

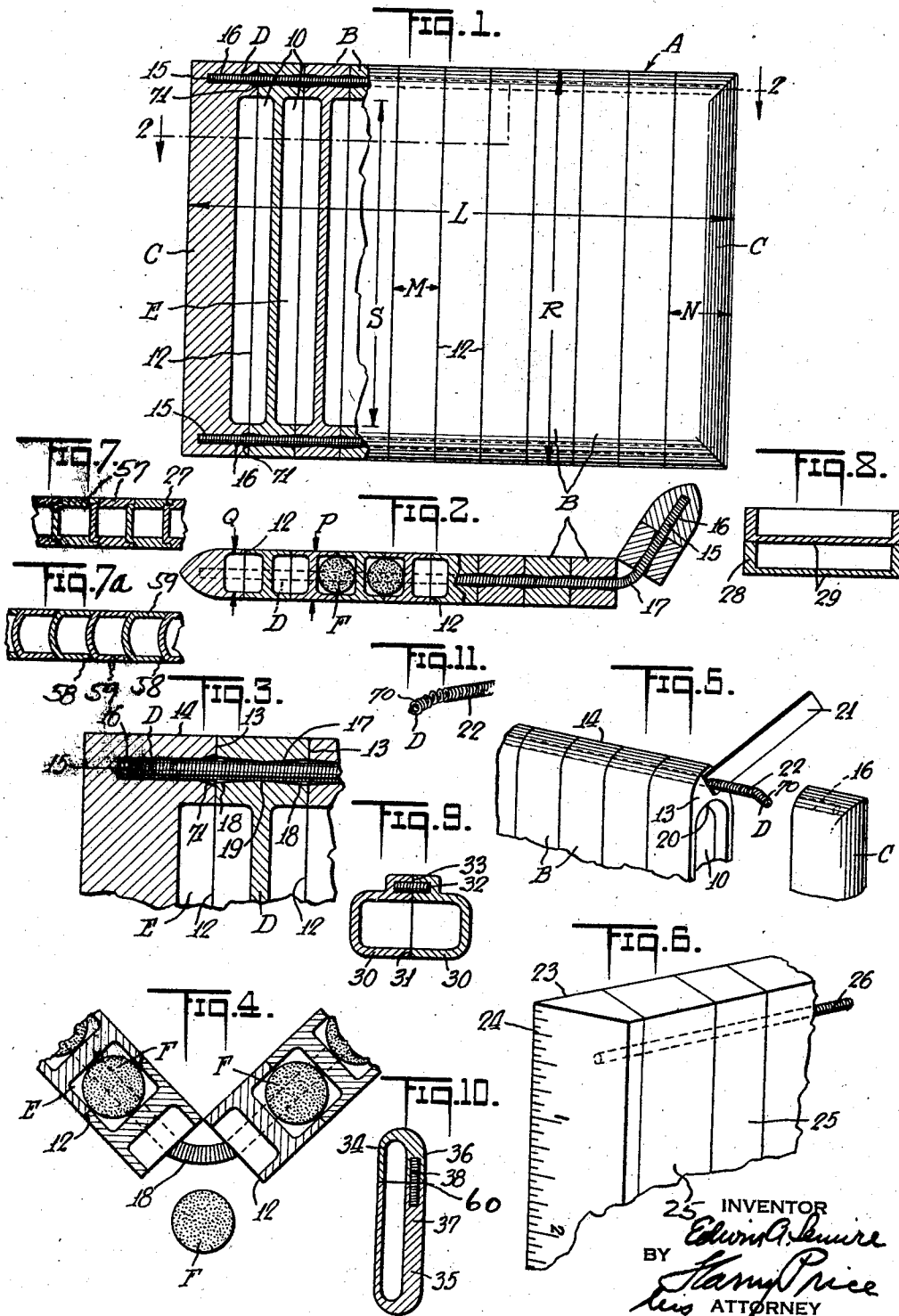
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E. A. LEMIRE

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CONTAINER

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CONTAINER

Edwin A. Lemire, Providence, R. I., assignor to
Ernest Steiner, New York, N. Y.

