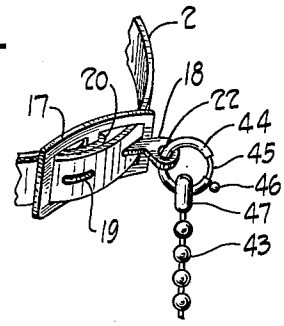
Sept. 24, 1963 J. GRAHLING 3,104,650

SAFETY LEADERS

Filed July 31, 1961

Fig. 2



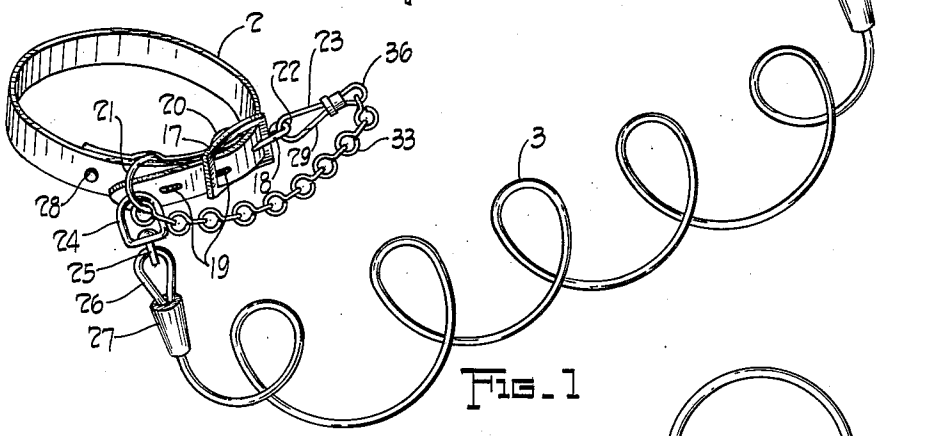
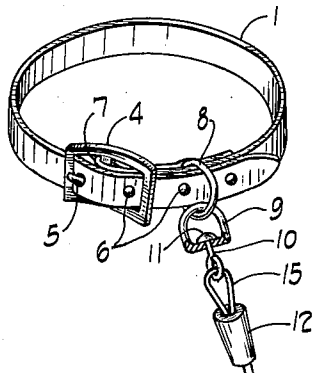


Fig. 1



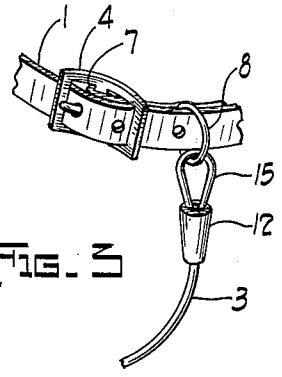


Fig. 3

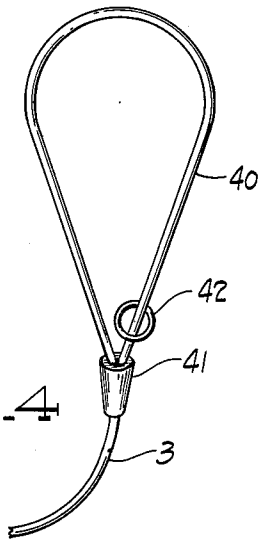


Fig. 4

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SAFETY LEADERS

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14 Claims. (Cl. 119—96)

This invention relates to safety devices or leashes by means of which older persons generally indicated as adults are able to maintain control over children as while walking or shopping. Various types of restraining devices have been devised for controlling and limiting the travel of children in relation to supervising adults. Essentially such devices comprise a cord, strap or chain one end of which is connected to the child as by a band or harness and the other end of which is held by or fastened to the person of the adult. Reference is made to my copending application for United States patent Serial No. 748,266, filed July 14, 1958, for Safety Leader, now Patent 2,994,300, dated August 1, 1961, of which the present application is an improvement.

In accordance with one aspect of the present invention and as a principal objective the connecting or leash element is provided in the form of a suitable leader, preferably a resilient member which is connected to the child in such a way as to discourage disconnection by the child. More specifically it is sought to provide a wrist or other band for attachment about the person of the child, the band having a locking type buckle with an eye in its tongue which prevents the buckle from being opened or disengaged when a locking element such as a snap hook or spring loaded snap ring is inserted in the said eye.

Supplementing the snap locking connection and as a further objective, there is provided, in combination with the snap connection arrangement, a relatively short flexible element or chain connected to a ring fast to the band. Such supplemental connecting chain, in combination with the snap connection arrangement provides for alternative close coupled restraining connections between adult and child.

