J. L. K. SORENSEN & H. A. WIMPERIS.

CONNECTOR.

APPLICATION FILED MAR. 23, 1910.

1,083,416. Patented Jan. 6, 1914.

MODEL.

Fig. 5.

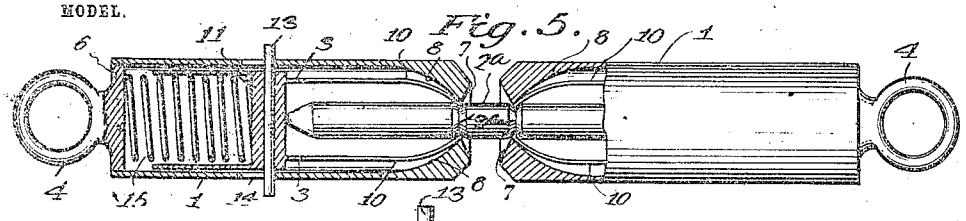


Fig. 1.

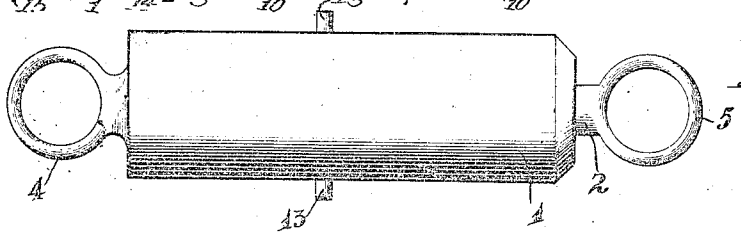


Fig. 2

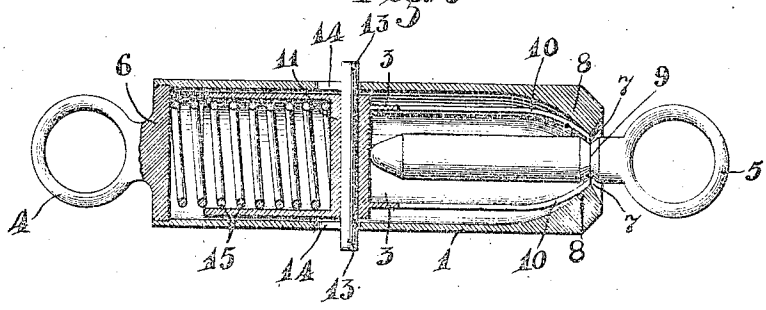
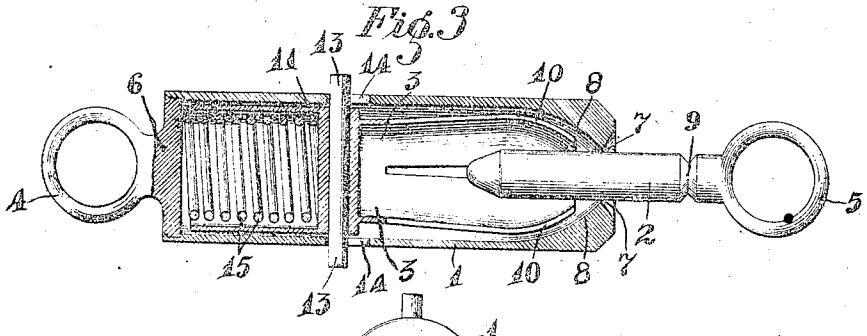


Fig. 3



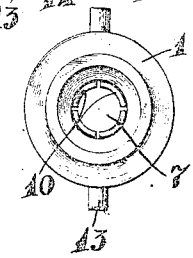


Fig 4

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CONNECTOR.

1,083,416. Specification of Letters Patent. Patented Jan. 6, 1914.

Application filed March 23, 1910. Serial No. 551,227.

To all whom it may concern:

Be it known that we, JAMES LAURITS KRUSE SORENSEN and HERBERT ALFRED WIMPERIS, citizens of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Connectors; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention has for its object generally to provide an improved separable connector or fastener for chains, cables and other separable parts, but is especially directed to the provision of a simple, durable and highly efficient safety connector or fastener for necklaces, chains, bracelets and similar articles of jewelry.

To the above ends the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings: Figure 1 is a plan view showing the improved connector 1 on a larger scale. Figs. 2 and 3 are longitudinal sections taken centrally from the connector and illustrating the different positions of the parts thereof, Fig. 4 is an end elevation of a fastener with the stem member thereof removed. Fig. 5 is a view partly in plan and partly in section illustrating a modification in which one stem is connected to two barrels.

In the present design the fastener is made up of three principal elements, to wit:—a so-called barrel 1, a stem 2 and a spring pressed lock piece 3; and the barrel and stem members 1 and 2 are provided, at their opposite ends, with rings or eyes 4 and 5 respectively, to which the ends of the chain, not shown, are adapted to be permanently secured. As shown the ring 4 is made integral with a head 6 that is rigidly secured in the adjacent end of the barrel 1, so that in effect it constitutes a part of the said barrel. Before the said head was placed in position, however, the lock piece 3 was inserted into the said barrel.