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The present invention relates to a flexible holder and particularly relates to a flexible holder which may be utilized for carrying various elongated objects, such as cigarettes, cigars, pencils, crayons, and so forth.

The present invention is particularly directed to a flexible carrier of the character above described, which carrier comprises a plurality of elongated elements which are held side by side by a tensioned coil spring. Each of the elongated elements, in itself or in combination with an adjacent element, forms a receptacle which may be designed to contain cigarettes, pencils and so forth. The receptacle may be emptied or the contents removed therefrom by pivotally separating the elements against the tension of the spring.

It has been found desirable in making up containers of this character to avoid the utilization of elastic or rubber bands, and instead to utilize coil springs, the coils of which are substantially tightly wound with substantially no interval between the adjacent coils, even when the spring is expanded to engage or to extend through the various elements of the container.

It has also been found desirable, when a spring is utilized, to position said spring in the container in such a manner that it will be substantially completely concealed, with the ends of the spring being preferably embodied in the end elements of the container, as by glue or some other adhesive.

It is most desirable that a coil spring, when utilized, be insufficiently tensioned even when the adjacent container elements be substantially separated to rupture the adhesive connection of the coil spring to the end elements or so as to move the adjacent flexible container elements together, when released, with sufficient force to pinch or nip the fingers.

It has been found particularly difficult to assure correct alignment of the various container elements in respect to one another, when a spring of relatively light tension as above described, is utilized, and it has been found that this alignment may be most satisfactorily accomplished by providing a peripheral contact surface over the entire periphery of the container elements, which contact surfaces should be accurately made so that the two adjacent container elements will closely abut over their entire adjacent peripheral surfaces.

Moreover, where elongated container elements have been provided, it has been found most satisfactory to enlarge the areas of contact at the ends

of the elements, as compared to the areas of contact along the sides of the elements. At the same time, alignment is aided by tapering the ends of the elements and causing the tensioned holding springs to pass centrally through the tapered portions.

Generally, to aid bending and separation of the adjacent elements without undue stress on the spring, it has been found desirable to counter-sink or make the bores through the ends of the longitudinal container elements somewhat enlarged toward their ends.

In assembling the container, it has been found most convenient to first embed the springs in one of the end elements and then extend the springs through the other elements. This may be accomplished by drawing out the spring sufficiently from the last element, through which it has been inserted, to provide a projecting end and then to insert a holding plate between the adjacent coils of the springs. Then the next element is placed in position and the operation repeated. Also, if desired, the spring may be drawn through all of the longitudinal container elements with the exception of the last, by a rod or tube on the end of which will be means to grasp the end of the spring. Then the spring may be drawn through the elements and attached to the last element as previously described, after a holder plate or insert has been utilized.

In the drawing which illustrates several of the various possible embodiments of the invention by way of illustration, but not by way of limitation, since many modifications and changes may be made therein, all within the scope of the present invention,

Fig. 1 is a side elevation, partly in section, of one form of the cigarette case, according to the present invention.

Fig. 2 is a transverse view upon the line 2—2 of Fig. 1, with several of the end sections bent away to indicate the manner of separating the container elements.

Fig. 3 is a sectioned enlargement of the upper left-hand corner of Fig. 1 more clearly showing the attachment of the spring and the method of forming the bores through which it passes.

Fig. 4 is a sectioned enlargement similar to Fig. 2 showing the separation of two compartments or container elements and the ejection of a cigarette or other object therefrom.

Fig. 5 is a fragmentary top perspective view of the case, as the container elements are being assembled on the spring, indicating how this assembly may be accomplished.

Fig. 6 illustrates in fragmentary perspective view how the container principle of the present invention may be applied to a combined pencil and ruler case for school children.

5 Figs. 7 and 7a are small scale showings of alternative methods of forming the adjacent faces of the container elements, so as to assure a more accurate alignment.

10 Fig. 8 is a diagrammatic fragmentary showing of an alternative embodiment, in which each flexible element constitutes a complete container in itself, closed off by the adjacent flexible element which serves as a cover.

15 Figs. 9 and 10 illustrate diagrammatically on a small scale the application of the principle of the present invention to containers or covers for containers respectively.