A further object is to provide a control device of the character mentioned which can be quickly converted between a long leash connection and a close coupled connection.

A still further object is to provide a safety leash for children which allows a relatively wide latitute of movement of the child away from the adult without danger of the leash becoming tangled or tripping the adult or the child when the two persons are close together; more particularly to provide a device of the character referred to which includes a resilient leader or leash element to progressively increase the restraining force exerted by a sudden pull without producing an undesirable jerk or shock to the child or to the restraining hand of the adult and which will return to its normal length when the tension has ceased, thereby allowing maximum freedom of any movement for both the child and its supervisor.

Other objects and advantages will become apparent in the following detailed description of preferred embodiments representing the best known mode of practicing the invention. This description is made in connection with the accompanying drawings forming a part of the specification.

In the drawings:

FIG. 1 is an illustration of the safety leash device partly in section, showing the bands adapted to be placed about the persons of the guardian or adult and the child, the fiexible elastic leash element which connects the bands, the close coupling chain and the snap element locking connector;

FIG. 2 is a fragmentary view corresponding to a portion of FIG. 1 and enlarged relative thereto, showing a

modification of the child's strap, the fragmentary view illustrating the use of a spring loaded snap ring as an alternate connector for the snap hook and also the use of a ball chain instead of the link chain, both as shown in FIG. 1;

FIG. 3 is another fragmentary view corresponding to another portion of FIG. 1 showing a modification of the guardian's strap in which the swivel connection has been eliminated and the flexible leash element is threaded through the metal ring, brought back and clamped upon itself to form a permanent loop by insertion in a sleeve which is then clamped firmly together; and

FIG. 4 is a fragmentary view corresponding to the right hand end portion of FIG. 1 showing a further modification of the guardian's end of the device, in which the wrist strap and swivel have been eliminated and the flexible leash element is formed into a loop of sufficient size to permit the grasping by, or insertion through of a mature hand. The method employed in forming the end loop being the same as in the modification of FIG. 3. A ring for the short chain connection is provided by the insertion of the leash element through the ring before forming the hand loop.

The device in its more complex form comprises a pair of flexible and substantially inextensible bands **1** and **2** connected by a flexible and elastic leash element **3**. The first band **1** is designed for attachment to the adult or guardian, as by encirclement of the wrist, and the second band **2** is designed for attachment to the child or ward, also as by encirclement of the wrist. These bands are formed of flat strip leather or plastic material. A conventional buckle **4** is provided to join the ends of the adult's band **1**, the buckle having a cross bar received in a reverse bend **7** formed at one end of the band and having a tongue **5** receivable in any one of a number of holes **6** formed at spaced intervals in the band to permit adjustment of the band size. The reversely bent end **7** of the band also receives and retains a split ring **8** for attachment of one end of the leash element **3** as by a swivel assembly comprising a socket ring **9** and a pin ring **10**. The ring **9** has a radial aperture through which is rotatably received a radial pin integrally formed on the pin ring **10**, the pin being headed as at **11** inside the ring **9** to hold the rings captive together. In assembly, one of the rings, as the ring **9** is interlocked with the band ring **8** by passing it through the split in the latter before the ring **8** is fastened between the runs of the flexible band loop **7**. These runs are held together as by rivets or stitching, not shown, on both sides of the ring **8**, the split of the latter being located between the runs of the flexible band and therefore not shown in the drawings. The leash **3** may thus turn relative to the ring **8** and the band **1**, the end of the leash element being passed through the rotatable swivel ring **10**, bent back upon itself and secured as by a compression fitting **12** in the provision of an end loop or eye **15**.

The child's band **2** is similar to the adult's band **1**, its size being adjustable by means of a conventional buckle **17** having a tongue **18** receivable through any one of a number of holes **19** formed at spaced intervals in the other end portion of the band. Loop **20** in the end of the band for securing the buckle **17** and corresponding to the end bend or loop **7** in the wrist band **1** for the adult also and similarly receives and secures a metal ring **21** which constitutes a principal point of connection between the leash element **3** and the child's band, as will appear.

The end loop in the wrist band **2** is suitably secured as by stitching or rivets, one such rivet being shown at **28**.

The leash element **3** is of a flexible cord-like design incorporating an extendable elastic cord of rubber, or

material of like characteristics and properties, having suitable tensile strength for the desired usage and enclosed in a sheath, preferably of a woven water resistant fabric, said sheath being stretchable in a manner to conform to the extension and retraction of the core and also by the use of color and pattern to provide an attractive appearance to the invention.

