

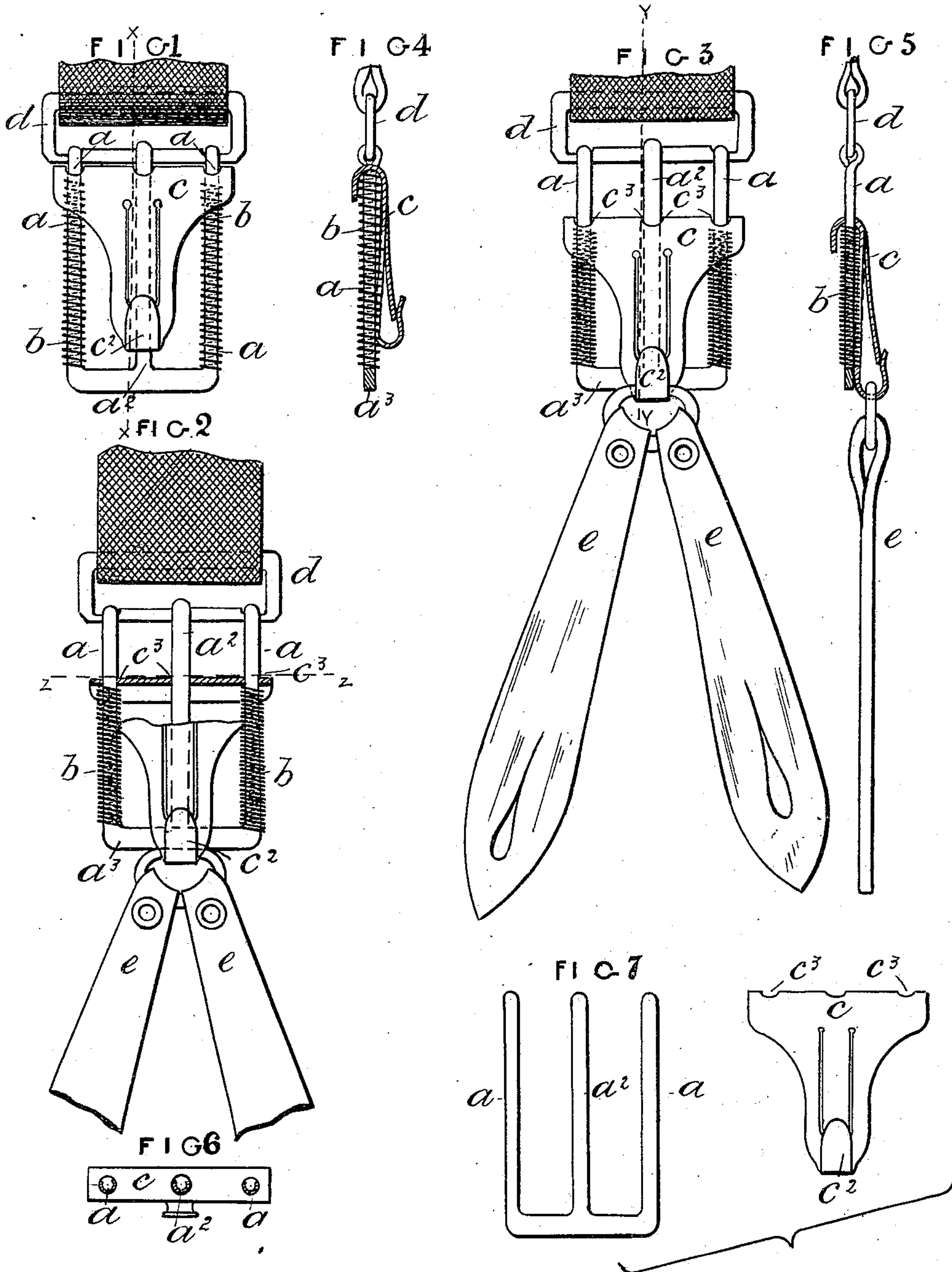
(No Model.)

2 Sheets—Sheet 1.

J. CADBURY & J. G. ROLLASON.
SUSPENDERS.

No. 312,083.

Patented Feb. 10, 1885.



WITNESSES
Henry Sherrett
Miles E. Hughes
both of Birmingham

INVENTORS
Joel Cadbury
Joseph George Rollason

(No Model.)