20 Fig. 11 is a view of the end of the spring, showing the manner in which it is deformed before connecting the end pieces of the container.

Referring to Figs. 1 to 4, the container A is composed of a plurality of longitudinal container elements B, and with end sections C. The spiral spring element D holds the elements B and C together.

25 As shown in Figs. 2 and 4, the elements B are provided with opposite pockets 10, the pockets of adjacent elements as indicated at E in Fig. 1 forming a sufficiently large container to receive an article F such as a cigarette or pencil.

30 Where the elements B are of wood, the recesses 10 may be formed by a gouge or chisel and where the elements B are of metal or plastic materials, these recesses may be formed by casting or molding the individual elements. An essential feature of the present invention resides in the fact that there is a substantial abutting surface as indicated at 12 in Figs. 2 and 4, between the sides of the elements B, and substantially larger surfaces of abutment indicated at 13 as a triangular shape. The ends of the elements B taper as indicated at 14 in Fig. 5, which gives a greater stability of alignment and enables automatic alignment of the elements B. The coil spring D at its ends 15 is preferably embedded in the recesses 16 formed in the end elements C the spring being held by glue or adhesive.

35 The spring D should be a closely wound coil spring which should extend when in unstressed or untensioned condition about half the length of the container at A in Fig. 1. Even when the spring is extended as indicated at 17 in Fig. 2, and 18 in Fig. 4, the adjacent coils should not be substantially separated. By so arranging the spring and determining its strength and extension, it has been found that there will be a satisfactory closure of the container with close abutment of the adjacent container elements, without at the same time having such closure take place with sufficient force to cause pinching or nipping of the fingers.

40 It has also been found desirable to form the passageway 17 through the ends of the elements B, so that they will diverge towards the ends of the passages as indicated at 18 in Fig. 3. In the middle of the passages the spring should substantially contact or fit closely against the walls thereof, as indicated at 19 in Fig. 3.

45 As indicated best in Figs. 1 and 5, the spring preferably passes through the area 13 substantially midway between the tapered end 14 and the top 20 of the recess 10 or container pocket E.

50 In assembling the container the ends 15 of the spring are first inserted in the recesses 16, where they are glued in position. Then the elements

B are fitted on to the spring D, until a short portion of the spring projects. As shown in Fig. 1, about 8 to 9 of said elements may be inserted. Then the spring is extended sufficiently and a plate 21 inserted between its coils as indicated in Fig. 5, the extension 22 being sufficient to receive one or more elements B or an end element C.

5 Where elements B are added, another insert will be made under the projecting end of the extension 22 beyond the last element and then 10 the plate 21 may be removed. Then this projecting end will again be extended to receive another element B or the end element C. Before the end element C is finally placed upon the spring extension 22 as indicated in Fig. 5, the recess or 15 pocket 16 may be filled with an adhesive, such as glue. Then the end of the spring is permitted to become encased in the adhesive in 16 before the holder plate 21 is removed.

In operation, the adjacent elements may be 20 readily pivotally opened as indicated at 17 in Fig. 2, or 18 in Fig. 4, to permit an article to be placed in the recess 10, or an article to be discharged as best shown in Fig. 4.

25 By providing the tapered ends as indicated at 13—14 Fig. 5, by providing a narrow side contact area 12 and a substantially wider end contact area as indicated at 13, and by positioning of the spring centrally in the triangular area 13, assurance is had of automatic alignment of the 30 elements B, during usage of the case A.

In Fig. 6 is shown the application of the structure of Figs. 1 to 5 to a pencil case or school companion, in which the end element 23 constitutes a ruler. The other elements 24 and 25 35 may be of various sizes and have pockets, as shown in Figs. 1 to 5, of various depths, to receive pencils, pens, erasers, crayons and so forth. The spring element 26 may be assembled with the various elements 23, 24, and 25 as already 40 described in connection with Figs. 1 to 5.