The leash element 3 may to advantage comprise a rubber tube having, if desired, a woven fabric sheath which not only protects the rubber but also permits the use of attractive colors and designs in decoration of the leash. In order to provide effective restraint of a child of normal weight and of an age from about two to about five years, the leash, without being strained to its elastic limit, yields to the stresses such a child normally imposes thereon in its efforts to assert its independence. For example, in contemplated use to restrain such a child the leash 3 is of such resiliency and strength as to exert a contracting force of from about two pounds to about four pounds, preferably of the order of about three pounds, when stretched to twice its unstressed length.

The leash element 3 is attached to the child's band or strap 2 in a similar manner as used at strap 1, by means of leash attaching split ring corresponding to the ring 8 of the guardian adult's band 1, a swivel assembly comprising socket and pin rings 24, 25 corresponding respectively to the socket and the pin rings 9, 10, previously described, and loop 26 and compression fitting 27 corresponding respectively to the loop 15 and the compression fitting 12, previously described.

A supplemental or secondary connection between the leash element 3 and the child's band 2 at the child's end of the leash is provided by a relatively short flexible chain or similar tensile element 33. This element is connected at one end to the metal ring 21 and at its other end to the eye 22 of the buckle tongue 18 as by snap hook 23 having spring lock 29. Swivel 36 is interposed between the snap hook 23 and the corresponding end of the chain 33 to prevent twisting and kinking of the chain when connected to the ring 8 of the adult's band in achieving a close-coupled connection. In normal use the snap hook 23 is inserted through the eye 22 in the locking element or tongue 18 of the buckle 17 thus providing an interlocking connection or a safety lock for said strap 2.

Another use for the chain is to provide a close coupled and nonextendable restraining connection between the two individuals, this is accomplished by removing the snap hook 23 from the buckle eye 22 and hooking it onto the ring 8 on the adult's strap 1. Thus an additional safety precaution is created by such interlocking connection of the supplemental chain element as when crossing streets and also when deemed desirable in other situations. In this close coupled arrangement the two straps 1 and 2 are connected directly and in swivel relation by the short chain 23 and the flexible leash element 3 is suspended in a festoon. As a safety feature, the bands 1, 2 remain connected in the transition period when the snap hook 23 is removed from the buckle 17 of the child's band and before it is received on the ring 8 of the adult's band; the possibility of the child dashing away from the adult while temporarily unhooked is thus eliminated.

A still further use for the chain is to provide means for restricting the child's movements apart from the adult as when it is desired to leave it unattended for short periods. This is accomplished by disconnecting the strap 1 from the adult, passing either it or the leash 3 around a fixed anchorage such as a post, railing, shopping cart handle or any other suitable convenient object and by attaching the snap hook 23 to the ring 8 on the strap 1. Thus a closed encirclement is formed around a restraining structure which will restrict the child and permit either a limited freedom of movement within the

stretchable limits of the leash element 3 if the latter is used to encircle the restraining structure or anchorage post or object or, if the guardian band 1 is used as the encirclement about the restraining structure or anchorage, substantially no freedom of movement.

Thus the combination of the relatively short tensile element or chain 33 and the relatively long elastic leash element 3 has a number of advantages in use. When connected as shown in FIG. 1 the chain 33 provides a safety feature in that disconnection of the band 2 by the child or through inadvertence is avoided. When the child is close coupled by the chain 33 directly to the carriage or other article or anchorage, the leash element 3 hangs in a loop from the rings 8 and 20 to which both the leash 3 and the chain 33 are coupled. In effecting a connection of the child directly to an anchorage as by the snap hook 23 the child is at no time free to escape, being continuously connected by the leash element 3 to the band 1 about the wrist of the adult while the adult is releasing the hook 23 from the buckle 17 and reconnecting such hook to the anchorage.

FIG. 2 illustrates a modification of the invention wherein, in lieu of the bent wire chain 33 shown in FIG. 1, the close coupling and safety arrangements previously described are achieved by the use of a ball chain 43. This ball chain may be used with the snap hook 23 of FIG. 1 or, as shown, with a self-locking ring 44. The ring 44 comprises a metal tube bent arcuately substantially to circular shape and fitted with a complementally curved locking rod 45 spring pressed and slidable therein normally to bridge the gap between its ends. The slide bar is actuated by means of a laterally projecting finger 46 fast to it. The locking ring 44 is suitably secured on the end of the ball chain 43 as by means of an end link 47 formed with an aperture through which the ring 44 is received. The other end of the ball chain 43 is attached to the ring 21 of the wrist band 2 by suitable means not shown.

