of the flexible wire and hold in place the removable fabric seat cover or back cover as the case may be. In each of these cases the skirt extends over the back face of the back member or seat and thence there is provided a skirt within which or under which the securing ends and the elongated member may be stored. This is all easily manufactured and easily applied so as to provide a factory tight cover at all times without any expensive tools or expensive servicing. This provides for great flexibility in this type of chair utilizing a removable cover. By this simple expedient, greater flexibility of use of this type of furniture with removable covers is afforded. The flexible wire may be used over and over again and the simple tightener elongoated rigid member is easily applied and it likewise may be used over and over.

I claim as my invention:

1. A removable cover assembly for a chair back or the like, comprising a fabric cover and a closed loop for fastening and unfastening said cover without breaking the continuity of said loop, said back having front and rear sides and a surrounding edge, said cover having a face portion adapted to cover said front side, a surrounding skirt portion adapted to extend over said edge and overlie a portion of said rear side adjacent said edge, and a draw-wire-receiving tubular portion along the periphery of said skirt portion, said skirt portion having a transverse opening in its periphery, said tubular portion having opposed open ends at said transverse opening, said closed loop comprising a length of freely flexible draw-wire disposed in said tubular portion with its respective end portions extending from said opposed open ends, and a rigid elongate narrow wire tightener with means proximate each of its respective ends frictionally gripping the respective end portions of said wire, each said means comprising a pair of spaced apertures lying approximately on the longitudinal axis of said tightener, said apertures each being of a size to secure said draw-wire frictionally when the respective end of the latter is passed upwardly through one and then downwardly through the other of said apertures and drawn tightly against said wire tightener between said pair of spaced apertures, whereby said cover may be placed on said back, said loop may be shortened to take up slack by slidably adjusting the ends of said wire in the respective ends of said tightener, said tightener may then be twisted end for end about its center to twist together portions of said wire between the ends of said tightener, and said tightener may then be tucked between said skirt portion and said back to be frictionally held against untwisting, thereby fastening said cover on said back, and said steps may be reversed to remove said cover without breaking the continuity of said loop.

2. In combination with a chair back or the like, said back having front and rear sides and a surrounding edge, a removable fabric cover covering the front side and surrounding edge of said back, and fastening means tightly and removably holding said cover on said back, said cover having a face portion covering said front side and a surrounding skirt portion extending over said surrounding edge, said skirt portion having a draw-wire-receiving tubular portion overlying the rear side of said back, said skirt portion having a transverse opening in its periphery, said tubular portion having opposed open ends at said transverse opening, said means holding said cover on said back comprising a length of freely flexible draw-wire disposed in said tubular portion with its end portions extending respectively from said opposed open ends and means connecting said end portions, said last-mentioned means comprising a rigid elongate narrow wire tightener, said tightener having spaced friction means, one proximate each of its ends, said friction means adjustably holding the respective end portions of said flexible draw-wire, opposed portions of said wire between said tightener and the respective open ends of said tubular portion being twisted together between said spaced friction means to tighten said closed loop and draw said cover tightly onto said back, said tightener being disposed between said skirt portion and said back and being frictionally retained by said skirt portion to prevent untwisting said opposed portions of said flexible wire, whereby in placing said cover on said back the slack in said flexible draw-wire may be taken up in said friction means to draw said cover into position on said back, and said cover may then be tightened by twisting said member end for end to twist opposed portions of said flexible draw-wire together.

3. The combination defined by claim 2, said spaced friction means comprising, proximate each end of said tightener, a pair of spaced apertures lying approximately on the longitudinal axis of said tightener, said apertures each being of a size to secure said draw-wire frictionally when the respective end of the latter is passed upwardly through one and then downwardly through the other of said apertures and drawn tightly against said wire tightener between said pair of spaced apertures.

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