March 20, 1928. 1,663,272

F. A. KELLAR

SPRING CONTAINING STRIP

Filed Dec. 16, 1926

Fig. 1.

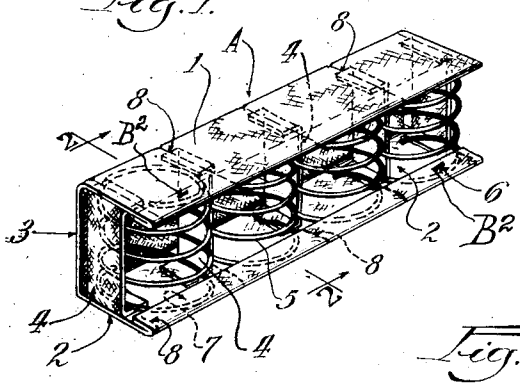


Fig. 2.

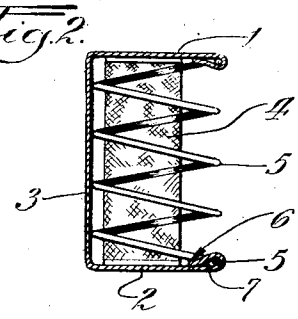


Fig. 3.

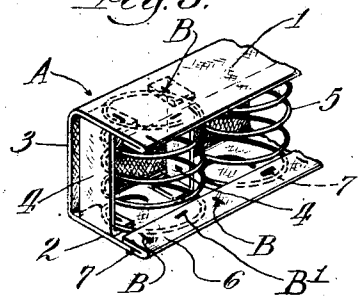


Fig. 4.

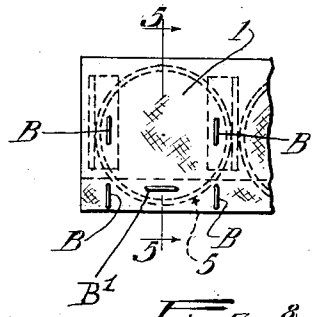


Fig. 5.

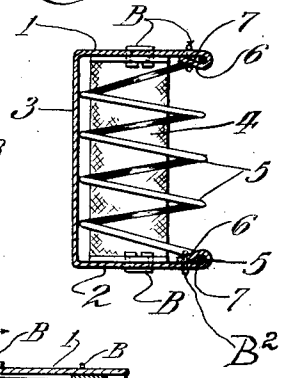


Fig. 6.

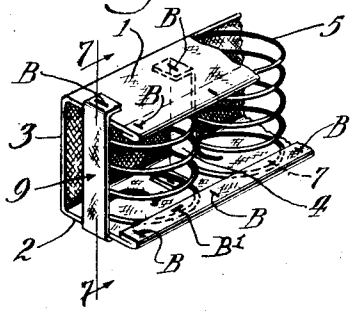


Fig. 7.

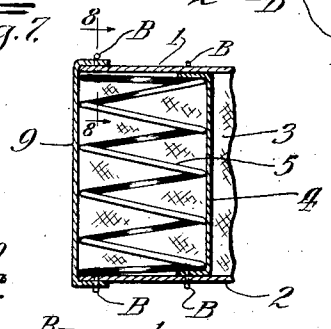


Fig. 8.

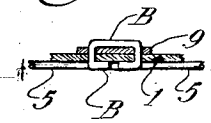


Fig. 9.

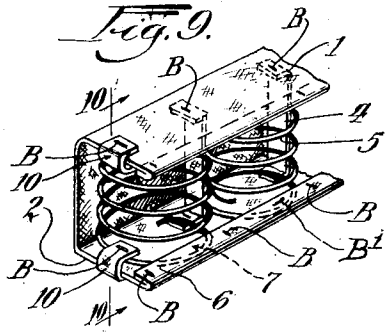
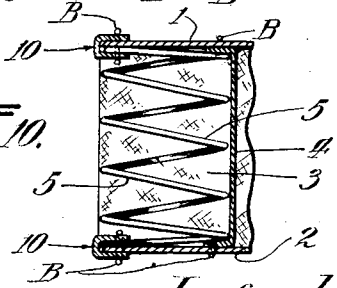


Fig. 10.



Inventor:
Francis A. Kellar;
By Brown & MacGregor
His Attorneys.

Patented Mar. 20, 1928. 1,663,272

UNITED STATES PATENT OFFICE.

FRANCIS A. KELLAR, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO JAMES L. MacINERNEY, OF GRAND RAPIDS, MICHIGAN.

SPRING-CONTAINING STRIP.

Application filed December 16, 1926. Serial No. 155,123.