FIG. 3 shows a modification wherein the end loop 15 of the flexible leash or leader element 3 is connected directly to the split ring 8 of the guardian adult's wrist band 1, this arrangement eliminating the swivel assembly comprising the rings 9, 10 of the FIG. 1 arrangement. In this modification the swivel assembly comprising the rings 24, 25 at the child's end of the flexible leash 3 is retained.

In another modification, not shown, the loop 26 on the child's end of the leash or leader element 3 is directly connected to the child's wrist band ring 21 similarly to the manner in which, in the previous modification, described in connection with FIG. 3, the adult's end of the leash or leader 3 is connected directly to the wrist band ring 8 without the swivel assembly. When the child's end of the leash or leader is thus connected directly to the child's wrist band without the swivel assembly, the other or adult's end of the leash or leader may have the swivel assembly 9, 10 or, if desired such swivel assembly may be eliminated, providing a still further modification wherein swivel connections at both ends of the leash or leader are eliminated.

FIG. 4 shows a further modification wherein the guardian adult's wrist band 1 is eliminated, the guardian's end of the flexible leash or leader 3 being provided with a large loop 40 adapted to be received over the wrist of the older person or guardian. The loop 40 is formed by reversely bending the end portion of the flexible elastic leader or leash 3 and securing the end as by a compression fitting 41 corresponding to the compression fittings 12 and 27 shown in FIG. 1. The stretchable elastic nature of the sheathed filaments of which the leash or leader element 3 is formed allows the wrist loop 40 to be stretched or enlarged in placing it over the guardian's wrist or in attaching it to any suitable object as an anchorage for restraining the child. The inherent resiliency of the filament material comprising the loop 40 causes it to

contract about the wrist of the guardian or about the anchorage to which it is applied. As a further refinement of the embodiment shown in FIG. 4, the element comprising the loop **40** is first passed through a relatively small metal ring **42** about ½ inch in diameter or less, before the end of the leash element is secured in the compression fitting **41** to secure the loop. Thus the metal ring **42** is held captive on the loop **40** and serves as a convenient means for attaching the snap hook **23** to the loop **40** in close coupling the child to the guardian adult or a siutable anchorage.

Thus the present invention provides a generally improved safety leash or leader combination by means of which an older person or adult is able safely and easily to control the movements of a small child. The device combines a relatively long leash element that resiliently resists elongation with a relatively short flexible and inextensible chain, or equivalent, the short chain normally being connected as a safety lock between the eye of the buckle on the child's wrist band and the wrist band ring to which is attached also the adjacent or child's end of the flexible elastic leash element. Such connection of the short chain to the buckle of the child's wrist band is independent of the main connection of the adjacent child's end of the flexible leash element to the child's wrist band and is adapted for facile removal and replacement. By this arrangement the child's band can be closely coupled to either the adult's band or to any suitable object, using the same snap hook **23** that normally connects the flexible leash element **3** to the child's band **2**.

The embodiments described are by way of illustration, it being apparent that various changes in structural details, particularly with respect to the construction of the bands and the connections of the extensible leash element, may be resorted to without departing from the fundamentals of the invention. It is intended that the patent shall cover, by summarization in the appended claims, all features of patentable novelty residing in the invention.

What I claim and desire to secure by Letters Patent of the United States is:

1. A safety device for use by a guardian in maintaining control over a child, said device comprising a first band adapted to be received about an adult, a second band adapted to be placed about a child, a buckle on the second band for adjusting its effective size and securing it in place, said buckle including a locking element formed with an eye, a flexible leash element connected between the bands, the leash element being secured to and against facile disconnection from the second band at a fixed point spaced from the buckle, a supplemental connecting element relatively short in length compared to the length of the leash element connected at one end to the second band at said point and having at its other end an attaching fitting adapted to be readily connected to and disconnected from the eye of the locking element, and means carried by the first band and adapted to receive the attaching fitting in an interlocking connection upon disconnection of the fitting from said locking element, the presence of the fitting connected to the eye preventing independent unbuckling and removal of the second band from about a child, and said supplemental element constituting a close coupling connection between the bands upon establishment of said interlocking connection.

2. A child controlling safety device substantially as defined in claim 1 in which the leash element is resilient and stretchable and exerts a contracting force of from about two pounds to about four pounds when stretched to twice its unstressed length.

3. A child controlling safety device substantially as defined in claim 1 in which the supplemental connecting element is a chain.