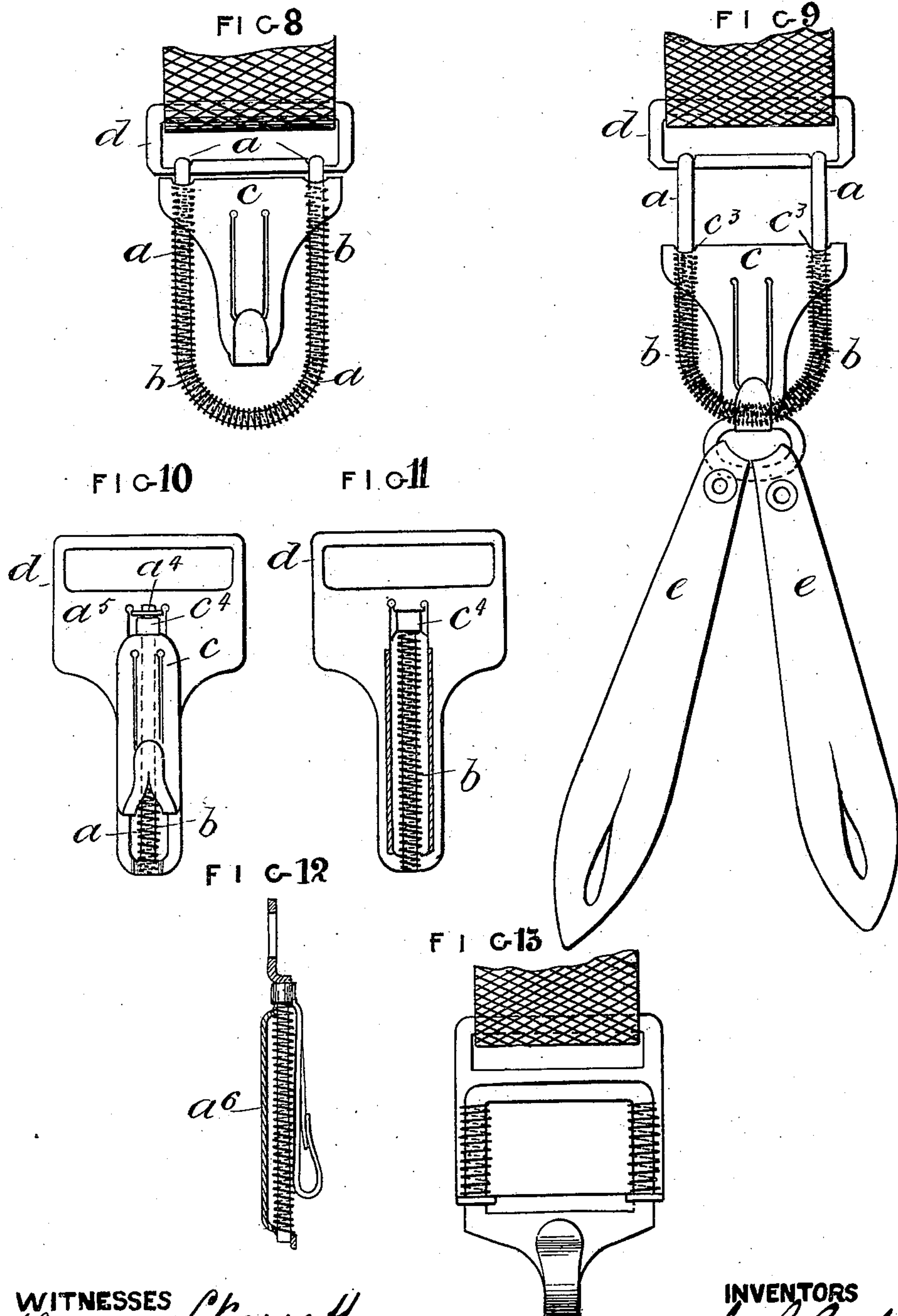
2 Sheets—Sheet 2.

J. CADBURY & J. G. ROLLASON.

SUSPENDERS.

No. 312,083.

Patented Feb. 10, 1885.



WITNESSES
Henry Skerrett
Miles C. Hughes
both of Birmingham

INVENTORS
Joel Cadbury
Joseph George Rollason

UNITED STATES PATENT OFFICE.

JOEL CADBURY AND JOSEPH GEORGE ROLLASON, OF BIRMINGHAM, COUNTY OF WARWICK, ENGLAND; SAID ROLLASON ASSIGNOR TO SAID CADBURY.

SUSPENDERS.

SPECIFICATION forming part of Letters Patent No. 312,083, dated February 10, 1885.

Application filed September 27, 1884. (No model.) Patented in England August 19, 1884, No. 11,418.

To all whom it may concern:

Be it known that we, JOEL CADBURY, of Birmingham, England, manufacturer, and JOSEPH GEORGE ROLLASON, of Birmingham aforesaid, manufacturer, have invented certain new and useful Improvements in Yielding Connections for Braces, Suspenders, and other like Articles, (for which we have received provisional protection for Letters Patent in Great Britain, No. 11,418, dated August 19, 1884,) of which the following is a specification.