This invention relates to strips used in forming cellular cushion constructions provided with a plurality of cells or pockets and a coiled spring in each pocket, a number of such strips being associated to form a cushion construction of any required size or shape.

A main object of the present invention is to improve constructions of this type, to simplify and materially reduce the cost of production, and at the same time attain the desired efficiency.

The invention consists in the devices and combinations of devices illustrated in the accompanying drawings, described herein and more particularly pointed out in the appended claims.

In the drawings:

Figure 1 is a view in perspective, illustrating a portion of a strip constructed in accordance with the invention, and

Figure 2 is a transverse, sectional view of the same, the section being taken in the vertical plane indicated by the line 2—2 of Figure 1.

Figures 3 and 4 are fragmentary perspective and plan views, respectively, showing a modification, and

Figure 5 is a transverse, sectional view of this modification, taken in the vertical plane indicated by the line 5—5 on Figure 4.

Figure 6 is a fragmentary perspective view of another modification.

Figure 7 is a longitudinal, sectional view of the same, the section being taken in the vertical plane indicated by the dotted line 7—7 on Figure 6.

Figure 8 is a vertical sectional view taken on the line 8—8 of Figure 7.

Figure 9 is a fragmentary, perspective view of yet another modification, and

Figure 10 is a sectional view thereof, the section being taken on the line 10—10 of Figure 9.

Referring to the drawings, a strip designated as a whole by the letter A, constructed of suitable material such as burlap, is shown in Figure 1. The fabric is folded longitudinally so as to provide the strips with a top, indicated at 1, a bottom indicated at 2, and one closed side indicated at 3, leaving one side open. Spaced apart partition members 4, of burlap, divide the interior of the strip into a plurality of pockets or cells, and a spring 5 is positioned in each pocket.

These strips of fabric are of any length desired, so that in making a cushion construction, one has only to select strips A of the desired size and sufficient in number to meet the dimension requirements. These strips may then be fastened together in any convenient manner or they may be inserted in a cover or casing. The fabric at the side margin 6 is folded inwardly upon itself, as shown in Figures 1 and 2, forming by such fold, a recess 7 which extends lengthwise of the strip with the open portion of the recess 7 communicating with the interior of the pockets. It will be noted that the ends of the partition members 4 are shown as being secured to the top 1 and bottom 2 by a line of stitches indicated at 8. These lines of stitches are shown as equally spaced apart and as extending transversely across the folded part 6 as well as across the top 1 and bottom 2 of the strip A. The folding over of the edge portion 6 of the fabric, in the first instance, forms a recess 7 which extends longitudinally of the strip, and the stitching across this folded-over portion has the effect of dividing this originally single recess into a plurality of shorter recesses, each corresponding in length to the width of the open side of the pocket. These rows of stitches 8 may be placed greater distances apart, if desired.

Having first formed the fabric portion of the structure, a spring 5 is inserted in each pocket. A portion of the top coil of the spring is inserted or engaged in the recess 7 of the top 1, and a portion of the bottom coil of the spring in the recess 7 of the bottom 2. While I have shown two sets of recesses 7, one in the top 1 and the other in the bottom 2, it is manifest that the fabric of one margin 6 may not be folded and that therefore one recess 7 may be omitted if desired.

Having inserted the springs 5 in the pockets, I produce the cellular spring enclosing strip A, adapted to be combined with a plurality of similar strips to form the interior unit of a cushion, mattress or other structure where such resilient interior is desired; such, for example, as in an automobile seat or a furniture mat.

Structures of this general character are on the market, as previously stated, and in such variety as to make it necessary to produce an efficient and desirable unit of this

type at the very minimum cost of production. The form shown in Figures 1 and 2, as just explained, fulfills these conditions by the economical use of material and its ease of assembly.

In Figures 3, 4 and 5 I have shown as a modification, the same structure with the sewing eliminated, and in place thereof, the use of clips or staples B. In this modification, it will be noted that the ends of the partitions 4 are secured to the top member 1 and to the bottom member 2 by clips or staples, and also that the folded over side margins 6 are likewise stapled at suitable intervals, as shown, thus not only preserving the folded over relation but also dividing the recess into a plurality of recesses corresponding to the number of pockets in the strip.

It will also be noted that staples B′ are used in the folded over part 6 whereby the end coil of the spring 5 is locked within the recess 7. Such a staple may also be similarly used on the strip A when sewing is employed, as previously described, and I have indicated such a staple at B^2 on Figure 1.