At its other end the barrel 1 is provided with a contracted stem passage 7, in the present instance surrounded by an annular flange that is V-shaped in cross section. Inward of the passage 7 the interior surface of the barrel 1 is bell shaped or flares as indicated at 8, and this is done for an important purpose, which will presently appear. The stem 2 near its outer end is provided with a lock shoulder preferably formed by a V-shaped annular groove 9, which when the stem is inserted, as shown in Fig. 2, alines with the contracted portion of the passage 7.

The lock piece 3 is preferably made tubular and that portion which extends toward the stem passage 7 is contracted toward its end and is split longitudinally so as to form several segmental spring like prongs 10. As shown, the lock piece 3 at its central portion is provided with a diametrically extended sleeve 11 through which a releasing pin 13 is passed. The ends of the releasing pin 13 project beyond the sides of the barrel 1 and work through elongated slots 14 formed in the sides of the said barrel.

A coiled spring 15 reacts against the barrel head 6 and against the sleeve 11 of the lock piece and exerts a force which tends to hold the lock piece in the operative position shown in Fig. 2. The tension of this spring 15 is such that in forcing the lock piece into its operative position shown in Fig. 2, the converging surface 8 of said barrel will force together the converging ends of the spring prongs 10 and concentrate the same within the plunger passage 7 with the ends of said prongs projecting slightly through the same. If then the stem 2 be inserted into the barrel, as shown in Fig. 2, the converging end of the said lock prongs 10 will be engaged in the annular lock groove 9 of the said stem and it will be impossible to withdraw the said stem from the barrel by outward pull thereon. The stem and spring lock prongs which are interlocked thereto, are much larger than the stem entrance passage and hence, can not, of course, be together drawn outward therethrough. The harder the outward pull on the stem 2 the more tightly will the said prongs 10 engage in the said lock groove 9 and hence the more securely will the stem 2 be locked to the barrel 1. Furthermore, the spring 15 exerts a constant and continuous force which holds the said prongs 10 engaged with the said groove 9, so that there is no time

when the said stem 2 may accidently get an initial start out of the barrel.

When it is desired to separate the stem from the barrel, this may be very easily done, simply first by taking hold of the end of the pin 13 and then drawing the lock piece 3 into its inoperative position shown in Fig. 3, against the tension of the spring 15. When the lock piece is forced into its inoperative position shown in Fig. 3, its spring prongs 10 will spring radially apart and thereby automatically release themselves from the lock groove or shoulder of the stem member. Preferably the end of the stem 2 is tapered or made conical so that it may be more easily inserted into the flaring stem passage of the barrel and between the prongs of the lock piece.

The coupler described as already indicated is capable of large range of modification and use. The so called barrel and stem may take various forms and may be made as parts of the members which they are arranged to connect. The lock groove in the stem is in most instances made annular so as to afford a swivel between the two connecting members, but in some instances this will not be necessary and a simple lug notch or shoulder may be employed.

The construction illustrated in Fig. 5 is like that above described except that the stem 2^a is tapered at both ends and provided with two grooves 9^a, and this stem is detachably connected to a pair of barrels 1 having the same lock mechanism as the device shown in Figs. 1 to 4 inclusive.

The so called lock devices have a sort of a clutch action in the stems and themselves become wedged in the stem passages of the barrels in such way that they temporarily become, in effect, parts of the stems or plugs and enlarge the latter so that they cannot be withdrawn outward from the barrel or outside members.

As already indicated, the improved coupler is capable of incorporation in numerous different kinds of devices. In addition to those already specifically noted may be mentioned belt buckles, collar buttons, various parts of harnesses and cable or rope couplings.

What we claim is:

1. In a coupler of the kind described, the combination with a barrel provided at one end with a contracted stem passage and with a cam surface flaring inward therefrom, of a stem insertible through said passage and provided with an annular lock groove adapted to be alined with said contracted passage, a lock piece mounted for sliding movement within said barrel and provided with a projecting end portion engageable with the lock groove of said stem and with the contracted passage of said barrel while it is itself inserted into the said contracted passage, and a spring exerting a force on said lock piece tending to maintain the interlocking engagement noted.

2. In a coupler of the kind described, the combination with a barrel provided at one end with a contracted stem passage and with a cam surface flaring inward therefrom, of a stem insertible through said passage and provided with a lock shoulder adapted to be alined therewith, a lock piece mounted for longitudinally sliding movements within said barrel and provided with converging spring prongs simultaneously engageable with the lock shoulder of said stem and with the walls of the contracted passage of said barrel, and a spring exerting a force on said lock piece tending to maintain the interlocking engagement noted.

3. In a coupler of the kind described, the combination with a barrel provided at one end with a contracted stem passage and with a cam surface flaring inward therefrom of a stem insertible through said contracted passage and having an annular lock groove adapted to be alined therewith, a tubular lock piece mounted for sliding movements in said barrel and provided with a multiplicity of converging spring prongs simultaneously engageable with the contracted passage of said barrel and with the lock groove of said stem, a spring in said barrel, exerting a force on said lock piece tending to maintain the interlocking engagement noted, and a releasing stem projecting from said lock piece to the exterior of said barrel, substantially as described.

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