In Figs. 7 and 7a are illustrated two alternative constructions. In Fig. 7, the abutting surfaces 27 of the container elements 57 may be shouldered. In Fig. 7a the abutting surfaces 58 45 of the container elements 59 may be rounded. In Fig. 8 is illustrated a convenient form for molded container elements 28 in which the entire depth of the pocket 29 is formed in one element.

In Fig. 9 is illustrated a cigarette case or pencil 50 container, composed of two symmetrical elements 30, abutting at 31, having enlarged abutments or spaced ears at 33 in which the spring 32 may be placed. If desired, a plurality of springs 32 may be employed and the enlarged 55 ment 33 may extend the entire length of the case or take the form of plurality of ears along the length of the case.

In Fig. 10 is shown a cover 34 for the container 35, the back of the cover at 36 and of the container at 37 being made wider so as to receive the spring or springs 38. The spring 38 holds the cover 34 in closed position as indicated in Fig. 10. If desired, two springs 36 may be employed at each side of the container of Fig. 10 65 or a plurality of springs may be spaced along abutting surfaces 60 at suitable intervals.

It is thus apparent that the construction disclosed in the present application is capable of broad application and utilization to various types 70 of containers and that it gives an immediate alignment of the various constituent elements B and C. The construction can also be applied to hold cosmetics or dress articles, studs, collar buttons and so forth, the size and shapes of the 75

longitudinal elements being conveniently varied to accomplish these different results.

The casing of the present invention is much superior to a casing in which the elements are held together by a knotted elastic. Not only does this give an undesirable appearance since the knots and the elastic are observable from the ends of the casing, but the elastic does not permit ready extension of the elements and tends to catch and become taut, thus preventing satisfactory separation of many of the adjacent elements. In addition, where beads are strung on said elastic as closures for the recesses of the longitudinal elements, these elements do not satisfactorily align themselves and this misalignment is particularly aggravated where the edges of the longitudinal elements do not abut along their sides.

In one embodiment of a cigarette case similar to that shown in Figs. 1 to 5, the following dimensions were found to be suitable. The length of the cigarette case, or the dimension L, as indicated in Fig. 1, was about $4\frac{3}{4}$ "', the dimension M of each element B was about $\frac{5}{8}$ "' and the dimension N of the end element C was about $\frac{1}{8}$ "'. The width of the elements or dimension P, as indicated in Fig. 2, was about $\frac{1}{8}$ "' or about $\frac{1}{2}$ "' and the width of the pocket 10 as indicated at Q, in Fig. 2, was about $\frac{1}{8}$ "'.

It is noted in Figs. 1 and 2, that the pockets E are squared, so that there will be substantial space for the cigarette as indicated in Fig. 2, the depth and width of the pockets being approximately equal.

In the embodiment above referred to, it was found satisfactory to make the height of the case as indicated by the dimension R, in Fig. 1, about $3\frac{1}{2}$ "' as compared to the height of pocket of about $2\frac{1}{8}$ "', the height of the pocket being indicated by the dimension S in Fig. 1.

The spring D on the other hand, has its end deformed or bent, as indicated at 70 in Fig. 11, so that it will more tightly grip itself in the holes 16, after it has been inserted through the countersunk opening 71, as indicated in Figs. 1 and 3.

The spring D, unextended preferably should be of sufficient length when embedded in one of the end elements C, to extend beyond the last intermediate element B, so that the extension operation of Fig. 5 will only be necessary in order to extend the spring sufficiently to be gripped in the end element C.

In the embodiment specifically above referred to, it has been found suitable to use tightly coiled piano wire, size .013, having tensile strength of 420,000 to 425,000. The coil with the deformed ends, as indicated in Fig. 11, initially may have a length of about $3\frac{3}{8}$ "', which length is increased to about $4\frac{1}{2}$ "' after attachment to the case, in the manner indicated in Fig. 1.

As a general rule, it has been found most satisfactory to control the spring length before and after extension, so that the ratio of its length before extension to its length after extension will vary between 0.8 and 0.9.

In selecting woods for making the cigarette case, as shown in Figs. 1 to 5, it has been found most satisfactory to position the grain of the wood, so that it will be parallel to the axis of the individual elements B, and so that the pockets 10 will extend along the axis and along the grain of the wood. By having the grain extend along the axis it is found that a better seal is formed along the edges 12, and also along the triangular area 13.