At the extreme outer end of the strip A, I may sometimes find it advisable to use means for preventing the spring 5 from being dislodged easily from the end pocket. One of such means is shown in Figures 6, 7 and 8, and another means is shown, as a modification, in Figures 9 and 10. As shown in Figures 6, 7 and 8, a narrow strip of fabric 9 is employed, which extends over the end margins of the top 1 and bottom 2 of the strip A, the ends of the fabric 9 are folded in a direction lengthwise of the strip A and then are secured to the top 1 and bottom 2 by staples B. These staples may or may not also engage and hold the top coil of the spring 5 in the pocket.

As shown in Figures 9 and 10, two short pieces of fabric 10 are folded into U-form and arranged, one to embrace the end margin of the top member 1 and the spring 5, and the other to embrace the end of the bottom member 2 and the spring 5. Staples B are inserted to hold the parts together, as clearly shown in Figure 10.

It will be understood, also, that where the springs 5 are secured to the fabric, in addition to having their end coils entered in the recesses 7, they will thus be held in spaced apart relation, and for many uses the narrow partition strips 4 may be omitted.

The device as a whole is very simple, but it enables me to make strips and have them in stock, whereby cushion and mat structures of various sizes may, in turn, be very quickly made by simply assembling the requisite number of strips of proper length and of the proper height of spring. The strips A may be put in a cover or may be bound together by clips B or sewing or any convenient means, to form the cushion. The particular arrangement of the fabric strips, having one side open, and the ease with which the springs are placed in the pockets and effectively held therein against displacement, cooperate to produce a cheap but superior cushion structure, convenient to ship to the user, and all ready for the user to cover with the usual filling or wadding and final upholstering outer covering.

I claim as my invention:

1. A spring retaining strip for cellular cushion construction, comprising a continuous piece of fabric folded between its side edges to form longitudinally extending top and bottom strip portions and one side strip portion, the other side being open, a series of spring elements mounted in said retaining strip, and means for securing the ends of each spring element to said top and bottom strip portions adjacent the open side of said retaining strip comprising means secured to said top and bottom strip portions adapted to slidably receive the top and bottom coils of the springs respectively, whereby said spring elements are held on three sides by said strip portions.

2. A spring retaining strip for cellular cushion construction, comprising a continuous piece of fabric folded between its side edges to form longitudinally extending top and bottom strip portions and one side strip portion, the other side being open, flexible partitions secured to said top and bottom strip portions and spaced to form a plurality of pockets, a series of spring elements mounted in said retaining pockets, and means for securing the ends of each spring element to said top and bottom strip portions adjacent the open side of said retaining strip comprising means secured to said top and bottom strip portions adapted to slidably receive the top and bottom coils of the springs respectively, whereby said spring elements are held on three sides by said strip portions.

3. A spring retaining strip for cellular cushion construction, comprising a continuous piece of fabric folded between its side edges to form longitudinally extending top and bottom strip portions and one side portion, the other side being open, the free margin of said top and bottom strip portions being turned inwardly upon itself to form spring receiving recesses, and a series of spring elements mounted in said retaining strip and having the end coils of each spring element engaging in said recesses, whereby said spring elements are held on three sides by said strip portions.

4. A spring retaining strip for cellular cushion construction, comprising a continuous piece of fabric folded between its side edges to form longitudinally extending top

and bottom strip portions and one side portion, the other side being open, flexible partitions secured to said top and bottom strip portions and spaced to form a plurality of pockets, the free margin of said top and bottom strip portions being turned inwardly upon itself to form spring receiving recesses, and a series of spring elements mounted in said pockets and having the end coils of each spring element engaging in said recesses, whereby said spring elements are held on three sides by said strip portions.

5. A spring retaining strip for cellular cushion construction, comprising a continuous piece of fabric folded between its side edges to form longitudinally extending top and bottom strip portions and one side portion, the other side being open, the free margin of said top and bottom strip portions being turned inwardly upon itself to form spring receiving recesses, a series of spring elements mounted in said retaining strip and having the end coils of each spring element engaging in said recesses, and means securing said top and bottom strip portions to said inturned edges, whereby the end coils of said spring elements are secured within said recesses and said spring elements held on three sides by said strip portions.

6. A spring retaining strip for cellular cushion construction, comprising a continuous piece of fabric folded between its side edges to form longitudinally extending top and bottom strip portions and one side portion, the other side being open, flexible partitions secured to said top and bottom strip portions and spaced to form a plurality of pockets, the free margin of said top and bottom strip portions being turned inwardly upon itself to form spring receiving recesses, a series of spring elements mounted in said pockets and having the end coils of each spring element engaging in said recesses, and means for securing said top and bottom strip portions to said inturned edges, whereby the end coils of said spring elements are secured within said recesses and said spring elements held on three sides by said strip portions.

In testimony that I claim the foregoing as my invention I affix my signature, this 9th day of December, 1926.

FRANCIS A. KELLAR.