Our invention consists in constructing yielding connections for braces, suspenders, and for other like articles in the manner hereinafter described, whereby the said brace or other article to which the connection is applied is always kept in a uniform state of tension, and is capable of yielding or accommodating itself according to the changes of posture of the wearer; and our said invention consists in arranging a buckle or other frame, a coiled spring or springs which is or are compressed or acted upon by a slide, which compresses the spring or springs on the distention or stretching of the tabs, brace, or other article to which the said connection is applied, thereby imparting flexibility or elasticity thereto, as hereinafter particularly explained.

For convenience of description we will describe our invention as applied to a brace.

Figure 1 represents in front elevation a yielding brace-connection constructed according to our invention, the parts being in their normal or non-compressed positions. Fig. 2 represents the same view under tension, with the springs partially compressed. Fig. 3 shows the yielding connection in the same position as Fig. 2, with the slide in section, in order to better exhibit the abutment of the springs. Fig. 4 is a longitudinal vertical section on dotted lines $x x$ of Fig. 1. Fig. 5 is a longitudinal vertical section of Fig. 3 on the dotted line $y y$. Fig. 6 is a plan on the dotted line $z z$, Fig. 2, and Fig. 7 some of the parts separately. Fig. 8 represents a modification of the yielding connection Fig. 1—a single spring encircles a semicircular-ended frame. Fig. 9 is the same connection in its partially-compressed position. Fig. 10 is another form,

in which a single central guiding-bar passes down the middle of the frame, and upon which a single coiled spring encircles. The slide abuts or presses upon the top of the spring and slides upon the bar. Fig. 11 is a back view of Fig. 10, partly in section. Fig. 12 is an end view of the same, and Fig. 13 is a modification of Fig. 1, in which the springs are compressed upward instead of downward.

The brace-connection, Fig. 1, consists, essentially, of a rectangular frame, $a a$, with a middle bar, a^2 , and are connected together so as to form an inclosed frame. In other words, the frame consists of three parallel bars closed top and bottom, and upon the outer bars of the frame $a a$ coiled springs $b b$ encircle, and situated above the aforesaid coiled springs a hooked slide, c , presses. The said slide moves upon the bars $a a a^2$ as guides. The said guides pass through eyes or holes c^3 . The coiled springs $b b$ are supported at their lower ends by the bottom cross-bar, a^3 . The usual buckle or other loop, d , is attached to the top of the bars, so that on the loop of the tabs l having been connected with the hook c^2 of the slide c the distention of the tabs or brace causes the slide to yield or to be drawn down the bars, thereby compressing the coiled springs $b b$ to an extent equal to the pressure put upon the tabs or brace, as in Fig. 3, so that the brace-connection is capable of yielding or accommodating itself according to the changes of posture of the wearer by the flexibility or elasticity imparted thereto. On relaxation of tension of the brace or tabs the slide c is again pressed to the top of the frame by the tension of the coiled springs, and the parts resume their normal positions, as in Fig. 1.

The modification Fig. 8 represents the frame, which is made semicircular at its lower end, and around the said frame a single coiled spring, b , encircles. When pressure is put upon the brace, it takes the position as represented in Fig. 9.

The modification represented in Figs. 11 and 12 represents a yielding connection applied with a single bar, which passes down the middle of the frame, and upon which the coiled spring b is situated, so that the slide compresses the spring and works down the bar a .

The upper end of the slide has preferably a neck, c^4 , which encircles the bar as a guide, and abuts and presses upon the top of the coiled spring b , as in Figs. 1 and 8. A stop, a^4 , on the rod limits the upward motion of the slide. The frame a^5 is troughed or grooved on its middle, in which the neck c^4 of the slide c works.

Having described the nature of our invention, we wish it to be understood that we claim as our invention—

1. In a suspender, the combination, with the bars a and spiral springs b , surrounding said bars, of the slide-plate c , having holes c^3 for the passage of said bars, whereby said plate is retained in position and guided in its movements, substantially as described.

2. In a suspender, the combination, with the link d , of the bars a and a^2 , joined together at one end and attached to said link at the other, the springs b , surrounding the bars a , and the slide-plate c , having its upper end turned over and provided with the holes c^3 for the passage of bars a and a^2 , all constructed and arranged substantially as described.

JOEL CADBURY.
JOSEPH GEORGE ROLLASON.

Witnesses:

HENRY SKERRETT,
MILES E. HUGHES,
Both of Birmingham.