4. A child controlling safety device substantially as defined in claim 1 in which the first band includes a buckle for length adjustment and the leash element is connected to the first band at a fixed point spaced from the buckle of the first band.

5. A child controlling safety device substantially as defined in claim 1 in which a ring is fast to the second band at said fixed point and both the leash element and the supplemental connecting element are attached directly to such ring.

6. A child controlling safety device substantially as defined in claim 5 in which said means for receiving the attaching fitting comprises a ring fast to the first band at the fixed point thereof and the connection of the leash element to the first band includes the last mentioned ring.

7. A child controlling safety device substantially as defined in claim 6 in which the first band includes a buckle for length adjustment and the point at which the last mentioned ring is fast to the first band is spaced from the buckle.

8. A child controlling safety device substantially as defined in claim 5 in which the leash element includes a swivel assembly and such swivel assembly is attached directly to the ring.

9. A child controlling safety device substantially as defined in claim 6 in which the leash element includes swivel assemblies at its ends and such assemblies are directly connected to the rings fast to the respective bands.

10. A child controlling safety device substantially as defined in claim 1 in which the leash element includes a swivel assembly at said one end and a ring is fast to the second band at said fixed point, the swivel assembly being directly attached to the ring.

11. A safety device for use by an adult in maintaining control over a child, said device comprising a first flexible band adapted to be received about an adult's wrist, a second flexible band adapted to be placed about a child's wrist, a buckle on the second band for adjusting its effective size and securing the band in place, said buckle including a locking element formed with an eye, a flexible and elastic leash element having one of its ends connected to the first band and its other end connected to the second band, a chain, a snap hook connected to one end of the chain and having a spring lock, said hook being receivable through the eye of the buckle to connect said one end of the chain to the second band, the presence of the hook in said eye preventing independent unbuckling and removal of the second band from about a child's wrist, the other end of the chain being secured directly to and against facile disconnection from the second band at a point spaced from the buckle, the leash element being stretchable in normal use by about a three pound pull force to a suitable working length about twice its normal unstressed length and, upon being relieved of tensile strain, having the characteristic of returning by inherent resiliency to said unstressed length.

12. A safety device as defined in claim 11 in which the leash element comprises a rubber tube having a fabric sheath, the ends of the tube and of the sheath being reversely bent, compression fittings securing the tube and sheath ends to portions of the tube and of the sheath at points spaced inwardly from the tube ends in the provision of end loops, and the connections of the leash element to the bands including said end loops.

13. A safety device for use by an adult in maintaining control over a child, said device comprising a first band adapted to be received about an adult's wrist, a second flexible band adapted to be placed about a child's wrist, a buckle on the second band for adjusting its effective size and securing the band in place, said buckle including a locking element formed with an eye, a first ring fast to the first band, a second ring fast to the second band at a point spaced from the buckle, a flexible and elastic leash element having one of its ends fast to the first ring and the other of its ends fast to the second ring to establish a resilient connection of the bands, a relatively short chain, a snap hook connected to one end of the chain and having a spring lock, the other end of the chain

being fast to and secure against easy disconnection from the second ring, said hook being receivable through the eye of the buckle to connect said one end of the chain to the second band, the presence of the hook in said eye preventing independent unbuckling and removal of the second band from about a child's wrist, the leash element being stretchable in normal use to a suitable working length and, upon being relieved of tensile strain, having the characteristic of returning by inherent resiliency to said unstressed length, said hook being readily removable from the locking element eye and connectable to the first ring to connect the chain to the first band thereby attaching both bands closely together independently of the flexible leash element.

14. A safety device for use by an adult in maintaining control over a child, said device comprising a first band adapted to be received about an adult's wrist, a second flexible band adapted to be placed about a child's wrist, a buckle on the second band for adjusting its effective size and securing the band in place, said buckle including a locking element formed with an eye, a ring fast to the first band, a flexible and elastic leash element, a chain, a snap hook connected to one end of the chain and having a spring lock, the other end of the chain being secured directly to and against facile disconnection from the second band at a point spaced from the buckle, said hook being receivable through the eye of the buckle, the presence of the hook in said eye preventing independent unbuckling and removal of the second band from about a child's wrist, and, upon disconnection from the locking element eye, the hook being connectable to the ring in establishment by the chain of a relatively close coupled connection between the bands with the leash element festooned between the bands, the leash element being stretchable in normal use to a suitable working length and, upon being relieved of tensile strain, having the characteristic of returning by inherent resiliency to said unstressed length, and swivel means in one of the leash element connections.

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