Among the woods which may be satisfactorily employed, are mahogany, white wood, black walnut, gumwood, basswood, birch, and so forth. The blocks B and C after recessing are assembled as shown in Fig. 1 before finishing with the alternative blocks being of contrasting light and dark woods. Then after assembly, they are finished.

In forming the extension 22, as indicated in Fig. 5, for insertion in the end piece C, in the specific embodiment above referred to, it has been found most satisfactory to cause said extension 22 to have a length of $1\frac{1}{4}$ "'. In glueing the ends of the spring D to the end piece C, it has been found most satisfactory to utilize a fine wire to transfer glue into the holes 16 of the end pieces. When the holes 16 have been partly or wholly filled with a high grade of glue, the end of the wire coil D is also dipped in the glue and then the wire, so dipped in glue, is inserted into the holes 16. Preferably the wire is moved up and down in the hole 16 to assure that the glue will thoroughly penetrate the pores of the wood on the sides and bottom of the hole 16, since in this manner, a most satisfactory connection is obtained. If desired before the final insertion, the ends of the wire coil D, may be withdrawn and the excessive glue removed from them.

The invention, however, is not intended to be restricted to any particular construction or arrangement of parts, or to any particular application of any such construction, or to any specific method of operation, or manner of use, or to any of various details thereof, herein shown and described, as the same may be modified in various particulars or be applied in many varied relations without departing from the spirit and scope of the claimed invention, the practical embodiments herein illustrated and described merely showing some of the various features entering into the application of the invention.

What is claimed is:

1. A container comprising a combination of plurality recessed container elements arranged side by side, said recesses being covered by the adjacent elements and a coil spring extending through and joining said elements, said elements having abutting surfaces completely enclosing said recesses, said abutting surfaces being narrow and elongated at the sides of the elements and being widened and of triangular shape at the ends of said elements, said spring extending centrally through said triangular areas.

2. A container comprising a plurality of container elements, said container elements abutting each other at their entire peripheries and their central portions being recessed to form pockets enclosed and sealed by said abutting peripheries, the ends of the elements being bevelled and bored, and an elastic contractile connecting element passing through the bored and bevelled portions and permanently fixed to the container elements and pressing their abutting peripheries closely together so that said pockets will be substantially air-tight, said connecting element being under substantial tension and said pockets being adapted to be opened by pivotally moving said elements against one another.

3. A container comprising a combination of plurality recessed container elements arranged side by side, said recesses being covered by the adjacent elements and two tensioned coil springs extending through the ends of and joining said elements, said elements having abutting surfaces completely enclosing said recesses, said abutting

surfaces being narrow and elongated at both of the sides of the elements and being widened at the ends of said elements beyond said recesses, said springs extending through said widened areas, said abutting surfaces lying in a plane perpendicular to the axes of said springs and said container elements being bored to receive said spring, said bores increasing in diameter toward the abutting surfaces.

10 4. A container comprising a plurality of recessed container elements arranged side by side, said recesses being covered by the adjacent elements and a tensioned contractile element extending through, and joining said elements, said

15 elements having abutting surfaces completely surrounding said recesses, said abutting surfaces being narrow and elongated at the sides of the elements and being widened and enlarged at the ends of said elements, said contractile element

20 extending through said widened and enlarged areas substantially away from the edges of said widened and enlarged areas.

5. A container for cigarettes, pencils, pens and similarly shaped elongated objects, comprising a plurality of elongated elements arranged side by side, said elements being at least three in number, recesses in opposite sides of one of said elements, to receive articles, which recesses are entirely covered by the adjoining elements and tensioned contractile elements extending through, and joining said elements, beyond the ends of said recesses but inside the ends of said elements, said

10 elements having abutting surfaces completely surrounding said recesses, said abutting surfaces being narrow at the sides and wide and enlarged at the ends of the elements, said contractile elements being under substantial tension and extending through said widened and enlarged ends

15 of the elements substantially spaced from the edges thereof and being permanently fastened to the end elements.

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